

Amateur Radio

Volume 80
Numbers 1 & 2
January/February 2012
Price: \$8 incl GST

www.wia.org.au



Build a half wave dipole for 2 m
A useful earth stake
10 tips for 10 watts



ISSN 0002-6859

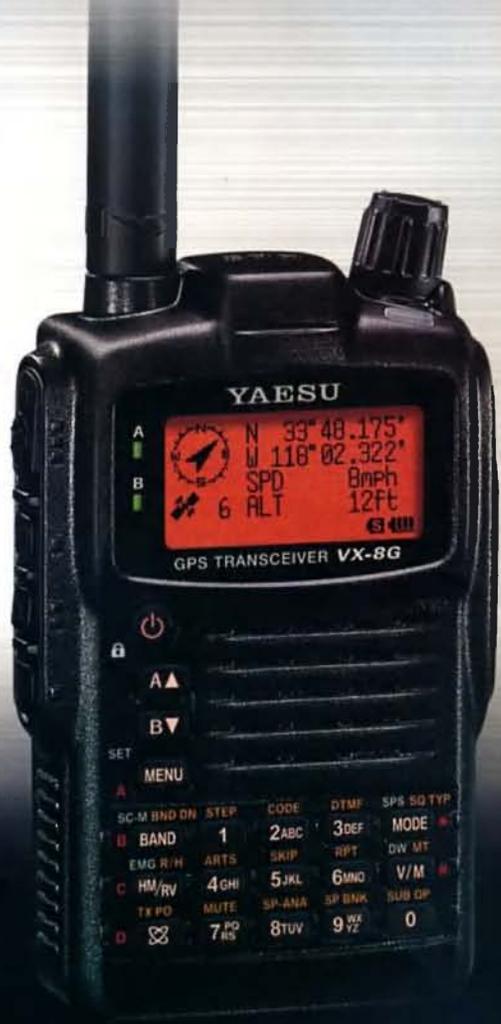


YJOVK - Tropical contesting VK style



A TECHNOLOGY BREAKTHROUGH

THE NEW PRESTIGIOUS COMPACT RADIO WITH APRS



VX-8DR/E

VX-8GR/E

Vertex Standard (Australia) Pty Ltd

10 Wesley Court, Burwood East, Victoria 3151, Tel: 1800 356 254

<http://www.vxstd.com.au>



AR

Volume 80
Numbers 1 & 2
January/February 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor

Peter Freeman VK3PF
editor@wia.org.au

Technical Editor

Peter Gibson VK3AZL

Publications committee

Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters

nationaloffice@wia.org.au

How to submit material

Secretary

AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor

Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising

All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office

Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines

All articles, columns, hamads and
advertising booking by **first day of
previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

DX station YJ0VK activated for 2011 7
Ian Jackson VK3BUF (YJ0AUF)

**WIA adopts new General Rules for
contests** 35
Trent Sampson VK4TI

Amateur Radio Annual Index 2011 58
Don Jackson VK3DBB

Technical

An earth stake with a difference 10
Warren Stirling VK3XSW

Foundation Corner 18: 16
**A simple two metre half wave dipole
with gamma match**
Ross Pittard VK3CE

**The 'Dibble' digital mode interface
box, with an introduction to PSK31** 18
Ross Fraser VK2WN

Ten tips for ten watts – 22
by someone who does it with two
Peter Parker VK3YE



This month's cover

*Our cover this month depicts the team from the
Oceania DX Group YJ0VK DXpedition to Vanuatu.
The group was active from 30 September to
12 October 2011. The team members are (left
to right): Ian Jackson VK3BUF, Dianne Jackson
VK3JDI, Tom Kramer NQ7R, Michael Van Den
Acker VK3GHH, Luke Steele VK3HJ, Ben Pyfer
N6MUF, Chris Chapman VK3QB (the team leader)
and Lee Moyle VK3GK. Photo by Ian Jackson
VK3BUF.*

Columns

ALARA	39
AMSAT	46
Contests	29, 31, 32, 34
DX - News & Views	44
Editorial	2, 6
Hamads	62
Over to You	21, 42
Silent Key	28, 49, 51, 57
Spotlight On SWLing	43
VHF/UHF – An Expanding World	52
WIA Comment	3, 6
WIA News	4, 5, 6
News from:	
VK2	38
VK3	14, 27, 37, 12
VK5	42
VK6	15
VK7	50

Contributions to Amateur Radio



Amateur Radio is a forum for
WIA members' amateur radio
experiments, experiences,
opinions and news. Manuscripts
with drawings and/or photos are
welcome and will be considered
for publication. Articles attached to
email are especially welcome.

WIA cannot be responsible for loss or damage to any material.
Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage within
Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are available
to members at \$2.50 each (plus an additional \$2 for each additional
issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect
the official view of the WIA and the WIA cannot be held responsible
for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road

Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mai Brooks	VK3FDSL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDIZ

Board of Directors

<i>President</i>	Michael Owen	VK3KI
<i>Vice-President</i>	Phil Wait	VK2ASD
<i>Directors</i>	Phillip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Piatt	VK5CP
	Trent Sampson	VK4TI
<i>Secretary</i>	Sarah Thompson	VK3AUD
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Piatt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
<i>NTAC</i>	John Martin	VK3KM
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Piatt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV
<i>International Travel Host</i>	John Miller	VK3DJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
<i>QSL Curator</i>	National Office	
<i>Repeater</i>	Peter Mill	VK3ZPP
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Wait	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

Happy New Year!

I trust that all readers enjoyed a merry festive season and are now enjoying the New Year.

Personally, I had almost three weeks of family activities. My mother joined me during the week prior to Christmas for a stay and the Christmas celebrations. After a bit of retail therapy at the Boxing Day sales in Traralgon, we travelled up to Walwa in the north east of Victoria to visit my brother. En route, I had a couple of contacts on 40 metres from inside the Alpine National Park, trying to promote the Keith Roget Memorial National Parks Award and qualify by activating some Parks that were located near my route. After several days at Walwa, and another Park activation, we travelled into Wodonga to visit my other brother and his family for a few days before returning home to Churchill. After another few days at home, it was time to return mother back to her home on the Bellarine Peninsula. I took the Queenscliff-Sorrento ferry for the trip home, and activated the Point Nepean and Mornington Peninsula National Parks. All together I managed to activate eight National Parks over the two weeks or so of travelling, so I am now well on the way towards qualifying for the Award based on activating parks. More detail about the Award can be found on the Amateur Radio Victoria website.

During one of the contacts I made, whilst discussing the Award with a VK4 amateur, the question was raised about which parks qualified. I was able to report that only Victorian National Parks qualified for the award. Perhaps other states, or even the WIA, might consider establishing a similar award for working or activating

National Parks around the country? If amateurs think that it is a good idea, let your local club or state Advisory Committee know of your thoughts. The next challenge after deciding to develop the idea would likely be finding a volunteer to manage the award...

New printing and distribution processes

After considerable discussion and consideration of our options, the WIA has decided to move the printing of *Amateur Radio* to a new printer and distribution to a new mailing house.

As part of the change of arrangements, we have decided to adopt a glossier paper stock and to adopt colour throughout the magazine. Hopefully the transition will be smooth, but we might experience some hurdles. Remember that any issues concerned with distribution should be directed to the WIA office.

Production remains with Fontana Design and I am certain that Sergio will be working hard to ensure that the transition is as smooth as possible.

Contributions

We are slowly catching up with the publication of backlogged articles, most of which have been ready for publication for up to 12 months. I anticipate that most such articles will have been published in the next issue or two, leaving us with articles submitted up to about six (6) months ago.

At the moment, we have predominantly technical articles in stock, so consider writing up your account of the latest Club event or of your operating experience.

Continued on page 6

WIA comment

Michael Owen VK3KI

Cost recovery and the WIA's charges



In the News section of this issue is an item "ACMA Proposes Cost Increases: WIA Costs Not Affected". It was published in late November last year, in response to the strong concern expressed by a number of amateurs who were concerned that the higher examination costs proposed by the ACMA for examinations it conducted would also apply to WIA examination charges. The ACMA was proposing to charge \$345 for the examination or reassessing an examination for the Advanced AOCF and \$230 for the examination or reassessing an examination for the Foundation AOCF.

In fact, I had planned to write this Comment about the whole issue of cost recovery. I had attended a most constructive meeting of affiliated clubs in Adelaide, and during that meeting some doubt had been expressed about the fees the WIA was charging, some holding the view that the WIA fee included a very substantial margin.

Everyone seems to be prepared to accept that the WIA is bound by its agreement with the ACMA to charge fees "on a cost recovery basis only", and that it has to justify its fees on an annual basis to the ACMA. . But there seemed to be a feeling "how on earth could just processing one paper cost the WIA \$70?"

But what we are concerned with is the total cost to the WIA of providing a service. That cost must then be spread over the number of actual examinations for which we charge.

Let us look at what that really means.

By keeping time sheets for sample periods, we can work out

how much time each employee spends on exam matters. That means the time taken to prepare and send packs, including any time for phone calls. Then, when the packs come back, the processing is fairly obvious. But what may not be obvious is the time taken every now and then in calling a candidate to get some information that should have been on the form, for example height, or if it is something that must be completed by an Assessor, sending the form back to the Assessor. There is also the time for preparing the certificate of proficiency, making a copy for the records, and sending it.

Time also includes time in answering queries from both Assessors and the general public.

But then there are the other costs. Some again, are obvious such as the cost of paper and envelopes, the cost of the Express Post envelopes we send to each Assessor with the packs for them to return the pack. But others may not be so obvious. For example, the cost of the printing of the certificates of proficiency is spread over a couple of years.

Then there is insurance. Various policies are referable, in part, to the examination service and must be taken into account.

But there is one policy that indemnifies the Assessors against their possible liability for an error and the whole of that premium is referable to the exams. That policy costs around \$5,000 a year. If we conduct 1,000 exams in year for which a fee is paid, (because Foundation Theory and Practical is covered by a single fee) that insurance policy alone adds \$5 to the cost of each exam.

That probably is the best example of how the cost of managing the system can be increased.

We recently said that we would, if an Assessor requested it, meet the costs of certain travel or a police check.

The first was because some of our Assessors were being asked to provide assessments for clubs other than their own clubs, but which did not have Assessors, and were finding the cost of travel a disincentive to helping with these special assessments. The second arose because it seemed quite unfair that in some states the working with children check was free, in some others \$5 and in one territory \$43.

Of course, immediately we do that, we also add to cost.

And then there are all the other costs. Telephone, power, a notional rent for the space used for providing the exam service, (including storage of all of the records), equipment depreciation and so on are costs that at least in part relate to this service.

And you must do exactly the same exercise for call sign recommendations!

I can assure you that the cost is not made up and does not include a large margin. Indeed, if the number of candidates drops, we will struggle to keep the costs down.

I hope that explains how the costs of the WA exams are calculated.

The ACMA charges may be all rather academic, because I do not think the ACMA has conducted any examination since at least 2005.

Continued on page 6

ACMA to permit higher power for Advanced licensees on trial basis

The ACMA has advised the WIA that it intends to accede to the WIA's request that Advanced licensees may apply for a variation of their licence to permit higher power from a fixed location on a trial basis from 1 March 2012. The ACMA has stressed to the WIA that it remains concerned about the risk of interference from the use of higher power. At the end of 12 months the position will be reviewed by the ACMA.

The ACMA has adopted this approach to enable any particular difficulties to be identified and satisfactory solutions found to, in the words of the ACMA, "*enable the trial to progress to appropriate ongoing arrangements from early 2013.*"

The ACMA will publish the changes to the licence process and forms setting out the further information needed for an application for higher power before 1 March 2012.

While the details are still subject to discussion, the following principles will be applied:

- Transmitter power outputs up to 1,000 watts PEP may be permitted, though the emission modes to which this limit will apply are still subject to consideration. It should be noted that lower power limits may be specified in some cases.
- The higher power limits will only be permitted on the amateur HF bands where the amateur service is the primary service. The WIA has requested that the band 7100 to 7200 kHz be also included, and this is being considered.
- Higher power will not be permitted in certain areas that will be identified by the ACMA on its website.

Licensees will continue to be obliged to comply with the EME requirements.

For the period of the trial, licensees permitted to use higher

power will be encouraged to keep a full log of all transmissions on bands where the higher power is permitted, noting in each case the power in fact used.

The WIA's original request is fully set out in the November 2010 issue of the WIA's magazine *Amateur Radio*. This is a preliminary announcement and further details will be published as they become available before March and after the Christmas break. The WIA anticipates working closely with the ACMA on this issue.

Amateur station inspection process

The WIA and staff from the ACMA have agreed on the steps to be undertaken leading up to and during the course of a licensed amateur station inspection. The process is a balance between operational efficiency of ACMA staff and the individual rights and obligations of an amateur operator.

It should be noted that Radio Inspectors acting under the Radiocommunications Act (the Act) do not generally have automatic rights, other than common law rights, to enter an individual property unless permission is granted by the property occupier. However, in emergency situations the Act provides that Inspectors may enter premises to stop actual interference to certain safety, police and fire services. Circumstances where radio equipment may be seized are also specified in the Act. In the conduct of an investigation Inspectors may make a sworn statement and apply to the Court for a "Search Warrant" from a Magistrate. Generally there has to be sufficient evidence to form a reasonable belief that there has been one or more significant breaches of the Act in order to obtain a warrant. An Inspector can execute the warrant at any time specified on the warrant and station operators should provide all necessary assistance to enable the warrant to be executed.

In contrast amateur station inspections are normally a routine activity, often with an educational objective. Ordinarily, an Inspector will arrange a mutually convenient time by telephone with a licensee to inspect the licensee's amateur station. If the licensee is aged under 18, the appointment shall be made through a parent or guardian or other appropriate adult person in the position of a parent, subject to entry authorised in emergency situations (as referred above). If the licensee is aged under 18, the inspection shall be carried out in the presence of the parent or guardian or other appropriate adult person. In some cases, where an Inspector is working in a particular area, it may be convenient to visit amateurs in the area to undertake station inspections and in such cases it may not be possible to make an appointment by telephone.

It has been agreed that the following steps will be taken in such cases when an Inspector has been unable to make an appointment:

1. The ACMA staff will select the licensee(s) to be visited by the proximity of their station(s) to other work in an area;
2. The ACMA staff will ascertain the age of each licensee to be visited;
3. If the licensee is aged under 18, contact shall be made through a parent or guardian or other adult person in the position of a parent;
4. Upon arrival the Inspector shall identify themselves and display his or her identification card. The WIA advises that the licensee should note the name(s) of the Inspector(s);
5. The Inspector shall request permission to enter and to inspect the station. If it is not convenient to do so the inspector should advise the licensee that the inspection may take place at another time more convenient to both the ACMA and the licensee.

6. The ACMA staff shall always ensure that if the licensee is aged under 18 any inspection is carried out at all times in the presence of a parent or guardian or other adult person (subject to entry authorised in emergency situations).
7. The licensee shall assist the Inspector in the conduct of the inspection and possible testing of equipment.

At the conclusion of the inspection, and if there are any irregularities, the Inspector may hand an Advice or Warning Notice to the Licensee identifying any irregularities and recommending any action to be undertaken by the licensee.

All amateur licensees should be aware of, and must operate their station in accordance with, the Act and the licence conditions relating to the type of licence held. It is expected that ACMA staff and Amateur operators will work co-operatively in accordance with the above procedure and always bear in mind the individual rights of the licensee.

ACMA proposes cost increases: WIA costs not affected

A number of amateurs have drawn attention to the ACMA's current review of certain of its costs and its proposal to increase some costs affecting amateurs. In particular, in general terms, it is proposed to increase the costs of Advanced Standard and Foundation exams or assessments conducted by the ACMA by 68% or 69%.

Under the Commonwealth Cost Recovery Guidelines, the ACMA is bound to review these costs every 5 years and the last time this was done was in 2007. These cost increases will affect only the cost charged by the ACMA and not the cost charged by the WIA for providing the same service. Under its agreement with the WIA there are only two situations where the ACMA, rather than the WIA, will provide any of these exam or callsign services. One is where the ACMA has reasonable grounds for believing that a qualified

operator will probably be unable to pass an examination, part of a process leading to the cancellation of a licence. The other situation is where the WIA ceases to provide the services. The WIA has no intention of giving up its functions in respect of the qualification of amateurs or the recommendation of callsigns.

Under its arrangements with the ACMA, the WIA is bound by the Commonwealth Cost Recovery Guidelines, except that its costs are reviewed every year.

The cost of an amateur licence is made up of two components, the costs incurred by the ACMA in managing the system, and a tax component. In accordance with the Cost Recovery Guidelines, the ACMA is bound to increase the management cost component by the cost increases it has incurred. That is why it is proposed to increase the cost of amateur licences by \$5.

As is the case for the WIA charges, the cost increases proposed by the ACMA depend on fact: has the cost it incurs to provide a service increased and if so by how much? The WIA believes that it is likely that the ACMA will be able to demonstrate the cost increase it asserts. The WIA also believes that once again the value of the contribution of so many to the examination system that it manages for the ACMA is amply demonstrated.

Emergency Communications operator training now "on line"

To date well over 100 emergency communications operators across Australia have been trained by the WIA Emergency Communications Operator training program. This program, Certificate II in Public Safety (SES Operations), is now available "on line" and can be completed as a self-paced program. The WIA registration requirements apply.

The process to undertake the course can be commenced by completing the WIA on line application form found on the WIA web site in the Members area under

the Emergency Communications section.

The on line program will assist those wishing to complete the program but who are unable to attend a formal training session or those who have missed a section of the training as well as those who want to complete the program and provide a service to their community.

Storm disaster hits Southern Philippines

The death toll has reached 1,250 in the storms that swept the Southern Philippines on December 16 to 18 with many more still missing. Eddie Valdez DU1EV reports that Typhoon Sendong triggered massive flooding and has greatly affected the DU9 call district. He advises that prior to the Typhoon, the Ham Emergency Radio Operators (HEROs) activated the emergency frequencies on 40 m and 2 m. "The HEROs were assisting the local government units by providing communications until regular power could be restored," said Eddie DU1EZ.

Saving almost 1,000 lives

The Radio Amateur Society of Thailand (RAST) Secretary Paul Wacharaphol HS4DDQ reports his team helped to save almost 1,000 lives by coordinating rescue communications in cases of medical emergencies during the severe flooding. He coordinates the emergency medical communications at Public Health Ministry on Ngarmwongwarn Road and using the callsign HS0AC.

Speaking at a small RAST gathering at Sena Place Hotel on Sunday November 6, Paul HS4DDQ told how the emergency unfolded.

The National Broadcasting and Telecommunications Commission (NBTC) has praised the role that radio amateurs have been playing to help people cope with the disaster by providing communications support and this have been especially helpful in flooded areas where several mobile phone cell sites have failed. Government agencies have been able to take advantage of the amateur radio communications infrastructure when their own networks failed.

Proposed amateur MF allocation receives a boost

Dale Hughes VK1DSH reports that the proposal to allocate a part of the medium frequency band to the amateur service at the World Radio Conference in 2012 received a boost with the mid December release of the Asia-Pacific Common Proposals that were developed at the 5th Meeting of the APT Conference Preparatory Group for WRC-12 (APG2012-5) 29 August 2011 - 3 September 2011, Busan, Republic of Korea. During this meeting the various nations of the Asia-Pacific region discussed many of the issues that will be addressed at WRC12 and attempted

to come to a regional consensus position.

The proposal of interest to the amateur service is "to consider an allocation of about 15 kHz in parts of the band 415–526.5 kHz to the amateur service on a secondary basis, taking into account the need to protect existing services" and this proposal was supported by a comfortable margin of Asia-Pacific administrations responding to the voting request.

The successful development of a regional position supporting an amateur MF allocation increases the chances that the proposal will be accepted at WRC-12.

The amateur radio service is represented at the APT meetings by delegates from the IARU Region 3 and by members of national amateur radio organisations who are part of delegations from national administrations.

Dale Hughes was a member of the Australian delegation to the Busan meeting and the earlier meeting in Hong Kong in December 2010, nominated and paid for by the WIA.

Dale will be representing the amateur service as a member of the Australian delegation to WRC-12, again nominated by the WIA.



WIA comment

Continued from page 3

But there is one important lesson we can learn from the ACMA proposed charges, described in the News item:

Why are the WIA costs so much less than the ACMA costs? For the simple reason that so much is done on a voluntary basis. All the Assessors and Learning Facilitators,

the WIA's RTO and the many others involved one way or another give their time.

Knowing how much it costs the WIA in fact to provide the services is very important in two ways. One is that it is not in the interests of amateur radio for the costs of becoming an amateur to be more

than the minimum. The other is that if the WIA is charging less than the actual cost it incurs it means that its members are paying for the shortfall, which will ultimately lead to even further membership fee increases.



Editorial

Continued from page 2

The one issue with which we continue to struggle is the supply of high quality photographs suitable to use on the cover. Ideally, the candidate photograph should relate to an article published in that issue of AR.

Remember to set your camera

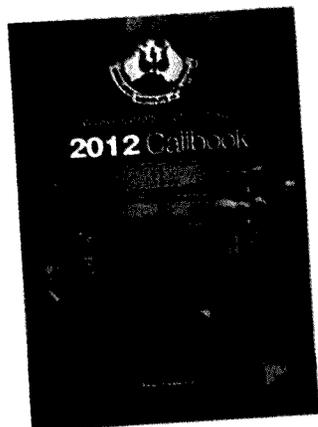
to record the image at the highest possible resolution (i.e. large file size) but send us your photo at lower resolution – say as a jpg image of around 1 MB. If we think that your photo is suitable, we will contact you seeking the higher resolution image.

Guidelines on how to prepare

an article can be found on the WIA website – look for the AR magazine pages under "Members Area" and click the link to "Contributing material".

Cheers,

Peter VK3PF



2012 WIA Callbook On Sale Now

For more details, head to www.wia.org.au/members/bookshop/about/ or contact the WIA office on **03 9729 0400** between 10.00 am and 4.00 pm (EST).

As a special offer to all WIA affiliated clubs the WIA is pleased to offer **free delivery** for a box of 25 callbooks delivered direct to your club anywhere within Australia. Full details, including order form, are at www.wia.org.au/members/clubs/clubpurchases/

DX station YJ0VK activated for 2011

Ian Jackson VK3BUF (YJ0AUF)



Photo 1: The YJ0VK team on the beach below the WARC beam antenna.

For the first two weeks of October 2011 the Oceania DX Group (OXDG) activated the Vanuatu call YJ0VK from just outside Port Vila. Of the team of eight operators, four were GGREC members and two travelled from the USA. The venue was a small resort with a collection of 12 well-appointed huts on the beach. The four of these fronting the ocean only 20 metres away were made available to the DX group. While there were some other guests coming and going from time to time, the resort owners were very accommodating in letting the team scatter the beachfront with coax, antenna wire and HF beams. They even supplied some bamboo poles and enthusiastic staff to scale the 15 metre palm trees with our antenna wires. Three meals a day were prepared for us in a wall-less central pavilion with a grass roof.

The four team members who are also GGREC members were Chris VK3QB, Michael VK3GHM, Dianne VK3JDI and Ian VK3BUF. Other team members were Luke VK3HJ, Lee VK3GK, with Ben N6MUF and Tom NQ7R from the USA. Vertical antennas were a 20 metre vertical on the beach, plus

a 12 metre squid pole with an automatic antenna tuner. A bamboo mounted three element beam looked after the WARC bands, plus there were a couple of long wire antennas to choose from. Three of the transceivers were the 200 watt Kenwood TS480HXs, which worked really well. The fourth unit was a K2 transceiver operated largely by Ben and Tom - although there was much shuffling of operators between the four stations. Power supplies, headsets, foot switches, CW paddles and RTTY interfaces made up the rest of the hardware. All of this travelled with the team on the plane under the label of 'sporting goods', which was treated with some scepticism until Chris VK3QB, the team leader, showed the rules

of the Oceania DX contest to the customs officials. Chris had spent some months in preparation for this, compiling detailed spreadsheets of equipment and their respective weights. Conditions were pretty good, with around 14,000 contacts made with 126 countries, with much of this on CW and about 1050 contacts on RTTY.



Photo 2: Installing the multi-band vertical.



Photo 3: Chris VK3QB operating station #1.

This sounds like an awful lot of contacts in a short period of time but it is what can transpire when you have multiple radios, multiple operators and multiple HF pileups. It is a very peculiar dynamic.

You find a clear spot on the spectrum, put out a couple of calls that attract some polite attention and all seems very casual and gentlemanly. Then someone posts your callsign and frequency on one of the DX sites and there is the instant mayhem of a hundred stations calling at once. At this point you need to work split. This is where you must call on one frequency and ask everyone else to reply a few kHz up; otherwise the DX station's calls are lost in the bedlam. Coordinating the callback of these stations more

closely resembles the conducting an orchestra. The SSB pandemonium sounds like the floor of a stocks trading room where the price of pork bellies have just crashed. The RTTY pileups resemble a thousand bicycle bells being rung at the same time. The CW scramble is reminiscent of ... I don't know...

let's go with 'a container load of xylophones in a cement mixer' until something better comes along.

It wasn't all CQ this and QRZ that, there was ample time for a bit of shopping and exploring the islands. Of course there are also the Kava bars. This is a mildly narcotic concoction that everybody agrees tastes like crap. Even the locals who have been drinking it for all their entire lives think it tastes like crap. The principal topic of conversation is therefore which brew is the most potent and tastes the least crappy. It numbs the tongue, thickens the lips, makes your eyes light sensitive and makes one not care about very much at all. While it does not actually turn you into the walking dead seeking brains to devour, it is perhaps the next best thing.

Four of the team members took a two-day trip to the island of Tanna, about 180 km to the south, and only an hours flying in a six-seat yellow 'Air Taxi.' After establishing the overnight accommodation in a resort there, the group were escorted on a two hour 4WD trip across the island jungle that would have made Indiana Jones proud. At the end of this journey was the active volcano Yasur. This is a black-ash cone that rises above the forest with an aperture of about one kilometre.

At the bottom of this protruding crater is a bubbling cauldron of raw lava that explodes and showers fireworks every few minutes. The shock waves were reminiscent of the Mythbusters cement mixer exploding over and over again. Fortunately it was only at Level 1 during the visit. Apparently, at Level 2, rocks the size of photocopiers land in the car park. At Level 5 you would want to be on a different continent!



Photo 6: One of the frequent lava explosions we saw.



Photo 4: The ubiquitous Kava - the colour says it all.



Photo 5: Dianne VK3JDI (YJ0ADI) and Ian VK3BUF (YJ0AUF) at Mt Yasur volcano, Tanna.

First QSO 2011 09 10 0 126 14
 Last QSO 2011 10 17 00:07:27

Total QSOs 14246
 Unique Calls 7451

Band/Mode breakdown

Band	PH	CW	RTTY	PSK	FM	Total
160	4	2	0	0	0	6
80	48	11	0	0	0	59
60	18	0	0	0	0	18
40	884	746	252	0	0	1884
30	0	902	42	1	0	945
20	1379	965	527	0	0	2871
17	307	1441	122	0	0	1870
15	35	1493	0	46	0	1574
12	111	2704	107	79	0	3001
10	698	1317	0	0	3	2018
Total	3484	9583	1050	126	3	14246

Dir by Band/Mode breakdown

Band	PH	CW	RTTY	PSK	FM	Total
160	2	2	0	0	0	2
80	9	3	0	0	0	10
60	2	0	0	0	0	2
40	37	33	16	0	0	53
30	0	62	11	1	0	63
20	80	63	50	0	0	94
17	42	67	24	0	0	75
15	11	74	0	10	0	77
12	9	74	18	9	0	74
10	47	41	0	0	1	59
Total	94	111	53	13	1	126



Photo 9: Beware of the Man Eating Crab! (Chris VK3QB).

Photo 7: Some of the data now viewable on the YJ0VK web site.



Photo 8: A screen fragment of a RTTY contact.

It is important to include a reference here to the 'Data Collection Process' associated with all of these radio contacts. This is a far cry from the traditional scrawling of callsigns in an exercise book with a pencil stub under dim light. With contact times, dates, signal strengths, bands and modes to be recorded and officially authenticated for thousands of contacts, a higher level of organisation is needed. Each station had a PC equipped with logging software. In Vanuatu this was the N1MM program, with the MMTTY package supporting RTTY logging. Each day Michael VK3GDM (YJ0AHM) would do the rounds of the various PCs with a memory stick, merge the files and upload them by internet to Allan VK2CA, who would then publicly list the results and generate statistical reports.

This is another important measure of performance of a DXpedition, as the operators around the world want updates on which bands and modes are successfully being activated. The YJ0VK web site was accessed more than 20,000 times while the station was active. One question the reader may be asking themselves is 'Why'? What is the point of flying into the middle of the Pacific Ocean simply to exchange signal strength reports

with 14,000 amateur stations? The context for the answer is important. There are around 150,000 active amateur DXers around the world. For them it is a collector's hobby. Getting acknowledgement from 100 countries, then doing it again for a specific RF band, then doing it again for a specific mode like CW or RTTY; this is the challenge.

For them, getting access to a rare country prefix on several bands and modes contains the same thrill of the

hunt present in game fishing, treasure hunting or stamp collecting. It is a symbiotic experience. A DXpedition is a service to the greater amateur community, with standards, conduct and performance being measured and discussed on email postings around the world. In doing so, it provides the participants with a genuine need for organisation, preparedness and training. It is a collective challenge – and a lot of fun along the way.



Photo 10: Some of the YJ0VK team with the resort owners and staff.

An earth stake with a difference

Warren Stirling VK3XSW

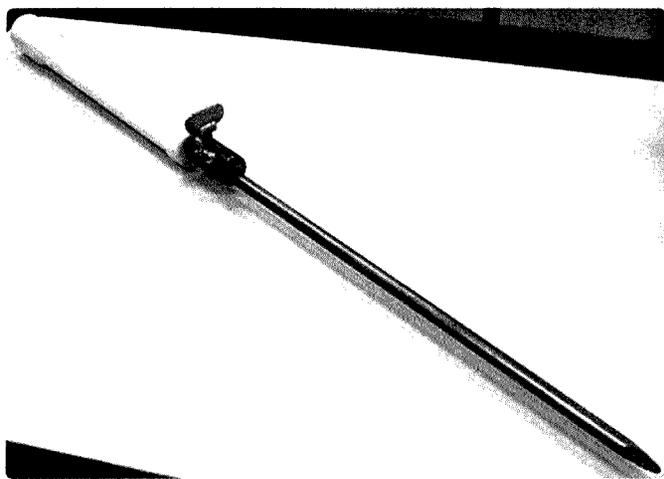


Photo 1: The prototype slide hammer earth stake.

I recently acquired one of the small GMC petrol generators, with the intention of field use and I actually thought I had read the manual before using the generator (amazing huh!). The manual mentions earthing the generator for safety purposes so I considered how best to achieve this, with the minimum of effort in actually doing it.

An earth stake, intended for the purpose, was my first choice but the problem of remembering a hammer to hit the blunt end with so that the pointy end is forced into the ground is usually only addressed *after* you have arrived on site and *then* remembered that the hammer is several hours behind you...

So, how to remember the earth stake and the hammer at the same time? The easiest way is to tether the hammer to the earth stake with a rope or chain, but to do that so you can still hit the blunt end of the earth stake with enough force to be useful means that the rope or chain together with the hammer will present a tripping hazard once you have finished. Not to mention the flared end on the earth stake, resulting from being repetitively hit with a hammer, will usually result in some easily found sharp edges to cut yourself on. Removing the earth stake from the ground will

also present a problem because you cannot use a normal hammer in reverse, at least to remove earth stakes!

There is one hammer I have seen that can be used in either direction. This is the slide hammer, as used in the automotive industry. I thought that the basic idea of a

weight being moved by hand up and down a rod could be applied to the earth stake problem, but with some changes. The basic design of the slide hammer is a weight manually slid with some force along a rod so it impacts either of two stops fixed to the rod so that the rapid de-acceleration of the weight hitting either stop forces the rod one way or the other, depending on the weights' direction of travel. The resulting redesign and problem solving resulted in the prototype slide hammer earth stake.

Having used a slide hammer I decided one of the changes would be to put the two external stops inside the weight as having end stops outside the weight makes it so much easier to jam your fingers between the weight and either stop, or both stops if you're particularly clumsy. This is something you will try and do only once.

The other problem is attaching the earth lead to the earth stake. I have tried the earth clamp commonly found connected to domestic switchboard earth stakes and while it is simple and, if correctly implemented, reliable, I felt that a better approach to the earth clamp was warranted as it would be used a lot more often and in worse conditions than a domestic earth

clamp, given most field stations are out in the open, on hilltops where you do not usually find domestic switchboards, which is why we have portable generators in the first place.

The earth clamp redesign is not as simple as it sounds; the easy approach of a wire under a clamp fixed to the rod will work but results in an early failure of the lead to rod connection as the mechanical shock of the weight hitting either of the end stops is transmitted along the rod to the clamp and earth lead, since they are all a single mechanical assembly. Isn't inertia wonderful!

The solution to the inertia problem was to design the clamp so it moves freely along the rod while you are forcing the pointy end of the rod into the ground but is then locked against the rod by tightening a screw which has a butterfly head. One benefit of this is the clamp can be placed right at ground level as this is where the loose clamp ends up anyway, another is that with the clamp on the ground there is a large gap between the earth clamp at one end of the rod and the sliding weight at the other end, which makes it much harder to jam your fingers between them. The earth wire has a lug fitted and then the lug is put over a threaded stud on the clamp where it is retained by a nut with a butterfly head, so no screwdriver to lose.

To make a slide hammer earth stake will require use of a welder, lathe, with both self-centering and independent jaw chucks, a small milling machine, a drill press and various taps. In my case I have none of these, but I knew someone who does...

Having owned up to all that, the design is not complicated to make. However, attention to detail is important if it is to work properly. The only critical dimensions relate to the clearances between the moving parts; the internal stop must be of a diameter to move freely inside the sliding weight without restricting

the movement of the sliding weight, similarly the hole in the end of the sliding weight must allow easy passage of the earth stake without binding, while also keeping the movement of the weight parallel to the earth stake; this parallel movement is necessary so that the ends of the sliding weight hit square on the internal stop, transferring maximum force to it and so making driving the earth rod in either direction easier.

Construction

The first thing to do is source the earth stake, which should be copper clad steel for strength. The one used in the prototype was purchased from an electrical wholesaler and was selected based on its diameter as I did not want it to bend while in use. Unfortunately this means the stake you will want will be much longer than required.

One end of the stake has a taper, to make it easier to insert into the ground and the other end is blunt. The stake used in the prototype is 21 mm diameter and was cut down to approx 760 mm in length, measured from the tapered end. The existing taper is approximately 45 degrees, this was changed to approximately 20 degrees by turning the stake in a lathe to make inserting the earth stake easier as it will be inserted and removed from the ground more than once.

The sliding weight is made from a piece of steel pipe and some steel bar stock. The steel pipe is of a diameter small enough to be easily held in one hand but large enough to accommodate the cylindrical weights that provide the inertia that makes the slide hammer work. Any steel tube available that is long enough and can be comfortably gripped will do, but bear in mind the assembled sliding weight must be heavy enough to drive the earth stake into the ground without being awkward to use. It also has to be robust enough to put up with the repeated impacts.

In the prototype the steel pipe is approximately 34 mm diameter with a 3 mm wall thickness. Each end of the steel pipe is squared off in a lathe

so that when each cylindrical weight is fitted the weight is parallel to the bore of the pipe.

The end stop

The end stop is a solid cylinder and in the prototype is around 37 mm long and turned to a diameter that slides easily inside the tubular steel used as the 'handle' of the sliding weight, but without being too loose in the bore, which might cause the stop to jam. The diameter of the end stop must be found by trial and error as the diameter of the internal bore of steel pipe is not consistent for the length of the bore. It will vary! The end stop must also be robust enough to allow for the impacts of driving the earth stake into dry ground or heavy clay.

The blunt end of the earth stake is turned in a lathe to *just* remove the copper cladding and expose enough of the steel core to run the length of the end stop. A hole is bored through the end stop, of a diameter to be a neat fit on the exposed steel core of the earth stake. The end stop is turned in a lathe so that each end face is square to the bore. This is important as each face of the end stop must be parallel to the impact face of each cylindrical weight to prevent the earth stake bending in the handle.

Each end of the hole has a deep chamfer which will be filled with weld when the earth stake is inserted. Note that silver soldering will *not* put up with the impact stress for very long and is not the recommended fixing method. Before and after welding the end stop to the earth stake, check that the stop and the earth stake are concentric. The welds are then turned flush in a lathe, hence the deep chamfer, so that both faces of the end stop present a smooth surface to the internal face of each cylindrical weight. Each face of the end stop is chamfered at the rim so that the slight expansion of each end face, due to repetitively hitting the face of each end weight, will not foul the bore of the steel pipe.

The cylindrical weights

The two cylindrical weights that form the ends of the sliding weight are turned from steel bar stock and

are of a diameter slightly larger than the steel tube. The face that each weight presents to the end stop must be square to the weights' diameter so that impact pressure is evenly spread across the face of the weight. This prevents the earth stake from bending and jamming the end stop in the steel tube.

In the prototype the blind weight, which does not have a hole, is 64 mm long and has two concentric cylindrical sections; the exposed cylindrical section is 42 mm long and 41 mm diameter, the smaller cylindrical section is 22 mm long and of a diameter to be a neat fit into one end of the steel pipe to which it is butted and welded. It is the heavier of the two weights.

The weight through which the earth stake passes is of a similar construction to the blind weight; the exposed cylindrical section is 21 mm long and 33 mm diameter, the smaller concentric cylindrical section is 25 mm long and of a diameter to be a neat fit into the other end of the steel pipe to which it is welded. In addition it has a hole, just larger than the earth stake, bored through its centre, in the prototype the earth stake is 12 mm diameter, the bored hole is 12.2 mm diameter. Each end of the bored hole has a chamfer to facilitate easy movement of the earth stake. The clearance between the earth stake and the hole in the weight is deliberately kept small to keep the movement of the sliding weight parallel to the earth stake and also to preclude the entry of foreign matter which could jam the sliding weight on the earth stake.

Check the fit of the blind weight to one end of the handle and make sure it is concentric with the handle. Weld the blind weight to the handle. Insert the earth stake and end stop into the handle and then slide the remaining weight over the earth stake and into the handle. Check that the earth stake and end stop can move easily up and down inside the handle without binding and then weld the remaining weight to the handle. Recheck that the earth stake and end stop still move easily up and down inside the handle.

In case you are wondering why the two end stops are not the same, the blind weight is larger as it is the one that acts on the end stop to drive the earth stake into the ground and more force is required to do this as there is no hole installed in the ground for the earth stake. The weight through which the earth stake passes is smaller as it is only used to remove the earth stake from the hole in the ground.

The Earth clamp

The earth clamp is made from a piece of beryllium copper because some was to hand. Brass or hard copper will do as well, but not steel, as it rusts, or aluminium, because it reacts with copper in the presence of moisture, like rain. The prototype is 50 mm long and 28 mm diameter and has a hole just larger than the earth stake bored through it to allow the earth stake to easily slide through it.

This hole is offset from the centre of the clamp so that one side of the clamp is thick enough to accept tapped holes for the butterfly headed screw which holds the clamp on the earth stake and the threaded stud to which the earth lead is attached with a butterfly nut. Boring this offset hole is most easily achieved using a lathe fitted with a chuck that has independent jaws.

The earth clamp has a flat milled on one side, parallel to the hole for the earth stake, for approximately half its' length, refer to the photos. In the prototype this flat is approximately 12 mm wide but it only needs to be wide enough to accommodate any wiring you plan to attach to the earth stud, which is centred on the flat. The purpose of the flat is to improve the contact area the earth clamp presents to any wiring attached to the threaded stud.

In the prototype the axis of the threaded holes for the butterfly head screw and the threaded stud are offset 45 degrees from each other, relative to the line of the hole for the earth stake, so that the earth lead, or any wiring, attached to the threaded stud will not interfere with the butterfly head screw when it is tightened or released. A blind

hole, centred on the flat, is drilled and tapped to suit the thread of the threaded stud. In the prototype the centre of the blind hole is approximately 13 mm from the end of the clamp, the hole is drilled and tapped for a 6 mm thread.

A hole is drilled through the side of the earth clamp and into the hole through which the earth stake passes, so that the end of the butterfly head screw will press against the side of the earth stake when it is tightened. In the prototype the centre of this hole is 13 mm from the other end of the clamp, so the hole for the threaded stud and the hole for the butterfly head screw are approximately 24 mm apart; if the earth clamp is 50 mm long, the hole is drilled and tapped for a 10 mm thread.

The threaded stud is a screw, 6 mm thread, approximately 30 mm long, from which the head has been removed, and the cut end squared off, so that it can be screwed into the blind hole in the earth clamp. A section of thread is removed from the exposed end of the threaded stud to make starting the butterfly nut on the thread easier. In the prototype the amount of thread removed was the same as the depth of the butterfly nut and the length of the exposed thread is approximately 24 mm. Two nuts, screwed onto the threaded stud and tightened against each other, provide the method by which the threaded stud is tightened into the blind hole. A small amount of thread locker is introduced into the blind hole before the threaded stud is

inserted and tightened, this will help hold the threaded stud in the clamp.

The butterfly head screw is made from a bolt, 10 mm thread, approximately 30 mm long, to which a custom butterfly head has been attached so that it can be tightened without using an easily misplaced tool. Before attaching the butterfly head the end of the screw is faced so that it is square to the thread and then chamfered so that there is no sharp edge to cut into the copper cladding of the earth stake. This is most easily done in a lathe. In use the threads of both the butterfly head screw and the threaded stud have a light coating of Vaseline™ to retard corrosion.

Use

The slide hammer earth stake is very easy to use, but having tested both the original and a second prototype I offer the following comments -

- Disconnect all wiring from the earth clamp when inserting and removing the earth stake. This keeps the wiring out of the way.

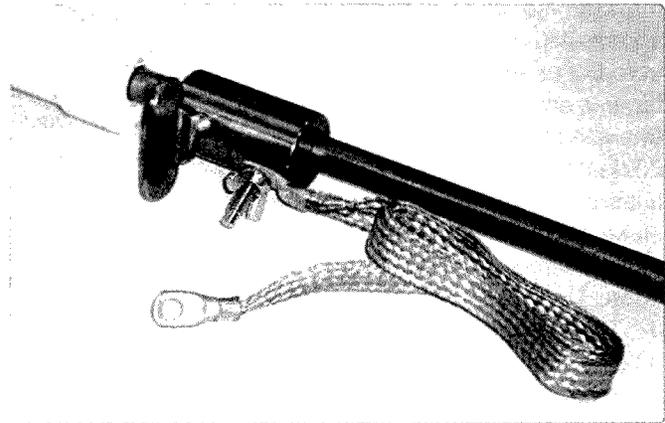


Photo 2: The prototype slide hammer with attached earth lead.

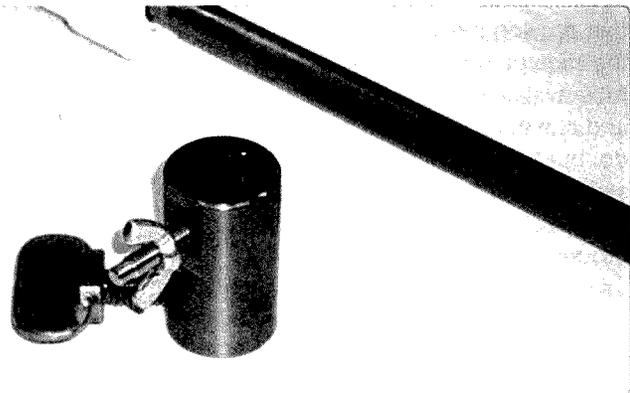


Photo 3: The prototype slide hammer earth lead attachment - close up.

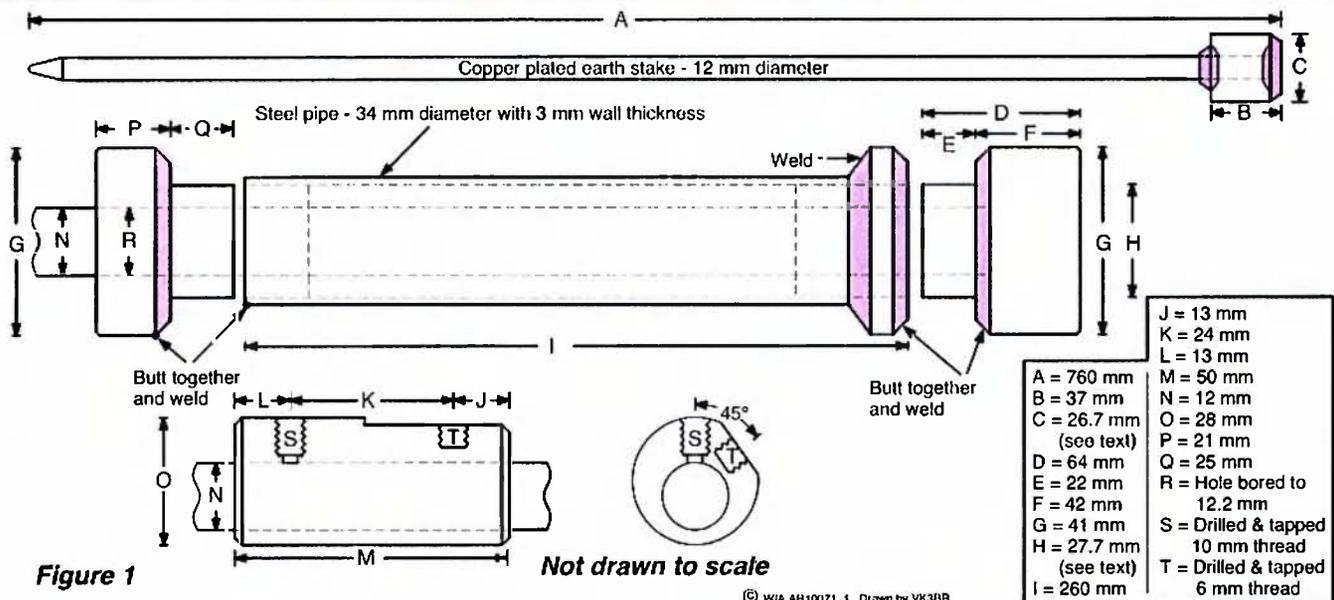


Figure 1: The prototype slide hammer earth stake master plan.

- Release the butterfly head screw on the earth clamp so that the earth clamp can slide freely on the earth stake. This keeps the impact shock of the end stop hitting either cylindrical weight from reaching the clamp and

also means there's no way you can jam your fingers between the earth clamp and the lower cylindrical weight of the handle.

The plans

Refer to Figure 1 for my set of plans

for the finished article. These are not critical, as your dimensions may vary considerably. But, a good set of plans, so that you know what you expect when you finish, is recommended.

TET-EMTRON

TET-Emtron's own mobile autotune.

Come and see us at Kyneton and Wyong Field Days and view this new antenna.

-160 through to 6 metres. Compatible with any radio- needs DC and RF only.

-True L/C tuner can have a longwire added when portable.

-Large range of whip sizes and accessories.



Coming Soon!



www.tet-emtron.com

TET-Emtron

80 Stock Road, HERNE HILL, WA 6056

Phone: 08 9296 3224

Tony Collis VK3JGC



Photo 1: The VK3ALB/P field day set up with rain protected dishes.

Spring Field Day

The VK3ALB/P field day team participated in the 2011 Spring VHF/UHF Field Day weekend. Operators were Lou VK3ALB, Jenni VK3FJEN, Michael VK3FMIC, Peter VK3APW and Nik VK3BA. They operated from the Point Henry Signal Station near the Alcoa plant at Geelong, in grid locator QF21FU. The team worked on all bands from six metres through to 10 GHz.

Despite the poor weather and small number of stations available, they operated there for 24 hours. Station access was courtesy of Alcoa and Jim Friend VK3VB. Significant distances were worked on two metres, 275 km to Wangaratta, on 70 cm, 275 km to Wangaratta and on 23 cm, 398 km to Wagga. All other contacts were within 100 km on all bands.

The Lara UHF and Microwave Experimenters Group (LUMEG) also participated in the Field Day for the duration. The operators here were Chas VK3PY and David VK3QM along with Charlie VK3NX, who could only stay for a short time on Saturday due to other commitments. As usual the LUMEG team operated out of 'Bayview' in the Barrabool hills, QF21CU, 12 km west of Geelong, where the weather conditions were also poor.

The operational footprint of VK3RGC

Bert VK3TU gave a highly informative presentation on the use of 'Radio Mobile', a freeware program written by Roger Coude VE2DBE, in Canada (<http://www.cplus.org/rmw/english1.html>) The Geelong Amateur Radio Club operates five repeaters in all, VK3RGL on 147.00 MHz, VK3RGL on 439.575 MHz, VK3ROW on 147.275 MHz, VK3RGC on 147.125 MHz and

VK3RNP on 438.125 MHz D-STAR. In addition the club also supports two beacons, at VK3RGL on 144.530 MHz and VK3RGL on 432.530 MHz.

The two metre repeater VK3RGC, 147.125 out and 147.725 in, is newly re-built and operating from Montpellior, a 115 metre high reservoir site overlooking Geelong city. Access to the repeater requires a CTCSS tone at 91.5 Hz; an IRLP node (6572) is available at this repeater. The revised coverage map uses rectangular dimensions, rather than the polar versions used previously. The expected signal strengths are for a mobile antenna about 1.5 metre above ground; if operating from a home station with a higher antenna, then the signal will be stronger.

The inner blue area is for greater than 20 mV signal strength, then the green is for 2 to 20 mV, and the red is for 0.2 to 2.0 mV. These are 20 dB steps, and actual measurements suggest that the accuracy is quite good. See how the high spots, such as the You Yangs, cast shadows shown as a white area. For further information regarding the status of the repeaters maintained by the GARC, please go to www.vk3atl.org

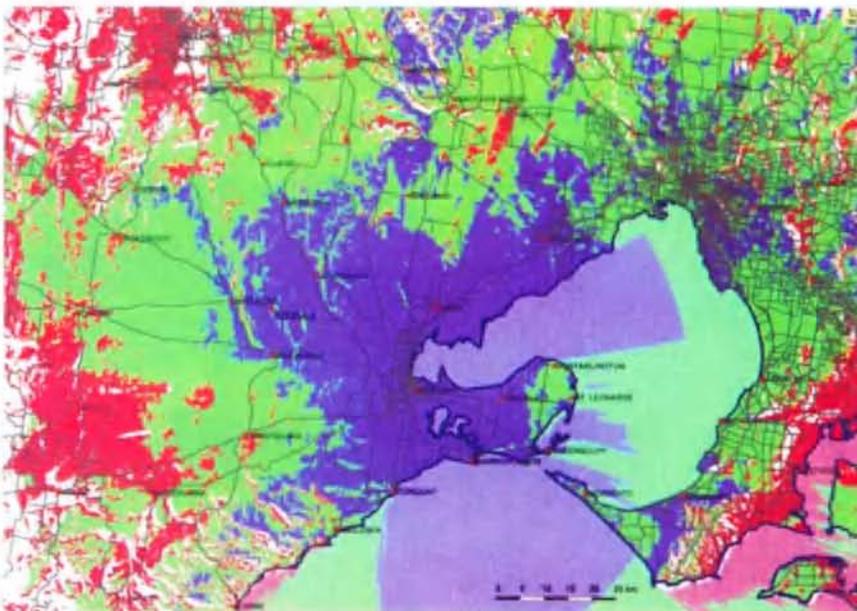


Figure 1: Graphic display of the signal reception expected from the revamped VK3RGC repeater.

VK6news Hills Amateur Radio Group (HARG)

Bill Rose VK6WJ, Publicity Officer - HARG

Hello from HARG with a quick summary of the last four months of 2012.

We have now presented two of our monthly Technical Talks. 'Software Defined Radio' was presented by Richard VK6BMW in September and 'Data Modes' by Steve VK6ST with assistance from Heath VK6TWO in October. Also in October we operated JOTA for the Guides with whom we share our clubrooms and next year we hope to repeat this with the addition of a simple electronic construction project or a fox hunt.

Our inaugural 'Show and Tell Day' was held at the November meeting. Six members showed their favourite bits and pieces including an ESR Meter, recently built by Bill VK6WJ, a vertical HF antenna system made by Onno VK6FLAB and a home brewed portable Slim Jim and 5/8 wave 2 m



Ronald VK6FRSK with his two metre Quad at the Show and Tell Day.

mobile antenna from Alan VK6PWD. Richard VK6BMW showed his 60 year old 1000 watt Navy power meter, Meg VK6LUX demonstrated her hand held satellite antenna and Ronald VK6FRSK showed his four-element two metre Quad made from copper wire threaded through poly pipe – not the most beautiful thing in the world but very quick and easy to build.

In December we organised a HARG table at the TET-Emtron Open Day and received several applications from prospective new members. Our final meeting for the year was our Christmas Barbecue on Saturday, 10 December. We started off with hot dogs at lunch time then played with a satellite dish and receiver during the afternoon and finished off with delicious fish and chips in the evening. I think we must have the most versatile barbecue in WA – and it seems to stay really clean!

This year we will continue with our monthly technical talks and I will announce the topics in the VK6 News section of the weekly WIA broadcasts.

73 and best wishes for 2012.

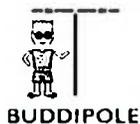


tts systems

www.ttssystems.com.au

Phone: 03 5977 4808 Email: info@ttssystems.com.au

Your Australian reseller for:



BUDDIPOLE



ELECTRONICS



high performance lightweight antennas



...America's Best!



YouKits

New Products coming soon

AVAILABLE NOW

Hard Drawn Copper Wire, Insulators, Dipole Centres
Open Wire Transmission Line, Spreaders, Kevlar Guy Line
Spiderbeam Fibreglass Poles, Baluns and Switches



Meanwell power supplies
Diamond products
Daiwa products
Technical books
Amidon products
Custom cables made to order

See you at Centre Victoria RadioFest, Kyneton – 12 February 2012

As always, you can get a free catalogue - just call!

Foundation Corner 18:

A simple two metre half wave dipole with gamma match

Ross Pittard VK3CE

vk3ce@amateurradio.com.au

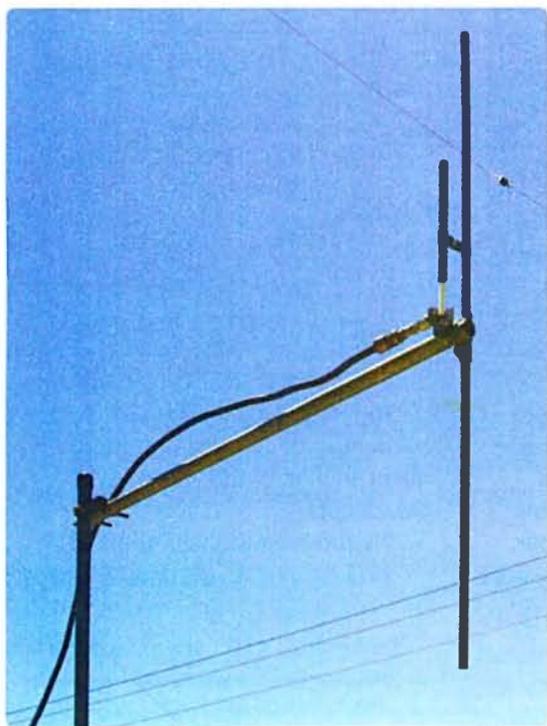


Photo 1: Completed antenna ready for tuning.

Sometimes when we are mounting antennas it is handy to side mount one on a tower instead of mounting on the top. This has the advantage of giving directivity and thus a little gain in the direction we want. It is common practice on VHF repeaters where a number of dipoles may be stacked either vertically on one side of the tower or arrayed around the tower structure.

If the home QTH is a considerable distance from the local repeater, side mounting an antenna can give you gain in the direction of the repeater while still providing useful local performance. The radiating pattern will depend upon how close to the tower structure the antenna is mounted, altering the omnidirectional pattern of the dipole.

If the spacing is $\frac{1}{4}$ wavelength (50 cm) or less from the tower, the tower will act as a reflector and the antenna will have some directivity. If the spacing is greater than a $\frac{1}{4}$ wavelength the antenna will act as an omnidirectional, with the tower having minimal effect.

There are a number of ways to correctly match a feed line to your antenna, depending on the feed line impedance and the type of antenna you are building; examples of different matching systems can be seen in the ARRL Handbook, Chapter 19-13 (Reference 1) or try page 275 in the Radio Theory Handbook (Reference 2). For those of you who do not have access to the Handbooks, another excellent reference freely available on the internet is the US Marine Corps Antenna Handbook (Reference 4).

The type of feed I have employed in this design is called a 'gamma' match. Because the voltage at the centre of a half wave dipole is zero, the shield of our coax can be connected to the arm or centre point of the dipole. Any inductance is tuned out by the capacitor at the matching point. As can be seen from the photos, the capacitor has been made from the inner of a piece of coax sliding inside an aluminium tube which doubles as the gamma arm. Adjustment of the rod length and the size of the capacitor enables a very low SWR to be obtained at resonance. I mounted a connector on the boom but this can be omitted and the coax connected directly to the antenna. Simple and robust to construct it makes an ideal home brew project.

For the boom I used a piece of 25 mm round aluminium tube from a discarded TV antenna I had lying around, about one metre long. The length will depend on the size of your tower and mounting distance you choose. If purchasing new, 25 mm aluminium square tube will be ideal for the boom.

At frequencies in the VHF range and higher, the diameter of the dipole element can be a significant proportion of the length of the element. This needs to be taken into account when calculating dipole lengths for VHF and UHF. Because of this phenomenon the standard formula is not suitable and the alternative I used (Reference 3) for a half wave dipole is:

$$\frac{5600 \times 2.54}{F \text{ (MHz)}} = \text{Half wave dipole length in cm}$$

I used 147 MHz as the centre frequency (the middle of the repeater segment) and thus the calculated length for my half wave dipole was 96.7 cm (I rounded it to 96.5 cm).

I again used some scrap aluminium for the gamma arm and the inner of a piece of RG8/RG213 coax (approximately 165 mm long) fitted nicely inside the tube to

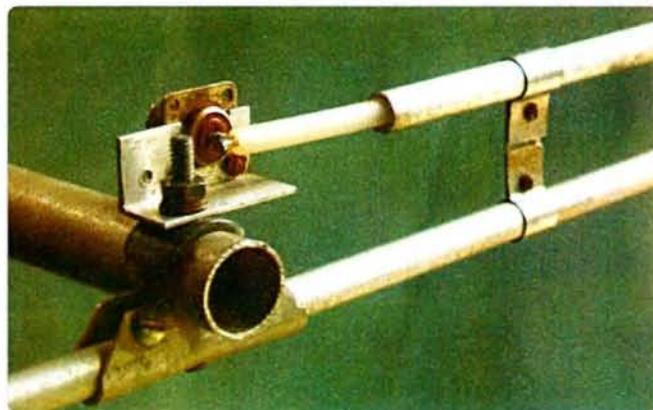


Photo 2: Close up showing gamma arm (note the tuning bolts have not yet been replaced with rivets).

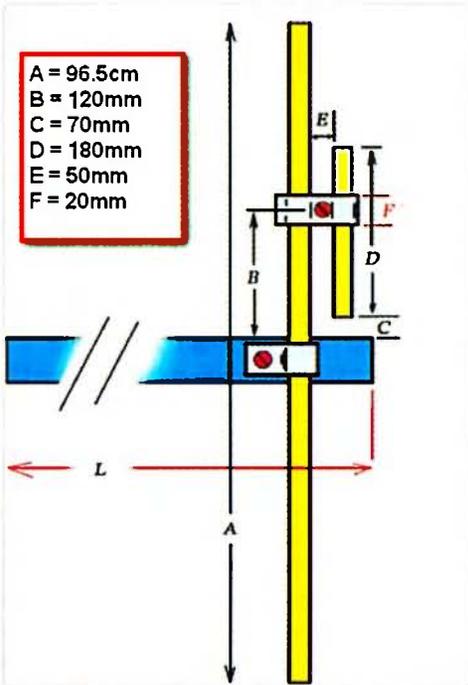


Figure 1: Basic dimensions of the antenna.

form the capacitor. It is always preferable to use seamless tube not the cheaper rolled aluminium often found in newer TV antennas. I found a gamma arm of approx 180 mm in length spaced 50 mm from the element tuned nicely. There are many theories regarding design of gamma arms but this set-up is simple and easy to replicate. The gamma arm is attached to the driven element by a small piece of scrap flat aluminium rolled around each tube and held while tuning with a couple of nuts and bolts, see Photo 2. When the best match is obtained apply some aluminium jointing compound and replace the nuts and bolts with aluminium pop rivets. Another method is to drill a hole in the gamma arm and element and use a long bolt with a spacer cut to around 50 mm.

Start with the spacings as per Figure 1 and if necessary adjust the sliding gamma arm and attachment point to the driven element for best match. The prototype, see Photo 1, ended up with a SWR of 1.3 to 1. If the antenna is to be vertically mounted, I would put the gamma arm on the top side and the end of the arm can be sealed with silicon, or use a plastic end cap from the local hardware store.

Once the tuning is completed, apply a generous coating of silicon to the coax connector and seal the gamma arm and all is done. Simple to construct with basic hand tools, this is the ideal antenna for the amateur on a budget.

References

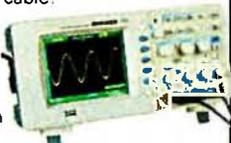
1. ARRL Handbook 2002 (More recent editions available from the WIA Bookshop)
2. Radio Theory Handbook 4th Edition (Swainston)
3. Radio Handbook 23rd Edition (William Orr)
4. USMC Antenna Handbook available from: <http://www.armymars.net/ArmyMARS/Antennas/Resources/usmc-antenna-hb.pdf>

Kick Start Your New Projects
Jaycar Electronics - Better, More Technical

Digital Storage Oscilloscope

An ideal DSO for the advanced hobby user or technician and is particularly suited to audio work. Full data storage capabilities and USB interface so you can store traces on a flash drive. Includes 2 x 10:1 probes, EasyScope software, and USB cable.

- Channels: 2
- Input impedance: 1Mohm
- Bandwidth: 25MHz
- Max input voltage: 400V P-P, CAT II
- Dimensions: 310(W) x 150(H) x 130(D)mm QC-1932



Also available: **100MHz Dual Trace DSO QC-1933 \$999.00**
Note: Limited Stock. Check with your local store for availability.

Soldering Stations & Kits

Gas Soldering Iron / Torch Kit

Solder without being tied to a power point with this gas powered soldering kit. Includes a refillable soldering iron/torch, soldering tips, hot blowing tip, hot knife, and carry case.

- Compact Kit
- Flame ignition
- Size: 180mm long TS-1112



Also available: **150g Butane Gas NA-1020 \$5.95**

60W ESD Safe Solder/Desolder Rework Station

Complete solder and desolder station for production and service use. The temperature is easily adjusted in 1° increments with simple up/down buttons and the soldering/rework functions can be operated independently.

- ESD safe and suitable for lead-free solder
- Two backlit LCDs
- 60W slim, light weight pencil
- Temp range: 160° - 480°C
- 320W hot air blower TS-1574



\$369.00

IP67 Harsh Environment Circular Sockets

Perfect for harsh environments such as marine, industrial, outdoor, automotive, etc.



- IP67 rated
- Locking bayonet connection
- Gold plated
- UL rated
- Wide temperature: -40°C to 105°C
- Solder pins
- 2pin versions rated to 5A
- 4 and 6 pin versions rated to 2A

2 Pin Panel Mount Plug	PP-0542	\$8.95
4 Pin Line Socket	PS-0543	\$12.95
4 Pin Panel Mount Plug	PP-0544	\$10.95
6 Pin Line Socket	PS-0545	\$14.95
6 Pin Panel Mount Plug	PP-0546	\$12.95
Dust Cap to Suit	PS-0547	\$6.95



ABS Enclosures

Gasket seals, stainless hardware and IP66 rated with galvanised chassis. A size for any application.



- Opaque cover:**
- Small 125(L) x 75(W) x 75(D)mm HB-6400 \$9.95
 - Medium 175(L) x 125(W) x 75(D)mm HB-6402 \$19.95
 - Large 200(L) x 200(W) x 130(D)mm HB-6404 \$34.95

- Transparent cover:**
- Small 125(L) x 75(W) x 75(D)mm HB-6410 \$12.95
 - Medium 175(L) x 125(W) x 75(D)mm HB-6412 \$22.05

Environment Meter with DMM

A multi-function environment meter that combines the functions of a sound level meter, light meter, humidity meter and temperature meter. Typical sound applications include checking acoustics of recording studios, auditoriums and professional hi-fi installations.



- 4000 count
- Dimensions: 170(H) x 78(W) x 48(D)mm QM-1594

\$99.00

To order call **1800 022 888**
www.jaycar.com.au



The 'Dibble' digital mode interface box, with an introduction to PSK31

Ross Fraser VK2WN

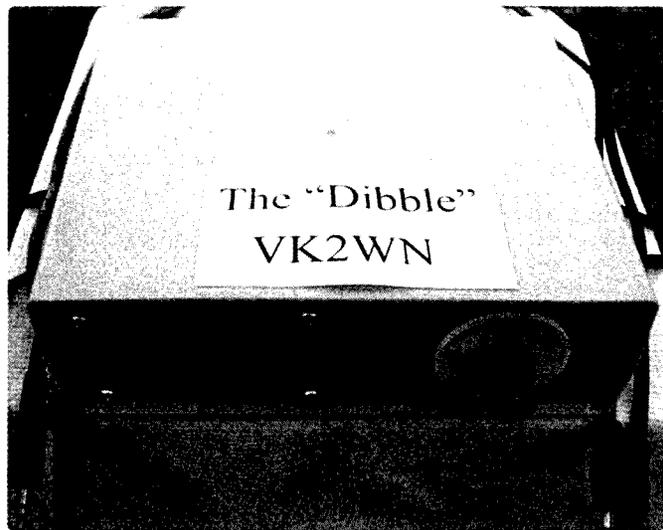


Photo 1: The Completed 'Dibble'.

This article is intended to be an introduction to the most popular digital amateur mode, that is, PSK31. There are references listed at the end of this article that will give you an idea about how PSK31 works, the operating frequencies and so on. These articles can be referred to if you want to delve deeper into the subject and gain a greater understanding of PSK31. My intention however in this present article is to introduce you to this exciting mode, present an interface box for you to build and, to hopefully encourage you to try out PSK31 for yourself.

The 'Dibble' is a digital mode interface box that has been designed to be used with most, if not all, of the presently available digital ham modes including PSK31 and even RTTY. My main aim, however, in creating the 'Dibble' is for it to be used with PSK31. The software I use is called Digipan 2.0 and it is easy to use and obtain. There are many sites on the web where you can download Digipan 2.0 (for example, go to <http://www.digipan.net/> and follow the prompts). Within the Digipan

program are some excellent help menus if you want more information about setting up for PSK31. There are also numerous articles on the internet written about PSK31 which also use Digipan. Do a Google search for 'psk31 digipan'. There are also some excellent PSK31 videos on YouTube by K7AGE. Search on the YouTube site for 'psk31 k7age'. It is important to realize, also, that there are other 'free' PSK31 programs available. Programs such as Fldigi (<http://www.w1hkj.com/>) and Multipsk (http://f6cte.free.fr/index_anglais.htm) and Ham Radio Deluxe (<http://www.ham-radio-deluxe.com/>) can all be used with PSK31, so after experimenting with Digipan and PSK31 you may want to investigate these more powerful digital mode programs.

An interface box is simply connected between the computer and the ham radio – refer to Figure 1. The interface box allows digital signals to be encoded (from the computer) and decoded (from the radio). PSK31 is not unlike Morse code except that the computer does all the hard work for you (encoding and decoding) and at speeds of around 50 words-per-minute. Peter Martinez G3PLX, the amateur who, although he did not invent PSK31

but was instrumental in promoting its use, emphasized the fact that PSK31 was designed for keyboard to keyboard communication over HF amateur radio (Reference 2).

If you just want to listen to PSK31 to get a feel for it and to see what it is like then you can do this quite simply without going to the trouble of building the 'Dibble' – refer Figure 2. Firstly you need to know what PSK31 sounds like. Make sure the volume on your sound card is turned up and then go to the following website <http://en.wikipedia.org/wiki/PSK31> and locate and click on 'a sample PSK31 transmission'. PSK31 has a nice warbling or chirping sound to it. So now you know what a PSK31 signal sounds like!

If you simply want to monitor PSK31 signals then you will need a cable that connects the radio's speaker output (where you would normally connect an external speaker) to the computer soundcard's line-in socket. Alternatively you could connect to the headphone socket on the front of the rig instead of the radio's speaker output.

The 3.5 mm stereo plug to 3.5 mm stereo plug should be as short as possible. One end plugs into the speaker out socket on the back of your radio whilst the other end plugs into the line in or microphone socket on your computer. For desktop computers connect to the line in

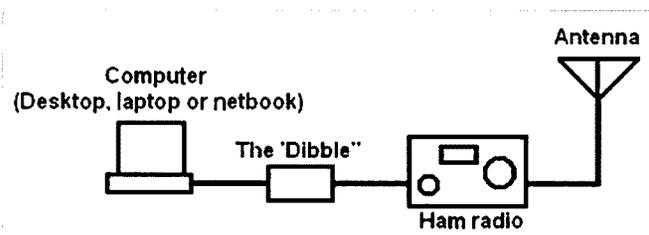


Figure 1: Connecting the computer to the radio.

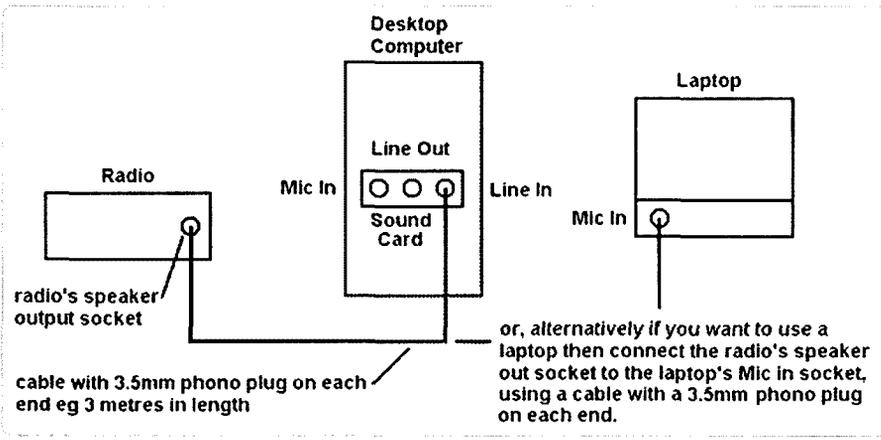


Figure 2: A simple method for receiving PSK31.

socket using a 3.5 mm stereo plug and for laptops use microphone in, again, with a 3.5 mm stereo plug. At my location, in the central west of NSW, 20 metres 'opens up' early afternoon and stays open until about 9 pm. The 20 metre PSK31 frequency that I monitor is 14.070.15 MHz but PSK31 signals can be heard from 14.070 MHz to 14.072 MHz. Be warned though, once you start decoding PSK31 signals you may become hooked! At the author's location at about 5 pm (local time)

I can quite frequently hear stations from Japan, Russia, North America and New Zealand. These stations are not always 'booming' in but the copy is frequently about 85 to 90 percent, enough to get most of the information that the other station is sending.

Construction

I built the prototype as a paddyboard and this layout is shown in Figure 3. Refer, also, to the schematic diagram in Figure 4. I made a fully enclosed box, for screening purposes, out

of double-sided PCB to house the paddyboard. Refer Photo 2.

This was then fitted into a plastic instrument case, refer Photo 3. My suggestion when making the cables, for example, from the radio speaker out or where-ever is to buy a ready-made cable 1.5 metres long with 3.5 mm plugs on each end. Cut one plug off one end at the desired length and strip and solder to the paddyboard as per Figure 3. The same method applies to the Cat 5e patch lead. You will also need to purchase a serial cable that connects your computer's serial port to the 'Dibble'.

Please note: Figure 3 shows the microphone connections for an Icom IC-706II G. If you want to build the 'Dibble' for a different rig you will have to adapt the microphone connections accordingly. Everything else about the 'Dibble' should remain the same.

What happens if you are using a laptop instead of a desktop computer and want to transmit and receive using the 'Dibble'? Laptops do not have serial ports like desktop computers do, so you will have to

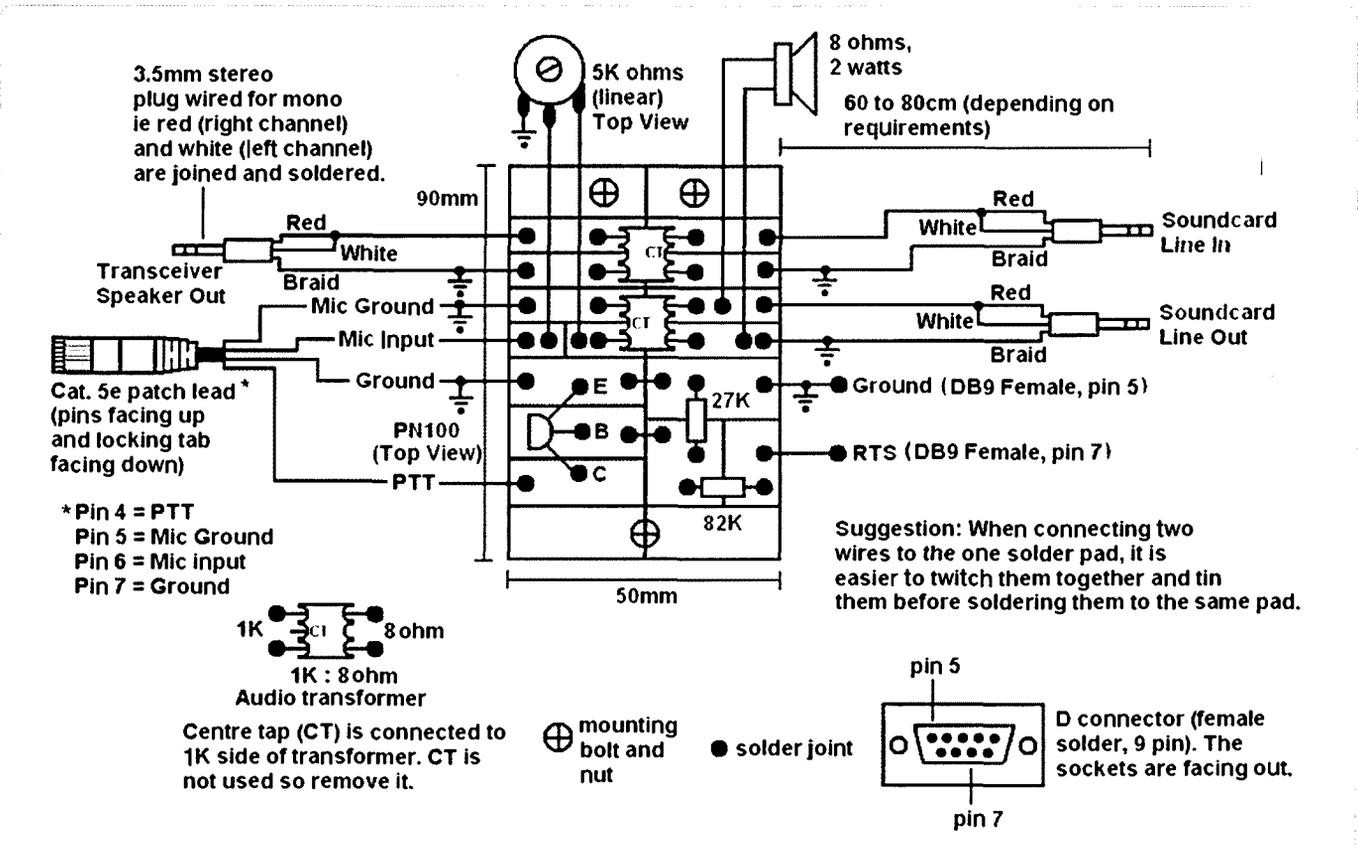


Figure 3: The paddyboard layout for the 'Dibble'.

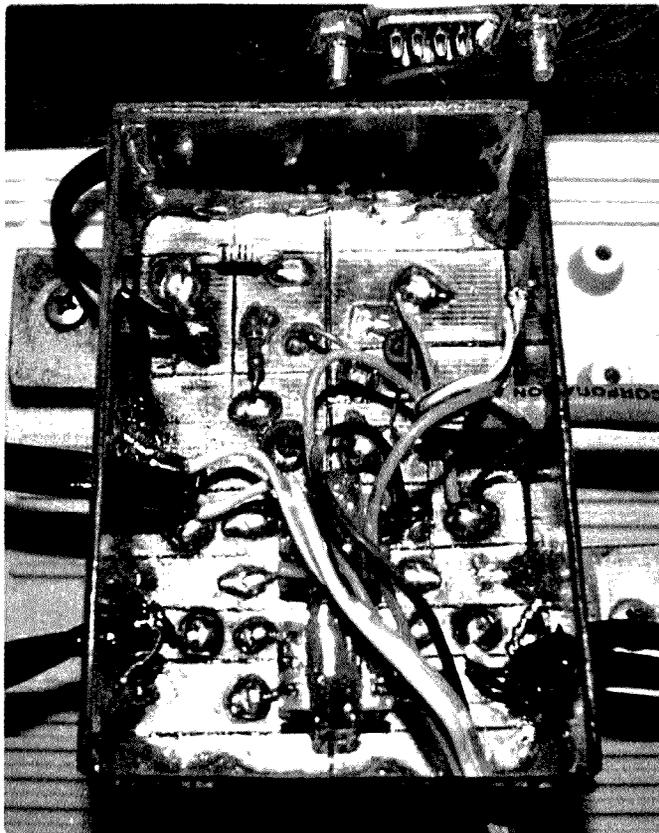


Photo 2: The 'Dibble' paddyboard, with top cover removed for clarity.

use the modern equivalent which is a USB to serial port adapter. The one I use is from Jaycar, Catalog # XC4834, about \$40. The USB to serial port adapter allows the USB port to act like a serial port giving effectively the same functionality.

You need to go to your sound card's volume control and adjust

volume control and wave to about the half-way point. You then adjust the volume (also known as the AF or audio frequency) control of your rig to set the audio level of the waterfall about right. If the waterfall is black then that indicates no signal (volume control on rig is fully anti-clockwise). If the waterfall is all yellow then you have too much signal and you need to reduce the radio's volume. If the waterfall is mainly blue

with yellow speckles then that is a good place to start. Listen for a clear warbling tone and you should see the 'tram tracks' of a distinct PSK31 signal. Interestingly, you may hear PSK31 signals and they show up on the Digipan display but they don't display as a signal on your rig!

Final Notes

The pot on the front of the 'Dibble' is for setting the modulation level (microphone input) of the PSK31 signal. Adjust the level until the output waveform distorts and then reduce the amplitude below the level of distortion. Put a mark on the white circle behind the knob that corresponds with this setting and also put a mark that corresponds to the fully counter-clockwise position, as a reference. The parts list makes reference to Wet/Dry P800 abrasive paper. This is used, with water, to clean and polish the blank fibreglass PCB after it has been cut ready to load with parts. After you have the 'Dibble' working and, before you solder the top cover on, it would be a good idea to give the paddyboard a light spraying with Servisol, a PCB lacquer, to protect it.

Peaking modulation level:

1. Set mode on rig to USB.
2. From within Digipan 2.0 click on the CQ button.
3. Adjust modulation pot, on the front of the 'Dibble', for a peak (but no further) on the power meter.
4. Repeat step 3 to ensure that power out is peaked but not beyond the peak.

The peaked setting sets the modulation level at maximum but without distortion.

Thanks very much to Waldis VK1WJ for his assistance in the preparation of this article.

Parts List:*

* All catalog numbers in brackets are from Jaycar's 2010 catalog unless stated otherwise.

Sufficient double sided blank fibreglass PCB to make a box 90 mm long x 50 mm wide x 30 mm high, excluding the base. (Jaycar Catalog #: HP-9515).

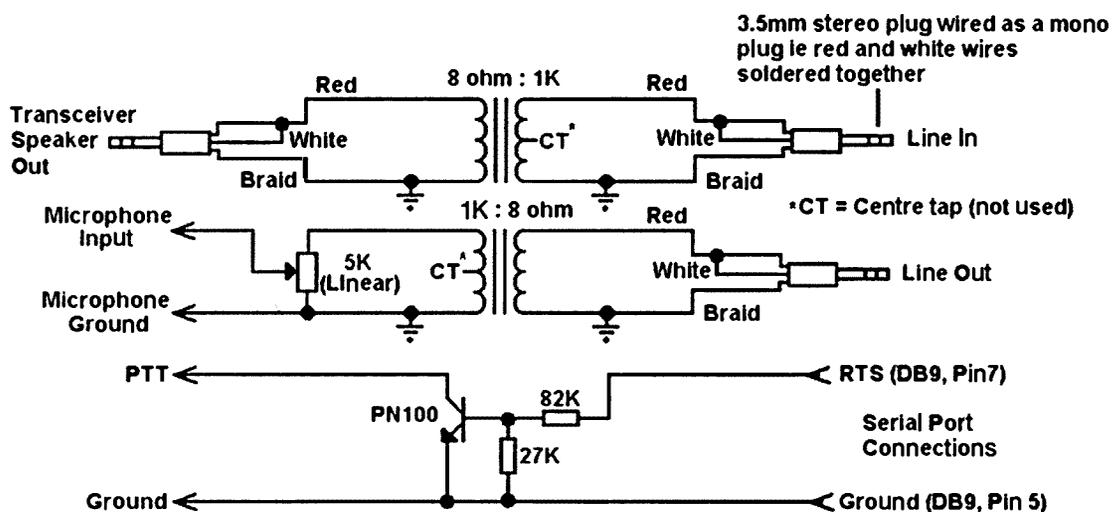


Figure 4: Schematic diagram of the 'Dibble'.

1 x single sided blank fibreglass PCB measuring 90 mm by 50 mm, cut as per Figure 2 for the base of the box. (Jaycar Catalog #: HP-9514)

1 x 27 K, ½ watt, 1%, metal film resistor. (Jaycar Catalog #: RR-0606).

1 x 82 K, ½ watt, 1%, metal film resistor. (Jaycar Catalog #: RR-0618).

1 x PN100 multi-replacement common transistor. (Jaycar Catalog #: ZT-2283).

2 x miniature output transformers, 1 K to 8 ohms. (Jaycar Catalog #: MM-2532).

1 x 2 metre Cat 5e Patch Lead, blue. (Jaycar Catalog #: YN-8202).

3 x 3.5 mm to 3.5 mm stereo plugs, 1.5 metre. (Jaycar Catalog #: WA-7008).

1 x D connector, female solder, 9 pin. (Jaycar Catalog #: PS-0804).

1 x 5 K linear (B) pot. (Jaycar Catalog #: RP-7508).

Knob to suit 5 K Linear (B) pot. (Jaycar Catalog #:HK-7762)

Add the following if necessary: Hook-up wire; instrument case (200 mm wide x 155 mm deep x 65 mm high, from Altronics, Catalog # H0480F); wet/dry (P800) waterproof abrasive paper, blue; Servisol protective circuit board lacquer (in a spray can).

References

1. Getting Started with Digipan, by Clint Hurd KK7UQ:
<http://kk7uq.com/html/download/Getting%20Started%20with%20Digipan.pdf>
2. PSK31: A new radio-teletype mode with a traditional philosophy, by Peter Martinez G3PLX, parts 1 and 2):
<http://det.bi.edu/~jtpjatae/pdf/p31g3plx.pdf>
3. The New Digital Modes in Amateur Radio. Located on the website of Waldis Jirgens VK1WJ.
<http://ilgonis.orgfree.com/digiar.htm>
4. PSK31 – The Easy Way, Part 1, by Alan J Gibbs VK6PG.
<http://users.tpg.com.au/users/vk6pg/PSK311.pdf>
5. PSK31 – The Easy Way, Part 2, by Alan J Gibbs VK6PG.
<http://datagr.pvic.wicen.org.au/psk31/psk312.pdf>
6. PSK31 – Has RTTY's Replacement Arrived? By Steve Ford WB8IMY, QST, May 1999.
http://www.arrl.org/files/file/Technology/tis/info/pdf/QST_May_1999_p41-44.pdf
7. The 'Official' Home Page of PSK31
<http://aintel.bi.edu.es/psk31.html>

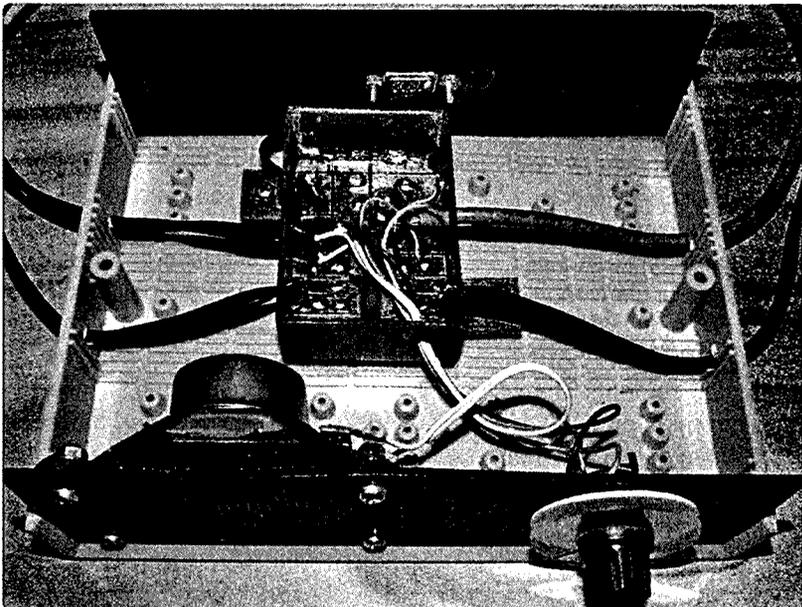


Photo 3: A suggested layout for the 'Dibble', with the covers removed for clarity.

Over to you

You thought broadband over power lines was dead and buried Wrong!

We thought that broadband internet working over power lines was well and truly dead. How wrong we were. I received a copy of an article in *Computer Choice* for September/October 2011 with the heading of *Get to the Point*. The story talks about broadband over power lines or more specifically your home 240 volt mains wiring.

The system consists of two or more interfaces between various computers and ancillary devices which are plugged into the power points in the home. This is instead of wired Ethernet and wireless networking (Wi-Fi).

I don't know if I have any of these around my

area but I do wonder how much radiation there will be on the high frequency and lower VHF amateur bands. It is unlikely that the equipment that is able to be purchased for between \$100 and around \$170 meets any Electro Magnetic Compatibility (EMC) or Electro Magnetic Emission (EME) standards as after all the radiation is contained within the electrical wiring? If the electrical wiring of your home was configured like Cat 5 and similar cable is, there should be little if any radiation of consequence to interfere with our radio equipment. However, electrical wiring isn't like this and the wires may be spaced by some distance which will mean that the wiring will radiate. This will mean that radiation from a neighbour's BPL system could radiate into your

home at a significant level. If the BPL info is being radiated conversely it will be susceptible to our transmissions. Guess who will get blamed!

This is not a how to fix it article but a warning, and I suggest that members do some research on this and email the WIA and the ACMA alerting them to the article and the possible ramifications. If you are a member of Australian Consumers' Association, the publisher of the article, contact them and suggest that they test all such devices for radiation to AM domestic radios and amateur high frequency radios in a typical domestic situation. If you don't fight to have this looked at, we will all be the worse off. You the reader cannot rely on the elusive "they" to do all the work.

Rodney Champness VK3UG

Ten tips for ten watts – by someone who does it with two

Peter Parker VK3YE

Introduction

Here are some hints and tips for those who use ten watts, either due to equipment capability, battery capacity, licence level or personal choice. While you will not be working overseas as frequently as those with higher power and better antennas, ten watts is still a load of fun. Follow these ten tips for results that will amaze.

Tip 1: Understand the power of ten watts

Ten watts doesn't sound much. After all it is ninety watts less than what the standard hundred watt radio puts out, so one might think it only went a tenth the distance. It actually works out much better than that and international contacts are sometimes possible. Above a certain minimum required to overcome path loss, what is most important to intelligibility is the strength of the signal relative to noise on the band.

How does ten watts sound at the other end? The best HF rigs have calibrated S-meters where each S-unit represents a change of six decibels, or a power ratio of four. So a 100 watt signal indicating S9 on a receiver should fall to S8 with 25 watts and roughly S7 with ten watts. Modern rigs have automatic gain controls that bring up weaker signals. AGC makes ten watt signals sound almost as loud as 100 watt signals if band noise is low, with only a bit more background noise and fading. The rules change when noise or interference is present. Supposing noise is running at strength six or seven. The 100-watt station averages strength nine so is still plainly audible, even if their signal occasionally fades.

Here the ten watt operator has a tougher time. Their signal is buried in the noise so is difficult to copy. Even worse is that fading may cut the signal to a five, making only part copiable.

When the signal is level with the noise, even a doubling of power (3 dB increase - barely noticeable otherwise) lifts it from being equal to being twice as strong, and thus copiable. All this means is that ten watt operators have less reserve power than their 100 watt colleagues when noise appears. Also, 100 watt stations can get away with an inefficient antenna system that loses 3, 6 or even 10 decibels and still make good contacts. Whereas these losses applied to a ten watt station would make their signal borderline or unworkable more of the time.

Figure 1 below explains. At low power a small boost greatly raises the number of people who can hear you. The difference between one and ten watts is particularly marked. But once a certain threshold has been passed (in this case 10 or 20 watts) the benefits taper off. That is unless you now aim for 3,000, 5,000 or 15,000 km contacts, when a higher threshold makes more power worthwhile again.

The message is clear. An efficiently radiated ten watts can bring many successful contacts. But every decibel counts at the lower power levels. The rest of the article deals with how to recover what you lack in output power through understanding band capabilities, antenna losses, transmit audio quality and sharper operating.

Tip 2: Understand what the various bands can do

Ten watts can be heard worldwide on any band between 1.8 and 50 MHz given the right conditions. However there is a very small chance of DX success if you were to call on random bands at random times. Learning what the various bands do at different times of the day stack the odds in your favour. The table next page shows approximate everyday capabilities of Foundation licensee bands, noting seasonal and other variations exist.

The activity column is based on the likelihood of hearing something

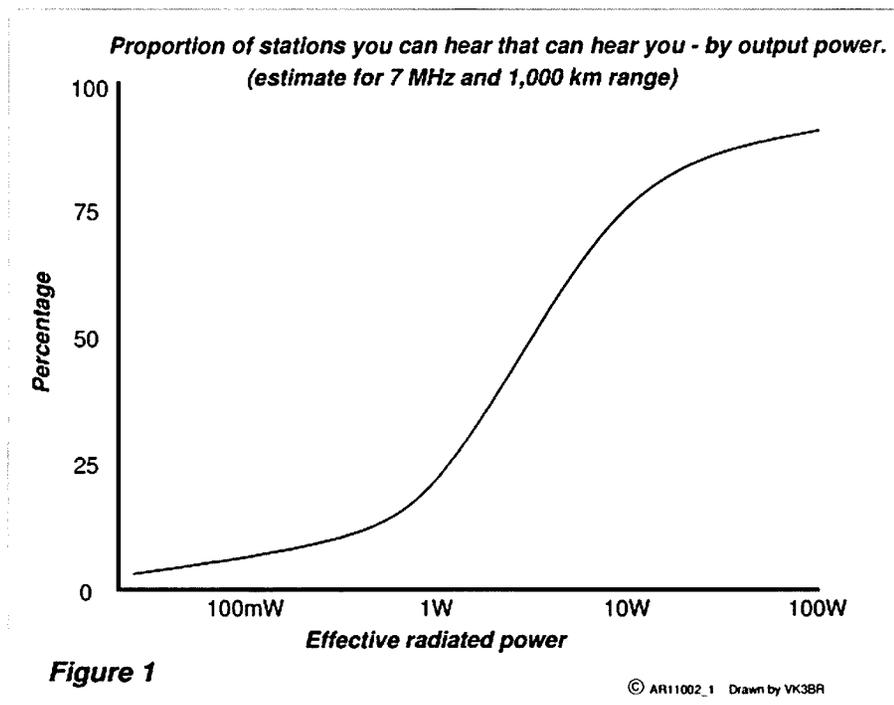


Figure 1: Graph showing proportion of stations who can hear you – by transmitter power.

Band	Activity	Range	Notes
80 m daytime	Low	Up to 200 km	Better in winter months.
80 m evening	High	Up to 600 km	Usually no skip zone – that is, blanket coverage out to specified distance. Lightning static reduces range in summer months. DX possible with good conditions but much harder than 40 m.
40 m daytime	High	300 to 1000 km	Seasonal and sunspot cycle variations – daytime range tends to be higher during winter and solar minimum years. Skip zone can mean that some intermediate distances, for example, 50 to 300 km, are not always well covered.
40 m evening	High	Up to 3000 km	Local and next-state contacts harder in low sunspot years and winter evenings. DX possible with good conditions. Skip zone is longer than during the day.
15 m daytime	Low-moderate	Up to 50 km	Very dependent on solar cycle. Interstate and DX contacts possible with 10 watts in high solar cycle years. Skip zone means that intermediate distances, for example, 50 to 500 km, are not well covered even when propagation is available from elsewhere.
15 m evening	Low	Up to 50 km	Most active during the day but there can sometimes be evening DX openings.
10 m daytime	Low-moderate	Up to 50 km	Very dependent on solar cycle. Interstate and DX contacts possible with 10 watts in high solar cycle years. Sporadic-E provides strong interstate contacts around December/ January, with 500 to 1500 km typical. Skip zone means that intermediate distances, for example, 50 to 500 km) are not very well covered even when propagation is available from elsewhere.
10 m evening	Low	Up to 50 km	Most active during the day but there can sometimes be evening DX openings.
2 m	Moderate to high in urban areas	Up to 50 km	Range can be 200 km or more with SSB or use of FM repeaters. Summer tropospheric enhancement can increase distances to 500 km or more. Check for inversions and study weather charts. Sporadic-E propagation allows occasional interstate contacts – especially in mid-summer.
70 cm	Low	Up to 30 km	Range can be 100 km or more with SSB or use of FM repeaters. Summer tropospheric enhancement can increase distances to 500 km or more. Check for inversions and study weather charts.

if randomly tuning around. But when conditions are right activity can be high even on normally quiet bands.

Band activity varies around the nation. During the day 40 metres is more active in the densely populated south-east than the north or west. Conversely higher frequency bands such as 15 and 10 metres open more often nearer the equator. VHF/UHF is even more regionally based, and especially on SSB you need to be aware of nets and activity periods otherwise there is a high chance of turning on and hearing nothing. The ranges given are conservative and are frequently exceeded. They are estimates based on ten watts to simple antennas. They also assume low solar activity, which when high transforms 15 and 10 metres into busy bands with worldwide coverage.

For the Foundation licensee 40 followed by 80 metres are the HF bands that will provide the most number of good quality contacts with

ten watts. However 15 and 10 metres should not be ignored for their long-distance potential, particularly as sunspots rise in the next few years.

Tip 3: Cut RF losses with an efficient antenna and feedline

Figure 1 above showed that on bands like 40 metres one could cut power from 100 to 25 watts and most people within 1000 km would still hear you. A 100 watt station can throw away most of their power in an inefficient antenna but still be heard and not even know anything was amiss. Low power stations have no such luck because every decibel counts. Inefficiencies that 100 watt stations get away with can be why others do not hear your ten watts. There is no room here to discuss all aspects of antennas, feedlines and matching. However I will list some common short-cuts that low power stations should avoid to minimise losses.

a. Tuning coax fed dipoles on other bands with an antenna coupler in the shack. A dipole fed with coax is basically a monoband antenna, with odd harmonics being the exception (for example, a 7 MHz dipole on 21 MHz). It is sometimes tempting to use an antenna coupling unit at the transceiver to try to match (say) an 80 metre dipole on 40 metres. Everything may look good and low SWR may be indicated. However there will be a major impedance mismatch that will make the coaxial feedline lossy and the system inefficient. In contrast the same antenna fed with open wire feedline would radiate efficiently due to less loss.

b. Dipoles shorter than 3/8 wavelength at the lowest operating frequency. It is often a battle to fit the 40 metres of wire that an 80 metre dipole needs in an average backyard. A tuned feeder dipole or G5RV with 30 metres of wire is a good space-saving

substitute. However dipoles much shorter than this are lossy, even if fed with open wire feedline. For example, a 40 metre dipole used on 80 metres will be extremely poor. That is not to say that all compact antennas are inefficient. Again, for example, a 40 metre dipole with end loading coils and short tails can do well on 80 metres. Well-built magnetic loops of one to three metres diameter are also fine. All effective small antennas combine high efficiency but narrow bandwidth; those that claim wide bandwidth are highly inefficient, so are not recommended.

c. Quarter wave (or shorter) verticals and end-feds with poor ground systems. A vertical with a small footprint may initially appeal to the person with a tiny courtyard. They can indeed perform well if mounted on a building with a large metal roof.

However if you have no metal roof and radials are needed, the space needed increases. This is especially if you opt for elevated radials, which are more efficient.

A quarter wavelength end-fed wire (20 metres long on 80 metres) also needs to be fed against an efficient ground. A good ground can take longer to install than other antennas with no or lesser ground requirements, for example, half wave dipoles and end-feds, so take this into account when considering antennas.

d. Antennas whose radiation patterns do not favour those you wish to work. Different antennas have different polarisations and angles of radiation that affect your signal strength at the other end. An otherwise efficient antenna may fail if it projects only a weak signal to most of your likely contacts. Here are a few examples where good antennas wrongly used can perform poorly:

- Vertically-polarised beams or whips for two metres SSB. SSBers on two metres all use horizontal beams. Calling them with a vertical antenna will result in a signal report several s-units weaker than if horizontal polarisation was used. A simple

horizontal dipole or halo will make a big difference, but a horizontally polarised beam is obviously preferred for longer distances.

- Verticals for 80 or 40 metres. Such antennas may work well for local ground wave contacts up to maybe 50 kilometres. Their low angle radiation is also great for DX.

However many contacts made on 80 and 40 metres are over distances between about 50 and 500 kilometres. These sorts of intermediate distance contacts rely on skywave propagation arriving at quite high angles to the antenna. For such contacts a low angle antenna such as a vertical will not necessarily provide the best results on either transmit or receive. Alternatives such as a horizontal dipole, inverted vee or end-fed wire radiate more signal at high angles and may be better for medium distances. Add some of the other potential losses, such as traps (if multiband) and a possible poor ground system, and it is easy to see how verticals can be much weaker than a dipole for certain distances.

- Dipoles or horizontal wires for 160 metres. The reverse of the above example. 160 metres has a longer distance groundwave than either 80 or 40 metres, and, at least in Melbourne, numerous AM operators use it for local contacts during the day. Antennas here need to provide vertically polarised signals good for local groundwave propagation. Even short vertical antennas are better than a full-sized horizontal dipole for this purpose. In contrast evening sky wave contacts at distances just beyond where the ground wave signal finishes may report stronger signals from the dipole.

The biggest amateur stations have two or three antennas per band so that the best can be chosen for the contact at hand. However if you can only have a single antenna per band or two ensure it is optimum for the contacts most often made. With ten watts on 80 and 40 metres this will be medium distances

of several hundred kilometres.

Fairly high radiation angles will be required, making a horizontal wire or dipole suitable.

Tip 4: Attend to audio

You sometimes hear signals that are strong but are not comfortable copy. Conversely others are barely stronger than the noise yet are readable. Your aim is to have audio that allows the latter. The following are the most common SSB audio problems and their causes:

- Distortion on audio peaks. Are often caused by a power supply too small to deliver the full current the transmitter needs, RF feedback due to poor grounding, decoupling or shielding, possibly entering the transceiver through the microphone, external speaker or power connections, or overdriving, due to excessive microphone gain or speech processing.
- Background noise or echo. Some stations sound like they are driving a truck even though they are at home. Linear amplifier fans, family members or the television are sometimes also heard, all reducing readability. The cure is to wind down the microphone gain or speech processor and talk closer to the microphone. Hard floors and walls can cause echo; install carpet, curtains and shelves with books to deaden the sound.
- Thin 'peaky' audio. Then there are the signals with strong audio peaks but not many lower level sounds. It's like they're talking through a comb and paper. Check that the microphone matches the transceiver, there is sufficient microphone gain and no RF feedback. Trying to use a badly adjusted, non-linear or oscillating final amplifier also spoils audio.
- Unbalanced audio response. Some signals are too bassy. They need more highs to add 'sparkle' and improve readability. Others lack bass and sound thin. They might also sound like they're speaking through a

cardboard tube or into a bowl. All are less readable than a signal with balanced audio. Bad audio can be due to a misaligned transmitter (the carrier frequency may be wrong relative to the response curve of the crystal filter), a faulty microphone or one whose impedance does not match the transmitter. Even simple things like experimenting with series and parallel capacitors around the microphone may improve the sound by attenuating lows and highs respectively.

Some stations aim for 'broadcast quality', to the extent this can be achieved on SSB, with plenty of bass. Others try for 'communications quality', which optimises readability under poor conditions. Good communications quality audio is punchy, but not overdriven, with the speech highs (1 – 2 kHz) boosted slightly to improve readability. Given that your ten watt signal will often only be 0 to 10 decibels above the noise at the other end, low power stations should aim for good communications quality but not overdo it.

Intelligent use of speech processors and audio compressors can increase average power levels without breaching licence conditions. They are recommended for marginal conditions. However they should be adjusted carefully as overdriving introduces distortion that lessens readability. Listen on 20 metres during a major international contest for examples of how processors should not be adjusted.

When setting up equipment, use a separate receiver to monitor your transmission, if one is available. Record the output with a voice recorder or computer. The latter with freely available software can also be used to monitor waveforms and audio response. Then ask everyone you speak to for audio reports. Some are more discerning than others and pretty soon you will get a good idea of how your audio sounds relative to other stations. Do not forget to get reports from both near and distant stations to get an idea of your audio under all signal conditions.

Tip 5: Operate portable

If you are pushed for antenna space or live in a noisy location, your ten watts will go further if you operate portable. Most Aussies live within an hour of hills or water. Or, if these locations are too far, a local park or reserve still provides room and RF quietness. Elevation, a good take off angle and/or a conductive ground from these sites can allow contacts not normally possible from home. Before going portable consider site selection, power supplies, antennas, bands to use and operating times. Site selection is a compromise between what is nearest home and what is best for radio. Much of the fun is trying various sites and comparing the results.

Power requirements are much easier for five – ten watts than 100 watts. A NiMH battery pack or gel cell will be fine for two or three hours, with more time possible if a solar panel is added. In contrast sustained operation on 100 watts needs heavy batteries, a generator or a nearby vehicle. Low power operators can carry their station to the best possible position while higher power stations normally cannot stray too far from their vehicle.

End-fed wires antennas are my favourites for HF portable. They are lightweight as they do not need feedlines. About 20 metres

of wire is a good length; on 7 MHz it forms a half wavelength, so is less fussy about grounds than a quarter wavelength (a short counterpoise will suffice). And on 14 MHz that same wire can form a full wavelength delta loop if needed. It will also work on 3.5 MHz as a quarter-wavelength end-fed. Note the ground requirement; you may find that extending it by 20 metres to form a half wavelength is easier than improving the ground. Add an L-match antenna coupling unit to provide the transformation required. A nine metre telescoping squid pole is easily carried by hand and allows activity from places where trees are sparse, as are many coastal locations. It can easily support lightweight end-fed wires and inverted-Ls. All you need is something to tie it to, like a fence or post.

On VHF/UHF, a two to four element Yagi can triple or quadruple your effective power compared to a dipole, so is well worth the weight. On two metres a two element Yagi can be made from two pairs of TV rabbit ears in just a few minutes. A non-metallic pole such as a broom stick will save you from having to hold it up all the time.

Band choice depends on the season, sunspot numbers and the time of day. Summer days may



Photo 1: Operating portable can improve results possible with low power.

cause 15 and 10 metres to open for interstate contacts due to Sporadic E propagation. Summer evenings can bring tropospheric propagation, for extended range VHF/UHF contacts, but also lightning static that ruins 80 metres. Forty metres can be active during the day while 80 metres is dead. Conversely 80 metres can be good for winter evening contacts within your own state when 40 metres is not. Forty metres would be my pick if forced to choose one band for portable use. This is due to easy antenna requirements, band activity and a good chance of success. Even with a few watts, it's very seldom that you will go portable on 40 metres and not make a contact.

Tip 6: Scan the band

Radio is not like a mobile phone where you can call up anyone anywhere (but probably just get their voice mail!). Band propagation varies by day; signals from some directions will be strong and others weak. An hour or two later it might have all changed again. When switching on tune up and down the bands to gauge noise levels and signal strengths. Check beacons (3.699, 14.100, 18.110, 21.150, 24.930, 28.2 – 28.3, 144.4 – 144.6 and 432.4 – 432.6 MHz) to gauge propagation.

Listen in on contacts and note any signal reports given. Look up station locations in the WIA Callbook or on the QRZ website. Take note if it sounds like a contact is ending; either keep listening or remember the frequency to go back to later. Keep an eye on the VK Logger website to see what others are working. Several days or weeks of listening will soon reveal the regulars on the band and their usual signal strengths. This will help gauge band conditions. If your rig has memories enter frequencies for all the beacons, repeaters and simplex frequencies. This will allow monitoring when you are otherwise occupied.

Tip 7: Tail-end others

When calling CQ you are relying on people, who may or may not be present, to tune you in, decipher your callsign and then respond. People may assume you are running 100

watts, consider that, as your signal is weak, theirs will be too, and give you a miss. The easiest way to make contacts is to find others calling CQ or listen for conversations that are ending. Then call one of the stations when the frequency is clear. As most do not switch off immediately, and indeed may be about to resume calling CQ, the chance of a contact is high. All things being equal, the strongest station will be hearing you best, so it is probably better to call them first. Especially if you are portable or running low power, the other station may stick around to give you a report.

Having said that the weaker station may be further away and if you are up for a challenge maybe they are the one to call. And if they are on low power from a quiet portable location though weak they may be hearing you well and want to make contact. So calling the strongest station is not a hard and fast rule.

Tip 8: Time your calls

Listeners sometimes hear cases where two stations should be strong enough to make contact but somehow fail. Often this is due to bad timing, either by the station calling CQ or the one responding. Some stations call CQ, pause for about a microsecond, then resume calling while the station responding is announcing their callsign. Listening only briefly between calls is a poor operating technique. Both humans and equipment have automatic gain controls that make it hard to hear a weak signal immediately after a strong sound, in this case the caller's own voice. Several seconds is necessary to recover full hearing. If the station you are trying to call does not allow this sort of time, they are only after very strong signals. After three tries give up on them and look for others to call.

At other times it is the calling station that times it wrong. They may think a contact has finished but it has not. Hence they are calling over other stations, and sometimes even the person they wish to contact, who will not hear you if they are still talking!

Had they waited a few seconds they might have been heard. On the other hand waiting too long may mean that everyone has switched off.

Timing is a skill that can only be learned through experience. You will find the pace varies according to band, operator style and time of day – DX and contest operators are more highly-strung for instance. A good general rule is to count to three before making a call or commencing a transmission to allow the CQ caller's ears to recover, give time for others to break in or allow the repeater to reset, if operating on FM.

Tip 9: Get the basics across first

Fading can mean that a signal that is initially readable becomes unreadable during the contact. So it's your turn to transmit, you have a long 'over', then your contact replies that he understood none of it. For DXing and QSLing purposes the two pieces of information your contact needs correct from you is your callsign and a signal report, with a serial number if a contest. If these are not received correctly it is not a valid contact. Name, location and other details are niceties that can be exchanged later if conditions permit. Then if conditions hold you can continue chatting as long as desired. If your contact has not got your callsign correctly, slowly repeat it as many times as required until they have. The same goes for the signal report and name. In any event it is a good idea to repeat these details two or three times if your report is any less than an S7 or S8.

And when the conversation moves onto other topics it is worth briefly repeating some of the main points. That way even if signals fade other stations should get the gist of your transmission. If signals don't recover after a couple of transmissions end the contact and seek another station who is hearing you better.

Tip 10: Call CQ

A previous tip suggested listening for others calling CQ or ending their contacts first, before calling CQ yourself. But there are times when

the band may be open but no one knows as everyone is listening. This is particularly the case for higher HF bands like 10 metres. If beacons can be heard and/or there is activity on 28.355 MHz USB but no one is talking, it makes sense to call CQ. Your call could be the one that alerts others that the band is open. And if conditions are particularly good, you may even get a 'pile up' of distant stations wanting to work you. Although the amateur bands are not channelised, many choose frequencies that are multiples of five kHz when calling. If you do the same there is a higher risk of being on the

same frequency as a contact you cannot hear. While you are unlikely to interfere with that contact it does mean you will not get any calls from stations who can hear both you and the contact in progress. To lessen the probability of this it could be worth choosing an 'odd' frequency, that is, one away from a 5 kHz multiple, to call CQ.

Conclusion

This article has given some ideas on getting the most from low power. Try some of the techniques and you'll find that ten watts can do better than you ever thought.



VK3 news VK100ARV goes bush

Terry Murphy VK3UP

Event Coordinator

Amateur Radio Victoria

www.amateurradio.com.au

VK100ARV went bush on the weekend of the 19th and 20th of November when Terry Murphy VK3UP and others activated the special centenary call sign whilst portable in the Brisbane Ranges National Park as part of the inaugural Keith Roget National Parks weekend.

Set up commenced around lunchtime on Friday 18th with the positioning of the caravan and annex and erection of the ground mounted five band vertical as well as 80 and 40 metre inverted vees slung from the gum trees. We also set up a tripod mounted Diamond X50 for two metres and 70 centimetres.

The forecast storm activity arrived on time around 6 pm and we endured some heavy rain and watched with considerable interest as the lightning crashed to ground around us. The interval between the flash and thunder was only a few seconds at times so we were a little concerned having metal and wire antennas up in the air adjacent to the camp site. The antennas were not connected to the transceiver during the storm but would have made great lightning arrestors nonetheless.

After the storm had passed I was able to make a few calls under my own call sign to see how good the location was and to ensure the antennas were working as intended. We put VK100ARV to air at 11.00 am local Saturday morning amidst the continuing storms, and having to go off air and detach antennas from time to time due the very close proximity of the lightning.

We were pleased that we were being heard and made many contacts, mainly on 40 metres. Not only were stations eager to work us for the Brisbane Ranges National Park contact, but many were looking for contact with the centenary call to increase their points score towards the Centenary Award.

The final contact from the Brisbane Ranges was made around 14.30 pm on Sunday afternoon and we then packed up and headed home. I was also able to make a dozen or so contacts with the centenary call from my own QTH after dinner.

A special thanks to David Bruce and Michele Grant VK3FEAT for their assistance over the weekend.



COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$255
Log-periodic 9 el. 8.4 m boom	\$1194
20 m 5 el. boom 12.2 m	\$995
Mobile screw driver antenna 80-10	\$338
15 m 3 el. 3.6 m boom	\$314
M/b vert auto switch 10-80 m	\$360
40 m lin load 2 el./cap hats	\$670
6 m 5 el. 3.6 m boom	\$314
6 m 7 el. 6.8 boom bal feed	\$456
23 cm 36 el. 2 m boom N-conn	\$249
70 cm hi gain Yagi 3 m boom	\$170
2 m 10 el. hi gain Yagi	\$190
Quad 2 el. 20 m h/duty	\$596
Delta loop 2 el. 10/11 m	\$319
20 m 3 el. confined space beam	\$459
Rotatable dipole 40 m	\$298
Tri band 10/15/20	\$860

Guyed masts 13 or 21 metres

Winch up, tilt-over,
aluminium and stainless steel
three sided construction.
Auto brake winches.

**115 John Street
Glenroy VIC 3046**

Phone

0419 542 437



Wyong Field Day

Sunday 26 February 2012

Once again the CCARC Annual Wyong Field Day will be held at the Wyong Race Course on the Central Coast.

Put it in your diary and we will see you there for another big day out in Amateur Radio.

Check our website: www.ccarc.org.au

Silent Key Neil Leslie Jenkins VK3AEL

It is with sadness that I report the passing of Neil Leslie Jenkins VK3AEL at Euroa on 24 October, 2011, in his 69th year. Neil had been in poor health over the last few months and earlier this year his family had arranged for him to be near them in Euroa, at a nearby nursing home. Neil was suffering from motor neurone disease which affected him badly, as well as prostate cancer. (His father also died from motor neurone disease).

For most of his life Neil lived in Balwyn. He was born in nearby Kew, the eldest of three children. Schooling was at East Kew Primary School and Swinburne Technical School. Leaving school at age 16, Neil began an electrical trades apprenticeship. Soon after completion of his apprenticeship he branched out on his own with sub-contracting work. In the early 1970s Neil lived near and worked at the A1 gold mine for some years and, in more recent times, was involved with contract work at the Burnley Tunnel project.

I first met Neil in the late 1950s through our common interest in radio, when we were teenagers. We got our 'Z-calls' around the same time, 1959, and 10 years later our 'full calls'. It was also the time when AM and valves was the technology of the day, and 'home brew' equipment was common. Because of the licence restriction with 'Z' calls to VHF/UHF, it became the start of a long term interest in VHF/UHF for both of us.

Soon after obtaining his 'Z call', VK3ZJN, and in order to work longer distances, Neil became a keen portable operator with equipment on 50, 144 and 576 MHz.

This equipment included many spare car batteries in order to stay on air for as long as possible. Then hope the car engine would start up when it was needed! Neil also enjoyed two metre fox hunting. In those days you rushed around as fast as you dared to find the 'Fox transmitter'. Between 1959 and 1969 Neil and I travelled around

VK1, 2, 3, 4, 5 and 8, often with six metre and two metre AM equipment. On a visit to friends in Woomera in 1969, all the VHF radio equipment had to be left at the main entrance with security and picked up when we left.

Neil was my 'Best Man' when I married in 1970. Over the years, Neil maintained his interest in electronics and science, amateur radio activity was mostly two metre FM to a few friends.

Neil had a fascination with the weather, using a backyard weather station; Neil recorded weather details, keeping track of long-term weather patterns and the effect on the environment and the bird life in his own backyard.

He is survived by his brother Douglas, sister Loris and her family. With thanks to Loris for help with this tribute. 73 Neil.

Submitted by Jim Forse VK3II.

Contests

Phil Smeaton VK4BAA
vk4baa@wia.org.au

Contest Calendar for February 2012 – April 2012

Feb	4/5	Mexico International RTTY Contest	RTTY
	11/12	CQWW RTTY WPX Contest	RTTY
	11	Asia-Pacific Sprint	CW
	11/12	RSGB 160 metres Contest	CW
	18/19	ARRL International DX Contest	CW
	24/26	CQWW 160 metres Contest	SSB
Mar	3/4	ARRL International DX Contest	SSB
	10/11	RSGB Commonwealth Contest	CW
	17/18	John Moyle Field Day	CW/SSB/FM
	17/19	BARTG RTTY Contest	RTTY
	17/18	Russian DX Contest	CW/SSB
	24/25	CQWW WPX Contest	SSB
April	1	QRP Hours	CW/PSK31/RTTY/SSB
	14/15	Japan Intl. DX Contest	CW
	21/22	YU DX Contest	CW/SSB
	22	Harry Angel Sprint	CW/SSB
	28/29	Helvetia Contest	CW/SSB
	28/29	SP DX RTTY Contest	RTTY

Note: Always check contest dates prior to the contest as they are often subject to change.

A belated Happy New Year to all for 2012 from the VK4BAA household. I hope that Santa once again emptied his sack in your shack with a nice shiny new rig!

With the turkey now all but consumed or frozen in readiness for making into soup or sandwiches, 2012 shows for a promising start as news arrives letting us know that plans made some time ago to try and redress the imbalance somewhat as regards VK maximum power output in comparison to other parts of the world are now coming to fruition. Even with the 'experimental' one kW in place as a permanent feature (which it currently isn't), VK would still be behind much of the ham world as regards legal power output limits. However, it's an excellent step forward and is testament to the hard work of many hams beavering away behind the scenes. Even the Kiwis might also claim a modicum of credit, as their recent licence tweak to raise output power was capitalised upon to call the ACMA back to the table for a chat. Contesters will, no doubt, take advantage of the raised

limit, but at the time of typing this wee ditty, the full details of the ACMA caveats are yet to be confirmed – so time will tell!

One thing that was obvious in 2011 is that contesting is continuing to mature in Australia. The claimed scores submitted for the 2011 round of the Oceania, WPX and CQWW contests, for example, have increased yet again over those of 2010, with 28 MHz now featuring fully in contest logs as operators alter their strategies accordingly.

VK6 VKCC Xmas Gathering

The VKCCers in VK6 organised an evening of contest QRM chatter and food – see Photo 1. I am not sure if this picture was taken before or after the meal – but I don't

see any drinks on the table (quite unusual!) and the pizza dish looks empty! I suspect that the dancing girls have long since vacated the area and maybe the sign on the table does little to describe the actual personalities of those present. A good time was reportedly had by all – but I am still waiting for my NCRG sponsored air ticket to Perth arrive...

2011 CQWW CW Contest

This contest saw a re-emergence of VK CW prowess, with the number of stations from VK participating increasing over 2010. Better band conditions tend to convince the masses that maybe they'd give it a go this time.

Amongst them, at long last, was me. I finally sat at the rig at the VK4KW inaugural M/S entry and donned headphones for this contest – but only on the 'multiplier' station as I'm still not quick enough off the mark for 'running'. The speeds that the 'old hands' get to during the contest were too fast for me initially, but after half an hour of sitting next to a proper operator my 'rust' started to drop away and I could accurately read the majority of what was being received, ultimately helping in my limited way to push the claimed score to 9.4 million for 5000 Qs. It had been quite some time since I'd participated in a CW contest. In a previous life, I was used to operating



The VK6 VKCC Spring meeting, 2011. L to R are Andrew VK6IA, Tony VK6AL, John VK6NU, Zeljko VK6VY, Richard VK6BEC, Wayne VK6EH, Keith VK6RK and Mirek VK6DXI.

during CQWW CW and using CW during other contests – both HF and VHF. A couple of years ago, I entered the CQWW CW contest as a single band 10 m entrant as 10 m was still in the cycle 24 doldrums and I wanted to see what the station (and I) could achieve in such conditions. 10 m was not likely to be very busy at that time and I was far too lazy to change sleep pattern for night time LF operation, so it seemed like a perfect choice. I operated for a few hours in bite sized chunks of time and managed to net 300 or so QSOs for my four hours of toil. The first few contacts were faltering to say the least, but I soon got into the swing of it. But, that was quite a while ago and I hadn't followed my promise to myself that I'd take up CW again and try to get back to the prowess that I had once attained. I'm still not there – there's a long way to go – but the contest in 2011 was a good re-introduction to the world of CW contesting for me.

One aspect which did not help my confidence was the continuing non-alignment between software generated information presented to the operator and 'real world' information. We used N1MM logger for the contest, which features a facility to pre-fill certain aspects of the contest exchange, based upon the callsign prefix entered into the PC. So as an example, entering VK4NM would pre-fill the zone entry box with '30' or entering G0HSS with '14'. Americans and Russians however, can cause the software to display incorrectly at times, as their licensing rules allow a callsign from a particular geographic area (and hence allocated a given prefix) to be utilised in a different area without modification which can confuse the software as it can only display information based upon whatever it has been told by the operator. For a fledgling CW operator, this tended to confuse me from time to time as I type in whatever I hear and not just rely on whatever the PC claims to already know. I was hoping that the PC would check my input but instead it seemed that I was checking the PC! So, it was

not good news when yet another level of confusion was thrown into the mix – operators that send wrong information as regards their zone. A recent DXpedition which was active during the contest sent the wrong zone – but they sent it to everyone! However, thankfully, the organisers are aware of this type of hiccup and they use a common reference file which ensures that nobody will be penalised for an 'error'.

Even competent operators such as Bernd VK2IA, operating as VK6AA, got thrown a bit by this issue, but Bernd is an old hand at CW contesting and soon spotted and corrected the error. Bernd was active during the contest from the borrowed station of NCRG in Perth and reported LF as a bit of a poor show and 40 m was a struggle even for the monster beam of theirs pointing at EU. The EU QRM must've been awful. Bernd still netted around 7.4 million points for his claimed score as SOAB and 4500 QSOs, so something must've been working well!

David VK2NU found the bands not as lively as during the SSB event – which I'd concur with. David trawled through 10 m operating mainly as 'search and pounce' to grab over 100 multipliers/countries which is no mean feat with low power. Vlad VK2IM entered the contest as SOAB and achieved a superb score, beating Vlad's personal best to claim almost 5.3 million points for nearly 3650 Qs. The first 24 hours saw Vlad logging 1999 Qs, with an emphasis on 10 m taking most of the traffic.

The following VK teams were registered for the contest:

VKCC Dream Team

VK2GR, VK2NU, VK3TDX, VK6XX

VKCC Bushrangers

VK2IM, VK4UC (N6AA), VK6AA (VK2IA), VK6LW

Kevin VK6LW entered as single band 20 m, claiming 1.4 million points from just over 2900 QSOs. An excellent tally for a single band entry.

Laurie VK7ZE was a part-time entry, but Laurie's main reason for playing around was to keep tabs on

propagation and see how the new 40 m quad performed. Something must've been working well, as Laurie netted 428 Qs for a claimed score of 323,604.

Chris VK3FY was invited to play in the contest at OM8A by station owner Tibi and didn't need to be asked twice! Chris had to leave before the end of the contest, but the tally was already 5000 Qs for a M/S claimed score of around 11 million points at that time.

A couple of weeks before the contest, a wind storm took down Steve VK3TDX's tower and beam so Steve only had a 40 m vertical with a trap and 80 m inverted L section for this contest. Steve was prepared for a very meagre run with this system figuring on only night-time 40/80 action. However, Steve found that his vertical loaded well on all bands and ten meters to EU seemed to be working as well as his beam. This is where the good news ended however, because Steve mentioned this fact to his XYL and how great he seemed to be doing without the lovely tower household decoration. Steve's XYL now needs some convincing that Steve really does need a tower and Yagi. Bad move Steve – it's often best to keep one's powder dry!

Dick N6AA operated from the station of John VK4UC for the contest, logging 3000 QSOs for 4.2 million points claimed. Dick worked a 10 m long path early one morning and was logging all manner of DX on the NA LP heading, which is a little bit strange – but obviously rewarding!

Allan VK2GR had family commitments so a limited amount of time was spent on the rig during the contest, but Allan still managed to log 300 Qs and 132,000 claimed points. Good going for low power Allan!

Tom OZ1AA operated from the station of Greg VK8GM for the contest weekend. Tom utilised 40 m up to 10 m for a claimed score of just under 3 million and 2900 QSOs. A great effort Tom! Tom's pre-contest mantra is one that I'd be keen to follow – if only I could. Tom arrived at

the station just before the start of the contest as the original M/S operation from the Alice Springs club got cancelled. After loading the contest software onto the PC and making a CW keyer cable, Tom started CQing on 15 m and logging NA and EU as fast as he could.

Mirek VK6DXI was away from home for the contest, visiting the station at SO4M instead. Along with like-minded fellows operating as M/2, SO4M claimed 10.8 million points for just under 6000 QSOs – despite Murphy having paid a call or two. Interestingly, the SP 10 m tally doesn't reflect the conditions experienced in VK, with just over 300 Qs recorded. However, LF was much more prominent to make up the shortfall – possibly due to seasonal differences.

2011 ARRL 10 metre contest

This contest was highly likely to be hotly contested due to the prevailing conditions bringing a few stations out of the closet and onto the band.

This year saw the Lockyer Valley Radio & Electronics Club VK4WIL entering to try and break their previous VK Multi-Single record set in 1999 when they used VK4DZ as the call. Ken VK4QH and Alan VK4SN decided to erect two antennas for the contest as Ken had just erected a six element monobander (made by Dave VK4NDX) and the beam width was very narrow. So, on the Friday prior to the contest Alan set up his portable mast and a tri-band beam for use as the second antenna. There were good conditions during the day, but a very nasty hail and lightning storm stopped operations for

about three hours on the Saturday afternoon, and the band died around 9 pm local on both days. I can vouch for this, as my 'let's see what's on the band' type of entry experienced the same aggressive storm. After my experience during the CQWW SSB contest of receiving lightning damage to the station, everything got unplugged just in case! For VK4WIL (consisting of VK4HS, VK4SN, VK4MN and VK4QH) it made a bit of a difference to the end score, but not the end result and their previous record was broken by the team with 1,914 contacts (840 CW, 1074 USB), and around 1.45 million points, beating their previous record of 1.2 million. Nicely done gentlemen – but beware that others might be watching you with envious eyes and might plan to challenge you in 2012!

John VK4EMM operated as VK4CT, claiming 1.5 million points for just under 1900 QSOs. John much prefers CW, so it's not too surprising to see the score split with a heavy emphasis towards CW at 1500 QSOs! John also endured electrical storms, and also experienced some strange propagation with delayed echo on short-path to EU/Asia, confirmed with two beams - one on short-path and one on long-path. Something tells me that 10 m might be the band to watch during 2012!

Commonwealth Contest

Beru, otherwise known as the Commonwealth Contest, will be taking place in March, 2012. The format for the Commonwealth Contest 2012 team competition changed from 2011, in that the team size will be five and not 10. This will no doubt be welcome news to those

who have previously been unable to make a full team and thus now make them more competitive. Latitude factor is also modified to 1.79 which is a reflection of the poor conditions experienced in 2011.

I note the rule now refers to teams in the plural, I presume this means, say, strongly supported teams like Canada, ROW etc fielding 'A', 'B' and 'C' teams. I'd have thought that each team of five would require a team captain however. VK team/s and captain/s is yet to be announced at this time, but the 2010 and 2011 team were a struggle to assemble (things must've been desperate as even I got asked!) and Kevin VK6LW did a superb job to get everything organised in time. Maybe I'll be ready to participate this year!

General rules for all WIA contests

A draft version of some general rules has been circulating recently. The main drive for these new rules is to simplify the myriad of rules currently in operation, so that the 'common' aspects are detailed in a single document which then allows each contest adjudicator to 'personalise' accordingly to their given contest. The document is still in its infancy and is yet to be ratified by the WIA, but more details are sure to follow in the coming months.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk4baa@wia.org.au See you on the bands.

73 de VK4BAA Phil Smeaton



Results 2011 Westlakes Cup Contest

VK7VH Vince	38 Points	1 st Place outright
VK4UH Kevin	35 Points	
VK4ZD Bill	34 Points	
VK2VV Graham	32 Points	
VK2ZM Alex	25 Points	
VK5PAS Paul	23 Points	
VK2FHRK Leonie	14 Points	1 st Place Foundation
VK5JAZ Grant	13 Points	
VK2ACD Chris	11 Points	

Logs have been adjusted where needed after scrutiny to reflect final scores.

Thank you all for your participation.
See you next year.

David Myers VK2RD
Contest Manager
Westlakes Amateur Radio Club Inc.
30th October 2011



John Moyle Field Day Contest 2012

Presented by: *Wireless Institute of Australia*

Managed by: *Denis Johnstone VK4AE/VK3ZUX*

Overview

The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore specifically designed to encourage field operation.

The contest takes place on the third full weekend in March each year, and this year runs from 0100 UTC Saturday to 0059 UTC Sunday, 17 - 18 March 2012.

Contest Rules

The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations. All VK, ZL, and P2 stations can claim points for all contacts, with any amateur station in world, as long as valid serial numbers are exchanged.

Single operator portable entries shall consist of ONE choice from each of the following (e.g. 6 hour, portable, phone, VHF/UHF):

- a. 24 or 6 hour;
- b. Phone, CW, Digital or All modes;
- c. HF, VHF/UHF or All Bands.

Multi-operator portable entries shall consist of ONE choice from each of the following (e.g. 24 hour, portable, phone, VHF/UHF):

- a. 24 or 6 hour;
- b. Phone, CW, Digital or All modes;
- c. HF, VHF/UHF or All Bands.

Home and SWL entries shall consist of ONE choice from the following 24 hour, or 6 hour, but only All Mode, and All Bands.

Definitions

1. A portable station comprises field equipment operating from a power source, e.g. batteries, portable generator, solar power, wind power, independent of any permanent facilities, which is not the normal location of any amateur station.
2. All equipment comprising the portable station must be located within an 800 m diameter circle.

3. A single operator station is where one person performs all operating, logging, and spotting functions.
4. A single operator may only use a call-sign of which he/she is the official holder. A single operator may not use a call-sign belonging to any group, club or organisation for which he/she has been sponsored except as part of a multi-operator entry.
5. A multi-operator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.
6. A multi-operator station may use only one call sign for the duration of the contest.
7. Multi-operator stations may only use one transmitter on each band at any one time, regardless of the mode in use.
8. Multi-operator stations must use a separate log for each band.
9. Logs submitted electronically can use a separate Excel worksheet for each band linked to a summary sheet. A typical example is shown at <http://www.wia.org.au/contests/> which can be copied and adapted for the individual use of either a single or multi operator station.
10. A station operated by a club, group, or organisation will be considered to be multi-operator by default.
11. None of the portable field equipment may be erected on the site earlier than 28 hours before the beginning of the contest.
12. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders can be disqualified, and at the discretion of the WIA, may be banned from

further participation in the contest for a period of up to three years.

13. Phone includes SSB, AM, FM and Simplex D-Star.
14. CW includes CW hand or computer generated. Fully automatic operation is not permitted. CW contacts will score 4 points for HF and 4 points for VHF & UHF contacts plus the distance points.
15. Digital modes include any other mode other than the above (Rules 13 and 14), such as RTTY, Packet, PSK31 etc, and may be used in the contest, but if they are, they shall be classed as Digital. Other modes such as ATV may be used and will be classed as Digital for scoring. Digital contacts will score points at the same rate as Phone. Another station may be worked only once per period on any digital mode: i.e. you cannot work them on RTTY, then on Packet, then on PSK31 - only one digital contact, regardless of mode, per period (see rule 18).
16. All amateur bands may be used except 10, 18 and 24 MHz. VHF/UHF means all amateur bands above 30 MHz. Note: On 50 MHz, the region below 50.150 has been declared a contest free zone, and contest CQs and exchanges may only take place above this frequency. Stations violating this rule may be disqualified.
17. Cross-band, cross-mode and contacts made via repeaters or satellites are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency, as long as the repeater is not used for the contact.
18. Stations may make repeat contacts and claim full points for each one. For this purpose, the contest is divided into eight consecutive three-hour blocks: 0100-0359, 0400-0659, 0700-

0959, 1000-1259, 1300-1559, 1600-1859, 1900-2159, 2200-0059 UTC. If you work a station at 0359 UTC a repeat contact may be made after the start of a new block providing they are not consecutive, and are separated by at least five minutes since the previous valid contact with that station on the same band and mode.

19. Stations operating on Phone must exchange ciphers comprising RS plus a 3 digit number commencing at 001 and incrementing by one for each contact.
20. Stations must exchange ciphers comprising RS(T) plus a 3 digit number commencing at 001 and incrementing by one for each contact. (CW stations 599001). (CW stations contacting an overseas station who does not understand the rules for this contest, or is unwilling to give a valid serial number can generate a suitable serial number for the contact - as long as this fact is noted in the log.)
21. Portable stations shall add the letter "P" to their own cipher, e.g. 59001P.
22. Multi-operator stations are to commence numbering on each band with 001.
23. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.
24. The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and may result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either 6 or 24 hours later.

Contest Scoring

Portable HF stations shall score 2 points per QSO. CW only contacts to score 4 points per QSO for contacts with either home or portable stations.

On VHF/UHF portable stations for Phone and Digital each contact scores 2 points per contact, and CW contacts score 4 points. In addition the VHF/UHF Portable stations shall add a distance score of the following on 6 m:

- a. 0-49 km, 2 points per QSO;
- b. 50-99 km, 5 points per QSO;
- c. 100-149 km 10 points per QSO;
- d. 150-299 km 20 points per QSO;
- e. 300-499 km 30 points per QSO;
- f. 500 km and greater, 2 points per QSO.

Portable stations shall add an additional distance score on 144 MHz and higher:

- a. 0 to 49 km, 2 points per QSO;
- b. 50 to 99 km, 5 points per QSO;
- c. 100 to 149 km, 10 points per QSO;
- d. 150 to 299 km, 20 points per QSO.
- e. 300 km and greater, 30 points per QSO.

For each VHF/UHF QSO where more than 2 points are claimed, both the latitude and longitude of the station contacted or other satisfactory proof of distance such as the 6-figure Maidenhead Locator must be supplied.

Home stations shall score:

- a. Two points per QSO with each portable station.
- b. One point per QSO with other home stations.
- c. For VHF/UHF QSO Home stations shall add as a distance score on 6 m:
 - i. 0-49 km, 1 points per QSO;
 - ii. 50-99 km, 2 points per QSO;
 - iii. 100-149 km 5 points per QSO;
 - iv. 150-299 km 10 points per QSO;
 - v. 300-499 km 15 points per QSO;
 - vi. 500 km and greater, 2 points per QSO.
- d. Home stations shall add as a distance score on 144 MHz and higher:
 - i. 0 to 49 km, 1 points per QSO;
 - ii. 50 to 99 km, 2 points per QSO;
 - iii. 100 to 149 km, 5 points per QSO;
 - iv. 150 to 299 km, 10 points per QSO.
 - v. 300 km and greater, 15 points per QSO.

Submitting your Log

For each contact: UTC time, frequency, station worked, RST/serial numbers sent/received and claimed score. (VHF and above location of other station and distance showing the Lat/Long or Maidenhead Locator to 6 figures for the station worked.)

Logs must be accompanied by a summary sheet showing: call sign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, and equipment used, and a signed declaration stating *"I hereby declare that this station was operated in accordance with the rules and spirit of the contest and that the contest manager's decision will be accepted as final"*. For multi-operator stations, the names and call signs (legible) of all operators must be listed.

The email address for this year's JMMFD contest should be setup a few days before the contest, and I would suggest to those that will be sending in your Logs electronically, to send in a test email with the words "TEST JMMFD 2012", in subject the line and also set the "READ REQUEST RECEIPT" flag. Your call sign can then be added into the database for this year's contest. When actually submitting your log, if you do not receive an e-mail acknowledging receipt, then the log has not been received.

Paper logs may be posted to "John Moyle Contest Manager, 27 Laguna Ave, Kirwan, 4817 QLD". Alternatively, logs may be e-mailed jmfd2012@wia.org.au, vk4ae@wia.org.au, or snail mailed via the WIA Contest Manager, JMMFD, P.O. Box 2042 Bayswater, VIC 3153.

Club stations must forward in the first instance an electronic version of their log. Club Stations who submit only a paper log will have that log returned as unreadable, due to the very large amount of work involved in checking large paper logs.

The following formats are acceptable: Microsoft Excel or Word, ASCII text or electronic log programs such as VK Contest Log (VKCL). Logs sent by disc or e-mail must include a summary sheet and

declaration, but the operator's name (legible) is acceptable in lieu of a signature. Logs must be postmarked no later than 20 April 2012.

Certificates and Trophy

At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Additional certificates may be awarded where operation merits it. Note that entrants in a 24 hour section are ineligible for awards in a 6 hour section.

The Australian portable station, with the highest overall score will be awarded the President's Cup, a perpetual trophy held at Andersson House, and will receive an individually inscribed wall plaque as permanent recognition.

Contest Results

The results of the 2012 contest will be posted to the WIA website as soon as all postal logs have been received, scored and checked. In addition the results will be published

in *AR* magazine and announced on the WIA News Broadcast as soon as possible within the following weeks.

Computerised Logging Software

Please check the website of your favourite logging programme for the most up to date version, as most programmers are now carrying out revisions to allow for this year's rule changes.

VK Contest Log (VKCL) by Mike Subocz (VK3AVV) has an excellent logging program and can be found at <http://web.aanet.com.au/mnds>

In line with the newly created WIA General Rules for Contests, from 2013 the contest log format will be revised to follow the Cabrillo format and a template will be developed and published in the 2013 rules. Time does not permit the changeover for this contest.

Contest Sponsor

The Wireless Institute of Australia.

Upcoming contest Date & Time

The next contest will take place on the third full weekend in March each year, and this year will run from 0100UTC Saturday 17th to – 0059UTC on Sunday 18th March, 2012.

I wish all entrants good luck, and look forward to hearing some of you on air during the contest!

N.B. new Email address: jmfd2012@wia.org.au will be set up close to the event for entries and you can check out latest info at <http://www.wia.org.au/contests/>

Contact Details

If anyone wishes to contact me privately to discuss rules etc, my home phone number is (07) 4723 4229, and my snail mail and e-mail addresses are as shown in the Log Submission section above.

Denis Johnstone VK4AE/VK3ZUX



Commonwealth Contest 2012 Prize Draw

2012 will be the 75th Commonwealth Contest (March 10th and 11th 2012) and to celebrate this we are going to have a prize draw which every entrant making more than 75 valid QSOs will be entered. And what a prize for the lucky winner - a **RFSPACE SDR-IQ Software Defined Radio** generously donated by **Martin Lynch of ML&S**.

The **SDR-IQ** is a 14-bit software defined radio receiver. It offers a broad range of spectrum analyzer and demodulation capabilities over the whole 0.0001-30 MHz band. The SDR-IQ can be used as a short wave receiver, as a spectrum analyser, as a panadaptor and as a precision measuring instrument.

All stations located in one of the Commonwealth Contest Call areas are eligible for this prize draw

- making this a truly Commonwealth event.

What do you have to do to get into the prize draw?

All the entrants to the 2012 Commonwealth Contest who have, after adjudication, 75 or more valid QSOs will automatically be entered for the draw.

The full rules for the 2012 contest are at www.beru.org.uk and you are urged to read them carefully.

Make sure that you work more than 75 QSOs to leave some margin in case some of your QSOs are disallowed for some reason.

More information at <http://www.beru.org.uk/2012prizedraw/prizedraw.html> and on the Commonwealth Contest website at <http://www.beru.org.uk/>



The Centre Victoria RadioFest

Returns to the Kyneton Racecourse **Sunday 12th February 2012**

For all the latest information visit

www.radiofest.amateurradio.com.au

WIA adopts new General Rules for contests

Trent Sampson VK4TI

For some time the various contests in VK had evolved in different directions and many of the terms and rules contradicted other contests.

This situation was both frustrating and confusing to entrants.

At the Darwin AGM the WIA board resolved to adopt a set of general rules that guided all individual contest rules - this format had been adopted by both the ARRL and the RSGB - The board asked all the contest managers of supported WIA contests to be part of the Contest Panel and with the task in hand an email meeting was held.

The Contest Committee was formed by two WIA directors Bob VK6POP and Trent Sampson VK4TI, and the managers of the contests, Peter Harding VK4OD, John Martin VK3KM, Denis Johnstone VK4AE, Brian Miller VK3MI and Kevin Johnston VK4UH.

Initially the committee looked at what was current in the UK and USA - and decided that the RSGB model was closer to the needs of VK amateurs with some modifications - these modifications took many weeks and it was very interesting how many implications would occur with even the simplest of modifications.

Of concern was that the character of a particular contest was not ruined by rule changes - and so the very first rule was considered important and that is:

1. These rules apply to all WIA Contests, except where inconsistent with a specific rule of a particular Contest.

Most other items are self explanatory. However the committee needed to modify some of the wording to cover operating practices in Australia on VHF/UHF and also some of the gender specific wording was removed.

The section regarding portable operation was a mix of the current VHF/UHF Field Day and John Moyle rules to ensure consistency.

Ongoing the WIA strongly supports the contest sector and has sourced code/ software for the checking of contest logs and submission - this is mainly done via a standard known as Cabrillo that was developed by Trey Garlough N5KO and this is the default standard for contest logs.

Cabrillo caters for most international contests and our local software VKCL can output Cabrillo files - it has features unfamiliar to many like "soapbox" which is basically where you can input your comments about the contest prior to submission.

We trust that the new general rules clarify the stands of the various contest managers.

General Rules for All WIA Contests

1. These rules apply to all WIA Contests, except where inconsistent with a specific rule of a particular Contest.
2. Entrants must abide by their licence conditions.
3. Contacts:
 - (a) A contact consists of an exchange with acknowledgement of receipt of callsign and contest data. Incomplete contacts must be logged with zero points claimed. Points are not lost if a non-competing station does not send appropriate information, but a report must be logged and any other exchange sent by that station must be recorded. The full contest exchange must be sent to all stations worked.
 - (b) In the time period relative to the specific contest one contact only with the same station per band counts for points, regardless of that stations operator or callsign. More than one contact with the same operator using different call-signs may not be claimed. Contacts with stations which have no other contest contacts may be disallowed. Duplicate contacts must be logged, with zero points claimed.
 - (c) Cross-band contacts do not score.
 - (d) Contacts scheduled before the contest do not count for points. Schedules may only be made during the contest.
 - (e) Simultaneous transmissions on more than one frequency are permitted, in multi-operator

/ assisted events use of VHF/ UHF to access the DX cluster is permitted. Access must be to the public cluster network, private clusters are not permitted.

- (f) The active use (posting messages, arranging skeds, self-spotting etc.) of the DX Cluster, and other spotting networks (including internet facilities for example VK Logger) to assist an entry is not permitted unless the contacts are on VHF and higher frequencies i.e. 50 MHz and above.
 - (g) Proof of contact may be required.
 - (h) For contest purposes, / Aeronautical Mobile (AM) and / Maritime Mobile (MM) stations are treated as /Mobile stations in their own country. Other stations are regarded as being in the call area/country indicated by their call-sign as sent.
4. Portable stations:
 - (a) Stations can be located in a permanent building or shelter.
 - (b) A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station.
 - (c) All equipment, aerials and supports must be set up on site no more than 28 hours before the start of the contest. This does not apply to short term storage of equipment on site.
 - (d) All portable stations should sign /P when taking part in any WIA contest with a portable section.
 - (e) Portable stations may change location during the contest provided the station is dismantled and reassembled each time it moves.
 5. Entrants:
 - (a) A single-operator station is operated by one person, who receives no assistance whatsoever from any other person in operating, log-

keeping, checking and so on, and who does not receive notification of callsign information by packet, telnet, telephone or any other method including wide band (greater than 3khz) skimmer and skimmer-like technologies.

(b) Multi-operator entries are those not covered by 5(a). One operator must act as Entrant and submit the entry.

(c) All transmitters and receivers used by the entrant must be located within a single 500-metre diameter circle or within the property limits of the station address, whichever is greater. All antennas used by the entrant must be physically connected by wires to the transmitters and receivers used by the entrant. An entrant's remote station is determined by the physical location of the transmitters, receivers, and antennas. Only one station may be used by the entrant during the contest period. That means, for example, that an entrant may not work themselves by use of a second, remote, station nor may that second station be used to aid the operation of the entrant's station.

(d) There is no requirement that any entrant is a member of the Wireless Institute of Australia.

6. Adjudication:

(a) Errors in sending / receiving are penalised by the loss of all points for the QSO.

(b) Points may be deducted or entries disqualified or excluded for any breach of the rules or spirit of the contest. Subject to Rule 7 of these Rules, the decision of the WIA is final.

(c) The practice of club stations recruiting or pre-arranging contacts with other stations from within that group, including from operators of the station itself, where there is no intention to make contact with other contest stations, is considered unfair and not in the spirit of the contest. Such practices may lead to disqualification.

7. Disputes:

The Manager of the Contest should be approached in the first instance and any issues should be resolved with them. If the matter cannot be resolved by the Contest Manager, the person concerned shall be invited to fully set out their concerns in writing (which shall include by facsimile or email), within 7 days, which shall be referred to the WIA Director responsible for contests. That Director shall convene a meeting of the Contest Committee comprising at least, themselves and two other WIA Contest managers and ensure that the person concerned is given the opportunity to comment on any material or submissions provided by the Contest Manager.

That committee shall then determine the matter (within 7 days of receipt). The Contest committee's decision shall be final and binding.

8. Entries:

(a) Log entries may be submitted by email, or on paper. Paper entries are acceptable only if logging during the contest was not done on computer. The Contest Manager reserves the right to treat any entry as a check log. Subject to the rules of a particular Contest, the entry must be sent no more than 30 days after the end of the Contest. Log entries become the property of the WIA.

(b) The preferred log format for computer entries is Cabrillo. Entrants unsure of what information is required for a particular Contest are encouraged to use software which provides full support for WIA contests.

(c) Computer entries must be named with the stations callsign and the extension .log. Portable stations should use a hyphen, e.g. vk3xyz-p.log. For Cabrillo entries this is the only file that is required.

(d) The log entry robot must be used for online entry to all WIA contests unless indicated otherwise in the rules of a particular Contest.

(e) Paper logs should be sent

to the WIA national office.

Acknowledgement will be sent if a stamped, addressed postcard or IRC is enclosed.

(f) Paper logs (and any not in Cabrillo format) must ensure the following information is shown for each contact: Time, Callsign worked, RS(T)/serial sent, RS(T)/serial received, other data (specific to the contest), new bonus/multiplier, QSO points.

(g) Paper summary sheets should include the following declaration "I declare that this station was operated in accordance with the rules and spirit of the contest and within the conditions of my licence. I agree to the data from this entry being entered into a computer for the purposes of contest adjudication and production of statistics. I agree that the decision of the Board of the WIA shall be final in all cases of dispute." By submitting an entry in email or any other format a contestant shall be deemed to have made a declaration to the same effect.

(h) Entrants shall ensure that the section or category being entered is clearly shown in the header or summary sheet. Entrants are encouraged to use soapbox lines in the Cabrillo header to give information about the equipment and antennas used as well as comments about the contest.

9. Changes to Rules:

No change to these General Rules or to the Rules of a particular Contest shall be effective until approved by the WIA Contest Working Committee which must comprise at least the designated WIA Contest Director and at least two other managers of WIA Contests and published in *Amateur Radio* magazine.

10. Awards:

Trophies as specified will be presented at the WIA Annual Conference or similar appropriate event and will be held for a maximum period of one year for any particular annual event. Certificates will be awarded to leading stations in each category/band as appropriate.



VK3 news Amateur Radio Victoria

Jim Linton VK3PC
www.amateurradio.com.au

After the holiday period

The office will reopen on Tuesday, 7 February. During the break urgent matters were dealt with while office-bearers worked on the financial statements to be audited and presented to the membership. Located at 40g Victory Boulevard, Ashburton, the function of the office is primarily to process mail, membership applications and renewals, public enquiries, keep the QSL bureau up to date and assist with membership services.

Thanks go to the small but dedicated team of volunteers who handle administrative matters at the office on Tuesdays between 10 am and 2 pm, including the VK3 QSL bureau, handling incoming correspondence.

The Annual General Meeting will be held at the office on Wednesday, 16 May and Notices of Motion for it closes with the Secretary at 2 pm on 20 February.

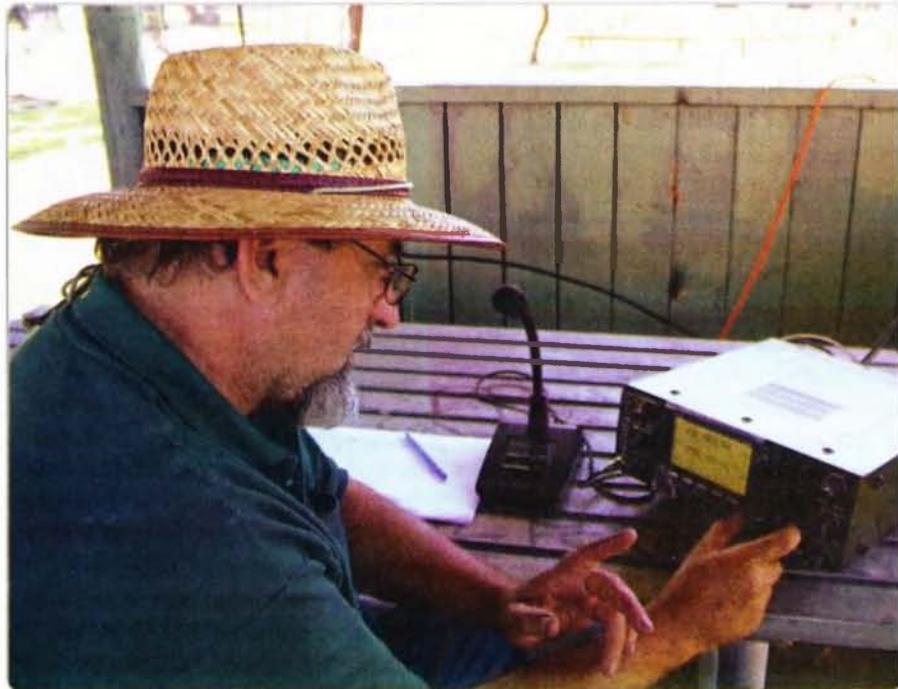
New class dates

Want to enrol for the quality Foundation Licence training course, a popular Bridging Course to the Standard Licence or do assessments? The next Foundation Licence weekend is March 24 and 25.

For those already qualified at the Foundation level, the Standard Bridging Course will be held on Wednesday's 7, 14, 21 and 28 March, and 4 April. Saturday, 14 April is for revision with assessments on Sunday, 15 April. To enrol, or for more information, contact Barry Robinson VK3PV, on 0428 516 001 or foundation@amateurradio.com.au

Centenary celebrations – a brief report

The celebration of 100 years since the formation of what is now known as Amateur Radio Victoria went very well thanks to the volunteers around Victoria and those who participated throughout Victoria and overseas.



Trevor Close VK3ATX, one of the operators from the Western and Northern Suburbs Amateur Radio Club (WANSARC) at their VK100ARV activation at Bundoora Park.

The highlights included nearly 5,500 contacts with the special callsign VK100ARV, a total of 19 activations under the Keith Roget Memorial National Parks Award and the number of Centenary Awards issued.

It also featured the world's first D-ATV QSO Party, the SSTV weekly sessions and lots of DX worked during its 30 days of rostered operation. Meantime the VK100ARV QSL cards and award certificates are being issued. A full report on the Centenary will be published soon.

VK3RHO back on air

After some years, and a lot of hard work, the Albury Wodonga Amateur Radio Club has the strategically located two metre repeater at Mt Hotham back in service. The enthusiasm behind the project came at a cost, including some refurbishment, sourcing power and site fees.

The Albury Wodonga Amateur Radio Club is to be congratulated in its efforts. It now fills a missing gap

in the repeater network in the north-east of Victoria. It covers a wide area of the High Plains and will be useful particularly during the annual Roof Top Run from Mt Bogong to Mt Hotham - it is a WICEN event. If you live in the area or are just passing through, give it a try with 147.650 MHz in and 147.050 MHz out.

Centre Victoria RadioFest

The final touches are being made to the biggest event of its type in Victoria with the main commercial traders, second-hand sellers, club corner precinct and mini-lecture programs ready. A lot of hard work is needed to bring it all together but from what the organisers and individual coordinators can tell us all is set for another successful family friendly event. Remember it is on Sunday, 12 February at the Kyneton Racecourse. See all of the details at radiofest.amateurradio.com.au

Tim Mills VK2ZTM
vk2ztm@wia.org.au

Welcome to 2012 from Amateur Radio News South Wales. ARNSW members are advised that their AGM will be held on Saturday, 21 April, 2012. Close of nominations and receipt of agenda items and notice of motions will be Saturday, 3 March, 2012. Further details via VK2WI bulletins and the ARNSW web site www.arnsw.org.au AGM paperwork and other material is sent to members by either post or email. Please ensure that email and postal addresses are up to date with the membership secretary via membership@arnsw.org.au Recently the VK2 clubs listing on the ARNSW web site was changed from listed details to links to the various club sites.

The end of February is the annual Central Coast Field Day at the usual venue – Wyong Racecourse – on Sunday, 26 February, which has become the largest one in Australia. This long running event in the period round 1950s/1960s was held in November at the Gosford Sailing Club. Then a move to the Gosford Showground for a couple of decades until the transfer to the present site at Wyong. ARNSW assessors will again be at the field day for all grades of license assessment. Inquiries to education@arnsw.org.au or telephone 02 9651 1490/0400 445 829 and leave contact details.

ARNSW has scheduled one day Foundation courses every two months. The next will be on Sunday, 18 March, with the assessments a week later. The weekly upgrade course for Standard and Advanced licence for this year will resume on

Monday, 5 March and then each week except on public holidays. Contact details as above. All these activities are held at VK2WI, 63 Quarry Road, Dural. Readers are asked to pass on these details to those they may know who are seeking study and exam venues. See the ARNSW web site www.arnsw.org.au Click on 'Training and Exams' on the home page for details. Second edition WIA Foundation Manuals and the 5th edition of the Swainston Handbook are available for collection from VK2WI. The next Trash & Treasure, exam assessments and Home Brew gathering at VK2WI will be on Sunday, 25 March.

During the latter part of last year work was carried out at VK2WI to provide fire fighting facilities by making use of the rainwater tank on site. In addition, earthworks were carried out to install piping for underground feeds to the HF antennas, an ongoing project for much of this year. This year additional toilet facilities are being added.

During January many clubs have been in recess and will resume meetings in February. These include the Hunter Radio Group on Friday the 10th at NBN Studios. Their VK2AWX news net starts up the previous Monday evening. HADARC meetings from the 14th and 28th February. St. George ARS on 1 February.

Waverley ARS have a Foundation Course over the weekend 11th and 12th February. education@vk2bv.org They recently changed access tone on VK2ROT 7025 to 91.5 Hz. No

change on their 70 cm 8575. The Oxley Region ARC moved their mid-week net to Thursday at 7.30 pm. They are developing an APRS node at the VK2RPM site as VK2RPM-1 on the Australian frequency of 145.175 MHz. The weekly VK2BWI Morse training session provided by Ross VK2ER and Geoff VK2BGP resumes Thursday the 2nd on 3.550 MHz at 2000 hours VK2 time. Ross thanks listeners for callbacks received last year. These are always taken at the end of each session and are most welcome. The Mid South Coast ARC is scheduled to have a quarterly meeting on Saturday 11 February. Looking ahead there is the annual Urunga Convention over Easter.

During the latter part of last year the NSW Government conducted a Planning Systems Review into the operations of local government. It was promoted from within the Amateur Radio Service as an opportunity to seek uniform State-wide regulations for the erection of towers and masts in their domestic locations. In excess of one hundred amateurs put pen to paper (or keyboard) and made submissions to the review. In fact these were more than half the submissions received - it was reported. However it was subsequently advised at some public meetings that these antenna/tower submissions were outside the review guidelines. An Issues Paper on the review to date was released in December 2011 to which further submissions can be made by 17 February, 2012.



Wyong Field Day

Sunday 26 February at Wyong Race Course



Photo 1: Guests at the VK3 ALARA Christmas luncheon, at the home of Susan VK3UMM.

Greetings and a Happy New Year to all. 2012 is shaping to be a very interesting year. In May the International YL Meet will be held in Adelaide. Already 45 YLs have registered and 25 others shown interest. If you are considering attending the Meet registrations need to be made by the end of March, 2012. For those interested in taking the trip on the Ghan after the meet, bookings need to be in by the end of February. Further information can be obtained through <http://www.ylinternational2012.com> or contact ALARA President Tina VK5TMC on vk5tmc@internode.on.net

IOTA Marathon

Lyn VK4SWE has alerted us to the IOTA Marathon which takes place from 1st January, 2012 through to 31st December, 2013. All licensed amateurs worldwide are encouraged to participate. The event is part of a build up for the celebrations of the 50th anniversary of the launch of Islands On The Air (IOTA). For a two year period IOTA chasers are seeking to contact as many IOTA groups as possible. To learn more about this exciting event, please go to <http://rsgbiota.org/marathon/index.php>

Yarra Ranges Ham Sale

On 12th November, many operators attended the Yarra Ranges Sale. These sales are a great opportunity to meet and greet other amateurs.

November. They travelled from Melbourne on the Overland train, although taking their car with them, and found it a novel experience.

The trip was an opportunity to meet up with a number of South Australian ALARA members. The couple felt royally entertained by the VK5 ALARA group and Jean VK3VIP was lucky enough to win one of the raffle prizes at the hamfest, a supergainer antenna donated by Strictly Ham.

ALARA VK3 Christmas lunch

This year we all travelled to Plenty to enjoy the hospitality of Susan VK3UMM who hosted our end of year get together. Despite the weather being overcast with intermittent showers, we all managed to arrive safely.

Those without their GPS may have found the location, tucked away in a bushy area, a little hard to locate but we all made it.

In a warm, friendly atmosphere everyone enjoyed the luncheon provided and the

Several ALARA members attended to attempt to sell some 'pre-loved' radio articles.

Adelaide hamfest

Jean VK3VIP, the VK3 state representative and her OM John VK3DQ visited the hamfest in Adelaide last

following sweets were delicious. Our thanks to all the contributors. Our hostess and Pam then entertained us with a musical performance of song accompanied by an unusual musical instrument, the Hurdy Gurdy.

Kris Kringle presents were duly presented; it's amazing how versatile people can be when looking for a gift in the \$5.00 range. It was a lot of fun opening up the wrapping to see what was inside.

News from Shirley VK5YL about the death of an American friend

Jean C. Blakeslee WB8FIC – Silent Key. Jean C. Blakeslee, 85, of Delaware died Saturday, 5 November, 2011 at her home. She was born on 13 October, 1926 in East Rochester. She received her BA from OWU and her MS from OSU. A resident of Delaware since 1944, Jean was a retired teacher, having taught at Smith and Conger Elementary Schools. Among other things, she was a keen ham radio operator, a retired director of the In-Service Training Program, a member and trustee of the First Presbyterian Church, Delara, Buckeye Belles and the Cosmopolitan Club and served on the boards of Oak Grove Cemetery, the Habitat for Humanity and Council for Older Adults.

Photo 2: Susan VK3UMM and Pam entertaining at the VK3 ALARA Christmas luncheon.



Spring VHF-UHF Field Day 2011: Results

Contest Manager: John Martin VK3KM

A week before the Spring Field Day, the weather was looking very promising. Not so on the day - a number of regular participants operated from home instead of going portable. And a number of those who went portable came back feeling a little damp. Still, all good fun.

According to the rules, the winner of Section A is barred from Section B, and likewise for Sections C and D. That left a total of 72 logs from 64 entrants. The winners of the six sections were: Matt Hetherington VK2DAG, John Ross VK5NI, the Eastern and Mountain District Radio Club VK3ER, the Elizabeth Amateur Radio Club VK5LZ, Ross Keogh VK3MY, and Dan Joyce VK2GG. Congratulations to all.

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
Section A: Single Operator, 24 Hours													
VK2DAG	Matt Hetherington	QF56, QF57	77	276	455	616	770	770	760	760	660	-	5144
VK4OE	Doug Friend	QG62, QG63	69	468	460	576	570	440	220	440	-	-	3243
VK3ES	Andy Sayers	QF22	-	444	620	720	390	-	-	400	-	-	2574
VK5TE	Simon Brandenburg	PF94	24	267	440	512	210	440	-	-	-	-	1893
VK5LA	Andy Willis	PF85	32	411	565	616	-	210	-	-	-	-	1834
VK4ADC	Doug Hunter	QG61, QG62	63	291	365	352	330	320	-	-	-	-	1721
VK2MER	Kirk Mercer	QF55	93	588	645	304	-	-	-	-	-	-	1630
VK4HBG	John Collins	QG62	-	945	310	-	-	-	-	-	-	-	1255
VK5MK	Mark Hutchinson	PF94	75	258	400	520	-	-	-	-	-	-	1253
VK1PAR	Al Long	QF45	44	513	355	-	-	-	-	-	-	-	912
VK4NE	Mick Marinkovic	QG62	48	270	250	272	-	-	-	-	-	-	840
VK1DSH	Dale Hughes	QF45	53	165	215	-	-	-	-	-	-	-	433
VK2ARA	Ted Thrift	QF55	9	51	30	-	-	-	-	-	-	-	90
Section B: Single Operator, 8 Hours													
VK5NI	John Ross	PF95	-	153	255	368	-	480	440	330	-	-	2026
VK5TE	Simon Brandenburg	PF94	23	255	430	488	210	440	-	-	-	-	1846
VK3PF	Peter Freeman	QF31, QF32	21	177	230	272	320	-	320	320	-	-	1660
VK5OQ	Keith Gooley	PF95	45	207	385	480	-	330	210	-	-	-	1657
VK5LA	Andy Willis	PF85	32	264	380	560	-	210	-	-	-	-	1446
VK3LY	Bill Day	QF03	46	375	380	448	-	-	-	-	-	-	1249
VK5MK	Mark Hutchinson	PF94	69	240	370	496	-	-	-	-	-	-	1175
VK5AR	Alan Raftery	PF94	-	345	415	-	-	-	-	-	-	-	810
VK3RU	David Williams	QF23	-	228	265	280	-	-	-	-	-	-	773
VK2HRX	Compton Allen	QF56	35	246	185	-	-	-	-	-	-	-	466
VK5KPR	Peter Banks	PF87	33	132	110	-	-	-	-	-	-	-	275
Section C: Multi Operator, 24 Hours													
VK3ER	EMDRC	QF22	194	855	1100	1240	700	350	450	630	-	-	5519
VK3UHF		QF21	76	612	935	1008	680	460	680	770	-	-	5221
VK5LZ	Elizabeth ARC	PF95, PF96	72	384	560	720	760	860	690	670	-	-	4716
VK3ALB		QF11	48	393	580	688	590	360	350	480	-	-	3489
VK5SR	SERG	QF02	54	318	435	664	440	210	210	340	-	-	2671
VK2MA	HADARC	QF56	104	276	290	272	210	210	-	-	-	-	1362
VK4WIE	CBRS	QG60	91	456	320	264	-	-	-	-	-	-	1131
VK2BOZ		QF68	75	561	210	216	-	-	-	-	-	-	1062
VK5KC		PF84	21	240	305	184	-	-	-	-	-	-	750
VK2LE	St George ARS	QF56	33	246	225	-	-	-	-	-	-	-	504
Section D: Multi Operator, 8 Hours													
VK5LZ	Elizabeth ARC	PF95, PF96	70	333	510	696	750	830	680	660	-	-	4529
VK3ALB		QF11	45	381	565	680	580	350	350	470	-	-	3421
VK4IZ	Redcliffe DARC	QG62	64	312	380	360	-	-	-	330	-	-	1446
VK5OM		QF03	35	279	410	344	-	-	-	-	-	-	1068
VK2EH	CCARC	QF56	32	258	285	-	-	-	-	-	-	-	575
VK1MAT		QF44	45	252	235	-	-	-	-	-	-	-	532
Section E: Home Station, 24 Hours													
VK3MY	Ross Keogh	QF22	69	576	815	792	450	-	-	-	-	-	2702
VK3VFO	Nick Kraehe	QF31	35	525	500	352	370	-	-	-	-	-	1782
VK3GL	Graeme Lewis	QF21	117	564	615	440	-	-	-	-	-	-	1736

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
VK4VDX	Roland Lang	QG62	41	507	520	624	-	-	-	-	-	-	1692
VK5AKM	Keith Minchin	PF95	46	255	370	600	-	390	-	-	-	-	1661
VK5NE	Paul Roehrs	PF95	90	453	515	456	-	-	-	-	-	-	1514
VK3HY	Gavin Brain	QF22	80	444	500	368	-	-	-	-	-	-	1392
VK3NFI	Dean Webster	QF31	42	345	415	424	-	-	-	-	-	-	1226
VK3JTM	Tim Morgan	QF12	-	102	165	272	210	-	210	210	-	-	1169
VK4KLC	Ron Melton	QG62	84	411	490	-	-	-	-	-	-	-	985
VK3YFL	Bryon Dunkley-Smith	QF22	38	186	280	416	-	-	-	-	-	-	920
VK5ALX	Alex Gilinski	PF86	45	285	300	256	-	-	-	-	-	-	886
VK5LD	Dale Loffler	PF96	21	273	300	264	-	-	-	-	-	-	858
VK4ALH	Leicester Hibbert	QG63	39	255	250	312	-	-	-	-	-	-	856
VK3PF	Peter Freeman	QF31	-	120	135	208	230	-	-	-	-	-	693
VK3KIS	Andrew Kayton	QF22	-	147	230	288	-	-	-	-	-	-	665
VK2BO	Richard Neilsen	QF56	64	150	115	264	-	-	-	-	-	-	593
VK3TOM	Tom Steadman	QF31	29	237	225	-	-	-	-	-	-	-	491
VK2LSB	Stuart Bayliss	QF55	-	207	102	168	-	-	-	-	-	-	477
VK4RY	Richard Philp	QG63	24	132	135	184	-	-	-	-	-	-	475
VK2EI	Neil Sandford	QF68	22	258	120	-	-	-	-	-	-	-	400
VK3BJZ	Bevan Jackel	QF21	38	147	205	-	-	-	-	-	-	-	390
VK3HV	George Francis	QF31	37	123	150	-	-	-	-	-	-	-	310
VK3FRAE	Rae Billing	QF31	-	81	120	-	-	-	-	-	-	-	201
VK2FPOL	Alex Sentana	QF56	-	126	-	-	-	-	-	-	-	-	126
VK3ZHQ	Eric Warren-Smith	QF22	-	120	-	-	-	-	-	-	-	-	120
VK4ATH	Tom Hatton	QG62	60	-	-	-	-	-	-	-	-	-	60
Section F: Rover Station, 24 Hours													
VK2GG	Dan Joyce	QF55, QF56, QF57, QF58, QF67, QF68	142	432	720	1136	1420	1420	1420	1400	1410	1380	10880
VK2CQ	Dave Maloney	QF55, QF56, QF57, QF58, QF67, QF68	140	426	710	1120	1400	1400	1400	1410	1410	1380	10796
VK5ZT	Tim Dixon	PF84, PF85, PF86, PF95, PF96	64	330	565	888	650	1030	660	660	-	-	4847
VK3VL	David Harms	QF32, QF42	-	138	-	-	-	-	-	-	-	-	138

Notes

VK1MAT. Matt Bowman VK1MAT, Shane Goodwin VK1MAD

VK2EH Central Coast Amateur Radio Club: David Hardy VK2JDH, Colin Matten VK2KCM, Ed Durrant VK2ARE

VK2LE St George Amateur Radio Society: Peter O'Connell VK2EMU, Peter Mahoney VK2JTV, James Goh VK2GOH, Greg Bain VK2FAAS, Cameron McKay VK2CKP

VK2MA Hornsby & District Amateur Radio Club: David Harvey VK2DMH, Peter Pratt VK2TTP, Rod Gamble VK2DAY, Dave Wallace VK2FDIW, Stephen Diekman VK2FSDO, Justin Lavery VK2CU, Bob Mayer VK2BMU, Colin Christie VK2JCC, Jim Omeros VK2LC

VK2BOZ Cris Perrett VK3BOZ, Brenda Taylor VK2FSMI, Doug Tufrey VK2FWWD

VK3ER Eastern & Mountain District Radio Club: Mike Subocz VK3AWV, Andrew Scott VK3BQ, Peter Forbes VK3QI, Max Chadwick VK3WT, Jack Bramham VK3WWW

VK3ALB Lou Blasco VK3ALB, Nik Presser VK3BA, Peter Westgarth VK3APW, Jenni Blasco VK3FJEN, Michael Blasco VK3FMIC

VK3UHF Charlie Kahwagi VK3NX, Chas Gnaccarini VK3PY, David Learmonth VK3QM

VK4IZ Redcliffe & District Radio Club: Kevin Johnston VK4UH, David Close VK4DC, Phil Howe VK4IIO, John Maudsley VK4YJV

VK4WIE City of Brisbane Radio Society: Ken Myers VK4GC, John Morris VK4MJF, Colin Cortina VK4MIL, Ron Croucher VK4CRO

VK5KC David Clegg VK5KC, John Dawes VK5BJE

VK5LZ Elizabeth Amateur Radio Club: Iain Crawford VK5ZD, Scott Jackson VK5FSKS, Peter Murphy VK5RX

VK5OM Jim Bywaters VK5OM, Bill Day VK3LY, B. Farmers VK3AQX, L. Ferris VK3BUN, P. Sherlock (SWL)

VK5SR South East Radio Group: Colin Hutchesson VK5DK, Trevor Niven VK5NC, Tony Hutchison VK5ZAI, Owen Shephard VK5FORS, John Drew VK5DJ, Ian Bishop VK3FNBL

2012 Field Days

Summer 14/15 January

Winter 23/24 June

Spring 24/25 November (to be confirmed)

Field Day web site: <http://www.wia.org.au/members/contests/vhfuhf/>

This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.



Over to you

Hi Peter,

Reading the article on the 6 m Yagi by Paul McMahon VK3DIP he mentions 'Penetrox' which I gather is a electrically conductive grease.

I thought I might let him know that an alternative, 'Alminox' in a 325 g tube, is available on order through Lawrence & Hanson electrical distributors for about \$36. Expensive but the tube lasts a long time.

There was no contact details in the article so I thought that you would have contact details and could pass this info on, as well as perhaps a notation in the next AR.

Recently we had to repair and refurbish our 20 m Log Yagi at Cataract Scout Park which had been up for many a year and was suffering oxidation at all the joints of each element. This was done sequentially on each size tube of each element by using different size dowels with a split in the end carrying successively two different grades of emery cloth. Similarly the outside of the next section was cleaned then coated with 'Alminox' before being riveted back together.

Although use of 'Alminox' is messy it appears to do the job of being conductive and importantly staying on each surface. Our 20 m Log Yagi is back in the sky with new feeders that are stronger

and more big bird resistant, a (proper) load bearing and a better leverage ratio onto the new rotator through a new mount bracket. We are now showing about 1.25:1 across most of the 20 m band. Importantly we were able to get it back up in time for JOTA.

Let's see if it can stay operative for the next 15 years.

73

Wal Kelly VK2ZWK

Secretary

FGARC

On behalf of our members that made it happen.



VK5news Adelaide Hills Amateur Radio Society (AHARS)

Christine Taylor VK5CTY



A very happy XYL, winner of the AHARS major raffle prize. That's David VK5KC in the background.

November saw the very successful AHARS Buy and Sell on Sunday 20th November which was as well attended as ever. It is the biggest gathering of amateurs in VK5 and often attracts visitors from interstate as well.

This year the WIA President Michael Owen VK3KI came over so the opportunity was taken for a Club's Convention on Saturday 19th. This year it was held at the AHARS new venue 'The Shack' in Blackwood. With the use of the Guide Hall for tea and coffee it all worked very well. The members of AHARS who had worked so hard were rewarded by the admiration expressed by the representatives from the other VK5 clubs. Quite a lot of useful exchange of ideas occurs at these Club's Conventions and this one was no exception.

The months of December and January are usually occupied by Christmas luncheons

and family activities. AHARS had a dinner at the Mount Osmond Golf Club that was attended by over 60 members and spouses. As always the ambiance was great and the event was a success. As usual there were a number of happy people after

the drawing of all the lucky prize tickets although no one was happier than Rob VK5RG to win a dinner for two at the Golf Club for the second year in a row and the XYL who won the hamper of goodies.

In January AHARS will have the annual picnic at the same venue it has used before, next to the Bridgewater Mill where, as long as the weather is kind, a good time is expected again.

Please note for members and visitors. The meetings of AHARS will be held at a **new venue**. We will meet at the Senior Citizens Hall, 4 Young Street, Blackwood. Meetings are on the third Thursday of each month and start at 7.30 pm. The speaker is always at the beginning of the meeting as it is felt to be more convenient that way. The general meeting is held after the supper break. If you are a visitor to Adelaide and would like to attend a meeting please contact either the President David VK5KC or the Secretary Sue VK5AYL QTHR the callbook.

Other information about the club or its activities can be found on the website www.ahars.com from which there are a number of links to associated information.



Spotlight on SWLing

Robin L. Harwood VK7RH
vk7rh@icqmail.com

2012 has arrived and already I have been noticing that HF is vastly different from what it was just a few months ago. Deutsche Welle in Cologne has largely disappeared although a few remaining programs are being transmitted from Kigali in Rwanda. These are primarily for Africa yet being heard in North America. Radio Netherlands continues but will close during this year with both the relay stations in Madagascar and Bonaire put up for sale or dismantled if no bids are forthcoming.

The BBC World Service also continues but has been severely cut back. Programs no longer originate from Bush House, which is only a few hundred metres from Australia House. I saw it whilst visiting London in 1979, but visits were discouraged due to security concerns. At that time, the IRA was active. Broadcasting commenced from Bush House in 1941 at the height of the London Blitz and at its peak broadcast in over 50 languages. Today there are only 25 or so in use and are mainly news and current affairs. Programs now emanate from Broadcasting House, home of the BBC Domestic Service.

The fiscal crisis in Europe has also affected external services, resulting in reduced programming. Radio France International (RFI) has been plagued by repeated industrial action due to plans to integrate it with the television companies. Employees fear that RFI will lose its individuality if the merger goes ahead. RFI has already scaled back and mainly targets Francophone Africa. Greece is in deep austerity and the Voice of Greece in Athens

has dramatically slashed output to six hours a day from 2200 till 0600.

As I have often remarked, the Chinese have been capitalising on the withdrawal of major international broadcasters from HF. It is so easy to hear them now. They have been heavily investing in transmitting infrastructure and one can easily find a Chinese broadcaster virtually around the clock. However the Chinese do not like other external broadcasters airing programs in the various languages within the PRC, going to great lengths to jam them.

Talking of intentional jamming, this came to a head in December following the unexpected demise of the North Korean leader Kim Jong Il, the dictator and referred to as the 'Dear Leader'. As you are aware, there are two Koreas, one in the north and the other in the south and both routinely jam the other's broadcasts. This jamming consists of white noise similar to STANAG and both use it, making it difficult to determine their identity. For example, there is a clandestine station from the north broadcasting to the south on 4450 and the south responds with white noise. Similarly the south has a network of clandestine operations on 6003, 6015, 6518 and 6600. To complicate matters further, the Japanese have commenced airing programs in support of their citizens who were illegally abducted to the north by secret agents. These broadcasts are routinely jammed by the north.

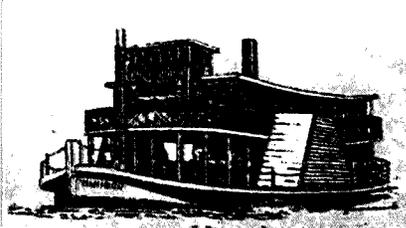
One of the channels chosen in this electronic warfare is 6230, which you may be aware is the frequency of VMC Charleville. This service broadcasts met

observations and forecasts for Australia around the clock and is virtually wiped out in the local evening hours by the incessant white noise from North Korea. Similarly the 2011 Sydney to Hobart yacht race radio communications on 6516 were interfered with severely by white noise on 6518, plus a clandestine, presumably in the south. This has gone on for many years now and I wonder why ACMA has not allocated a new channel to get away from this madness.

Incidentally there is another radio war and this does impinge on the amateur bands. Ethiopia and Eritrea have been engaged in a cat and mouse game, jamming each other and usually ending up within the allocation between 7.1 and 7.2 MHz. It is difficult to determine the identity of the signal and they are often heard on 7175, and one will shift up or down to escape the jamming but it seems to follow them. They are often heard as well on 7125 or 7100 usually signing off round 2000.

Afghanistan has now shifted to 7200 from 6102 and is on between 1530 and 1630 reportedly in English. However there are also three other stations co-channel. One is Sudan, another rarity and the remaining stations are Ethiopia and Eritrea in their radio war. What a pity, but also a challenge! Four very rare broadcasters on the same channel simultaneously and, indeed, very difficult identifying who is who.

Well that is all for now. Let us hope that 2012 will produce some surprises. Don't forget that you may email me on the address above.



WIA Annual Conference

Mildura, 25 – 27 May, 2012



Register online at <http://www.wia.org.au/>

DX-News & Views

John Bazley VK4OQ
john.bazley@bigpond.com

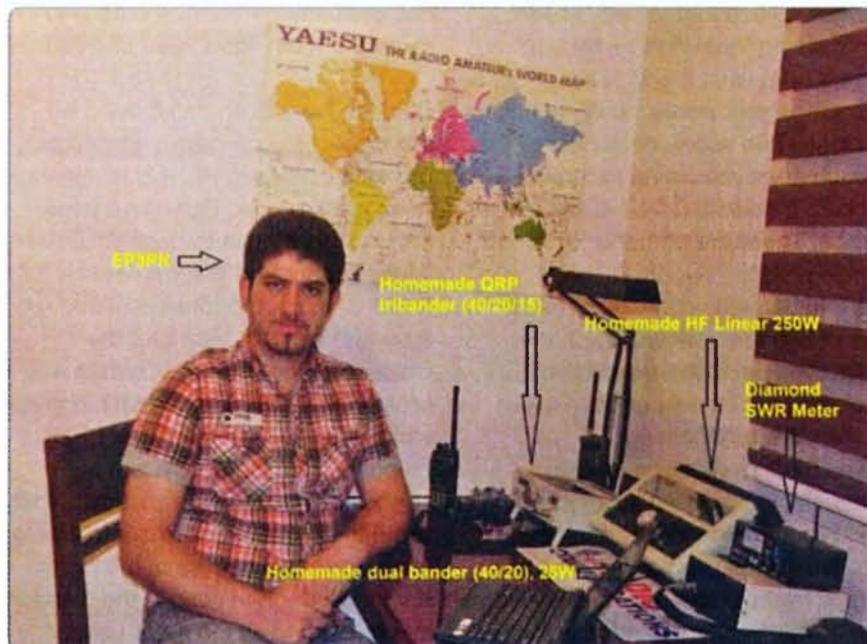
A Happy New Year and let's hope that the rise in the sunspot activity is here to stay for a year or two; it certainly has improved conditions particularly on 24 and 28 MHz.

Well, there certainly is no shortage of DX news this month! But first I must thank Keith VK3FT for his e-mail following my comment on the T32C DXpedition in December, namely 'I speak regularly with Clive GM3POI who was on the DXpedition. As one of the lead designers of the antennas they used on T32C he stated not receiving the Yagis made a big difference as they were forced to use vertical arrays. Clive said that it saved them a lot of time in setting up the antennas and the consensus was that in not having the Yagis they made many more contacts than would have been possible if they had used low Yagis.'

Malpelo 2012 DXpedition

Recently three US members, K4UEE, N4GRN and W6IZT flew to Cartagena, Colombia, and met with six of their Colombian counterparts to make some critical decisions about the upcoming DXpedition to Malpelo Island. Since it is highly unlikely that the various Colombian authorities will permit another DXpedition to Malpelo anytime soon, a decision was made to extend the DXpedition to 16-17 days from the previous 12-14 day plan. The approximate dates of operations will now be January 21 to February 5 or 6.

On December 26 four members from the HKONA team, HK1N, HK1T, HK6F and HK1MW, departed from the pier of the Navy base Bahia Malaga aboard the patrol boat Jose Maria Palas. The target of this advanced team, called 'The Fantastic Four' is to set up all the 11 stations, the two camps and wireless network in order to have all ready when the main group arrive on January 21. To these four brave men who are going to spend more than 40



Pooyan EP3PK at his modest and mostly homebrew station. The photo captions indicate 'what is what'.

days on the island and sacrifice the holidays away from their families, we have to express our admiration and gratitude.

Each station will have a complete complement of antennas and radios with amplifiers. The first operating site will be co-located with the Colombian Marine's camp on the east side of the island with a clear take off to the east coast USA, EU and Africa. In order to have a clear shot at JA/Asia, the Pacific region and W6/W7, the second operating site will be located near the top of the highest mountain peak on the island. However, to lessen the physical risks to the team members, the operating site will be located on platforms situated below the actual peak. Still, it will be a 45 minute uphill climb to reach the platforms. The antennas for that site will be on the top of the mountain peak.

This is going to be a difficult and expensive DXpedition. Every effort will be made to maximize QSOs while protecting the safety of the team members. It is a delicate

balance. Your financial support is necessary and will be gratefully accepted. Contributions can be made via their website www.hk0na.com/sponsor You can read the latest news at <http://hk0na.com/category/latest-news/>

My thanks go to Jorge Prieto HK1R, the DXpedition leader, and co-leaders Bob Allphin K4UEE and Gregg Marco W6IZT. And for those readers who are interested in more information on the history of the Malpelo DXpeditions, an excellent Vienna-based documentary and radio archives communication covers all previous operations to the island - <http://dokufunk.org/malpelo>

Pooyan EP3PK has been active again, at a time suitable for VK/ZL, and often calls CQ VK/ZL, mainly on 20 metres SSB, around 1200 to 1400 UTC. He has an excellent QSL manager and does subscribe to LOTW. He has recently moved QTH but by the time you read this he should be active again in his new surroundings.

The group headed to VP6T, namely F6BEE, G3TXF, VE2TZT, FM5CD and F4BKV have now finalised their itinerary, and will depart on January 12th. First **Tahiti** OC-046 for three days, then **Mangareva Island** OC-063, where they have the callsign TX6T. They may also use that callsign from Tahiti. After Mangareva they hope to reach **Pitcairn** OC-044 by January 20. They will stay on Pitcairn until February 4th. They will have three stations on the air around the clock, 160-10 m, CW, SSB and RTTY with an emphasis on the 'low bands'. QSL direct or via bureau to G3TXF. They will also use ClubLog's Online QSL Request Service, OQRS. Their website is at www.vp6t.org

Some of the members of the 2010 9Q50ON team from the Democratic Republic of Congo are heading to the other Congo - **The Republic of Congo**. They have been issued with the call TN2T and will soon have their website up and running at <http://www.tn2t.be/> Plans are to have six operators and three stations. The time frame for this one is late January and early February. QSL via M0URX.

TN9SN is the new callsign issued to Nicolas Siniokoff, ex-TN5SN, by the new licensing authority in the **Republic of Congo**. He plans to have it renewed for 2012, as he will be there until July.

Laci HA0NAR has announced a DXpedition to both **Wallis and Futuna Islands**. They will stop in Los Angeles for two days before heading to Nadi, Fiji. Once in 3D2 they will fly directly to Wallis Island OC-054, where they plan to begin activity as FW0R on January 25. They will have two stations QRV simultaneously on 1.8 through six metres. On February 5 to 10 they will be operating as TW0F from Futuna Island OC-118. Then on February 11 to February 23 they will be back on Wallis Island. The team is looking for financial support, which can be sent via PayPal to ha0nar@hotmail.com 'We would like to thank all individuals and especially the Clubs/Foundation as well as equipment suppliers that already support us,' says Laci.

QSL for both FW0R and TW0F via HA0NAR either direct or via bureau. More details can be found at www.ha0nar.hu

Myanmar (Burma) has not been QRV since 2004. Over the last year Simon Luttrell HS0ZIB (G6JFY) has been having 'discrete discussions with senior officials within the Myanmar Ministry of Post & Telecommunications, and the Ministry of Tourism.' An 'invitation' has been granted for Simon to visit Bagan, Myanmar 'to operate a PSK31 'micro' DXpedition for about four days. At the time of writing this has not yet taken place but could be a move in the right direction for activity from there.

Starting January 29 through February 10, look for HU2DX to be QRV from **El Salvador** (YS) by a multi-national team from Germany, Czech and El Salvador. This prefix has, supposedly, not been used for close to 30 years. The team will include team leader DL3JJ and YS1GMV, YS1MAE, YS1ZC, OK4MM, DL8ALU, DL2ARD, DL5SE, DL4JS, DK8YY and DF7TT. The main emphasis will be on the low bands and digital modes. QSL via DH7WW.

Adrian EA1CYK is now at the Spanish base Gabriel de Castilla on Deception Island, in the **South Shetlands** AN-010 until March, 2012. He will be QRV as EA1CYK/P in his free time, using an Icom IC-7000 and Yaesu FT-897 running 100 watts on SSB and digital modes into a sloper and vertical. QSL to EA7LS via the bureau or direct.

Mike VE2XB plans to be QRV from **Dominica** NA-101 for several weeks, as J79XB, for a vacation style operation starting January 5. Activity will be on all bands from 1.8 through 28 MHz and possibly six metres. QSL via VE2XB with SAE and either Canadian stamps, two IRCs or greenstamps.

Jim ND9M is back at **Diego Garcia** and QRV as VQ9JC. He is there on a four month rotation on and then four months off, then back for another quarter. Listen for him during his evenings and possibly on Fridays, when he is not on the ship. He operates from the club station

using a log periodic for 10 through 30 MHz. Unfortunately the low band antennas are either not working or missing. QSL via ND9M.

Tom Metz K2GSJ says he will be back on **Sint Maarten** from January until about April. QSL to his home call. All the cards will be sent after April 1.

PJ4B on Bonaire by PA8A will be from January 8 to 22. QSL via PA3GVI with two greenstamps and SAE.

CX3AN and CX4CR are teaming up to use the call 8Q7HU from Maafushi Island in the Kaafu Atoll of the **Maldives Islands** between January 25 and February 5. They will be on 3.5 through 50 MHz on CW, SSB and RTTY, focusing on South America.

Pai VU2PAI has finished installing his new topband dipole from the top of his apartment in Mangalore, **India**, using a 15 metre high spider pole, which puts the antenna at 46 metres above the ground. He has also replied to all direct QSL requests. When sending QSL requests to Pai he requests 'three or four' beautiful stamps on the envelope to him. No need to send a greenstamp, but please include SAE. He still has QSL cards for his previous AS-096 and AS-161 IOTA operations, as well as VU2PAI/50 and VU2PAI/C. Pai does use LoTW, but prefers QSLs.

A note on JE1LET's QRZ.COM page says 'If you need a **VKOKEV** QSL card, please send me your request by 31 January, 2012'. Given the lateness of the day, it may well be prudent to email Masa, at JE1LET@jarl.com with your request and QSO details.

Good luck in the pile-ups until next month.

Special thanks to the authors of *The Daily DX* (W3UR, 425 DX News (11JQJ) and QRZ.DX for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from www.dailydx.com/trial.htm

AMSAT

David Giles VK5DG
vk5dg@amsat.org

And then there were three (and a half)...

It was announced on 29 November that AO-51's third battery cell had failed and so its mission had ended. After nearly six and a half years of service, the most popular OSCAR had succumbed to the ravages of its environment. It is with regret that I have to remove AO-51 from the six monthly listing below. Of the operational OSCARs only AO-7, SO-50, and VO-52 have working transponders; I left ARISSat-1 out of this group as it may have re-entered by the time you read this. FO-29 is currently non-operational but is very likely to recover when eclipses improve.

2011 in review

There have been some significant losses this year. HO-68 was unlikely to activate its transponders and has remained in beacon mode. FO-29 has started another long eclipse season and is currently silent though it is likely to come back at some stage. Latest news is that the command station has been repaired and FO-29 was re-activated. Unfortunately it shut down after only four minutes from under-voltage. SO-67 has suffered many problems that have reduced the amount of amateur usage. NO-44 is also undergoing recovery attempts. Of the cubesats, RAX-1 mission has ended, and the SWISSCUBE mission has ended but its future is unknown.

But there have been some gains. ARISSat-1 has been a huge success despite the incident with the 70 cm antenna. Several cubesats were successfully launched and are still operational. FO-69 has been successfully used for APRS digipeating.

Six-monthly review of operational OSCARs

Here is an updated review of the operational OSCARs and other satellites using amateur satellite

service bands. All satellites listed here have been heard by the author during November and December, 2011 except FO-29, NO-44, DO-64 and SO-67.

The names of the satellites are given as OSCAR number, full name and (NASA catalogue number). Modes are represented by frequency bands: H=10 m, V=2 m, U=70 cm, L=23 cm, in order of uplink/downlink.

Linear transponders use CW and SSB. With the exception of AO-7's V/H transponder, all linear transponders are 'inverting' types and use LSB for the uplink and USB on the downlink. For AO-7 mode V/H use USB for both links. Most of the activity is in the middle of the passband. If manually adjusting for Doppler then the most compensation should be done with the highest band in use. Foundation licensees are permitted to transmit SSB/CW and FM voice to any of the satellites in the 10 m, 2 m and 70 cm bands as well as receive all the satellites. Foundation licensees are not permitted to use 23 cm uplinks, for example CO-65. See the AMSAT column in September, 2009 AR for more details.

Telemetry decoding programs for several satellites are available from Mike Rupprecht's website at <http://www.dk3wn.info/software.shtml>

AO-7 AMSAT OSCAR 7 (7530)

Launched: 15/11/1974.

Status: Operational only when it is in sunlight. It may be in any mode. During non-eclipse periods as it is currently, AO-7 will alternate between modes V/H and U/V every 24 hours. Beacons are not always on.

Mode: V/H (old mode 'A'), linear, non-inverting.

Uplink: 145.850-145.950 MHz, Downlink: 29.400-29.500 MHz.

Beacon: 29.502 MHz CW. Occasionally the 435.106 MHz CW or RTTY beacon may be on.

Mode: U/V (old mode 'B'), linear, inverting. Uplink: 432.125-432.175 MHz, Downlink: 145.975-145.925 MHz.

Beacon: 145.972 MHz CW at 10 or 20 WPM, intermittent operation.

Unfortunately the AO-7 website has been corrupted. Reports are sent to <http://oscar.dcar.org> to indicate which modes have been heard.

UO-11 UOSAT-2 (14781)

Launched: 1/3/1984.

Status: Intermittent. UO-11's 145.826

MHz beacon will only work when in full sunlight. You may hear its distinctive signal while monitoring the frequency for other satellites such as ISS, NO-44 and FO-70.

Beacon: 145.826 MHz FM 1k2 AFSK.

<http://www.g3cww.co.uk/oscar11.htm>

IO-26 ITAMSAT (22826)

Launched: 26/09/1993.

Status: Semi-operational. IO-26 is in Master Boot Loader (MBL) mode. It transmits continuous BPSK carrier with the occasional telemetry packet.

Beacon: 435.790 MHz 1k2 BPSK (Note: this has shifted from the original published frequency)

<http://www.amsat.dk/oz7sat/tlm/view.php?sat=io26>

FO-29 FUJI-OSCAR 29 JAS-2 (24278)

Launched: 17/8/1996.

Status: Semi-operational as linear transponder. Most activity is around 435.850 MHz. The BBS and digipeater operation have not been used since 2003. FO-29 fell silent in October, 2011 due to long eclipse periods and low battery voltage, but is likely to recover when the eclipses reduce.

Mode: V/U linear, inverting.

Uplink: 145.900-146.000 MHz, Downlink: 435.900-435.800 MHz.

Beacon: 435.795 MHz CW telemetry.

<http://www.ne.jp/asahi/hamradio/je9pell/index.htm>

<http://tinyurl.com/FO29Blog>

NO-44 PCSAT (26931)

Launched: 30/9/2001.

Status: Operational only in full sunlight.

One solar panel and the batteries are not functioning.

Mode: V/V 1k2 AFSK packet digipeater. Uplink: 145.827 MHz, Downlink 145.827 MHz.

<http://pcsat.aprs.org>

SO-50 SAUDISAT-1C (27607)

Launched: 20/12/2002.

Status: Operational. SO-50 has a sensitive receiver and a transmit power of only 250 mW.

Mode: V/U FM voice with 67 Hz CTCSS tone.

Uplink: 145.850 MHz, **Downlink** 436.795 MHz (but may switch to 436.790 MHz).

To switch the transmitter on you need to send a few seconds of 74.4 Hz CTCSS tone.

The order of operation is thus (allow for Doppler as necessary):

- 1) Transmit on 145.850 MHz with a tone of 74.4 Hz to arm the 10 minute timer on board the spacecraft.
- 2) Now transmit on 145.850 MHz FM voice using a 67 Hz CTCSS tone to access the transponder.
- 3) Sending the 74.4 Hz tone again within the 10 minute window will reset the timer.

VO-52 HAMSAT (28650)

Launched: 5/5/2005.

Status: Operational. VO-52 has two linear transponders that use nearly the same passbands. The Indian transponder is normally on. Most activity is around 145.900 MHz. AMSAT-India have requested that FM is not used through either transponder.

Mode: U/V linear inverting.

Indian transponder:

Uplink: 435.220-435.280 MHz, **Downlink** 145.930-145.870 MHz.

Beacon: 145.936 MHz continuous carrier.

Dutch transponder:

Uplink: 435.225-435.275 MHz, **Downlink** 145.925-145.875 MHz.

Beacon: 145.860 MHz CW 12 WPM preset message.

<http://www.amsatindia.org>

The following are mainly Cubesats.

Reception reports are often well received and can result in a QSL card for your efforts. See websites for details.

CO-55 CUTE-1 (27844)

Launched: 30/6/2003.

Status: Operational. From the first cubesat launch CO-55 continues to send CW telemetry though the beacon now has an additional carrier.

Beacon: 436.8375 MHz CW telemetry.

http://lss.mes.titech.ac.jp/ssp/cubesat/index_e.html

CO-57 Xi-IV (27848)

Launched: 30/6/2003.

Status: Operational. From the first cubesat launch, CO-57 continues to send CW telemetry. It also has an on-board camera. Pictures of the Earth can be found on the website below.

Beacon: 436.8475 MHz CW telemetry

<http://www.space.t.u-tokyo.ac.jp/gsen/index.aspx>

CO-58 Xi-V (28895)

Launched: 27/10/2005.

Status: Operational. CO-58 has an on-board camera. Pictures of the Earth can be found on the website below.

Beacon: 437.465 MHz CW telemetry.

<http://www.space.t.u-tokyo.ac.jp/gsen/index.aspx>

DO-64 Delfi-C3 (32789)

Launched: 28/4/2008.

Status: Semi-operational. The linear transponder has failed. The control team switched DO-64 back to science mode on 29/1/2009. Often by the time it has reached VK/ZL the transmitter has stopped, so it will be heard here occasionally. If they change it to basic mode then the telemetry will be heard over VK/ZL on most passes. The telemetry can be demodulated and decoded using software from the Delfi website.

Beacon: 145.870 MHz (primary) or 145.930 MHz (secondary) 1k2 BPSK telemetry.

<http://www.delfic3.nl/index.php>

CO-65 CUTE-1.7+APDII (32785)

Launched: 28/4/2008.

Status: Operational. The CW beacon is on continuously. The mode L/U APRS digipeater has been activated during weekends using 9k6 GMSK modulation. Unproto via JQ1YTC.

Mode: L/U 9k6 GMSK.

Uplink: 1267.602 MHz, **Downlink** 437.475 MHz.

Beacon: 437.275 MHz CW telemetry.

http://lss.mes.titech.ac.jp/ssp/cute1.7/index_e.html

CO-66 SEEDS II (32791)

Launched: 28/4/2008

Status: Operational. CO-66 is a cubesat that transmits CW telemetry, packet telemetry and a pre-recorded message of voice and SSTV. Sometimes all three can be heard during a pass over VK/ZL as it changes modes. At 450 mW output, CO-66 has the strongest signal of the cubesats.

Beacon: 437.385 MHz CW telemetry, 1k2 AFSK packet and FM Digitaler/SSTV.

http://cubesat.aero.cst.nihon-u.ac.jp/english/main_e.html

SO-67 SumbandilaSat (35870)

Launched: 17/9/2009.

Status: Intermittent. SO-67 has had a series of malfunctions though the amateur payload is reportedly in good shape. Its high powered transmitter (five watts) is easily heard. There is a three second tail after each transmission, so pause before transmitting to the satellite. Keep your overs brief as there is also a cut-out timer. For best results set your radio to narrow FM or turn down the microphone gain if your transmitter allows. SO-67 is scheduled for use over a different area each week. For VK/ZL it is usually during the last week of the month. Keep an eye on the AMSAT-SA website at <http://www.amsatsa.org.za/> for the latest news.

Mode: V/U FM voice.

Uplink: 145.875 MHz with 233.6Hz CTCSS, **Downlink** 435.345 MHz.

HO-68 XW-1 CAMSAT (36122)

Launched: 15/12/2009.

Status: Semi-operational. A faulty antenna relay is stopping use of the transponders but the beacon is operating continuously. The website has also gone offline.

Beacon: 435.790 MHz CW telemetry.

FO-69 FASTRAC 1 (37227)

Launched: 20/11/2010.

Known as 'Sara Lily'. FO-69 and FO-70 are a dual system to explore inter-satellite communications. APRS packet experiments have been successful using the 145.825 MHz uplink at 1200 baud.

Mode: V/U FM PACKET.

Uplink: 145.980 MHz 1k2 AFSK, 145.825 MHz 9k6, **Downlink:** 435.345 MHz.

FO-70 FASTRAC 2 (37380)

Launched: 20/11/2010.

Known as 'Emma'.

Mode: U/V FM PACKET.

Uplink: 435.025 MHz 1k2 AFSK, 437.345 MHz 9k6, **Downlink:** 145.825 MHz.

http://fastrac.ae.utexas.edu/our_project/overview.php

AO-71 AUBIESAT-1 (37854)

Launched: 28/10/2011.

AUBIESAT-1 is a cubesat from the Auburn University of Alabama. Its mission experiments are radio wave propagation and protective films for solar panels.

Downlink: 437.475 MHz 20 wpm CW.

<http://www.space.auburn.edu/index.htm>

RS-series satellites

RS-15 RADIO ROSTO (23439)

Launched: 26/12/1994.

Status: intermittent. The beacon only comes on when satellite is in full sunlight, and is not on every pass.

Beacon: 29.352 MHz on/off carrier.

RS-30 YUBILEINY (32953)

Launched: 23/5/2008.

Status: Operational. Only the CW beacon has been heard over VK/ZL. Other transmission types are heard when it is in range of the control stations in Russia.

Beacon: 435.315 MHz (primary), 435.215 MHz (secondary) CW telemetry.

http://www.dk3wn.info/sat/afu/sat_rs30.shtml

Other satellites using amateur frequencies.

ISS (25544)

Launched: 20/11/1998.

Status: Operational. The International Space Station has an amateur radio station that operates in many modes. Ultimately it depends on the manned crew's activities. Voice, digital, and SSTV modes are used. Sometimes experimental modes are tried; one example was a 23 cm FM repeater uplink on 1269.650 MHz.

Mode: U/V crossband FM repeater.
Uplink: 437.800 MHz FM, Downlink 145.800 MHz.

Mode: V/V Digital / APRS 1k2 AFSK FM.
Uplink: 145.825 MHz, Downlink: 145.825 MHz.

Mode: V/V FM Voice, SSTV.
Uplink: (Region 1) 145.200 MHz, (Region 2/3) 144.490 MHz, Downlink: 145.800 MHz

<http://www.issfanclub.com/>

<http://www.rac.ca/ariss/>

COMPASS-1 (32787)

Launched: 28/4/2008.

Status: Operational. Compass-1 has a chirpy CW telemetry beacon that is normally sent every three minutes. If battery voltage is low it will send every eight minutes. COMPASS-1 can be commanded by any amateur to send telemetry on demand using DTMF codes, though the satellite may not give a response each time. Every command will give a confirmation beep on 437.275 MHz.

**35## - request a test beacon CW.

**36## - request a test packet 1k2 AFSK FM (UI-Frame).

**60## - request a housekeeping frame in 1k2 AFSK FM (KISS frame).

Mode: V/U DTMF command, 1k2 AFSK.

Command: 145.980 MHz, Downlink 437.405 MHz.

Beacon: 437.250 MHz CW telemetry.

<http://www.cubesat.de>

STARS (33498)

Launched: 23/1/2009.

Status: Operational. STARS is two satellites tethered together. Both 'Mother' and 'Daughter' have CW and 1k2 AFSK packet telemetry on 70 cm. The CW beacon of 'Mother' is on continuously, but 'Daughter' is weaker and intermittent.

Beacon: Mother 437.485 MHz, Daughter 437.465 MHz FM 1k2 AFSK.

Beacon: Mother 437.305 MHz, Daughter: 437.273 MHz CW telemetry.

<http://stars1.eng.kagawa-u.ac.jp/english/index.html>

PRISM (33493)

Launched: 23/1/2009.

Status: Operational. Following from the success of CO-57 and CO-58, the University of Tokyo built PRISM to carry a larger camera with a telephoto lens. The packet downlink is only available over the command stations in Japan, though the CW beacon is on world-wide. PRISM also has an uplink channel but frequency and modulation details have not been published yet. A test was made for amateurs during May, 2011 but no news since.

Mode: -/U 1k2 AFSK or 9k6 GMSK.

Downlink: 437.425 MHz.

Beacon: 437.250 MHz CW telemetry.

<http://www.space.t.u-tokyo.ac.jp/prism/en/main.html>

KKS-1 (33499)

Launched: 23/1/2009.

Status: Operational. KKS-1 transmits a series of messages on its CW beacon.

Beacon: 437.385 MHz CW message.

<http://www.kouku-k.ac.jp/~kks-1/kks-gs-top-e.htm>

SWISSCUBE (35932)

Launched: 23/9/2009.

Status: Operational. Transmits CW telemetry with frames every 30 seconds. Decoding software is available at their website. SWISSCUBE's mission had ended and will now be under control of two amateur stations in Europe.

Beacon: 437.505 MHz CW telemetry.

<http://swisscube.epfl.ch>

ITUpSAT (35935)

Launched: 23/9/2009.

Status: Operational. This Turkish cubesat transmits a frame of CW every three minutes giving its name and callsign.

Beacon: 437.325 MHz CW message.



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT

email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU

email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz

VK2RIS Saddleback repeater: 146.975 MHz

VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz

VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz

VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, EchoLink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124

VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

Tlsat-1 (36799)

Launched: 12/7/2010.

Status: Operational. Tlsat-1 is the first Swiss student-built satellite. Its mission is to test various materials exposed to atomic oxygen at low Earth orbit.

Downlink: 145.980 MHz FM FSK, CW.

Beacon: 437.305 MHz CW at varying speeds.

<http://www.spacelab.dti.supsi.ch/tiSat1MS.php>

SRMSAT (37841)

Launched: 12/10/2011.

Status: Operational. SRMSAT is a 10 kg nanosatellite built by SRM University

in India. Its mission is to monitor greenhouse gasses.

Downlink: 437.425 MHz CW telemetry.
<http://srmsat.in>

HRBE (37855)

Launched: 28/10/2011.

Status: Operational. The Hiscock Radiation Belt Explorer (formally known as E1P, Explorer one prime) is a cubesat developed at the University of Montana. Its mission is to measure the lower Van Allen radiation belt similar to the original Explorer One. HRBE has a strong signal and should be easy to decode.

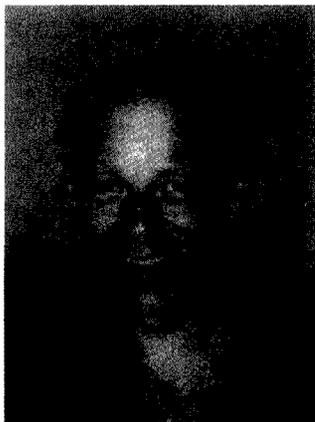
Downlink: 437.505 MHz 1200 baud AFSK.

<http://ssei.montana.edu/e1p/>

Final pass

Like many others I would like to thank the control team of AO-51 for their efforts in keeping it alive. After the first two batteries failed they managed to squeeze another year or more of operation. From a personal point of view it would come as no surprise to regular readers that most of my time on AO-51 was spent using mode V/S. Though looking through the log I did make contacts on V/U and L/U. Vale AO-51 and looking forward to the Vega launch, FunCube and UKcube-1 in 2012.

Silent Key Kurt Postler VK5KI



22 January 1929 – 15 November 2011

Kurt immigrated to Australia from Germany after WW2. He had achieved a high level of craftsmanship in fine engineering machine work in his home country, but was initially employed as a fireman on the Peterborough SA railway line. In breaks between shoveling coal, he would study his radio handbooks, and eventually obtained his First Class Commercial Radio Operators Certificate.

This followed with some time as a Radio Operator on cargo vessels on the Australian coast, and as an Engineer at Broadcast Stations in Adelaide and Port Augusta.

In 1963 he commenced work as an Inspector in the Postmaster General's Department specialising initially in field work on Radio, Television and Radiocommunications Interference.

Following success at higher Departmental study, Kurt became fully occupied in establishing the Adelaide Type Testing Laboratory, where local manufacturers submitted their Radio Equipment for approval, and subsequent licensing, under the Wireless Telegraphy and later Radiocommunications Acts. With the compulsory introduction of Single Sideband Suppressed Carrier systems into the Land Mobile Service, Kurt liaised with PMG headquarters and local manufacturers to establish the RB209 SSB Standard, that is still relevant today.

He was subsequently involved in the acceptance tests and inspection of Royal Flying Doctor Service, base changeovers to SSB, at a number of sites, throughout Australia.

In his later employment in the Department (then renamed Department of Communications and later ACMA) he was responsible for the Regulatory and

Technical functions of the office in South Australia.

Kurt enjoyed his hobbies. He was an amateur radio operator, using both Telephony and Morse Code, and a member of the Wireless Institute of Australia, and his local North East Radio Club.

He also enjoyed participating in marathon races, and performing in the 'Masters Games' when he became eligible to enter those activities.

He could also frequently be seen floating and controlling his model boats on the ponds in the Adelaide park lands, where he attracted large crowds on some Saturday afternoons.

In retirement he continued to enjoy his hobbies, however became a full time carer for his wife Mary, prior to her unfortunate death. His own health declined in the last two years, and he spent his last days in a suburban nursing home.

His radio equipment was kindly donated to the North East Radio Club, for use in their education programme.

Prepared by Rob Gurr VK5RG, with the assistance of other workmates and friends.

Justin Giles-Clark VK7TW
Email: vk7tw@wia.org.au

Sewing Circle Net Meet the Voice BBQ

Sunday March 18, 2012 is the date set for the annual Sewing Circle Net 'Meet the Voice BBQ' at picturesque Ross in the midlands of Tasmania. A feature of this year's BBQ will be an auction of amateur radio equipment with all proceeds going toward the repeater network in VK7. If you would like more information about this BBQ then please join the nightly Sewing Circle Net which is held from 5.00-6.00 pm local on 3.590 MHz.

VK7 Regional News Broadcasts

A big thank you to both Harry VK7AR and Jack VK7IL who are having a well-earned rest from rebroadcasting on 14.130 MHz. Harry mentioned he has been doing it for well over 22 years. Also, thanks to Gavin VK7HGO and Clayton VK7ZCR, who were our UHF CB rebroadcasters for many years. If you listen to the VK7 Regional News broadcast on a repeater in VK7 and have HF rebroadcasting capability and would be prepared to undertake a rebroadcast once a month then the author would love to hear from you. We even have designs for patch boxes. You can contact Justin at the email above or call him on 0439 016 622.

Northern Tasmania Amateur Radio Club

Congratulations to Brendan VK7FESQ for successfully gaining his Foundation licence, and NTARC also welcomes Lewis VK3FLPL who has recently moved to VK7. December 14, 2011 was the annual end of year gathering at Myrtle Park with about 20 members and partners gathering for a social BBQ and, of course, the slippery trout contest which was awarded to Joe VK7JG for a nice brook trout. Thanks to Max VK7KY who donated a beautiful Huon pine 'priest' as a raffle prize. The Annual General Meeting for NTARC will take place on 8 February,



Photo 1: Equine endurance event communications checkpoint. Photo by Dave Lees.

2012 at the Skills Institute, Alanvale, commencing at 7.30 pm.

Cradle Coast Amateur Radio Club

On February 26, 2012 the CCARC has been asked to provide radio coverage for a new bicycle event, The Pure Tasmania Cycle Challenge. This gruelling event starts at 6.00 am in Devonport, travels through Sheffield to Cradle Mountain Lodge

for lunch, then continues west through Rosebery and Zeehan and finishes in Strahan by 7.00 pm. If you are interested in helping out with the communications for this event then please email David VK7DC at ccarc.inc@gmail.com

North West Tasmanian ATV Group

The Annual

General Meeting of NWTATV Group will be on 4 February, 2012 and members are reminded that renewal of membership falls due on 1 January, 2012. There will be a general meeting following the AGM.

WICEN Tasmania (South)

The weekend of 26/27 November, 2011 saw about 30 amateurs and friends gather at St Helens to support the state championships of the Tasmanian



Photo 2: Equine endurance event base. Photo by David Cleland VK7DC.

Equine Endurance Riding Association and thanks to Roger VK7ARN for the information in this report. The checkpoint and communications group was made up of members of WICEN (South) assisted by the Cradle Coast ARC, Northern Tasmania ARC, and the Land Rover Owners Club of Tasmania. Seven teams covered base and six checkpoint locations, which included 13 checkpoints. In the 24 hours there was 68 mm of rain which presented some challenges for crews. A special thank you goes to David VK7DC for organising the testing and tagging of mains power equipment at very short notice. This was a great training exercise for this year's National Tom Quilty Endurance ride to be held in St Helens in June.

Radio and Electronics Association of Southern Tasmania

We welcome four new Foundation licence holders who are our WIA sponsored scholarship recipients from Newtown High School, Matt VK7FAAA, Brendan VK7FADD, Aleksanders VK7FAAE and Jacob. If you are interested in mentoring these guys then please let the Secretary know at email: secretary@reast.asn.au We hope to hear these guys on the air soon.

The DATV nights continued throughout the Christmas and New Year break with a broad range of material being presented. This included miniature valves including gas-filled photocells, photometry using DSLR cameras, Morse keys, software defined radio, home brewing, crystal holders, and ARDF receivers. Our video presentations included the 8th Region 3 ARDF Championships held at Maldon in 2011, and thanks to Jack VK3WWW for the DVDs. There was also the BS7H Scarborough Reef and 1997 VK0IR DXpeditions from James Brooks 9V1YC. You can see us on http://batc.tv/ch_live.php?ch=5 – members stream – VK7OTC on a Wednesday night from 7.30 pm AEDST.

Note: Regional News Website: groups.yahoo.com/group/vk7regionalnews/



Silent Key Vic Kitney, VK6VK/VK7VK/VK0VK

Many Tasmanians would have fond memories of Vic. There is a wonderful tribute that can be found at the web link. It is well worth a read - <http://watvhistory.com/2011/12/vic-kitney-tribute/>

Vic lived in Tasmania in the 1980s and married Maida Klein. Mike VK7FB and Gavin VK7WT helped Maida keep in touch with Vic while he was in Antarctica.

Sadly Maida passed away and Vic moved up to the Swansea area for a time, and then back to VK6. He will be sorely missed by those fortunate enough to have known him.

Vale Vic.

Contributed by Mike VK7FB and Gavin VK7WT.



Silent Key Dietmar Schoenfeld, VK7FDIE

It is with sadness that we report the death of Dietmar VK7FDIE on the night of Sunday 18 December, 2011. Dietmar was 69 years old and suffered poor health over the last few years with diabetes and heart trouble, and died from a heart attack.

As southern VK7 amateurs will certainly know, Dietmar was one of the characters on the repeater and was always listening to the repeater and other frequencies and was not afraid to make a comment or three... HI.

Some amateurs were fortunate enough to have spoken with Dietmar on the Sunday morning after the broadcast. He would regularly call back to the broadcast and visit the Wednesday afternoon group although this had tapered off in recent times. We will certainly miss Dietmar on the repeater.

Vale Dietmar.

Contributed by Chris VK7FCDW, Mike VK7FB and Justin VK7TW.



Silent Key Mike Park ex VK3ASH

It is with great sadness that I inform you of the death of my brother Mike Park on 6th October 2011.

Mike was the former holder of the call sign VK3ASH and was an avid amateur radio enthusiast from an early age. He spent many happy hours communicating with people all over the world. He started a amateur radio club whilst a student at Caulfield Grammar School in the 1950s and 60s.

He was secretary of WIA from 1973 to 1975.

After studying Communications Engineering at RMIT, he worked for a number of companies including Phillips, Ericsson and Motorola. Eventually his interests turned to computers and he became an IT consultant.

He is survived by his wife Sharon, three sons and a daughter.

Lynne Guala (nee Park)



VHF/UHF - An Expanding World

David Smith VK3HZ
vk3hz@wia.org.au

Weak Signal

Welcome back from the break.

This month, we are covering two months of activities, November and December. Normally, this is a busy time of year for the VHF/UHF enthusiast. However, things were looking decidedly flat up until the last days of the year prompting speculation that the breaking of the drought, or the turning of the sunspot cycle had chased the good conditions away. Then things turned, and the final days of 2011 largely made up for the quiet times.

The early days of November saw a continuation of the good conditions between VK2/4 and ZL. On 7/11, Adrian VK4OX worked Bob ZL3TY on 2 m with 5x3 reports over the 2407 km path. John VK4JMC also worked Bob. On 16/11, Adrian again worked Bob ZL3TY and also ZL1AVZ on 2 m.

On the morning of 15/11, Adrian VK4OX worked up the coast on 70

cm to Ian VK4AFC – up to 5x7 over 1300 km – and John VK4FNQ (5x5 over 1000 km).

On 24/11, conditions across the Bight were in good form. Wally VK6WG in Albany on 2 m worked Phil VK5AKK (5x9), Brian VK5BC (5x9) and Bill VK5ACY (5x5). Wally also worked Phil (5x9) and Brian (5x5) on 70 cm.

Nothing much of any note then happened until after Christmas day.

On the morning of 28/12, the VK6REP 2 m beacon was heard in Melbourne. As well, the VK7RAE 2 m and 70 cm beacons were heard in Adelaide, 970 km away. That evening, the VK6REP 2 m beacon returned to the east with a vengeance. Norm VK7AC (2365 km) reported it as 5x4, 5x1 for Jim VK3ZYC in east Gippsland (2320 km), 30 over 9 for Nick VK3VFO/P in central Gippsland (2265 km) and many reports from the Melbourne area. However, for all that,

nobody was on at the VK6 end, so no contacts resulted. The following morning (29/11), the VK6REP beacon was still in and this time Ron VK6VOX at Katanning worked Jim VK3II (2560 km), Andrew VK3OER and Ian VK3AXH. That evening, Wally VK6WG worked Jim VK3II and Phil VK5AKK on 2 m. Wally also worked Phil on 70 cm (5x9) and 23 cm (5x7) – a distance

of nearly 1900 km. The middle of the day on December 30th saw an Es opening from VK2 to VK4 with distances of 1250 km to 1850 km.

And so we come to the final day of 2011 and the Es god turned on a blinder. From about 0130Z to 0530Z, 2 m was open every which way with contacts from VK5 to VK1/2/4, VK3 to VK4, VK2 to VK8 and ZL. There were dogpiles on 144.1 and it was sometimes difficult to find a clear frequency to QSY.

The map on Figure 1 from the VKLogger shows the extent of the opening.

It was good to hear at least two F calls in the fray, Peter VK4FPFH at Hervey Bay and Nick VK4FMAG on Magnetic Island. Nick possibly took out the longest distance Es contact for the day working Lou VK3ALB over 2122 km.

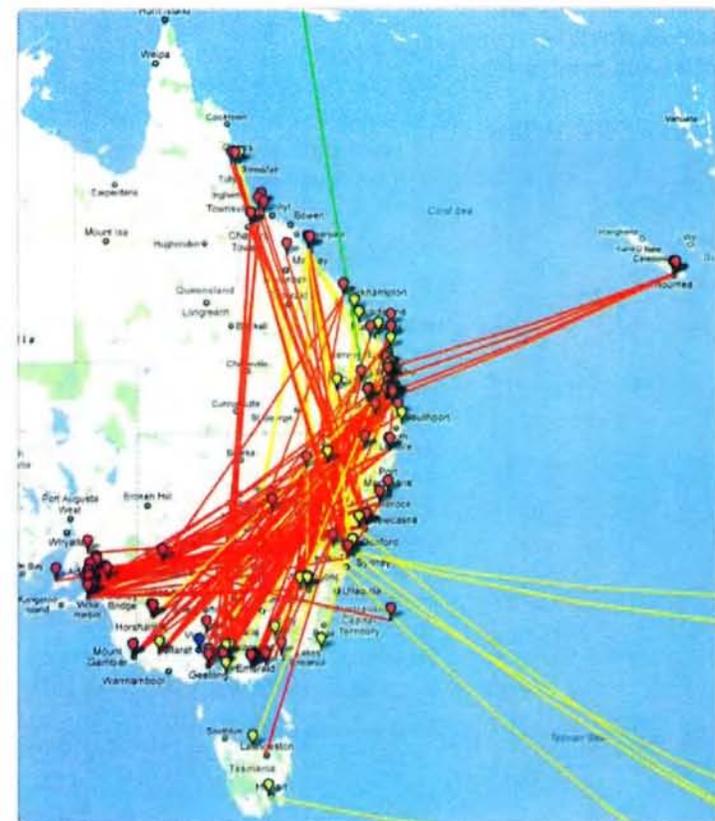
Adrian VK4OX (the second of 17 stations I worked) had this to say about it:

The 144MHz Sporadic E (Es) season had been very poor so far with only a minor opening to VK5 on 27/12/2011 for about 25 minutes for me, and the odd opening for VK2 up to north Queensland.

Then THE event occurred. Things looked promising from 0000Z on New Year's Eve. I was copying short skip six metre beacons from all over the place. When this happens, the usual problem on 144MHz for me is, 'Where to point the Beam?'

This year, I had bought an old Watkins Johnson VHF/UHF surveillance receiver covering 88 MHz to 260 MHz on one band and 230 MHz to 500 MHz on another. This Rx has a very useful Panadaptor which can span about three MHz of the spectrum, +/-1.5 MHz from the received centre frequency. I built an 88 MHz to 260 MHz log periodic antenna. The 88MHz to 108MHz FM band is chokka here and finding DX stations is just too much trouble so I began looking at the 112 MHz-118 MHz VOR beacon band.

Figure 1: The two metre Es Contacts .. 31/12/11 from 0130Z to 0530Z.



At about 0115Z I began 'seeing' DPO, the Devonport VOR beacon on 116.3 MHz in QE38. Then at 0128Z I worked VK3PY. Nothing for 20 minutes, then all hell broke loose. The band was then open until 0539Z, when the last VK5 was heard.

Summary: 32 VK3s, 8 VK5s, 1 VK2 and 2 FK8s. Grids worked QF02, QF03, QF12, QF15, QF21, QF22, QF23, QF31, QF43, PF85, PF94, PF95 and RG37. Interesting VORs heard: DPO in QE38; BOR in QF03; WJS in QF44; NAR in QF35; WG in QF34; MTP in PF95; LEC in PF99; MCO in QF42; CWS in QF21; LVG in QF32; NHL in QF03; MIA in QF15. There were probably many others but I was busy working stations. The Panadaptor proved very useful, as I could watch the display for signals while working the DX. An unforgettable opening.

Gavin VK3HY, a veteran of VHF, had this to say:

Lots of 144 MHz QSOs ranging from northern NSW to Charters Towers in FNQ. This was the longest 144 MHz Es opening I have experienced. I managed to add two new grid squares bringing my modest tally up to 52. I reckon QSO of the day might go to Perrin VK3XPT who worked VK4FNQ at Charters Towers on 144.130 MHz using an FT-817 and a hand held 4-element Yagi in his back yard. 5x1 reports were exchanged just before his 'Armstrong antenna mount' and FT-817 battery both lost power.

Barry VK3BJM also managed a good tally:

Just after 0215Z I was 'encouraged' to go outside and check that the fire-pumps were working OK – so naturally I dived into the shack to grab my sunglasses (there was a lot of sun about). I noticed there were voices coming from the radio, a lot of voices, VK4-type voices. Between 0219Z and 0238Z I worked seven VK4s, six from QG62 and Adrian VK4OX, in QG63. I reluctantly paused and went to play with the pumps. Returning at 0345Z it was apparent that things were still running hot, but the footprint had spread a bit, and in the next 25 minutes I worked VK4UH in QG62, VK4BLK in Yeppoon (QG56), VK4FNQ in Charters Towers (QG39), VK4FPFH in Hervey Bay (QG64), and VK4VN in

QG62. I left the shack again, returning just after 0500Z to work Ron VK4BRG in Bundaberg.

At 0428Z I noted hearing Colin VK5DK at 52 on backscatter, calling/working a VK4, who I could also hear at a similar RS (I foolishly didn't note the call of the VK4). John VK4FNQ reminded me that we last worked in 2006, so it's been a while since I had the luck to be home during an Es event.

In all, 13 VK4s worked, with the bonus of an addition of four new grid locators to my personal tally. I'd not worked into the Brisbane area on 2 m before. VK4FNQ was the most distant station worked, at 1917 km. The nearest was Dennis VK4ACE, at 1321 km. I also noted failing to complete contacts with VK4BKP, VK4VFO and VK4KR, with potentially another two new grid locators in that group. It was really good to see so many stations calling and then immediately QSYing to a nominated frequency for completion of the contact. Frankly it made finding new stations to work a breeze – just take the VFO for a spin up and down the band! Only one of my 13 contacts was carried out on 144.100, which was always busy but was not unusable. It was just nice to have been home at the time of such an event – for a change!

Bob ZL3TY missed the Es opening, but received some spectacular compensation:

After a day out yesterday I arrived home and checked into the VKlogger to find the aftermath of the huge Es opening in VK. Checked two metres and found nil so left the receiver on 138.276 MHz, the Channel 5A carrier from Newcastle. At about 5 pm local time it started to lift out of the noise and a couple of hours later it was up to S3. The carrier was steady so it was apparently tropo, not Es.

Started calling on 144.1 and at 0658Z worked Steve VK2ZT.53/53. Later at 0940Z (1040NZDT) I found VK3RED and VK3RGI beacons and started calling again on 144.1. By this time Ch5A was S9 and VK2ZT up to S7, then worked VK3EK, VK3DUT, VK3OE and heard VK3VFO but he had high noise level and was unable to hear me. Then I heard VK5DK, Mt Gambier calling CQ, called him but

again he couldn't hear me. I called him on CW and he came back with a 529 report and we completed the QSO at 1050Z. At 2629 km this is the longest distance I have worked on 2 m tropo.

Now looking forward to some good 2 m Es...

It was certainly a very good day to finish up 2011.

70 cm Meteor Scatter SSB contact

Meteor Scatter contacts on 70 cm are extremely difficult because of the very short duration of pings. To complete an SSB contact is quite an achievement. Adrian VK4OX and Arie VK3AMZ succeeded with such a contact recently as reported by Adrian: On 2011-12-14 between 1700Z and 1830Z, I completed a successful 2-way SSB QSO with Arie VK3AMZ, on 432.360 MHz via meteor scatter. We were using pre-recorded voice messages similar in format to FSK441, stored in a Meteor Scatter program called Multikeyer. We were using 15-second periods.

The Geminids Meteor shower was predicted to be at its maximum that morning. OH5IY and other programs predicted the best time for a QSO between QG63kf and QF22fe as being 1730Z to 1830Z on 2011-12-14. That was Thursday, 15th Dec between 0300 and 0430 my local time or 0400-0530 Melbourne time.

We started at 1700Z. I got only a few pings in the first hour but no useful information. I had been transmitting the same message, Callsigns only, for over one hour. At 1808Z I received a beautiful burst from Arie with both callsigns and a report. I changed my Tx message to mostly "Roger 27" because I know that Arie must have both callsigns, otherwise he would not be sending a report. Nothing for about 20 minutes then the best "QSL" I have ever received.

Similarly, Arie received one burst of callsigns and another of "Roger 27".

This then, I believe, satisfied our requirements for a valid SSB QSO over a distance of 1457 km. I believe this to be the first ever 2-way SSB QSO on 432 MHz meteor scatter in Australia and perhaps the first

ever 2-way SSB QSO on 432 MHz between VK3 and VK4 via any, non-EME, propagation mode.

Spring VHF/UHF Field Day

Unfortunately, the Spring Field Day was a washout in much of the country, coupled with high winds in some areas. This meant that participation from field stations was down, but activity was reasonable nonetheless.

Tim VK5ZT was busy roving around South Australia as he reports:

As usual I was out and about in the van carrying all bands to 24 GHz. I trialled a new mount system on the van, so that I did not have to deploy tripods or the like when arriving at a site. This included three dishes and a Yagi on a frame on the back of the van and other antennas on the roof. Unfortunately pressures of work meant I had little preparation time and could not include the rotator I wanted to install. This proved to be a frustration when dealing with stations that were anywhere within a 180 degree arc. I had to move the van sometimes to get good signals.

I started out at the bottom of Yorke Peninsula at the Port Giles silos PF84 (see the photo on the WIA VHF/UHF Contests page, if it's still there!). Conditions were pretty poor for some reason. I was beaming into a raincloud to get across St Vincent Gulf. Only a few contacts on 23 and 9 cm were made, along with a few on the VHF bands. Realising I was getting nowhere, I moved north, calling in on Andy VK5LA who was operating out of a beach shack at Wool Bay. On arrival at Ardrossan PF85 I found the lookout was closed for maintenance so had to move up into the hills behind the town. I found a likely spot and was able to work Iain VK5ZD operating as VK5LZ in PF96 on all bands to 10 GHz. We could hear signals on 24 GHz but there was some sort of noise problem and we were not able to exchange numbers. I also worked John VK5NI across the gulf on various bands up to 10 GHz and a collection of VHF stations around Adelaide.

Moving north, I stopped at Port Clinton, just across the transition to PF95. My initial site turned out to be in the middle of the world's largest bull ant nest and they were somewhat upset

with my presence. Rapid redeployment was required! From here I managed all bands to 10 GHz up to Iain who was still in PF96 at Nantawarra and also a few contacts to VK5NI and others north of Adelaide. 24 GHz was no better... plenty of signal but all noise!

I continued my northward travel until I crossed into PF96, just south of Iain's location. Working him was easy at the range involved. I made a few other contacts on bands up to 23 cm before moving on to meet Iain and the 5LZ crew at Nantawarra. This is a favourite site of mine and only about 20 minutes south of my home in Snowtown. As the 23 cm beam had suffered a mechanical failure and 24 GHz was a dead loss I decided to go home to make repairs and do some tests on the 12 GHz synthesiser in the 24 GHz unit. All this took about an hour with no joy on the 24 GHz setup. While I did that, VK5LZ relocated to a site we have used before near Kulpara in PF95.

Hitting the road again at around 1930 local, I headed west into the fields northwest of Kulpara in PF86. From a low hill I could work back to VK5LZ on all bands to 10 GHz. The hill I was on was actually in the middle of a wheat field which fortunately had recently been harvested. I did not come to the attention of the local farmer who lived just down the hill so avoided the usual lengthy explanation of what I was doing. Not many other contacts out there as the site is shielded from the city by low hills. By now it was around 2100 local so I relocated to PF95, just down the road and worked VK5LZ on all bands again before joining them at Kulpara and enjoyed a coffee with the crew. As things were pretty quiet, I headed back home at around 2200 for some much needed rest.

On Sunday I went back to Nantawarra PF96 and worked a few stations up to 23 cm and a solid contact to Keith VK5AKM at Wasleys on 9 cm. The Nantawarra site is just north of a grid transition so a five minute drive put me into PF95 to work everyone again! I discovered I had left some items of clothing on the roadside the previous night at Kulpara when I was getting changed into warmer clothing. I decided to

retrieve them before returning to Nantawarra for the last half hour of the contest and three hours since I was last there. This turned out to be a messy exercise as I took a wrong turn when coming back on an unfamiliar road and when trying to correct the error without retracing my steps I found myself in a huge wheat field and ended up crossing it to get to a convenient exit – remember, I am not in a four wheel drive!! Some interesting moments were had dealing with very sandy soil and deep weeds!!

I made it back to PF96 with 15 minutes to go and managed contacts with everyone I could hear including Keith at Wasleys again on 9 cm.

Total travelling distance, just under 600 km. Equipment failures, a broken 23 cm beam which I fixed, 24 GHz non-functional and still under investigation.

I had interference from a computer monitor in the van on two metres. I will be replacing that with an industrial RF screened unit with a touchscreen before the next outing. All other microwave gear worked well and the dishes survived the rough roads, around 100 km of dirt and paddocks!

In terms of numbers, there seemed to be a lack of operators around but a couple of new faces on the microwave bands. Not checked the final score but it was just short of about 5000 points I think.

Just another roving weekend.....

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au

Digital DX Modes

Rex Moncur VK7MO

Meteor Scatter - Call for North Queensland operators

A number of stations including Kevin VK4UH, active on two metre Meteor Scatter from south east VK4, are interested in turning their beams around and arranging tests and skeds to stations to their north. Contacts out as far as Cairns and Mount Isa should be easily within range. Any two metre station equipped with a sound card interface, an eight element Yagi and 100 or so watts should be quite capable of

having a go even with no experience of Meteor Scatter operation. Suitable times, frequencies and guidance can be arranged. Any operators interested in participating in some skeds or finding out more about Meteor Scatter activity are invited to contact Kevin VK4UH on vk4uh@wia.org.au

2 metres FSK441

Welcome to Wayne VK2XN who completed his first FSK441 QSO with Arie VK3AMZ. Congratulations to Arie VK3AMZ on working Bob ZL3TY on 15 November over a distance of 2327 km. This is the first completed FSK441 Meteor scatter contact to ZL from west of Melbourne. The contact was probably the result of Leonids even though we are well past the Leonids peak and the next peak won't occur for another 20 years.

70 cm FSK441

Arie VK3AMZ reports:

On 13th December at 1919 UTC, Adrian VK4OX and I completed another FSK441 432 MHz meteor scatter QSO. This was the day before the Geminids were expected to reach their maximum hourly rate. The total time to complete was approximately an hour and forty five minutes. It was an excellent primer for the 70 cm SSB M/S contact on 14 December, reported separately in the 'Weak Signal' section of this column.

The pings for the better part of the schedule were very short but Adrian had received a huge ping very early into the schedule which lasted over two seconds. In our experiences the duration of this ping was extraordinary for 432 MHz! Not to be outdone, an hour into the schedule I received a 2.6 second ping from Adrian. For the remainder of the sked, pings were very infrequent and short lived until 1916 UTC when I successfully decoded Adrian's confirmation report with a brief but very strong ping.

It has been our experience to date that meteor pings on 432 MHz are very short but can be very strong. It is not unusual for pings to be 20 dB above the receiver noise floor.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

The Magic Band – 6 metre DX

Brian Cleland VK5BC

November and December were very interesting on 6 m. The band opened to Japan and China on many days with most call areas of VK and ZL experiencing openings. Hawaii also made several appearances into VK including VK6 on 18 November. Contacts were also made into central America, in particular Costa Rica TI5, Mexico XE, from the east coast of South Cook Island E51EME, New Caledonia (several FK8 stations), Samoa 5W1SA and Rotuma Island 3D2AG/p.

The real surprise though came on New Year's Day with a great opening to the W5 area of San Antonio, Texas. The band opened at approx. 0030Z to 0130Z with contacts being made from VK2, 3, 5 and 7 in both CW and SSB with several W5 stations and XE. John VK5PO reported working 2 x Ws at 0020Z in CW which started the fun which followed with contacts being made by several stations. Garry VK5ZK managed contacts with W5OZI (CW 5/5), W3XO/5 (SSB 5/7 excellent), K5RKK (SSB 5/5) and N5TSP (CW 5/5). Garry was using a 4 element Yagi and 100 W. Roger VK5NY reported working 3 x W5s plus one XE station while Bill VK5ACY worked W3XO/P in EM00 SSB 5/5 both ways, K5RKK in EL29ii at 5/2 and received 5/5. Bill also heard XE2HWB. Bill was using

an 8 element ATN Yagi and running 400 W. Peter VK5PJ in the Barossa Valley also completed several contacts on CW and SSB. Jeff VK5GF in Victor Harbour also worked W3XO/5 SSB.

Several VK3s also managed contacts into W5 including Steve VK3ZAZ, Andrew VK3OER, Ken VK3AKK, Geoff VK3AMK and Arie VK3AMZ. Andrew's VK3OER remote station is certainly proving a big success for him. Meanwhile Frank VK7DX completed a contact with W3XO/5 SSB 5/5 both ways. The opening extended north to Leigh VK2KRR at The Rock near Wagga Wagga with Leigh also completing with Bill W3XO/5 at 5/5 both ways.

Pat W5OZI's log shows CW contacts not in order as follows - ZL1GO, ZL1NK?, VK5PO, VK5ZK, VK3AMK, VK3AKK, VK3AMZ, VK3ZAZ and VK7NO? The first worked at 0045Z, the last at 0145Z. Certainly one of the best W openings from southern VK.

Pictured below on Figure 2 is a snapshot from VKLOGGER from the morning of the 1st January.

In some late news this was followed by an opening from VK2 and VK4 to Costa Rica TI5 on the morning of the 2nd January. Certainly a great start to the New Year and with the sunspot cycle on the improve, it certainly should be an exciting year on 6 metres.

In some other news, some good openings to KH6 from VK5, the best on the 28th November when signals were up to 20 over S9.

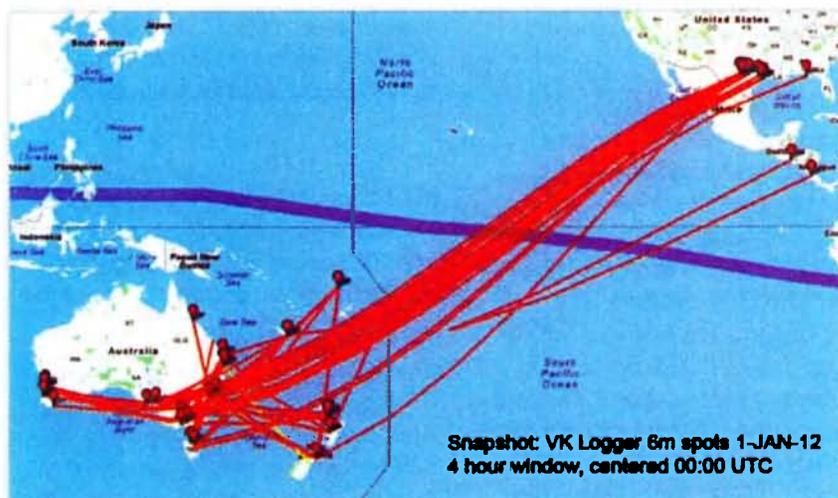


Figure 2: A snapshot of the VK Logger 6 metre spots on 1 January, 2012.

1st December – some Es from VK5 to northern VK4 in the morning which gave VK3 some TEP extension to JA a little later. Mid-afternoon saw Li BA4SI working into VK3 and VK7 with Joe VK7JG reporting 5/9 signals.

3rd December – A good day in New Zealand with all ZL call areas working into Mexico and some Ws in the morning; unfortunately there was no extension to VK. This was followed a little later with an opening from ZL to JA. In VK very little to report with the only excitement being Willem DU7/PA0HIP working VK4's CZ, DDC and WR later in the afternoon followed with a contact to Mark VK8MS in Darwin and Rod VK6KP in Karratha, WA.

5th December – A great day for Bob ZL1RS in northern NZ who worked several countries including TI, YS, TG, YN, XE, YV, W6, KH6, DU, JA, ZL, E5 and VK.

7th December – mainly Es VK5 – VK6 and VK4, late in afternoon VK6 to JA.

Tony VK6PP reported a very good 6 metre opening here in Perth on 16 November with many JAs. Stations worked as follows: JP1LRT 0753z SSB on 50.200 MHz, JR6EXN 0757z SSB on 50.200 MHz, JA4UDN 0806Z SSB on 50.130 MHz, 18th November stations worked were JA6TEW 0906Z SSB on 50.140MHz and BA4SI 1011Z CW on 50.100 MHz. China was a new country on 6 metres.

Andy VK6OX reports the following activity from VK6: *The source of this info is Graham VK6RO, a widely-known and respected 6 metre operator who has carefully recorded activities on this band across the last few sunspot cycles. Graham has advised me that on October 19th there was an opening to not only VR2 but also DU, stations being heard or worked VR2XMT and DU7/PA0HIP. This opening occurred from about 1300Z to around 1430Z (10.30 pm local). According to Graham, this was a rare occurrence, the last time an opening like this was March 29, 2001 and it was open until 00.30 local time (past midnight).*

On to November. Compared to October this was a much better month for the lower half of VK6. With 'Old Sol' finally making the ionosphere (in several levels) more reflective than absorptive we in VK6 finally had some activity.

From this QTH, the 1st Es activity for the season occurred on 2nd November, with VK5BC and VK5PO being worked around 0750Z.

3/11/2011: Band opened to JA with areas 1,2,3,5 and 6 being worked from 0525Z to 0600Z.

9/11/2011: Very brief Es propagation to VK5...worked VK5BC to S5.

14/11/2011: R1/C1 TV signals around 49.75MHz were in early...by 0540Z JA6 stations were heard. Worked JAH6CDI, JJ6JGJ and JH6BPG over a sixty minute period. Signals to S7 from Japan.

16/11/2011: The first really good opening to JA for this cycle with JA1,2,4,5,6 and 7 areas worked from 0700 – 0800Z.

18/11/2011: With the assistance from Sporadic-E across central VK, worked Fred KH7Y in Hawaii at 0328Z CW 559 both ways, and again at 0334Z SSB 55 both ways. Several other stations in Perth area also got in on the action including VK6RO, VK6KXW and VK6JJ. Art KH6SX was also heard or worked during the opening. Later on in the day, from 0900 – 0920Z, the band opened to JA6 area with Masa JA6TEW and Hide JR6EXN being worked during this period. The second highlight for me occurred just a short time later when I worked Li BA4SI from Wujiang City both CW and SSB with sigs to S5. All in all a good day on 6m!

26/11/2011: More Es propagation during the late afternoon towards the east, with VK5s BC, PO, RO, PJ and ZPS being worked along with VK3DUT and VK3ER/P.

28/11/2011: ZL TV video carriers on 45.2396, 45.250 and 45.260 to S5 with deep QSB from 27/2330z. At 0052Z, worked Bob ZL1RS CW 529 both ways. Throughout the day, further Es openings occurred to VK5.

Meanwhile from VK2, Kerry VK2BXT reports almost daily TEP to Japan in November with better openings as follows:

7/11/2011: Worked JR6EXN, JH1WHS. Heard JA7, JA4, JA3, JH6.

8/11/2011: Worked JA8TSG, JA7OQ, JE1SSE, JA8CAR, JA3EGE. Chinese TV 49.750 S9 plus with spots across lower end of 50 MHz and 43.650 S9 plus.

9/11/2011: Worked JA1CUOI, JA1FNA, JL8GFB. 43.650 only indicator.

11/11/2011: Worked JA3EGE only at 0742Z. FK8 beacon and FK8CP heard at the same time. He does not reply to calls if he has you in his log!

13/11/2011: FK8CP S9 calling CQ on phone and CW constantly. No VK replies!

From Wayne VK4WTN's log the following:

1/11/2011: KH6SX 579, FK8CP 59+, XE1FAA 529, TI2CDA 53, TI5XP 519.

6/11/2011: HL5BMX 529.

7/11/2011: BD6AHU 55, BA4SI 589.

8/11/2011: HL1IBG 559, DU7/PA0HIP 429.

9/11/2011: BH4QFI 54, HL3ERG 59+, DS2CYI 42, KH6U 55.

10/11/2011: BA4SI 529, KH6SX 55.

14/11/2011: KH6SX 529.

18/11/2011: BA4SI 599.

19/11/2011: KH6SX 539, KH7Y 56.

20/11/2011: KH7Y 539.

23/11/2011: KH7Y 59, KH6RH 55, KH6SX 599.

28/11/2011: AH7C 559.

6/12/2011: KH6HI 559, KH7JJ 559, KH6SX 53.

Graeme VK4CAG reports a great opening to JA. On 9/11/2011 at around 0500Z I heard a few weak JAs and decided to call CQ on 50.130. That started a pile-up that lasted for nearly three hours with 108 JAs from all JA call areas and one Korean station DS1QMV worked. Signals were mostly 59+. Many were still calling as the band faded out at 0745Z. JA2DBQ reported his first 6m DX QSO - he was using a 24 MHz

dipole. JH1ACA, a YL operator using a ground plane worked her second VK contact - check out her QRZ page! There were two QRP stations, one running one watt and a couple of mobiles.

The experience was entirely different to when we used to work

into JA with 10 watts of AM and most transmissions crystal locked to a fixed frequency, back in the early 1970s. Just as well we worked 'split' as it would have been impossible to work a pile-up on AM!

Thank you for all those who have forwarded me information to assist

me in putting these notes together each month. Please send any six metre information to Brian VK5BC at briancleland@bigpond.com

Silent Key **Vic Kitney VK6VK**

The key of Victor John Kitney VK6VK from Bunbury fell silent on 26 November, 2011. Vic had fought a courageous battle against cancer in one form or another for over ten years; he was aged 82.

Born in Donnybrook WA in 1929, he had been interested in wireless (as it was then known) from an early age. This interest came about because his late father Jack VK6AV had an interest in all things electrical as well as wireless. Vic often constructed crystal sets and valve receivers in those early days. He left Donnybrook when he was 14 years old and went to Harvey where he became a projectionist at the local picture show as well as working in the Harvey power house. He was fascinated by steam powered engines and their relationship to power generation.

In 1948 Vic joined the RAAF where he trained as a WOM (Wireless Operator Mechanic) at the then RAAF School of Radio at Ballarat. During his RAAF service, Vic also studied at the Marconi School of Wireless in Queens Street, Melbourne. As a result he gained a First Class Commercial Operators Certificate. Towards the end of 1949 Vic passed his 'Ham' ticket and became VK3AVK, at Ballarat. He was soon transferred to Perth where he became VK6VK. One of his accomplishments was in being among the very first VK6 amateurs to use the (then) new SSB mode extensively in his hobby.

During his stint in the RAAF, Vic spent time at Laverton in Victoria, Lee Point Receivers in Darwin and a brief attachment to the



Montebello Islands after the Big Bang. He also spent time at the No 3 Telecommunications Unit at Pearce.

After leaving the RAAF Vic worked in commercial radio. Whilst working at Radio 6AM in Northam, WA, he began to think about SSB, having been introduced to ISB transmitters at Point Cook whilst in the RAAF. An officer suggested at that time that he should try SSB as a 'ham' operator. So in 1955 he managed to scrounge bits and pieces to build up an SSB exciter using the 'phasing method'. In 1956 he went on air using SSB and immediately drew a letter of comment from the monitoring station in Perth. They were concerned that the emanating signal was distorted and asked him to cease all transmission. A letter of explanation about SSB cleared up the problem. They had not recognised the SSB mode of signal transmission, leaving a few red faces in the Department.

Vic was to move around quite a bit during his career. In 1960 he decided to venture into television. During the 1960s he was to work at both TVW7 and STW9 in Perth, then in 1968 accepted his first

appointment to the Antarctic Base at Mawson, working in the role of Senior Technical Officer Communications. On his return he re-joined TVW 7 and then spent some time at the Mt Goldsworthy TV facilities near Port Headland where both channels 7 and 9 had set up a 'cable' TV service for local residents. He later moved to Tasmania, working as a transmitter technician for TVT6 in Hobart. In 1983 he returned to Antarctica, where among many changes being made at that time were a number that eventually saw the end of HF communications as the principal means of communication back to Australia. Upon completion of his contract he remained in Hobart. Following the passing of his wife Maida in 1987, he moved to Bunbury, working for a television repair business. After four years he returned to Tasmania and set up a small repair business at Swansea, on the east coast. Following his cancer diagnosis, he decided to settle again in Bunbury, where he was to spend the rest of his life.

As an amateur Vic was to first operate almost exclusively in CW, but later came to love SSB and, later still, developed a passion for RTTY.

Radio, television and more so amateur radio played a huge part in Vic's life. I am sure he will be sorely missed by all those he knew in the world of amateur radio as well as his ex-work colleagues and family. 'Signing off for now'.

Submitted by his son Roger Kitney VK6RF.

Amateur Radio Annual Index 2011

Don Jackson VK3DBB

TITLE	AUTHOR	ISSUE	PAGE
ALARA			
ALARA AGM held on 2 May, 2011	Margaret Blight VK3FMAB	July	31
Handy Workshop Hints	Margaret Blight VK3FMAB	Sep	47
The care and feeding of your pet ham (the OM)	Laura Sargent	May	48
Annual Index			
Index for 2010	Don Jackson VK3DBB	Jan/Feb	58
Awards			
Zone 29 Award	Keith Bainbridge VK6RK	Jan/Feb	5
Contest results			
2010 ARRL 10 metre scores	Phil Smeaton VK4BAA	Aug	44
2010 ARRL HF World Championship scores	Phil Smeaton VK4BAA	Aug	44
2010 ARRL International DX Contest - CW scores	Phil Smeaton VK4BAA	Aug	44
2010 ARRL International DX Contest - Phone scores	Phil Smeaton VK4BAA	Aug	44
2010 IARU HF World Championship Results	Phil Smeaton VK4BAA	May	41
2011 Remembrance Day Contest Results	Pater Harding VK4OD	Nov	40
2011 WPX CW Contest - claimed scores	Phil Smeaton VK4BAA	Sep	42
BERU Results	Phil Smeaton VK4BAA	Sep	43
CQWPX SSB 2010 Results	Phil Smeaton VK4BAA	Mar	38
CQWPX SSB 2011 - Claimed Scores	Phil Smeaton VK4BAA	Jul	18
CQWW 160M 2010 Results - mention	Phil Smeaton VK4BAA	Mar	38
CQWW CW 2010 Results	Phil Smeaton VK4BAA	Nov	38
CQWW SSB 2010 contest results	Phil Smeaton VK4BAA	Oct	43
Harry Angel Sprint - 2011	Ian Godsil VK3JS	Aug	48
IOTA Contest 2010 - results	Phil Smeaton VK4BAA	Apr	40
JIDX 2010 SSB contest results	Phil Smeaton VK4BAA	Oct	43
John Moyle Field Day 2011 Results	Denis Johnstone VK4AE/ VK3ZUX	Jun	42
Oceania 2010 Contest results	Phil Smeaton VK4BAA	Oct	42
RD Contest Results - Corrections	Peter Harding VK4OD	Dec	51
RDXC 2011 Results	Phil Smeaton VK4BAA	Oct	43
Ross Hull Memorial VHF-UHF Contest 2011 - Results	John Martin VK3KM	Apr	26
Ross Hull Memorial VHF-UHF Contest 2011 - Results	John Martin VK3KM	May	43
Spring VHF-UHF Field Day 2010: Results	John Martin VK3KM	Jan/Feb	40
Summer VHF-UHF Field Day 2011 - Results	John Martin VK3KM	Apr	46
The 31st ALARA contest results	Lesley Smit VK5LOL	Nov	42
WIA National Field Day 2010 Results	Philip Adams VK3JNI	Jan/Feb	35
Winter VHF-UHF Field Day 2011 - results	John Martin VK3KM	Sep	44

TITLE	AUTHOR	ISSUE	PAGE
Contest rules			
2011 Remembrance Day Contest - Rules	Peter Harding VK4OD	Jul	34
COCQ QRP Day Contest 2011 - Rules	Mike Gower VK2IG	Aug	47
COCQ QRP Hours Contest 2011 - Rules	Phil Smeaton VK4BAA	Apr	42
CQWW Multi-Op rule changes	Phil Smeaton VK4BAA	Oct	43
Harry Angel Memorial Sprint 2011	Ian Godsil VK3JS	Jun	41
Jack Files Memorial Contest - 22 October 2011	Derek Toreaux VK4MIA	Oct	47
John Moyle Field Day Contest 2011	Denis Johnstone VK4AE/ VK3ZUX	Mar	40
Ross Hull Memorial VHF-UHF Contest 2012	John Martin VK3KM	Dec	47
Summer VHF-UHF Field Day 2012	John Martin VK3KM	Dec	46
The Westlakes Cup 2011	Leonie McGuinness VK2FHRK	Sep	43
VHF-UHF Field Day 2010: Rules	John Martin VK3KM	Oct	44
Winter VHF-UHF Field Day 2011	John Martin VK3KM	May	42
Contests			
All Asian CW Contest	Phil Smeaton VK4BAA	Aug	44
Contest Calendar December 2011 - January 2012	Phil Smeaton VK4BAA	Dec	48
Contest Calendar for April 2011 - June 2011	Phil Smeaton VK4BAA	Apr	39
Contest Calendar for August - October 2011	Phil Smeaton VK4BAA	Aug	44
Contest Calendar for February 2011 - April 2011	Craig Edwards VK4LDX/ VK8PDX & Phil Smeaton VK4BAA	Jan/Feb	38
Contest Calendar for July 2011 - September 2011	Phil Smeaton VK4BAA	Jul	18
Contest Calendar for June 2011 - August 2011	Phil Smeaton VK4BAA	Jun	30
Contest Calendar for March 2011 - May 2011	Phil Smeaton VK4BAA	Mar	38
Contest Calendar for May 2011 - July 2011	Phil Smeaton VK4BAA	May	39
Contest Calendar for November 2011 - January 2012	Phil Smeaton VK4BAA	Nov	38
Contest Calendar for October 2011 - December 2011	Phil Smeaton VK4BAA	Oct	412
Contest Calendar for September 2011 - December 2011	Phil Smeaton VK4BAA	Sep	42
Contesting for beginners	Alan Shannon VK4SN	Jan/Feb	14
CQ WW SSB 2011 - report	Phil Smeaton VK4BAA	Dec	48
Field Day botch-ups and other lessons learned	Peter Ellis VK1PE	Jun	50
Golden Goal fox hunt	Jack Bramham VK3WWW	Jan/Feb	24
Oceania CW 22-11 - report	Phil Smeaton VK4BAA	Dec	48
VKCC Contester of the Year Award	Phil Smeaton VK4BAA	Jul	18
WPX CW 2011	Phil Smeaton VK4BAA	Jul	18

TITLE	AUTHOR	ISSUE	PAGE
CONFERENCES			
Short unloaded whip antennas	Dale Hughes VK1DSH & Andrew Davis VK1DA/VK2UH	Nov	42
COVERS			
Antenna Installation at Northern Corridor Radio Group in VK6	Gerhard Mueller-Dorn VK6GMD	Sep	Cover
Bob VK5POP giving a young scout some tips for operating JOTA	Bob Bristow VK6POP	Oct	Cover
Field Day Action - the Hills ARG at Mt Gunjin (WA)	Martin Stretton VK6ZMS	Jun	Cover
High Performance Software Defined transceiver	Justin Giles-Clark VK7TW	Dec	Cover
Michael Duffy VK3KI & Spud Murphy VK8ZWM at the Annual Conference	John Longayroux VK3PZ	Jul	Cover
Montage of highlights of Centenary Celebrations dignitaries	Various	Mar	Cover
Some of the Annual Conference participants at the Darwin Trailer Boat Club	Dianne Ashton VK3FDIZ	Jul	Cover
The elegant portable mast system of Rik VK3KAN	Rik Head VK3KAN	Apr	Cover
The Icom IC-9100 Reviewed	Icom (Australia) Pty. Ltd.	Jul	Cover
The VK3TXO Fox Hunt Team	Robert Broomhead VK3DN	Jan/Feb	Cover
Wally Green VK6WG and his antennas	Doug Friend VK4OE	Aug	Cover
WIA President Michael Owen VK3KI at naming ceremony	Robert Broomhead VK3DN	May	Cover
Ye Qiaoqian, youngest girl in Chinese team at the Region 3 ARDF Championships 2011	Robert Broomhead VK3DN	Nov	Cover
FOUNDATION CENTRE			
Basic digital communication, or the Diddly Dah's	Ross Pittart VK3CE	Dec	18
Has the Foundation Licence been a failure?	Michael Owen VK3KI	Mar	3
Nostalgia or better engineering? Making and using parallel line	Geoff Emery VK4ZPP	May	6
Test equipment (for the F-call) in the 21st century: Home brewing revisited!	Geoff Emery VK4ZPP	Aug	22
CONVENTIONS			
2011 WIA Urunga Radio Convention	Ken Golden VK2DGT	May	35
80 Years in amateur radio and still active - George VK3LA	Bill Magnusson VK3JT	Apr	24
A Centenary Recognised	The Centenary Celebrations Committee	Mar	56
A G's visit to VK	Ian Hollingsbee G3TDT/VK3BIH	Jul	16
A history of the Amateur Operators Certificate and tighter Morse Code requirement	Lloyd Butler VK5BR.	Nov	44
Amateur radio - The first technology-based social network	Phil Adams VK3JNI	Mar	29
Amateur Radio Victoria - VK3WI participation in ILLW 2011	Terry Murphy VK3UP	Oct	21
Amateur radio, bushwalking, photography and fishing in Tasmania's Central Highlands	Brian Morgan VK7RR	May	23

TITLE	AUTHOR	ISSUE	PAGE
An electronic AR?	Peter Freeman VK3PF	Apr	2
An unforgettable lesson	Alan Elliot VK3AL	Nov	48
Andersson House opening - images	Robert Broomhead VK3DN	May	IBC
AR Print and Paper quality	Peter Freeman VK3PF	Jun	2
Awards at the Annual Conference Darwin 2011	WIA	Jul	10
Bits and Bobs - How amateur radio enhances a marriage	Rananda Rich VK2FRAR, with Alex Taverner VK2RZ	Nov	37
Cape Schanck activated for ILLW 2011	Joe Magee VK3BKI	Oct	38
Changes in callsign recommendation procedure	WIA News	Aug	4
Club Grant Scheme 2011 - eligibility requirements	WIA	Jun	45
Club Grants for 2011 awarded	Michael Owen VK3KI	Jun	4
Darcy Hancock VK5RJ	Ian Sutcliffe VK5IS	Dec	15
Dual Centenary plus celebrated at Ipswich	Michael J Charteris VK4QS	Mar	30
G'day Old Timer! What's in a name - plenty or nothing?	Ian Godsil VK3JS	Aug	14
GippsTech 2011 - A personal view	Roger Harrison VK2ZRH	Sep	6
Has the Club Grant Scheme run its course	Michael Owen VK3KI	Dec	3
Has the Foundation Licence been a failure?	Michael Owen VK3KI	Mar	3
Hunter Radio Group catches up with Jeff Johnson VK4XJJ in Newcastle	Graham O'Brien VK2FA	Dec	13
IARS activates Point Perpendicular Lighthouse VK2AMW for the ILLW	Rob McKnight VK2MT	Oct	41
Images from the 2011 ARDF Championships	Robert Broomhead VK3DN	Nov	56
Ipswich & District RC partnership with Vertex Standard Australia (Yaesu)	Michael J Charteris VK4QS	May	5
It all started 100 years ago - A review of the 100th anniversary celebrations	The Centenary Celebrations Committee	Dec	27
It all started 100 years ago - A review of the 100th anniversary celebrations	The Centenary Celebrations Committee	Dec	21
JOTA weekend October 2010	Eddie Tomes VK4TJE	Jan/Feb	13
JOTA-JOTI 2011	Bob Bristow VK6POP	Oct	6
NZ Amateur of the year 2010, and now VK2DWS	David W Searle VK2DWS	Dec	5
Official opening of the Adelaide Hills ARC training and operations "shack"	John Elliott VK5EMI	Nov	14
Parkes Radio Club and VK2BPK are back	Phil Derbyshire VK2FIL	Aug	18
Pierce Healey VK2APA, Honorary Life Member of the WIA, is 100 years old!	Peter Wolfenden VK3RV	Sep	51
Presentation of Long Service medals for WIA members, Rockhampton & Dist. ARC	Las Unwin VK4VIL	May	27
QSLing in Australia	Neil Penfold VK6NE	Jul	6
Science Alive - the Elizabeth ARC at SAs Premier Science education event	Paul Schulz VK6 FPAW	Dec	6
Scouts go bush for John Moyle Field Day	Miles Burke VK6FMAB	Jun	28

TITLE	AUTHOR	ISSUE	PAGE
The 160 metre Coffee Break Net	John Fisher VK3DQ/VK3ARK	Jan/Feb	21
The 8th IARU Region 3 ARDF Championships	Michael Owen VK3KI	Nov	3
The Darwin ARC at the WIA National Field Day in Darwin, 2011	Spud Murphy VK8ZWM	Jun	14
The Darwin Invasion - What's on at the Annual Conference	Spud Murphy VK8ZWM	Mar	16
The RADAR Club returns to Cape Capricorn Lighthouse for ILLW 2011	Les Unwin VK4VL	Oct	22
The RAVEN is not about to swoop (re WICEN)	Michael Owen VK3KI	Jun	3
The Road to Maldon	Jack Bramham VK3WWW	May	53
The Whyalla ARC at the WIA National Field Day Sunday 17 April 2011	Peter Horgan VK5BWH	Jun	30
The WIA 2011 Annual Conference in Darwin	WIA	Jul	8
V4FI Sandy Cape Lighthouse AU0043, Fraser Island IOTA OC-142, ILLW 2011	Derek Toreaux VK4MIA	Oct	8
Wally Green VK6WG	Wally Howse VK6KZ	Aug	8
Wally Green VK6WG and some of his equipment (images)	Doug Friend VK4OE	Aug	IBC
Western Victoria JOTA/JOTI 2011	Ash Clark VK3SSB	Dec	41
Western Victoria JOTA/JOTI weekend	Ash Clark VK3SSB	May	21
Whyalla ARC at ILLW 2011	Alex Gliński VK5ALX	Oct	7
WIA Travelling Badge Competition	Christopher Platt VK5CP	Dec	31
General operating			
Across the Tasman on 2.4 GHz	David Smith VK3HZ	Mar	14
Amateur LCD amended	The Wireless Institute of Australia	Jan/Feb	54
ARDF Championships a success - a report on the 8th ARDF championships	Jack Bramham VK3WWW	Oct	22
Cradle Coast ARC activation of Table Cape Lighthouse AU0039 near Wynyard, Tasmania	Wane Hays VK7FWAY & Dick Edwards VK7FEJE	Aug	42
QRP 101, or the great radio heresy	Norm Lee VK5GI	Apr	34
Six months on Willis Island	David Burton VK4DAV/VK9WBM	Aug	33
Six-monthly review of operating OSCARS	David Giles VK5DG	Jul	37
Spinifex and dust storms	Barry Miller VK3BJM	Jan/Feb	31
Station Inspections and "Possession"	Michael Owen VK3KI	Sep	3
T32C breaks the DXpedition QSO record	John Bazley VK4OQ	Dec	8
The 2011 VK9HR DXpedition to Lord Howe Island	John Chalkiarakis VK3YP	Dec	10
The DXer gets back on top	Jim Linton VK3PC	Jul	17
Grid square standings			
Standings as at 11 February 2011	Guy Fletcher VK2KU	Apr	30
Standings as at 17 June 2011	Guy Fletcher VK2KU	Aug	49
Standings as at 17 October 2011	Guy Fletcher VK2KU	Dec	52

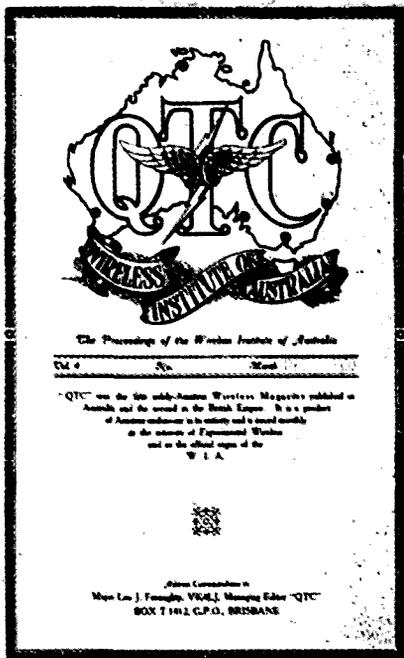
TITLE	AUTHOR	ISSUE	PAGE
Over to You			
Coaxial cables	Duncan Eales VK3LO	Jan/Feb	12
re article by Warren Stirling VK3XSW on repair of an SGC-230 Antenna Tuner	Antony Benbow VK6AXB	Nov	47
re article on short unloaded whip antennas	Richard Cortis VK2XRC	Nov	31
Reviews - Books			
Thunderstruck (author Erik Larsen)	Lesley Smit VK4LOL	Mar	53
Reviews - Equipment			
The ICOM -IC-9100 - the all round transceiver	Michael Coleman VK3KH & Pater Freeman VK3PF	Jul	21
Silent Keys			
A E (Ed) Dyring VK2ED	Chris Newton VK2JCN	Oct	5
Alan Mouzon VK3BUM	Mike Jenner VK7FB	Sep	28
Alf Wasschsmann VK7LAW	Jason Reilly VK7ZJA	Jan/Feb	55
Ame Jansson VK4BRN	Kay Jansson	Jun	27
Arthur Brean VK6SY	Bob Bristow VK6POP	Jan/Feb	47
Cecil Andrews VK6AO	David Smith VK3HZ	Jun	25
Clifford Victor de Plater VK7CD	Yvonne Maxwell VK7FYM	Sep	28
Cmdr Dennis A Smith ex VK5LS, 1920-2011	David A Pilley VK2AYD	Aug	26
Colin King VK4CK	Alan Simpson VK4AAE & Gary Ryan VK4AR	Jun	44
David Sidney Thompson ex VK2BDT	Ian Jeffrey VK2IJ	Nov	43
David Soundry VK4SM	Dave Muller VK4JT	Mar	35
Dawn Sebbens VK4HER	Anne Minter VK4ANN	Mar	51
Frederick Brian Conway Fergus VK4BCF	Colin Hinxman VK4ACH	Nov	31
Geoffrey Danvers Partridge VK2VU	Leonie Hill (daughter)	Jun	21
Jack Cations VK3ALP	Geelong ARC	Jun	19
James (Jim) Glegg Davis VK7OW	Winston Nicholls VK7EM, Ian Ellings VK7QF & RAOTC	Oct	13
Jamie (Joey) Dabner VK7KEG	Justin VK7TW & Chris VK7FCDW	Jul	47
John Herbert Ruston ex VK4AZK	Doug Tamblyn VK5GA	Oct	47
John Lehmann VK4AZK	Gavin VK3HY, Colin VK5DK and Russell VK3ZQB	Nov	31
John McCulloch VK7CCC	Joe Gelston VK7JG	Sep	28
Keith Malcolm VK1KM	Ian Cowan VK1BG with assistance from Keith's many friends	Dec	12
Len Effeney VK4DI	Les Unwin VK4VIL	Mar	35
Maxwell Ray Strugnell VK5SMR	Larry Teakie VK5HBG on behalf of the family	Jan/Feb	29
Neil Trainor VK3IJ	Brenda Edmonds VK3KT & Bill Magnusson VK3JT	Sep	50
Paul Fox ex VK7NOX	Martin HB9TQX/VK7MM	Jul	20
Phillip Mark Williams VK5NN	John Elliott VK5EMI	Mar	31
Professor Charles Miller VK7CM	Winston Henry VK7WH	Jun	53
Terry Tonge ex VK7TT	Winston Henry VK7WH	Jul	43
Walter McInnes Dempsey VK3WD	Peter Dempsey VK3TIM	Jan/Feb	50
Wayne Kilpatrick VK5ZX	South East Radio Group	Aug	51
Technical - Receivers			
An audio compressor/AGC circuit	Dale Hughes VK1DSH	Nov	20
Technical - Antennas			
A car portable antenna mast	Rik Head VK3KAN	Apr	21
A four element six metre Yagi for 50 to 52.5 MHz	Paul McMahon VK3DIP	Dec	32
A great old antenna, for no-so-good locations: the end fed Zepp re-visited	Wayne Pickard VK2ACY	May	8

TITLE	AUTHOR	ISSUE	PAGE
A non-kinky slinky antenna - with a 1:1 balun	Raffy Shammy VK2RF & Allan Hirschel VK2VEC	Jan/Feb	52
A safer antenna mast from an old war machine design	Ian Simpson VK3GPL	Jan/Feb	48
A simple antenna base for portable vertical antennas	Graeme Scott VK2KE	Mar	5
A simple balanced line protector	Justin Giles-Clark VK7TW	Nov	25
An adaptable antenna for portable operation	Henrik Stenstrom VK2HHS & Jim Ayling VK2JA	Mar	16
An exquisite situation on short unloaded whip antennas and the effect of shunt capacitance at their bases	Dale Hughes VK1DSH & Andrew Davis VK1DA/VK2UH	Oct	33
An improvement to the hidden 40 metre X beam	Ron Holmes VK5VH	Jul	10
An introduction to antenna modelling	Ron Sanders VK2WB	Jan/Feb	7
Build your own 200 watt 50 Ohm band-pass filters	Roderick Wall VK3YC	Sep	8
Building an 80 metre magnetic loop antenna for your attic Pt 1	Jim Tregalias VK5JST	Jul	12
Building an 80 metre magnetic loop antenna for your attic Pt 2	Jim Tregallas VK5JST	Aug	27
Delta loops and Quad loops and inverted vee dipoles	Felix Scerri VK4FUQ	Mar	27
Home brewing a mobile HF antenna	John McLean VK2KC	Aug	24
How to aim an antenna with the Internet and the sun	Erich Heinze VK5HSE	Mar	12
Multiband antennas	Kevin Parsons VK2JS	Jun	8
Nostalgia or better engineering? Making and using Parallel line	Geoff Emery VK4ZPP	May	6
The Porta-Loop: A loop antenna for MF reception	Pater Parker VK3YE	Nov	32
Unwanted mast/antenna interaction, and the potential effects on performance	Felix Scerri VK4FUQ	Jan/Feb	26
VK3BJM versus "The Tower"	Barry Miller VK3BJM	Apr	18
Technical - General			
A device holder for SMD construction	Winston Nichols VK7EM	Jun	11
A different sort of radio - Software Defined Radio	Hans Smit VK5YX	Mar	52
A polarity protection circuit using a power FET	Dale Hughes VK1DSH	Jan/Feb	6
A poor man's single paddle lever for a Hallicrafters T O Keyer	Yves Bernier VK2AUJ	Mar	33
A switched mode power supply repair	Erich Heinze VK5HSE	Nov	6
An introduction to stepper motors	Jim Tregallas VK5JST	May	9
Building an 80 metre SSB kit radio	Lyle Whyatt VK5WY	Mar	34
Building and using a touch keyer	Grant McDuling VK4JAZ	Jun	22
Can't you hear me calling?	Bill Isdale VK4IS	Dec	20
Cheap as chips	Nigel Andrews VK4FNA	Jan/Feb	12
Down in the dirt: radio earths...	Dale Hughes VK1DSH	Jun	12
GippsTech 2011 - A personal view	Roger Harrison VK2ZRH	Sep	6
Handy Workshop Hints	Margaret Blight VK3FMAB	Sep	47
How to manufacture a doubly sided PCB	Murray Lang VK6HL	Oct	16
Modern communication technologies - a quick centenary review and the future	Justin Giles-Clark VK7TW	Dec	23

TITLE	AUTHOR	ISSUE	PAGE
Murphy's emergency communications	Bill Isdale VK4IS	May	16
My RFI experiences	James Fleming VK4TJF	Mar	26
PSK31 QRP is great fun	Grant Maculing VK4JAZ	Nov	46
Technical - Instruments			
A combined capacitance meter and spot frequency generator	Paul Anderson VK2GPT	Jan/Feb	36
A sensitive field strength meter	Tony La Macchia VK2BTL	Nov	8
A simple and reliable tuning indicator for a 100 watt transceiver	Warren Stirling VK3XSW	Sep	33
A simple and reliable tuning indicator for a 100 watt transceiver - correction	Warren Stirling VK3XSW	Oct	15
A simple beeper for microwave operation	Lou Blasco VK3ALB	Nov	10
Build your own 200 watt 50 Ohm band-pass filters	Roderick Wall VK3YC	Sep	8
Improvements to Jim's RF Voltmeter	Steve Mahoney VK5AIM	Jul	15
Test equipment (for the F-call) in the 21st century: Home brewing revisited!	Geoff Emery VK4ZPP	Aug	22
Technical - Receivers			
The simple SDR: a basic software defined radio anyone can build - Part 1	Peter Parker VK3YE	Sep	30
The simple SDR: a basic software defined radio anyone can build - Part 2	Peter Parker VK3YE	Oct	27
Technical - Transceivers			
A transceiver for 137 kHz	Dale Hughes VK1DSH	Apr	6
An 'SCG-230' auto coupler repair	Warren Stirling VK3XSW	Oct	23
My FT-209R repair adventure	Steve Ireland VK2MD (ax VK5AOZ)	Jun	15
Phillips PRM80 six metre conversion	Matt Bilston VK3VS/VK3SMB	Jul	43
The "DTMF" engine	Dale Hughes VK1DSH	Jul	49
WIA Comment			
ACMA Investigates serious interference on amateur bands	WIA News	Nov	4
EMCOM Network (EMCOMNEI)	WIA News	Oct	4
Many Places, Many People, Common Themes	Michael Owen VK3KI	Jan/Feb	3
New WIA Director - Peter Young VK3MV	WIA News	Oct	4
New WIA Secretary Appointed	Michael Owen VK3KI	Apr	4
Submissions close to the NSW Planning Scheme Review	WIA News	Dec	4
The ACMA needs some appropriate policies	Michael Owen VK3KI	Apr	3
The Annual Conference - Darwin 2011	Michael Owen VK3KI	Jul	3
The IARU	Michael Owen VK3KI	Aug	3
The Wireless Institute of Australia Foundation	Michael Owen VK3KI	Oct	3
WIA extends emergency communications training	Michael Owen VK3KI	Apr	4
WIA opens its New Headquarters - Andersson House	Michael Owen VK3KI	May	3
WICEN			
The RAVEN is not about to swoop	Michael Owen VK3KI	Jun	3

Hamads

WANTED – NATIONAL



Early copies of QTC magazine.

The WIA Archive is seeking early copies of QTC magazine for copying and/or adding to the WIA Archive's shelves. QTC was published in Queensland and claimed to be the first solely Amateur Wireless magazine in Australia and second in the British Empire! The format was duplicated foolscap pages stapled, with a light blue/grey front cover. QTC was published in the late 1920s/early 1930s, ceasing in November 1931; VK4LG was the dedicated editor. There was a later version in Queensland. We are presently interested in the early editions only. Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.

FOR SALE – NSW

Icom transceiver, model IC-7400, Serial No 01449. In as-new condition, complete with power cable, mike, and operating manual. Service history provided, and recently serviced by Icom. It comes with original carton and packing. Has all HF bands plus the six metre and two metre bands, three antenna connections, button band selection and auto antenna tuning for HF bands. Many other features

outlined in the operating manual. It has had very little use. Price \$1,500 or near offer.

Telephone Stan VK2AYL on 02 4981 7173 - leave message if unanswered and your call will be returned.

Nally radio tower, 13.7 m free standing, telescopic and tiltover. Slab mounted with J bolt assembly, comes with antenna mounting pole, three metres, floating bearing and mounting plate with weather shield. Also includes drawings and computations. Three years old and never used or installed. I must sell as I cannot get council permission to install in the area required. All up cost was \$6371.00 will sell for \$2850 ONO.

Also large collection of telegraph keys, sounders, books, etc. Prices on application.

Also Cushcraft three element six metre beam. Brand new in box, \$125.00.

Yaesu FT-101Z, which can turn on, but cannot apply drive. \$200.00 ONO.

Contact Stephen VK2SPS, at vk2sps@froggy.com.au or phone 02 9456 0130 or 0415 559 784.

Icom IC-7000 all mode transceiver, S/N 0803164, brand new.

Icom power supply, 25 amp, S/N 80478291, brand new.

Icom AH-4 auto tuner, S/N 0214170, brand new.

1-0301 Benelec 0301 Power/SWR meter, brand new.

Kenwood TS-43x transceiver, needs realignment.

For all the above equipment, \$2000.00. I do not want to separate. Reason for selling - I am going into a retirement village. Contact George VK2DJR, phone 02 6687 4807 QTHR or vk2djr@bigpond.com.au

FOR SALE – QLD

House and land for sale with Council approval as a radio transmitting site. Land area is just less than two acres (6797 sqm). House area is 310 sqm, five bedrooms, of which two bedrooms are part of a Granny Flat. Covered verandas surround the house. Two bathrooms, with provision for a third. Three entertainment areas.

ADSL2+ Telstra. Double garage plus a double car port. Also a car port for a motor home, with 3.5 metre clearance. The tower has been taken down but footings are in place. The antennas are in place, a full size 80 metre horizontal loop and an 'off centre fed Windom'.

Property is located at Clear Mountain, approximately 35 km north-west of the Brisbane GPO.

Offers over \$649,000.

For more information and pictures on CD, please contact Malcolm VK4ZMM at email vk4zmm@bigpond.net.au or phone 07 3298 5454

Winch up four section Kismet tower complete with stainless wire rope guys (for three sections), stainless turnbuckles, three equaliser plates and an oversize winch; documentation is included.

Price \$300.00 - pick up only or will help organise transport if required.

CDE Model H-III/CD-44 220VAC rotator controller, with two motors and cage for the top of the tower, to house the motor and mast tube. \$300.00.

Malcolm VK4ZMM, email vk4zmm@bigpond.net.au or phone 07 3298 5454.

WANTED – QLD

A tower to support VHF and UHF Yagi arrays, height required around 9-10 metres, preferably free-standing. Should be square or triangular section, and will be used to support large six metre, two metre and UHF antennas. It should provide for mounting of a rotator and a pole to mount antennas on, and be able to withstand south east Queensland storm winds.

Contact Tim VK4TIM on 0415 947480, vk4tim@iinet.net.au or QTHR address.

FOR SALE – SA

Kenwood TM-D710A, 2 m/70 cm, 50 W dual-band, dual in-band receive, 1000 memories, has all the latest features. It is an excellent performer. Current model as new in box with all supplied accessories. S/N 90800396. There are no modifications and it is in immaculate condition. Cost me \$895, sell for \$680 o.n.o.

VK500 QTHR or phone 0412 000 076.



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

AMIDON FERROMAGNETIC CORES



ttss systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystem.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links related to Amateur Radio and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

About Hamads

- Submit by email (**MUCH PREFERRED**) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd
as distributor for RM products
Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**

JACKSON BROS

www.jacksonbrothers.com.au

Highest quality products made by UK craftsmen
Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

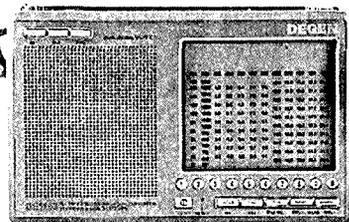
HAMMOND ENCLOSURES

HAMMOND MANUFACTURING Large range of quality electronic enclosures for the discerning Radio Amateur.
Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many ARRL projects.

Cookson Controls CHARLES I COOKSON PTY LTD

11-13 Port Rd Queenstown SA 5014
Tel: (08) 8240 3200 Fax: (08) 8240 3233
sales@jacksonbrothers.com.au
ccookson@hammfg.com

ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND



DEGEN 1103 HF Receiver

Pocket sized, 100 kHz - 29,999 kHz

LCD display, SSB, AM wide/narrow FM Stereo, DX/Local, 10 m long wire NimH batteries & charger
Earphone & Carrycase included
Full review Silicon Chip Jan 2007



ONLY \$99
with 12 month warranty

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100

Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au

www.avcomm.com.au

ADVERTISERS INDEX

Av-com	63
Com-an-tena	27
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	17
TET-Emtron	13
TTS	15, 63
Yaesu (Vertex)	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Directory

National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>



The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au

- * John Bishop VK2BK
- Dominic Dahl VK2YDD
- * Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- * Bob Tait VK3XP
- Luke Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- * Michael Charteris VK4QS
- Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- * David Clegg VK5KC
- * Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- * Martin Stretton VK6ZMS
- * Heath Walder VK6TWO
- Craig Lamb VK6FLAM

Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- * Justin Giles-Clark VK7TTW
- Peter Rumble VK7IY

Northern Territory Advisory Committee

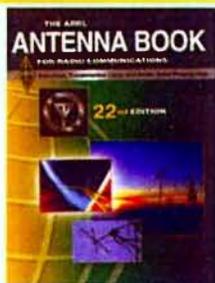
Email: vk8advisory@wia.org.au

- * Peter Blackadder VK8HPB
- Garry Woods VK8GW
- * Alan Baker VK8AB
- Mark Sellers VK8MS

**Denotes Committee Chairman*

**Denotes nominated by the WIA Board ("Nominated Member")*

Visit our Bookshop



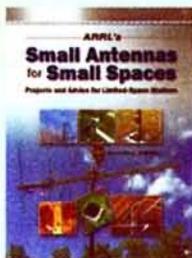
ARRL Antenna Book

(22nd Edition - Hardcover or Softcover)

Antennas, Transmission Lines and Radio Wave Propagation

Build one antenna, and you'll quickly find yourself planning the next. **The ARRL Antenna Book for Radio Communications** is devoted entirely to that pioneering spirit. In this one book, you will find all of the information you need to design complete antenna systems—from planning, to design and construction. **The Antenna Book** includes treatments for nearly any radio band and operating application: low-band, HF, VHF, UHF and microwave: fixed station, portable, mobile, maritime, satellite and more!

MEMBER PRICE: \$85.00* RETAIL: \$95.00*

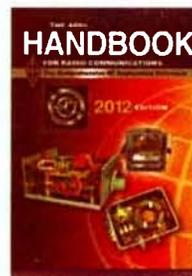


ARRL's Small Antennas for Small Spaces

Amateur Radio operators love antennas – the bigger the better

-- but if you don't have acres of property to erect the antenna of your dreams, does it mean you're effectively off the air? **Not at all!** This fascinating hobby is still yours to enjoy. With the right antenna design you'll be on the air today! **ARRL's Small Antennas for Small Spaces** is a valuable resource for amateurs who live in apartments, condominiums, or houses on small lots. Filled with practical advice, this book guides you to finding the right antenna design to fit whatever space you have available. In **Small Antennas for Small Spaces** you'll find ideas and projects that will get you on the air regardless of where you live!

MEMBER PRICE: \$42.00* RETAIL: \$48.00*



ARRL Handbook

(2012 - Hardcover or Softcover)

The ARRL Handbook for Radio Communications has kept technologists—

amateur, professional and students—immersed in the radio art for generations. As innovations in wireless communication march (and race!) ahead. **The ARRL Handbook** has maintained its place at the forefront—a single resource covering electronic fundamentals, radio design, and loads of practical treatments and projects. You'll read it, study it, and turn to it...again and again.

Updated and Revised! This eighty-ninth edition of **The Handbook** includes something for every radio amateur and experimenter.

MEMBER PRICE: \$85.00* RETAIL: \$100.00*
Hardcover

MEMBER PRICE: \$30.00* RETAIL: \$95.00*
Softcover

** Plus Postage and Packaging*

Order your copy today! Visit our online bookshop for details.

www.wia.org.au/bookshop



Mildura welcomes Wireless Institute of Australia 2012 Annual Conference

Friday 25 - Sunday 27 May 2012



WIA Annual Conference Mildura 2012 Host Club: The Sunraysia Radio Group

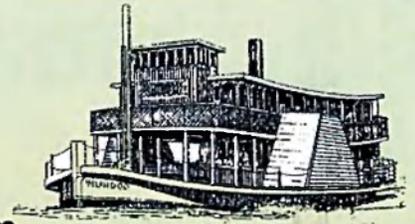
The 2012 WIA Annual Conference will be held in Mildura, Victoria, on Friday 25, Saturday 26 and Sunday 27 May 2012.

The 2012 Conference will be centred on the Mildura Grand Hotel and on Sunday lunch on the Paddleboat Mundoo, with a special Conference station, a special call sign and special QSLs.

To book

Make your bookings directly with the Mildura Grand Hotel on either the free call number 1800 034 228 or the hotel's number 03 5023 0511, stating that the booking is for the WIA Annual Conference 2012.

We suggest that you request to speak to either Kelly Lang or Ian George when making your booking.



Program

Friday 25 May 2012

2 pm to 5 pm
6 pm

Registration at the Mildura Grand Hotel
Buffet Dinner at the historic Settlers Club with Alan Cameron, Mildura businessman, balloon pilot and marriage celebrant "Sunraysia – Past, Present and Future".

Saturday 26 May 2012

8 am to 9 am
9 am to 12.45 pm

Registration at the Mildura Grand.
Annual General Meeting and Open Forum, Mildura Grand Ballroom.

1 pm to 2 pm
2 pm to 5 pm

Lunch.
Symposium (A technical program, details to be announced).

6 pm to 7 pm
7 pm

Drinks in the Club Lounge.
Annual Dinner, Hot and Cold Carvery Buffet, Mildura Grand Ballroom.

A Partners Tour will be available for Saturday, including visits to some of the highlights of the area. The cost of that tour will be included in the registration fee.

Sunday 27 May 2012

11.30 am to 3.30 pm
5.30 pm

Cruise and lunch on the Paddleboat Mundoo.
The Host Club's event – for those staying for Sunday night, a casual BBQ at the home of Noel Ferguson, Fergus Park, Nichols Point (Details at Registration).



Registration

On-line registration is available now on the WIA website, or you can register by phone to the WIA office.

When you register we will send you the, Mildura – Sunraysia Tourist Guide, so you can plan what else you will do in the Sunraysia area.

Shortly before the Annual Conference we will send you the Open Forum documents.

Further Information

Watch the WIA website for further information.

The WIA Directors and the Sunraysia Radio Group hope that you will join us in Mildura for our next Annual Conference for what we know will be a memorable weekend.

Experience Icom technology in analogue & digital



ID-31

IC-2820H



IC-RX7



IC-7700



IC-80AD

IC-92AD



IC-9100


ICOM

ICOM 573

To find out more about our latest products,
call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

Volume 81
Number 3
March 2012
Price: \$8 incl GST

www.wia.org.au



ARV celebrates its Centenary



- Coping with HF noise
- Salvaging parts
- Magnetic loop for 20 m



ISSN 0002-6859

0 3



9 770002 685031

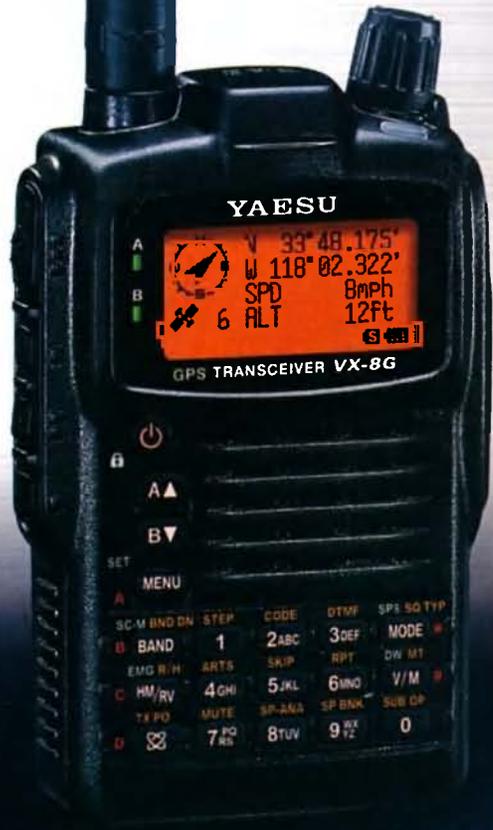


A TECHNOLOGY BREAKTHROUGH

THE NEW PRESTIGIOUS COMPACT RADIO WITH APRS



VX-8DR/E



VX-8GR/E



Amateur Radio

Volume 80
Number 3
March 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor

Peter Freeman VK3PF
editor@wia.org.au

Technical Editor

Peter Gibson VK3AZL

Publications committee

Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters

nationaloffice@wia.org.au

How to submit material

Secretary

AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor

Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising

All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office

Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines

All articles, columns, hamads and
advertising booking by first day of
previous month.

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

The Centenary not to be forgotten 6
Jim Linton VK3PC

VK3BAD at Cape Liptrap 15
for the ILLW 2011
John Fisher VK3DQ/VK3ARK

Strengthening the Foundations: 40
How amateur radio enhances
a marriage
Rananda Rich VK2FRAR &
Alex Taverner VK2RZ

Technical

The evolution of a communications 10
trailer (or mobile shack)

Lino Rizio VK3EI

Our Noisy World 22
Bill Isdale VK4IS

Salvaging parts: 26
what to take and how to use it
Peter Parker VK3YE

Tunnels in the sky? 36
Joseph Kasser G3ZCZ, VK5WU and 9V1CZ

A one metre diameter magnetic 42
loop for 14 MHz
Jim Tregellas VK5JST



This month's cover

Our cover this month shows Terry Murphy
VK3UP in his shack. Terry was very involved in
activating the VK100ARV callsign during the
ARV Centenary celebrations, both from home
and portable in the Brisbane Ranges National
Park. The inset photo shows Luke VK3HJ busy
with the CW key during one of his sessions
using the special callsign. See the story on
page 6. Photo by Terry Murphy VK3UP.

Columns

ALARA 17

AMSAT 24

Contests 30, 53

DX - News & Views 46

Editorial 2

Hamads 54

Silent Key 28, 39, 45

Spotlight On SWLing 21

VHF/UHF - An Expanding World 48

WIA Comment 3

WIA News 4

News from:

VK2 29

VK3 8, 19, 20

VK4 9

VK5 41

VK6 34

VK7 18

Contributions to Amateur Radio



Amateur Radio is a forum for
WIA members' amateur radio
experiments, experiences,
opinions and news. Manuscripts
with drawings and/or photos are
welcome and will be considered
for publication. Articles attached to
email are especially welcome. The

WIA cannot be responsible for loss or damage to any material.
Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage within
Australia) to members.

Photostal copies

It back issues are unavailable, photocopies of articles are available
to members at \$2.50 each (plus an additional \$2 for each additional
issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect
the official view of the WIA and the WIA cannot be held responsible
for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road

Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mai Brooks	VK3FDSL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDIZ

Board of Directors

<i>President</i>	Michael Owen	VK3KI
<i>Vice-President</i>	Phil Wait	VK2ASD
<i>Directors</i>	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Piatt	VK5CP
	Trent Sampson	VK4TI
<i>Secretary</i>	Sarah Thompson	VK3AUD
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Piatt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
<i>NTAC</i>	John Martin	VK3KM
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Piatt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV
<i>International Travel Host</i>	John Miller	VK3DJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
<i>QSL Curator</i>	National Office	
<i>Repeater</i>	Peter Mill	VK3ZPP
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Wait	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

Your magazine (and your WIA)

Some might consider that *Amateur Radio (AR)* is simply the printed face of the WIA. As Editor, I prefer to consider *AR* to be *your* magazine.

Why do I take this view? Mainly because *AR* contains content provided primarily by readers – that means you. Yes, we usually have about four or five pages of material that comes from the WIA, if you include my editorial, plus the Contents and the WIA Directory. That leaves almost 50 pages of other content, which comes from either regular contributors (our columns and club news items) or articles submitted for publication.

There has recently been some discussion on a particular on-line forum regarding the comparative value of WIA versus ARRL membership. The discussion thread started with a simple statement expressing the view that ARRL membership was good value, primarily due to the receipt of *QST* magazine. Some of the comments make for interesting reading. Part of the thread drifted to comment about the type and technical quality of articles presented in *AR*.

It was pleasing to see that several contributors responded that there was a simple solution to the lack of technical content – write something and submit an article for publication. All should take a moment to consider the situation here in VK: the Publications Committee is made up of volunteers. The WIA is primarily run by volunteers, with a small paid staff running the office with volunteer support. We have a very small membership compared to that of the ARRL. As a result, the WIA budget has constraints and the *AR* budget is similarly constrained.

Earlier this week I received my copy of *QST* – yes I am a member of ARRL, primarily to receive *QST* and *QEX* (a separate subscription). Excluding the covers, *QST* had 160 pages, of which 74 pages were advertisements, leaving 86 pages for all the other content. The high advertising content means higher income to support the magazine, as does the large number of subscribers. That higher advertising content comes to the magazine because of the size of the circulation. I therefore argue that those making the comments in the discussion thread are forgetting these important differences – they are not comparing apples with apples.

I will not discuss here the thoughts expressed by some on that forum regarding the cost of WIA membership, other than to say that those individuals apparently have blinkers in place restricting their field of view. Will some of them be applying to operate with 1 kW transmit power? Do they appreciate the work done at the recent World Radio Conference to protect our band allocations and operating privileges? If our privileges were reduced, I suspect that many would be jumping up and down expressing their thoughts; probably blaming the WIA for not doing a good enough job.

It is all too easy to sit on the side-lines and to cast stones, but such action rarely yields positive results. It is far more productive to become directly involved – nominate to become a member of an Advisory Committee, put your views to the

Continued on page 5

WIA comment

Michael Owen VK3KI

The International Monitoring System



In the middle of a WRC, the focus of all IARU attention, it must seem strange to talk of the IARU Monitoring System as being an important function of the IARU and one that should be supported by the national societies in each country.

In Australia we used to call the activity the much more descriptive "Intruder Watch", but the WIA has now followed the IARU and calls it the Monitoring System.

Most of us vaguely know it is an activity directed to seeking the removal of non-amateur stations from the exclusive amateur bands.

Why is it important?

To answer that one has to go to the ITU's Radio Regulations, in effect the treaty between nations that governs in detail the use of the radio spectrum.

Article 4 of the ITU Radio Regulations, the General Rules relating to the assignment and use of frequencies, provides:

4.4 Administrations of the Member States shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations in this Chapter or the other provisions of these Regulations, except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations.

An administration does not have to assign its stations frequencies in accordance with the Table of Frequency Allocations so long as

its stations do not cause harmful interference to a station operating in accordance with the Radio Regulations. Accordingly, if amateur stations suffer harmful interference they must complain, because until the administration knows that its station is causing harmful interference to stations operating in accordance with the Radio Regulations it can take the position that it is not in breach of the Radio Regulations.

It is one of the few activities apart from its role in the WRC process that many argue is an essential IARU role.

For many years the IARU has maintained the International Monitoring System, relying on the three Regional organisations appointing Regional Monitoring System (MS) Coordinators, who in turn collated the reports of the Coordinators in each national member society, who in turn collated the reports of the observers in their country. All of this was intended to work under the guidance of an International MS Coordinator.

In fact, there has not been an International MS Coordinator for many years, each Region had different methods and procedures and the processes established by the Administrative Council to facilitate inter-regional communication were to say the least bureaucratic and ineffective and were effectively ignored.

There is no doubt that the IARU Region 1 MS, under the leadership of Coordinator Wolf Hadel DK2OM and Vice Coordinator Ulrich Bihlmayer DJ9KR has set the standard for the regional monitoring systems, with a technically up to date and really useful website and methods and procedures that really work.

If you look at the IARU Region 3 website, you will find that it is still using a 1988 Manual, though under the leadership of IARU Region 3 MS Coordinator Peter Young VK3MV the MS has been operating effectively and collaborating efficiently with the other Regional coordinators.

The IARU Region 3 Directors raised the issue at the last IARU Region 3 Conference in Christchurch, New Zealand, in 2009.

The MS became the major work of the Conference, with the member societies seeing advantage in a more truly global system, identifying a number of areas where they considered a common approach was desirable and referred the matter to the Administrative Council of the IARU.

The Administrative Council is comprised of the IARU Officers and two representatives from each of the three IARU Regional organisations, IARU Regions 1, 2 and 3, and is the peak policy organ of the IARU.

The Administrative Council has now agreed on a very new approach.

It has given away the idea of an International Coordinator and the complex process for inter-regional communication and replaced it with the much simpler and totally logical structure of a single Monitoring System Committee comprised of each of the three Regional MS Coordinators and the President of the IARU, or his nominee.

By the general Resolution establishing the IARU Monitoring System and the Terms of Reference of the Monitoring System Committee the Committee will be responsible for the establishment of a single worldwide website, based on the

Continued on page 5

WRC-12 enters third week

The ITU's 2012 World Radiocommunication Conference (WRC-12) has now entered its third week, with only one further week to follow.

Dale Hughes VK1DSH as a member of the Australian delegation to WRC-12 nominated by and paid for by the WIA has been reporting daily to the Board on the many hours of meetings and discussions, particularly on those matters that will affect the amateur service.

The proposal that has been agreed to by most administrations that support the amateur allocation calls for a worldwide secondary allocation to the amateur service at 472 to 479 kHz with a power limit of 1 watt e.i.r.p., but with a provision for administrations to permit up to 5 watts e.i.r.p. for stations located more than 800 km from certain countries that wish to protect their aeronautical radionavigation service (non-directional beacons) from any possible interference. Proposed footnotes provide administrations with opportunities to opt out of the amateur allocation and/or to upgrade their aeronautical radionavigation service to primary if they wish to do so. In addition to these protections for aeronautical radionavigation, the amateur service must avoid harmful interference to the primary maritime mobile service.

This proposal has now proceeded through the committee stages and will go to a Plenary meeting, where if it is approved on two occasions will become part of the Radio Regulations.

Dale has also watched meetings dealing with agenda item 1.15, dealing with oceanographic radar.

Of importance to the amateur service is the allocation of bands where

this service could operate, and the candidate bands include 5.250 to 5.275 MHz, where a number of administrations have granted amateurs access to spectrum around 5 MHz.

This could affect the amateur position that an allocation around 5 MHz to the amateur would be extremely useful, and a future agenda item dealing with such a proposal would be welcomed.

Successful prosecution

A 63-year-old man from Melbourne's western suburbs pleaded guilty in the Werribee Magistrates Court on 11 January 2012 to several offences under the Radiocommunications Act.

The offences – unlicensed operation of a radiocommunications device, unlawful possession of a radiocommunications device and causing interference to radiocommunications – carry penalties of up to two years' imprisonment.

The prosecution followed an extensive investigation into alleged breaches of the Radiocommunications Act.

The court was told that, until August 2009, the defendant had been a licensed amateur radio operator but was investigated by the ACMA following extensive complaints about interference. As a result of the investigation by its Compliance Operations, Field Operations and Interference Management and Monitoring Sections, the ACMA cancelled the defendant's amateur licence. It was alleged that the defendant continued to regularly use his amateur transmitter from his home, contrary to the Radiocommunications Act, deliberately causing interference to licensed radio amateurs.

After further complaints, the ACMA traced the interference back

to the defendant's home a number of times. However, despite warnings from the ACMA, the complaints continued. The execution of a search warrant by the ACMA in September 2011 confirmed that the defendant had a large amount of radiocommunications equipment, contrary to the Act. Tests confirmed that the equipment was set to the radio frequencies that had been interfered with.

The court placed the defendant on a 12-month good behaviour bond, ordered him to dispose of all of the seized equipment within four months and to prove to the ACMA in writing that he had disposed of the equipment.

RD Contest Manager steps down

Peter Harding VK4OD has advised the WIA Board that he wishes to stand down as Contest Manager for the WIA Remembrance Day Contest.

WIA President Michael Owen VK3KI acknowledged Peter's contribution as the RD Contest Manager for many years. "I well recall how Peter took over the role at very short notice, and I know how hard he has worked to ensure that this contest, seen by many as the premiere WIA contest, continues to be a success. Peter has asked me to tell you that his reason for retiring is that he needs to undergo treatment for prostate cancer and he wants to remind all men over 50 to make sure that they are checked for this disease."

The WIA Board was planning to appoint a new Contest Manager at its meeting on 18/19 February. Check the WIA website for an announcement.



Don't forget

14-15 April WIA National Field Day

Mark your calendars for this day to demonstrate our hobby to the public in your area.

Open Forum, write some "Over to You" letters for publication in *AR*, undertake one of the many voluntary roles if you think that you can do a better job. If you are not a member, join the WIA and express your thoughts about what can be done better and/or volunteer to assist in some way. If you want to read more technical articles in *AR*, either write some articles yourself or convince someone with the appropriate

knowledge to do so. Or at least make the suggestion to me that a particular topic needs to be covered and I can attempt to find someone to write an article.

After all, it is *your* magazine.

Coming soon

I note that a new hand-held radio features on the back cover this month – the Icom ID-31A. I have just received one of these units and hope

to have a review prepared in the near future.

Of course, we would welcome objective review articles on any item of equipment related to our hobby – if you think that you may have something of interest, let me know and get those fingers working on the keyboard.

Cheers,

Peter VK3PF



WIA comment

Continued from page 3

Region 1 website, establishing common methods of communication and reporting and the preparation of appropriate training material.

Indeed, it has all started, with the IARU President communicating with the three Regional MS Coordinators, the Monitoring System Committee starting its work.

That all sounds very well, but is it all worth the effort? Is anyone going to take any notice, anyway?

Simply collating reports of harmful interference from stations not operating in accordance with the Radio Regulations does not achieve much.

The way it is all meant to work is that the national society in the country of the intruder goes to its administration and asks its administration to stop the interference.

And that is what happens in a number of cases.

But in other cases, the national society may not wish to do that. But other administrations may be prepared, once they have confirmed the reports provided by the national MS Coordinator, to approach the administration of the station causing the interference.

The new Monitoring System Committee with ultimately one method of reporting, with better coordination and focus and a single source of current information, should make this important task more attractive and more meaningful and attract new observers and in the end provide more credible observations and a better focussed approach to removing "intruders".

No, it doesn't always work.

But if we don't complain, who will?

Doing nothing is not an option.



Election of Directors

A notice calling for nominations from people seeking election as a director of the WIA, in addition to the three retiring directors who stood for re-election, was published in the December 2011 issue of *AR* magazine.

The Returning Officer, Geoffrey Atkinson VK3AFA has reported that no additional nominations were received and accordingly Philip John Wait, Christopher Brian Piatt and Robert Stanley Bristow were re-elected unopposed for a further two year term.

The Centenary not to be forgotten

Jim Linton VK3PC

The celebration of the Centenary of Amateur Radio Victoria involved many people from all over the world between August and November 2011, 100 years after its foundation as the Amateur Wireless Society of Victoria.

A centrepiece of the celebration was in November when the activation of the special callsign VK100ARV took place, with about 5,500 QSOs ultimately in the logbook. Tied in with VK100ARV was a Centenary Award that proved to be popular and which saw about 100 being issued. The rules included valid contacts with the special callsign and VK3WI on four occasions, plus Amateur Radio Victoria members.

Award Manager Tony Hambling VK3VTH said, 'It was all over for another 100 years. Nothing but positive feedback has been received from the amateur radio community in general across the 30 days of operation of VK100ARV. The correct mix of bands and modes and the fact that the station was on the air at most times to suit VK and DX stations attracted many positive comments.' VK100ARV operated on a roster and included many diverse locations such as Gippsland, the Brisbane Ranges, Mildura, Swan

Hill and metropolitan Melbourne, often in severe weather conditions.

Each day was recorded in summary and shown to the world via the Amateur Radio Victoria website. It gained publicity through QRZ.com

with nearly 10,000 hits plus the WIA weekly Sunday VK1WIA broadcast and Southgate News. It was also written up by numerous clubs. Due to the skill and experience of the operators they managed to have about 5,500 contacts in the activation period, each offering something of interest.

There were numerous television transmissions throughout November. Earlier, on the weekend of August 26-27, the world's first Digital TV QSO party was hosted by Peter

Cossins VK3BFG. It was aired on the repeater VK3RTV, through Skype, an internet based system, on a link to the Amateur Television Network of California via Don Hill KE6BXT, and used the British Amateur



Photo 1: In early to get the first limited edition Centenary Award is David VK3JDA, who also qualified for the revived Keith Roget Memorial National Parks Award.

Television Club's streaming website. This event was also relayed through the regional amateur television repeater VK3RBO Bendigo on the 13 cm band by Ross Pittard VK3CE.

Peter VK3BFG said, 'What happened on the Friday and Saturday was a DATV QSO party to celebrate the 100th the anniversary of Amateur Radio Victoria, a most fitting contribution to the Century celebrations.' Thanks go to Peter Berrett VK3PB who featured the digital television element in a special edition of the popular Amateur.Logic TV program, in episode 33. The event really captured the imagination and has been widely reported in both specialist publications and newsletters.

On November 2 Peter VK3BFG ran with VK100ARV through VK3RTV, giving it exposure to the DATV gang and further support to the centenary. On three Mondays the Digital SSTV Group, using the EasyPal software, was eager to use it during its weekly nets via VK3RML.

During the celebration the Keith Roget Memorial National Parks Award had its targeted weekend of November 18-20, a really great public exposure. On two occasions

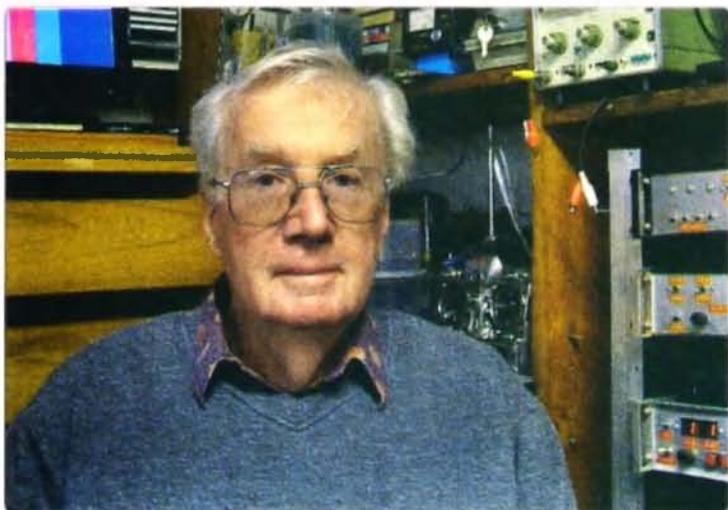


Photo 2: The person behind the world's first digital amateur television QSO party was Peter VK3BFG, shown here at the controls of his VK3RTV linked station.



Photo 3: Putting VK100ARV on air both portable from the Brisbane Ranges National Park and at his home QTH, and including the final QSO, was Terry VK3UP.

VK100ARV ventured into the National Parks, these being Mt Baw Baw by Peter Freeman VK3PF and the Brisbane Ranges courtesy of Terry Murphy VK3UP.

There was further portable operation, DX operations in many modes, VK contacts on most bands and modes and of course club participation on all levels. The first contact under VK100ARV was made by the Scout Radio Electronics Service Unit with Alex McDonald VK4TE. The signal was hard copy however Greg Lipschitz VK3LLL did a sterling job in getting the QSO in the log. The SRESU site at Gilwell Park, Gembrook, and the brother and sister scouts on the VK100ARV QSL card were to be subject of a story in the national magazine 'Australian Scout'.

The Western and Northern Suburbs Radio Cub took VK100ARV to Bundoora Park and later from members home QTHs during five straight days. It was soon back for more and given slots for the special callsign during its weekly net.

The Sunraysia Radio Group had it late in November and despite severe storms managed QSOs from Mildura and Swan Hill. Multiple days saw activation by Keith Proctor VK3FT, Luke Steele VK3HJ, Terry Murphy VK3UP, Tony Hambling VK3VTH and Joe Walsh VK3XH. At the end of the

30 days the final contact, on 40 m, was by Terry Murphy VK3UP with Grant Taylor VK3HP.

Almost completed is the distribution of the QSL cards for the VK100ARV contacts, either via the bureau or direct, the Centenary Award and a few Keith Roget Memorial National Park Award applications. Both the QSL card and

the Centenary Award certificates feature a montage of people and places. On the QSL card is a selection of Presidents and text defining the occasion.

The Amateur Radio Victoria Centenary Council would like to sincerely thank the Scouts Radio and Electronics Unit, Peter Fraser VK3ZPF, the membership of WANSARC VK3AWS, Michael Ampt VK3CH, Keith Proctor VK3FT, Luke Steele VK3HJ, Peter Cossins VK3BFG, Terry Murphy VK3UP, Michele Grant VK3FEAT, Jim Linton VK3PC, Gary Furr VK3FX, Stephen Ireland VK3SIR, The SSTV Group, Peter Freeman VK3PF, Joe Walsh VK3XH, Tony Hambling VK3VTH, the membership of the Sunraysia Radio Group VK3SRG and Noel Ferguson VK3FI, and the Amateur Radio Victoria membership that came up on air to add to the points tally.

Those who joined the roster as individuals or as part of a team made it the most successful special callsign event of its type. Without their strong, enthusiastic support and dedication VK100ARV would not have been possible.



Photo 4: Over several rostered shifts Luke VK3HJ made a sterling effort on the key to score many contacts on that mode.

VK3news Southern Peninsula Amateur Radio Club

John Fisher VK3DQ



Photo 1: SPARC members working on the split air conditioning system.

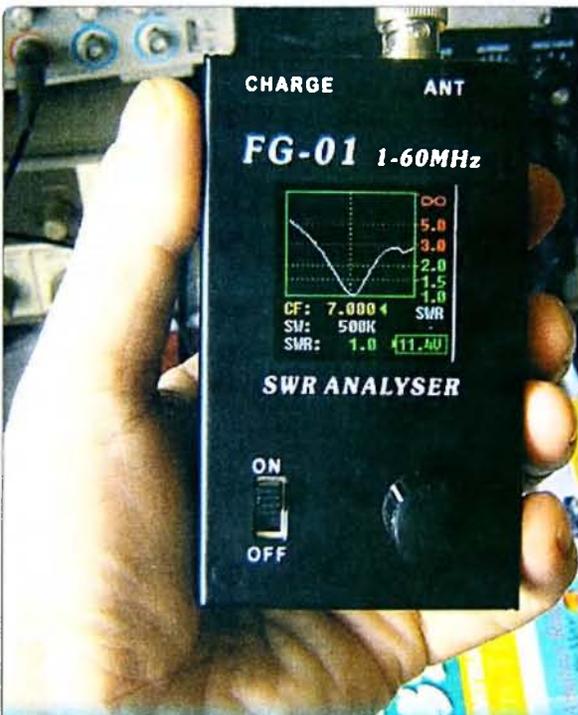
Recently members of the Southern Peninsular Amateur Radio Club (SPARC) held a working bee to fit out their new radio shack. A new

operating bench with enough room for five operating positions was installed complete with concealed cable ducting. The radios in the shack are operated from two large 12 V power supplies which are mounted on a specially fitted shelf and connected to the radios using an Anderson plug distribution system. This enables all the equipment to be free of the normal tangle of wires that we sometimes encounter and provides a clear operating space for log books and the like.

Not content with this, club

members installed a split system air conditioning system in the shack ensuring comfortable operating conditions in both summer and winter. Many club members enjoyed the day and of course many hands make the work seem lighter.

Photo 2: SPARC members work on the new operating positions in their clubhouse.



New from **YouKits**

The ultimate in affordable, portable HF antenna analyzers

- ▶ Frequency range 1 to 60 MHz
- ▶ Displays both Impedance and VSWR plots
- ▶ Variable sweep widths 50, 20, 10, 5, 2, 1, 0.5, 0.2, 0.1, 0.05, 0.02, 0.01 MHz
- ▶ Daylight usable color LCD display
- ▶ 12V external supply or optional internal Lithium-ion battery pack

Australian distribution by



tts systems

Phone 03 59774808

Fax 03 59774801

Email info@ttssystems.com.au

Web www.ttssystems.com.au

Titanic 24 hour sprint 2012

FISTS UK are organising a special 24 hour sprint contest, commemorating the 100th anniversary of the sinking of the RMS Titanic on 15 April, 1912.

A number of FISTS affiliates worldwide have indicated their participation, with special calls being sought, or already obtained, for the event.

The Queensland Maritime Museum is hosting the venue in Brisbane, utilising their facilities and prestige, and a special call sign is being sought for the occasion.

The rules are:

Contest: Titanic 24 hour sprint 2012

Date: 0001 – 2359 UTC Sunday, 15 April, 2012.

QRG: All licensed amateur bands except the WARC bands.

Rules: Recognising the 100th anniversary of the loss of the RMS Titanic on the 15th April 1912. This event is a standard exchange between stations.

Scoring: 10 points for any Titanic special event station.
5 points for a FISTS HQ station (GX0IPX, GX3ZQS, MX5IPX, VK2FDU, ZL6FF, JL3YMW, KN0WCW).
3 points for a FISTS affiliated club station.
2 points for a FISTS member.
1 point for a non-member.

Logs: Are to include Date/Call/Name/QTH/QRG/Time/FIST No or NM/ Points.

All entries may be posted to R D Walker M0BPT, Box 6743, Tipton, DY4 4AU, England, or by email to m0bpt@yahoo.co.uk, in Excel/csv/tabbed word document format, if possible. They are to be received no later than 30 April 2012.

General: Titanic special event stations from around the world will be active on this day.

We would encourage amateur radio clubs in other cities to investigate the availability of a maritime site in their city, and their participation in the contest.

All enquiries may be directed to Bevan McAleer VK4BCM, on email bcmcaleer@gmail.com or by phone to 0418 986 520.

Don't forget

17 & 18 March John Moyle Field Day

Check your emergency preparedness.

Workbench Essentials

Jaycar Electronics - Better, More Technical

Velleman Rechargeable Handheld Pocket Scope

A complete portable oscilloscope with a tiny size. With many features found on full size digital scopes you'll wonder how they squeezed all of it into a package a little larger than a Smartphone. Aside from standard scope features, it has nifty tools for measurement of RMS speaker power, display hold function, and memory storage for 2 signals. Housed in a durable rubber surround with backlit LCD display and inbuilt Ni-MH rechargeable battery. See our website or in-store for full specifications.

- 10MHz
- CRO probe and USB charge cable supplied
- Size: 114(H) x 74(W) x 29(D)mm

\$249⁰⁰

NEW



Digital Frequency Counter 2.7GHz

This unit is a 10Hz to 2.7GHz dual range frequency counter for measuring functions of frequency period totals and self checking. The counter readout has a large 10mm high intensity 7 segment LED display with gate time and data hold function. Decimals are also included as well as a single step input attenuation to a factor of 20 and a low pass filter.

\$169⁰⁰



Digital Sound Level Meter

Featuring a wide dynamic range from 30 to 130dB, it can measure both A and C weightings and can have fast or slow responses to get an 'ambient' reading or a short noise. Includes data hold and min/max functions, as well as tripod mount. Supplied with carry case, wind sock and battery.

- Size: 210(H) x 55(W)mm

QM-1589

\$99⁰⁰



Logic Tester

Quality logic probe that will test all logic families (TTL, LS, CMOS, etc). It will also Will detect pulse widths as narrow as 25ns and for frequencies to 20MHz.

- 4 -16VDC
- Current consumption: Max 32mA @ 5V
- Operating temp: -20 +70°C

QT-2210

\$29⁹⁵



Pro Gas Soldering Tool Kit

A sturdy, portable, self-igniting butane powered gas soldering iron tool kit. Produces a 1300°C adjustable flame for low end brazing, tin/plastic melting, automotive repair work, welding and of course heat shrinking. Supplied with 3 interchangeable metal tips, plastic carry case, cleaning sponge and deflector.

- Operating time: 80 - 100 min
- Torch dimensions: 236(L) x 37(D)mm

TS-1113

Spare tips & butane gas available separately



\$69⁹⁵

TV Hearing Aid Earphones

It uses noise cancelling technology to reduce background interference and features voice clarification technology so you don't miss any dialogue in your favourite TV show, news broadcast or movie. A tone control button allows adjustment for different frequency hearing abilities. When not in use the cradle charges the batteries.

- Multi user listening from receiver
- 12 hour battery life between recharges
- Headphone size: 195(H) x 138(W)mm
- Base size: 120(W) x 97(L) x 18(H)mm

AA-2079

\$129⁰⁰



To order call 1800 022 888
www.jaycar.com.au

Jaycar
Electronics
Better. More Technical

The evolution of a communications trailer (or mobile shack)

Lino Rizio VK3EI



Photo 1: Front view showing the jerry can holders for fuel and water.

Background

I like to build and test antennas of various types but there is usually a problem when it comes to setting them up and using them because of space limitations in the suburban environment and the high level of QRM that invariably exists in the suburbs. As a consequence, I tend to go



Photo 2: Rear view showing the Clark pneumatic mast.

camping a fair bit with the primary objective being to test antennas and 'play radio'.

The biggest annoyance for me is loading (and then unloading) my standard 4 x 5 trailer at each end of the trip. I decided that a purpose built communications trailer, my *mobile shack*, would be a better solution, so I started mapping out a potential design specification that would suit my specific requirements.

System requirements

1. An abbreviated list of the essential elements of what I wanted was:
2. An enclosed trailer with a good degree of weather proofing.
3. Load capacity of up to 1.5 tonnes.
4. Storage for a number of 6 m and 9 m EMDRC masts.
5. Space for larger antennas.
6. Built in working/operating surface.
7. Internal lighting for night operations.
8. Deployable energy sources including batteries, generator and solar panel.
9. Adjustable internal storage.

Getting started

Over a number of weeks, I kept an eye on the trailers available on eBay until I came across a beautiful looking steel trailer, Photo 1, one that I managed to get at a fair price. It turned out to be a 7 x 5 enclosed box trailer with a load capacity of just under two tonnes and, being a tandem axle, is very stable and easy to tow.



Photo 3: Left side view showing the fold-up door for access to the work table.



Photo 4: Internal view showing racking and general placement of items.

Both sides of the trailer have flip-up doors operated by gas struts and the rear has twin doors, all of which are fully lockable with no less than eight locking points.

Photos 2 and 3 show the right and left sides of the trailer. You can see that both of these have lift-up sides but I chose to permanently lock the right side and only use the left (kerb side) opening. My reasoning for this decision was that if I needed to operate in a mobile environment I could pull off to the side of the road, open the operating position, more on that later, all from the safety of the kerb.

The rear of the trailer has two full doors that allow complete access to the inside. Photo 4 shows the rear view with the doors open; the rack system that evolved over a number of iterations and has ended up in its current configuration seems to work very well with easy access to just about anything that I may need on site.

Layout and operation

As I was aiming to minimise the amount of unpacking, I decided to incorporate the radio operating position into the trailer rather than have to set up a folding table, as I had

Photo 6: View inside storage tubes for antennas and masts.



been doing, on which to put the radio gear. I attached a fold-down table, Photo 5, made from a solid core door, to the left side opening and fitted latches to hold it in position when stowed. The table folds down quickly and lowers to the horizontal with the two ends supported by chains. I used chain instead of hinges to allow the table to be adjusted to the horizontal even if the trailer is not on level ground.

This working surface is covered in a very low pile marine-grade carpet. This table makes it very easy to work when you first arrive on site as you quickly have a flat area to put things on instead of putting everything on the ground as you unpack.

The trailer also has a nice rail system around the top that made it easy to fit a couple of custom-built aluminium mast holder tubes in the centre of the front and rear rails.

Photo 5: Side view with work table in operating position.



The mast holder tubes, Photo 6, can accommodate up to five 9 m aluminium masts, plus tent poles and so on, and are securely fixed to the steel rails for safety. The reason for mounting these in the centre is to leave space either side to take other long items needed for camping from time to time or for long antenna sections that I may have to carry in the future. Foam rubber pads were glued to the inside of the tube end-caps, Photo 6, inset, to protect the caps should the contents of the tubes slide around under braking/acceleration forces.

Extensive use of plastic storage boxes has been made to categorise the various bits and pieces needed when setting up antennas. These boxes stack easily in the shelving, making it possible to minimise floor space usage, thereby leaving an aisle down the centre of the trailer. The aisle allows access to any part of the trailer without having to take everything out to get to something in the far corner. As there are a number of items that do not really need to be moved very often, these are located towards the front of the trailer, farthest from the rear doors; these are the fridge, spare antenna/mast accessories, folding table and the solar panel.

Power system

The majority of devices requiring power are run from a bank of storage batteries. I originally had the batteries clamped down at the base of one of the racks but access was difficult so a battery box, Photo 7, was constructed and bolted to the floor on the left side of the trailer, just below the work table, the main radio operating position. The storage batteries have a total capacity of approximately 310 Ah (350 Ah including auxiliary battery).

The three main batteries, one 150 Ah and two 80 Ah, are connected in parallel and fitted with a 60 A DC circuit breaker that feeds the Powerpole distribution board, fused, shown in Photo 8. There is also a small auxiliary battery, of 40 Ah, that is used to drive the air compressor for the Clark pneumatic mast (discussed later) and the LED work light. I should note here that I have put Anderson Powerpole connectors on just about everything, including all my radio gear. The Powerpole distribution board has a 1 m cable attached that makes it easy to move around to connect to anything that needs power.

There are a number of other power sources available in the trailer; a solar panel with a 120 W rating is able to be deployed on sunny days and it is able to deliver a constant charging current of over 8 A to keep the batteries charged. On sunny days this has meant that all of the power stored in the batteries is available once the sun goes down and no other external power source is required.

Photo 9: Switches for lighting and reversing camera.

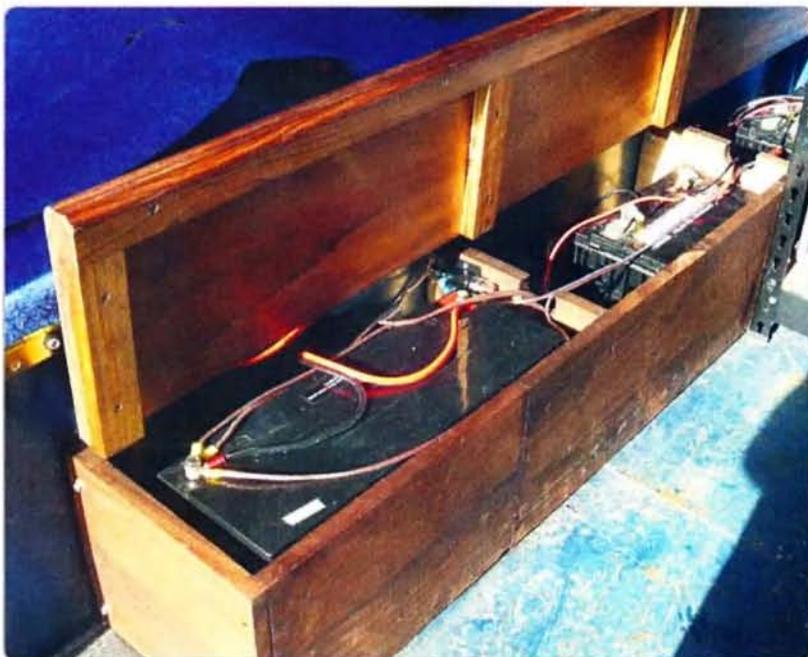
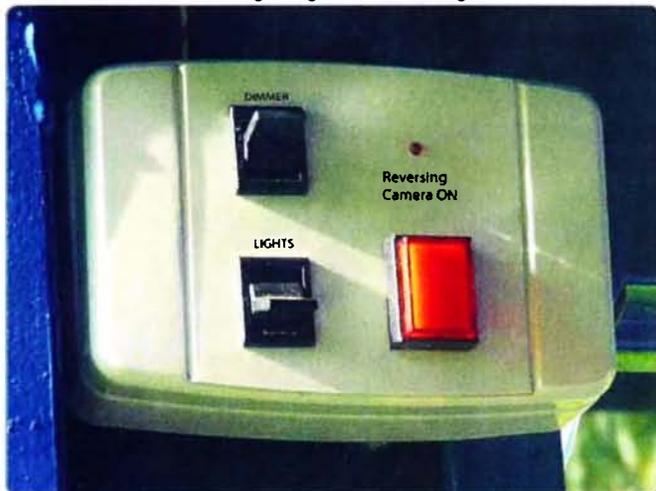


Photo 7: Battery box containing AGM storage cells.



Photo 8: Everything is terminated in Anderson Powerpoles.

Where we need additional power, a small petrol generator is carried on board to provide 240 VAC. This is used to power the battery charger that has a charging capacity of 25 A and it is able to restore the batteries to full charge within a few hours. The generator has a running time of approximately 10 hours from a full tank which means that we are able to keep operating all night if necessary without requiring mains power at any stage. I have never had to run the generator full time as the charging rate is sufficient to only require running it for a couple of hours whenever the battery voltage indicates that a 'boost' is required. I have a number of battery monitoring displays at different points in the electrical system.

Lighting

For night time operation, internal LED strip lighting is fitted to the ceiling. As it turned out, these lights are extremely efficient and I found that they were actually too bright at night. I decided to fit an LED dimmer control which subsequently was found to generate a huge amount of radio interference.



Photo 10: 12 V LED lighting strips on ceiling.

I should have done more thorough research on this as I found that these devices use pulse-width modulation to vary the current through the LEDs and therefore generate lots of RF noise. I decided to go back to basics and replace the dimmer with a simple resistor switched into the LED supply line whenever I needed to dim the lights and this solved the RF problem and works to reduce the light intensity to a nice working level. The simple switch arrangement is shown in Photo 9; this also has the control switch (red button) that controls the power to the reversing camera.

I said at the outset that the trailer has undergone a number of iterations and during one night time operation I found that the internal lighting made it difficult to see the front panels of the radio equipment because the light was coming from behind the equipment.

The solution to this was to add a couple of strips of LED lights to the side lift up panel of the trailer that is directly over the work table.

These lights provide even lighting from directly overhead, giving no reflections on any of the radio front panels. The roof mounted strip lighting is shown in Photo 10 and the LED lights over the work table are visible in Photo 5.



Photo 11: View inside the front storage box containing loose items.

Storage and water

To further reduce clutter inside the trailer, a lockable steel toolbox was installed on the towing arm, see Photo 11 and refer to Photo 1. Here, smaller items, such as tools, ropes, coax cables, battery charger, straps are stored. The trailer auxiliary battery is also mounted here; this battery feeds power to the rear view reversing camera, refer to Photo 6, the Clark mast and the work light as mentioned earlier.

When deployed, the trailer is completely self-contained and it is possible to remain deployed for a few days at a time without reliance on any other external infrastructure. This is important as I am a member of WICEN (Wireless Institute Civil Emergency Network) and I want to be able to deploy the trailer in emergency situations should the need arise. For this kind of deployment, I have catered for the ability to erect a sun/rain shade, Photo 12, that makes being out in the open a little more comfortable.



Photo 12: Sunshade awning deployed over the operating position.

This was originally a 4 m by 6 m heavy duty tarp, as seen in the photo, but I have since replaced this with a 3 m by 6 m steel framed marquee. The marquee frame is visible in Photo 5 directly behind the blue jerry can on the left side of the trailer. The blue jerry can is also an interesting piece of high-tech equipment; it is called a *Lifesaver* jerry can (www.lifesaversystems.com) and it contains a membrane filtration system that can turn any source of water into pure drinking water. The water produced is essentially sterile and can be used for medical purposes if necessary. The jerry can has the capacity to filter up to 20,000 litres of water before the filter requires replacement. This system therefore caters for our water requirements when the trailer is deployed in the field. The trailer also has cooking facilities and a stock of canned food sufficient for a few days in the field. A small fridge allows perishable items to be stored safely.

Antenna mast

The free-standing Clark pneumatic mast, Photo 13, which I mentioned earlier, is a real winner. It has dramatically reduced my use of the aluminium masts that I had come to rely heavily upon for all of my antenna erections. Because the Clark mast is easily and quickly raised or lowered, it is possible to change antennas in a matter of minutes. The mast is approximately 9 m tall when fully raised and I have evolved a common quick-change adapter system for the top of the mast that allows rapid swapping of any antenna simply by lowering the mast, removing the installed antenna, and dropping in a different antenna (that uses the same quick-change base adapter).

For even quicker deployment, a FAMPARC whip (manufactured by the FAMPARC club) is installed on the roof rack and can be raised and locked in the vertical position within minutes. This allows the trailer to be operational on HF at any time with minimal setup.

A small air compressor, mounted in the front toolbox, quickly raises the mast as only 20 psi of pressure is required. Once raised to full height, an air valve is closed and the mast remains in position until the valve is opened. Raising and lowering takes about 60 seconds in each direction.

Photo 14 shows the mast in its lowered position with a quarter-wave vertical antenna fitted and ready to be raised into its operating position. Photo 13 shows the system in operation.



Photo 14: Mast with antenna fitted and ready for raising.

Off-road trials

The trailer has also been tested in off-road conditions on French Island, which is located in Westernport Bay, during a period of heavy rain. The roads were peppered with potholes full of water which were difficult to avoid, however the trailer, and its contents, had no problems and everything survived intact, Photo 15.

This 'mobile shack' has been evolving for almost a year and it is finally at a stage where changes are now very minor – more in the line of 'tweaking'.

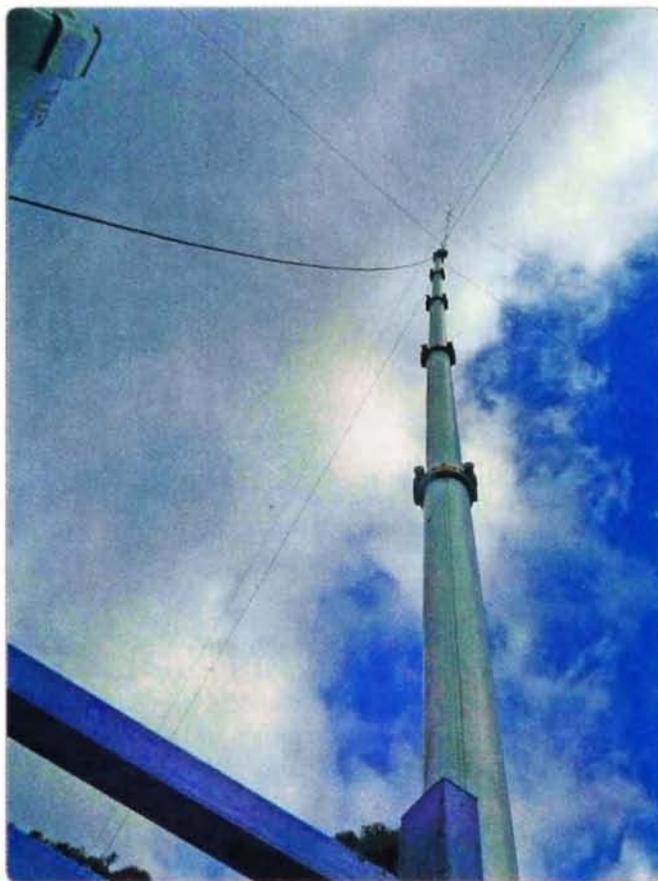


Photo 13: The Clark mast in its deployed position.

I do not expect any dramatic changes to the configuration because it has been operated under a range of conditions and performed flawlessly, or nearly so, on all occasions.

The radio equipment and the associated electrical and antenna systems have also evolved during the evolution of the trailer but I will leave discussion of those for another time.



Photo 15: VK3EI and trailer at the end of a field trial.



VK3BAD at Cape Liptrap for the ILLW 2011

John Fisher VK3DQ/VK3ARK

Over the four days from 19 to 22 August, a group of 18 amateurs and friends travelled to near Cape Liptrap to operate a special event station and to activate the Cape Liptrap light station for the International Lighthouse and Lightship Weekend (ILLW) event.

The main group had an early start with our pre-convoy meeting for coffee and breakfast at the Tooradin bakery at 8:30 am. At 9 am our seven car convoy departed for Cape Liptrap, about a 90 minute drive through the lush green countryside via Kilcunda and Wonthaggi (the site of the new desalination plant). The convoy then proceeded via Inverloch and Tarwin Lower to our base camp at Bear Gully Cottages.

On arrival, the various teams sprang into action. One team set up the antennas and another the radios whilst a third provided a meal of hot leak, potato and bacon soup served with some nice crusty bread. By midday our station was on the air and making contacts. There were four operators, three on HF, mainly 40, 80 and 20 metres, with the fourth operator working two metres and 70 cm.

The weather at this time was a little overcast but during the afternoon the sun came out and stayed with us



Photo 1: Cape Liptrap light.

all the time we were there. The area around Cape Liptrap was shown at its best with blue skies and light breezes. Taking advantage of the weather, we dispatched a team to the light station, who walked in the 400 metres from the car park and operated portable. They also posted a static display that consisted of some information about the lighthouse weekend and some small 'amateur radio gets the world talking' posters. As the weather was

so good this year, the team managed to operate from the light station on all four days of the trip in addition to operations from Bear Gully.

During the afternoon everyone settled into their rooms; they were spread across three cottages and the rookery. All agreed this was the way that "roughing it in the wild" should be done. The day passed very pleasantly and as darkness fell, the aroma of roast chicken was detected. It was agreed that a few 'dusty' bottles should be sampled and the group sat down to a very nice meal. This was rounded off by a little something from the cheesecake shop. After dinner, nuts and nibbles were provided and the station worked well into the night.

Saturday morning was one to remember with the sun rising over Wilson's Promontory and quickly dispersing the morning mist. The first order of the day was coffee and then a breakfast of eggs, bacon and all the trimmings. The radios were fired up and the station operated solidly for the next four hours, both at Bear Gully and the light station site. The Cape Liptrap light stands upon a rocky cliff top, on a solitary part of the South Gippsland coastline, warning ships of the rocks in treacherous Bass Strait.

Photo 2: Operating at the light.



History

The first Cape Liptrap lighthouse was established in 1913. It was a 2.1 metre steel tower with an acetylene light. As a keeper was never stationed at Cape Liptrap, it is really the first automatic, Commonwealth-funded light to be put into service. The current lighthouse was built in 1951 in cast concrete and is octagonal in shape. It was converted to mains power in 1970. The lighthouse is on an isolated point in the Cape Liptrap Coastal Reserve and can be reached via Walkerville.

Arriving back at Bear Gully, members of the team were treated to a BBQ lunch of prime rib eye steak, which helped to stave off the pangs of hunger that their efforts had induced. After this it was noticed that several members of the team did take a little afternoon nap. In the meantime, the rest of the team had arrived and were lending a hand with the erection of some large vertical antennas.

The station worked solidly contacting both local and DX stations into the early evening when dinner was served. Dinner consisted of two legs of roast pork with all the usual trimmings, followed by fruit strudel and custard, cheese and biscuits. The station operation resumed working well into the night.

Sunday morning saw a perfect start to the day, with clear blue skies. Again, a good hearty breakfast was served, and, as before, a team was

dispatched to operate portable from the light station. A number of team members also took the opportunity for a midwinter stroll along the beach, enjoying the sunshine and taking in some lovely winter flora along the way. Lunch again was that wonderful rib eye steak with a nice glass of red wine....

On return of the portable station crew to our base at Bear Gully, the team operated into the early evening before taking a break for happy hour. This consisted of pate and dips. This was followed by dinner that consisted of roast beef with Yorkshire pudding and the special event of the day 'Cake Liptrap'.

The station again operated well into the night with many local and DX stations in the log book. For those not operating the radios, many tall and true tales were swapped in the rear area seated around the blazing wood fire.

Monday morning dawned as yet another perfect day. Everyone enjoyed breakfast as normal and some early morning DX. Then all hands helped packing up the station. At approximately 11:30 am our convoy of eight cars left for the drive home, taking with us memories of a major portable operation, some great DX and best of all, four days of fellowship and amateur radio.

Postscript

A few days later we received an e-mail from Gary at Bear Gully

Cottages saying how much they enjoyed hosting our event and inviting us to return in 2012, an invitation that we will be accepting.

Some details of the Cape Liptrap light

The light's location is at latitude 38° 54' 5" S, longitude 145° 55' 4" E. The elevation of the light is 93.6 metres above sea level, and its light has a range of 18 nautical miles. The light itself is 9.75 metres high. Flashing three times every 15 seconds, the light is mains powered, and its intensity is rated at 40,000 Candelas.

The operator of the light is the Australian Maritime Safety Authority.

Editor's Note: Whilst this activity coincided with the International Lighthouse Lightship Weekend, only the contacts made from the immediate vicinity of the actual lighthouse would be valid contacts for the ILLW activities. The location at Bear Gully is too far from the lighthouse to meet the guidelines for official ILLW activities. More information on the ILLW can be found at <http://illw.net/>

As of late January, there are already 31 ILLW operations at Australian lighthouses registered for the 2012 event. Anyone considering participating should commence planning as soon as possible.



Over to you

Comments from Ted Thrift VK2ARA / VK2XA

This is my second attempt as some offense has been taken over my forthright criticism of the proposed general rules.

I have no wish to offend but I enjoy my contest time and do not wish to see it bound by unnecessary and confusing rules.

There are many points that I dislike but to try to make a point that will cause a rethink, I will deal with just one part of rule 3.

3. Contacts:

- (a)
- A contact consists of an exchange with acknowledgement of callsign and contest data. No more need be said as this is very clear and definitive.
 - Incomplete contacts must be logged with zero points claimed. This rule is in conflict with the first statement. Unless it complies with the definition, it is not a "Contact". Incomplete or otherwise. I suspect that the intention may have been to provide checking data but that is not necessary. If I

claim a contact with VK&xyz and you compare my log with that station and the contact is confirmed, it is valid. Invalid if not confirmed.

- Points are not lost if a non-competing station does not send appropriate information but a report must be logged. Firstly, competing or not if the other station fails to send the required contest data, it is not a "Contact" as defined above and no points can be claimed anyway. In any case if it was logged and points claimed, see last sentence in 3 (b) where the contact may be disallowed.

This is just one part of one rule and I have taken the literal meaning of the words. There is no room in rules for "but that is not what is meant." If the rule say it, that is what it means.

I do hope that this demonstrates why my first comments were so strong.

I would be interested in knowing how many of the amateurs consulted over the general rules were actually regular contest participants.

Editor's note: Ted had circulated an earlier document for possible publication, but later withdrew that document. It has therefore not been published.



ALARA

Margaret Blight VK3FMAB – Publicity Officer



Photo 1: ALARA at the Sandringham Yacht Club.

Our neighbouring women operators in New Zealand are planning to celebrate the 50th anniversary of their organization WARO (Women's Amateur Radio Operators) in March this year. Several ALARA members will be going over to participate in the celebrations. Most of the women have a sponsor living in New Zealand and will be looking forward to meeting up with them. Also Jean VK3VIP has family living in Auckland and intends to spend a further few days visiting them. We will have further details when the ALARA group returns.

VK3 News

The first ALARA lunch for the New Year took place at the Sandringham Yacht Club, where all enjoyed a view over the ocean while eating our meal. Ten ALARA members attended along with a number of their OMs.

We were lucky enough to experience the occasion as one of our members was also a member of the Yacht Club. As a special treat after lunch, we were able to go into the Yacht Club tower to view the close of a race and see the supervisors monitoring the entrants as they crossed the finishing line. The views from up there were spectacular we could see right along the coastline to neighbouring Yacht Clubs on either side. We learnt they were using 27 MHz CB marine radios for which I understand no licence is needed. This differs from past practice when communication was ship to shore and ships had their own radio operators. Perhaps this is a recruiting

opportunity for an amateur radio club to follow up.

Kyneton hamfest

This year Jenny VK3WQ and Pam VK3NK will be manning the ALARA table at the hamfest in February. So look out for them if you are attending.

VK4 News

Lyn VK4SWE from Sweers Island reports: Main news from my QTH is that I finally got on six metres and found out what all the excitement was about the Magic Band, Hi! Harold VK4ANR gave me a six metre rig, and his friend Ross VK4RO did extensive work to get it operational. I already had an antenna on my CP6. The rig sat on the bench in silence until Ross rang me to say the band was open – he had heard a Hawaiian station on it.

I fired up the radio, called and had an instant pileup - to Japan. It was incredible! Crystal clear reception, about 18 stations then it disappeared as quickly as it began. I am keen to work the Hawaiian station. Ross says he calls on CW but nobody ever comes back to him so he switches to SSB for them. It would be fun to work him on CW.

During the past year I have had a few QSOs with YLs, on both CW and SSB. Recently we had good enough conditions for a chat with Gita OM5MF.

Another project from Carmel VK2CAR - The MKARS80

I took some spare time to finally build a MKARS80 lower sideband QRP transceiver for the 80 metre band, a project from the Milton Keynes Amateur Radio Society. This has been a real fun project. Assembling the components on the PCB was relatively simple even though one capacitor was missing, which caused a quick drive to the local Jaycar store in

pouring rain. I had virtually every other value ceramic in my junk box except the one I wanted – isn't that always the way! And despite what some friends said, I don't see any problem winding my own toroids.

The radio employs a PIC and uses 'huff n puff' stability which takes a little time to settle after warm up. This is a proper LSB radio, not a DSB (double sideband) that some other QRP projects have. Having no SMD components meant construction was kind to my eyes.

The basic radio is pretty low budget and doesn't have an AGC so I may add one later, as there are a few mods sites with AGC details available, and substituting the polyvaricon, different mounting configurations are options. I added a couple of my own mods including an internal speaker, an s-meter circuit I made up on separate vero and an internal battery pack. Rod and I sat down and designed a new case for it in SolidWorks and I had this bent up and powder-coated for a reasonable cost. Everything fitted nicely though if I redesign the front decal it will look considerably different.

Initial contacts gave good signal reports even on three watts, beating some others on a hundred watts, which only goes to prove that a good antenna is almost everything, and this particular radio design always results in good audio reports. This will be a great QRP (low power) radio for the field. A friend wants me to make one for him - maybe if time permits, and I don't start building the MKARS Pic-A-Star, though this project was a lot quicker to do than the electric vehicle!



Photo 2: View inside the Sandringham Yacht Club tower.



VK7news

Justin Giles-Clark VK7TW
e vk7tw@wia.org.au
w groups.yahoo.com/group/vk7regionalnews/

Repeater News

Hayden VK7HA lets us know that VK7RCH on Grey Mountain in the Huon Valley will soon have a CTCSS tone of 123 Hz. This is due to persistent interference on the input frequency of 433.575 MHz. Much time, energy and resources have been spent on tracking down the interference without success. Thanks to Brian VK7RR who has donated a new diplexer for repeater VK7RIN (438.500 MHz) at Barren Tier in the central highlands and thanks to Joe VK7JG who has also installed a new backup battery for VK7RIN. Work has also been taking place on the VK7RMD (146.625 MHz) Mt Duncan repeater on the north west coast as the repeater is experiencing battery problems and thank you to Winston VK7EM for trekking up the mountain with temporary batteries.

Sewing Circle Net - Meet the Voice BBQ

The Sewing Circle Net happens every day on 3.59 MHz between 05.00-06.00 pm (local) and has been running for many years. The group organises an annual Sewing Circle Net 'Meet the Voice BBQ' in picturesque Ross in the Tasmanian Midlands. This BBQ is a chance for amateurs to get together in a social setting and meet the voices they have been talking to on air. This year it happens on Sunday March 18, 2012. A feature of this year's BBQ will be an auction of amateur radio equipment with all proceeds going toward the repeater network in VK7. The group now has their own website which can be found at: <http://www.sewingcircle.org/>

VK7 Regional News broadcasts

Following some research thanks to Mike VK7FB we have pushed back the age of the VK7WI broadcast to 1935.

Mike has uncovered that on 21 January 1935, 7WI was given permission to broadcast at specific times on 1310 kHz with music and announcements. Would you like to be involved in this 77 year history? We are always looking for amateurs to read and record the broadcast or rebroadcast on HF around the state just once a month. We even have designs for patch boxes. You can contact the author at the email above or call him on 0439 016 622. The VK7 Regional News website can be found at: <http://groups.yahoo.com/group/vk7regionalnews/>

Northern Tasmania Amateur Radio Club

Airservices Australia host the NTARC VK7RAA repeater on Mt Barrow and they have a new induction qualification requirement for anyone entering their facilities. This involves a two stage approval process and NTARC now have six people who have successfully undertaken the qualification process. NTARC's informal coffee mornings happen each Monday and Friday at Friends Cafe in Jimmy's complex in Charles Street, Launceston. Start time is 10.30 am. The NTARC website can be found at: <http://www.ntarc.net/>

Cradle Coast Amateur Radio Club

If you are interested in a Foundation licence or upgrading your Foundation or Standard licence on the north west coast then please contact the CCARC Learning Organiser & Assessor, Keith Winkler VK7KW on email: ccarc.inc@gmail.com The CCARC website can be found at: <http://my-x15.net/ccarc/>

North West Tasmanian ATV Group

The NWTATVG have been broadcasting video archive material on the VK7RTV ATV repeater and via the batc.tv streaming service under

the member stream - 'VK7AX'. This material has great VK7 historical content and recently included the state-wide Hamfest held at the Penguin High School in the 1980s. The schedule for these programs can be found at the NWTATVG website at: <http://www.vk7ax.id.au/atvgroup/>

Radio and Electronics Association of Southern Tasmania

Congratulations to Scott Bragg who passed his Standard licence assessment. At the time of writing was awaiting his callsign. We also congratulate Jacob who now has his callsign - VK7FAAF. Jacob is one of four Newtown High students who are recipients of the WIA grant funding to get them through their Foundation assessment, licensing and membership of the WIA and REAST. The REAST AGM will be held on Sunday March 11, 2012 at 11 am and will be followed by a BBQ.

Our DATV Experimenter's nights have been demonstrating the length and breadth of this great hobby through show and tell which has included: construction of a valve 160 and 80 metre AM transmitter, patch and isolation boxes, Arduino control circuits, Microbric robotics modules, Morse key powered QRP transmitter and Pye Bantam portable radio. Our video presentations have included: HORUS, EMDRC VK3LL hands free kit, portable contesting, historic films from WWII from the Hallicrafter's factory, Amateur Logic.tv, the CODEC2 Linux conference presentation and the Lost Islands - An Amateur Radio Polar Diary 2001 video which was well received. We stream these nights compliments of batc.tv via the member stream 'VK7OTC'. The REAST Website can be found at: <http://www.reast.asn.au/>



VK3news Amateur Radio Victoria

Jim Linton VK3PC

e arv@amateurradio.com.au w www.amateurradio.com.au

Now for the TV highlights

Following the running of a successful Centre Victoria RadioFest at Kyneton last month, there will be highlight segments shown through both ATV repeaters. These are Mt Dandenong VK3RTV, which services Melbourne and Geelong, and also through Bendigo VK3RBO. The news crew was kept busy gathering footage during the fifth running of the event. Whether you made it or not to the event last month the highlights video is not to be missed.

Warship on air

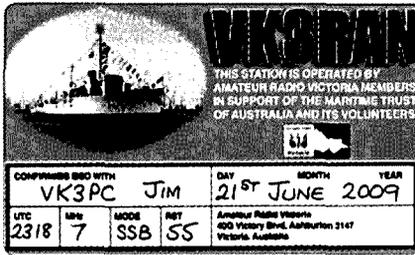
In recent years Amateur Radio Victoria has activated VK3RAN a number times on board the museum ship HMAS Castlemaine moored at Gem Pier, Williamstown. The next activation will be on ANZAC Day, April 25, during which there will again be a focus on Amplitude Modulation (AM). Event Coordinator Terry Murphy VK3UP will try out a new antenna tuning unit while joining others in an afternoon that will include contacts with other ships and museums. All are welcome to join them on air.

Classes this month

The statewide organisation turns its attention this month to the resumption of its quality Foundation licence weekends, which have seen many enter the hobby, and the next of its Standard bridging courses. Education Team Leader Bary Robinson VK3PV reports that the Foundation licence class will be held on the weekend of 24-25 March.

A bridging course, open only to holders of the Foundation licence, will be run on Wednesdays of March 7, 14, 21 and 28, and April 4. The bridging course starts at 6.30 pm, for three hours. A refresher session will be held on Saturday April 14 and assessments will be on Sunday April 15.

Enquiries may be sent to either foundation@amateurradio.com.au or 0428 516 001.



The VK3RAN QSL card.

KRMNPA meeting planned

A show and tell BBQ lunch day by those who are, or want to be, involved with the Keith Roget Memorial National Parks Award will be held this month. The idea behind the gathering is to share experiences at various National Parks, the ideal location to set up, and antennas to use with and without trees. The BYO BBQ will be on Sunday March 11, from 10 am to 12 noon at Churchill National Park – there is a BBQ on site. For more information contact Tony Hambling VK3VTH 0423 635 152 or vk3vth@amateurradio.com.au

Repeater report

The Bass Hill repeater VK3RGS has had its battery and power supply fixed and is ready for use. Located in South Gippsland it gives a wide area of coverage.

Due to an interference problem it is proposed to swap the 70 cm frequencies between Arthurs Seat VK3RPU and Mt Macedon VK3RMM. This should also see the resumption of D-STAR from the Mt Macedon site.

With the drier weather, machine access has been achieved at the Mt Stanley VK3RNU site for replacement of plant and equipment lost in the Black Saturday bushfires.

Work at the Waverley site for a relocated VK3BWI broadcast facility is slightly delayed awaiting permit approval.

Amateur Radio Specialist

Look forward to hearing from you



AMATEUR TRANSCIVER RADIO CENTRE

Australia's largest stockist
of Amateur Equipment

We supply these famous brands

- ALINCO • ICOM* • KENWOOD* • LDG*
- YAESU* • DIAMOND* • BUTTERNUT*
- DAIWA* • PALSTAR* • ALPHA DELTA*
- VERTEX STANDARD* • TARHEEL*
- CUSHCRAFT* • GAP*
- RADIOWAV* • HUSTLER*
- SUPER ANTENNAS*
- MOSLEY* • HEIL SOUND
- SGC • STARTEK*
- COMMANDER AMPLIFIERS*
- M2 ANTENNA SYSTEMS
- HI-Q-ANTENNAS* • TGM*
- COMET* • UNIDEN*
- SPIDERBEAM* • AVAIR*
- MALDOL* • AUTOTENA*
- PALOMAR AMPLIFIERS*
- BUCKMASTER*
- BUXCOMM* • ZCG SCALAR*
- SYNCRO* • MOBILE ONE*
- OUTBACKER* • BENELEC*
- RF INDUSTRIES* • CRE-ATE* • HEAR IT* • RF PARTS*
- N2VZ ENTERPRISES*
- RM ELECTRONICS*
- CHAMELEON ANTENNAS*



*Only equipment purchased from an authorised dealer carries the full manufacturer's warranty.

We have DJ-X11

(02) 9896 2545

www.atrc.com.au

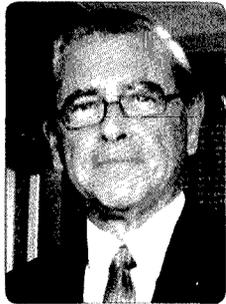
Check out our Hot Specials

Level 2, 141 Gilba Road
Girraween NSW 2145

inquiries@atrc.com.au

Ask what we can do for you,
Les VK2MPZ

We Ship Anywhere



VK3news Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC

GARC in the park

This is the premier event in the GARC's social calendar and was organised by Jenni VK3FJEN and Vanessa VK3FUNY at the Eastern Gardens Rotunda, Geelong.

Also in attendance were members of the Geelong Radio and Electronic Society, the GRES, including their President Bill VK3YTH. This is an annual event that has been in place now for several years.

Hackers Space and back to fundamentals

Hackers Space has nothing to do with the disruptive activities of certain computer savvy people, but rather accommodating those individuals who derive satisfaction from DIY building 'things'. In an amateur radio context this might embrace microprocessor equipment such as SDR and similar activities; as it was decades ago when the commercial equipment that we take for granted today was either not available or far too expensive.

Lee VK3PK, who ran the clubs microprocessor group, has recently registered with the Hackers Group the fact that there is an interest in forming a group in Geelong with the GARC club rooms as a possible 'starting place'; this would provide a presence for those searching for Hacker groups in the greater Geelong area.

Allied to the above there is also recognition that fundamentals such as basic soldering skills and their application to, say, affixing coax cables to antenna connectors needs resurrection and Jenni VK3FJEN is organising classes at the GARC to that end.

The WIA recently broadcast that CQ magazine will introduce a quarterly Maker Column. 'CQ says



Photo 1: GARC in the park.

that the goal of this column is to help build and strengthen bridges between the amateur radio and the Maker communities'.

Spring Field Day with Team VK3ALB/p

Once again VK3ALB/p ventured to Mt Leura for the Field Day. The weather was better than it has been for the last couple of years and they were able to hear VK2, VK4 and VK5. Best microwave distances achieved were to VK5SR at 234 km, VK3WRE at 298 km and VK3UHF on 24 GHz at 95 km. The best two metre contact was to VK5ACY at 486 km with 5x9 signal reports being exchanged.

The big improvement for the team this year was the addition of 24 GHz to the station. Peter VK3APW brought along his magnificently engineered 24 GHz Kuhne system. An initial contact with VK3UHF, the LUMEG team, at 0427Z was difficult, with heavy QSB making it tough going although signal peaks of 5x1 were exchanged. Later in the day conditions improved significantly and at 0757Z and 1110Z 5x5 reports were exchanged. Ironically, minutes after their last contact for the Field Day log, conditions radically improved with signals then peaking well over S9!

Photo 2: Peter VK3APW on 24 GHz contacting Charlie VK3NX.





Spotlight on SWLing

Robin L. Harwood VK7RH
e vk7rh@icqmail.com

Well it is almost autumn and the days are drawing in after a particularly hot summer here in northern Tasmania. Propagation has been disturbed with several major coronal mass ejections (CME) in late January. This caused major disruption and more are predicted.

Another major shortwave station has departed HF for good. At 2200 UTC Radio Bulgaria in Sofia turned off their senders and stated they were going to dismantle them quickly. They have opted for the internet as a delivery platform and were not swayed by the chorus of protests against leaving shortwave. It indeed is a pity as I personally liked the distinctive music style of Bulgaria. This leaves its neighbour, Radio Romania in Bucharest still on shortwave but for how much longer? Greece and Turkey also border Bulgaria and they are still on shortwave, although Athens has cut back their transmission hours. Radio Netherlands in Hilversum will be gone altogether by October of this year, which leaves the Spanish Foreign Radio in Madrid one of the few remaining European HF broadcasters.

A friend in the States pointed me to a link on YouTube, which is extremely interesting. It is of the various OTHR signals on shortwave and how to identify them. I naturally assumed the majority of the pulses I was encountering came from Akotiri in Cyprus. Not so, and many are located in arctic or sub-arctic regions.

You can find the link here, <http://www.youtube.com/watch?v=e43rXRcZPhs&feature=youtu.be> Not only does it have OTHR but other modes such as CODAR and even radiosonde, which is common. I am certain it will be of assistance

especially to Intruder Watch monitors. Note the video does not have examples of the prevalent Chinese system which has lately plagued the 40 metre DX window.

Myanmar has again re-appeared on 7110, making it an intruder. It starts to come in around 1030 and it is my opinion that they have deliberately chosen the channel to get away from other signals. It comes as no surprise that there are no amateur stations in that nation so as far as they are concerned the frequency is vacant. The same station has a second programme on 5985 but on two separate transmitters. One is at Yangon (Rangoon) and the other is in the newly constructed capital city of Napydaw which is 320 kilometres away and off-limits to foreigners. One sender is 800 Hertz higher than the other and theoretically you can determine which sender is in operation by the frequency offset. The 7110 sender is at least 100 kW which explains its consistent signal level. The 5985 signal is certainly not as strong.

Don't forget that the A-12 period commences on Sunday 25 March at 0100. That coincides with the time when Europe goes on to Daylight Saving Time. Note that Russia and the CIS will not be advancing their clocks as they decided to permanently advance their clocks when Europe reverted to Standard Time at the end of October 2011. NSW, Victoria, Tasmania and South Australia revert to Standard Time on 8 April, as does NZ. America advances their clocks on 17 March, St Paddy's Day!

Well that is all for now. Keep monitoring as there are always surprises on the bands.

COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$255
Coup/ld res/tr dipole tri band	\$680
20 m confined space beam 3 el.	\$459
Mobile screw driver antenna 10-80	\$338
15 m 3 el. 3.6 m boom	\$314
M b vert auto switch 10-80 m	\$360
40 m lin load 2 el. cap hats	\$670
6 m 5 el 3.6 m 1 boom	\$314
6 m 7 el. 6.8 boom bal feed	\$456
23 cm 36 el. 2 m l boom n-con	\$249
70 cm hi/gain Yagi 3 mtr boom	\$170
2 m 10 el. hi/gain Yagi	\$190
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$319
Open sleeve 10-15 m vert 3 dB	\$274
Rotatable dipole 40 m	\$298
Tri band 10/15/20 - 5 el.	\$860

Guyed masts 13 or 21 metres

Winch up, tilt-over,
aluminium and stainless steel
three sided construction.
Auto brake winches.

115 John Street
Glenroy VIC 3046

Phone

0419 542 437



Our Noisy World

Bill Isdale VK4IS
e vk4is@wia.org.au

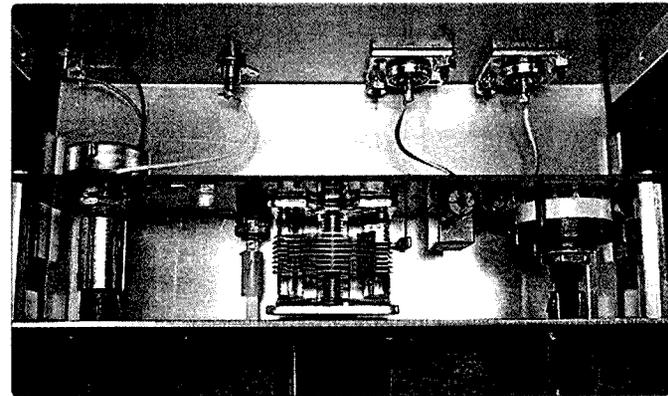


Photo 1: The variable bandpass filter has a selection of inductances and a variable capacitor.

From my QTH in a city it has been unknown for me to operate on 80 metres without having to contend with QRM varying from S3 to well over S9. Using 80 metres at night when the ionosphere will reflect the signals more or less directly down should allow the operator to enjoy nets with others who may be from a few tens to several hundreds of kilometres away. Such relatively local stations produce a strong signal environment but listening can often be quite unpleasant when the station being listened to is packed in not just the background QRN from distant lightning but also intense local noise, often from consumer electronic devices.

In an attempt to reclaim the pleasure of the experience of amateur radio, I have struggled with the noise. I hope that the description of my endeavours will help others to find a solution that works for them at their QTH.

Firstly, the antenna system. Having learned that most of the radio frequency noise created by we humans is vertically polarised, I ceased my experiments with a vertical antenna. I had been using a shortened vertical designed for mobile use mounted at about 5 metres, with radials. Although presenting a 36 Ohm load, it was only a few percent efficient and a

magnet for noise. The net result of the low antenna efficiency and the fact that most operators would be likely to be using a horizontally polarised antenna on 80 metres was that I had a very small presence on that band.

After realising the error of my

ways, I built a more serious antenna. A full size dipole with a 1:1 current balun suspended at 10 metres from a tree and fed by RG-213 coax. Space constraints meant that the ends had to be turned to follow my property boundary once the limit of its width was reached but the improvement could only be described as spectacular. I was there with a big signal. My 100 watt transceiver was able to release its potential. There was no need to use an antenna tuner as the antenna was cut to the correct length. I could be heard but there was still a lot of noise.

Having had some success with this really very inexpensive upgrade to my station, which delivered a huge improvement for about \$100, I was motivated to try for more. Impressed by the broad HF coverage of the OCF (off-centre fed) dipole I erected one with a 1:4 current balun and hung it just below the dipole. From some experience building Yagi antennas for 2 metres, I decided that it is so hard to get energy to couple into a wire when you want it to that I was not

going to be put off this experiment by fear that the new antenna might interact adversely with my successful dipole. I put the coax up just below the line feeding the dipole and had another antenna to experiment with. Using an inexpensive but effective manual antenna tuner it works very well on multiple bands. It is the correct length for a dipole on 80 metres and is simply connected to the feed-line at a point where the impedance is not ideal, but is not bad, if operated on multiple bands. An antenna tuner easily smoothes the transition to the transceiver.

With this antenna I am able to work HF successfully but have found that the dedicated dipole is a little better for 80 metres.

Noise remains a problem with this arrangement although I am definitely able to be heard and have made contacts around the world on 20 metres.

Unfortunately, trying to listen through the noise is a disincentive to working HF as it does produce fatigue. Rather than accept this situation, I have sought more targeted ways to reduce the noise. The addition of an external DSP audio processor between the radio and my headphones has brought a significant improvement. Although my radio has DSP in its audio stage, this dedicated device is

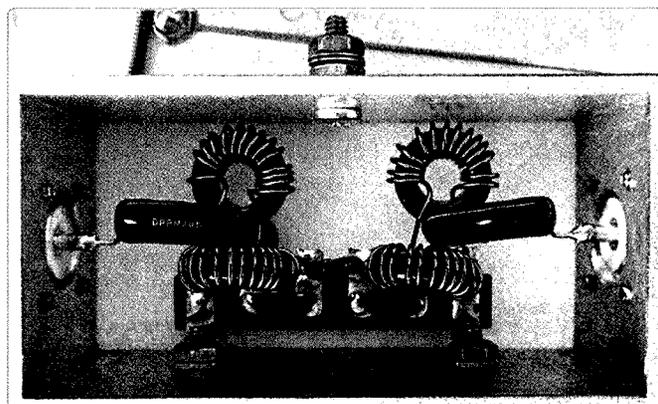


Photo 2: This high pass filter can be used above 3.5 MHz. Models with a 1.8 MHz cut-off are available.

quite powerful and takes a lot of the remaining noise out.

Experimenting with the many settings available with my Yaesu FT-857D brought the discovery that activating the attenuator and taking 10 dB off the incoming signal seemed to reduce the noise more than the signal, making the signal a good deal more prominent. A moment's reflection suggests why this might be so. The signals on 80 metres are mostly quite strong and the radio was able to perform better when not pushed into overload and desensitized by the power of the incoming signals.

This brought a further realisation that the enormously powerful local AM stations might be having an effect on the front end of my transceiver, which is designed to also receive that band. The 198 metre mast of the local Broadcast Australia 50 kW transmitter is clearly visible about 12 km away and with my antenna 40 metres long, it must be picking up the strong AM signals

transmitted from relatively nearby. That facility was commissioned in 1935 and its current transmitters date from the mid 1990s. It is not going anywhere anytime soon, so I would have to find a way to get along with it. I decided to experiment by notching out the AM broadcast band.

One possibility was to use a magnetic loop antenna. A small transmitting loop has a very narrow bandwidth so will operate as an effective barrier to off-frequency signals. It will not be very efficient for transmitting precisely because it is so small so I put this interesting idea aside for the time being. Using the antennas already up, I added an adjustable inductive-capacitive filter that I could use anywhere on HF, choosing it simply because it would be so versatile. Inserting this in-line right before the radio reduced the incoming signal, but reduced the noise a lot. The reduction in signal strength by about 5 dB has not been a problem on 80 metres when it was

necessary to do that anyhow and by passing only the part of the band to which it is tuned, I have found that the local 50 kW transmitter can barely be heard when I tune my radio to it, while leaving the filter set for operation on 80 metres.

This led me to introduce a high pass filter with high attenuation below 3.5 MHz as a permanent part of the station, as it has quite low loss, about .35 dB on the amateur bands. Such a filter is able to be conveniently transmitted through, which is simpler than the MFJ brand variable unit which has a line from the transmitter to trigger a relay to bypass it while transmitting. While this works reliably it does involve some complexity. Both units perform very well and help the radio deal with the local environment.

The steps I have taken have led me to an acceptable solution to my noise problem and hopefully may be useful for others in similar circumstances.



EASTERN AND MOUNTAIN DISTRICT RADIO CLUB INC.

WHITE ELEPHANT SALE

Great Ryrie Primary School
Great Ryrie Street, Heathmont
Door opens 10:00 AM
Entry \$6.00 per head

Sunday 25 March 2012

Hundred of components, pre-loved radios, test gear, computers, software and commercial displays.

Table space \$18.00 - 6ft
\$20.00 - 8ft
(included entry for one person)
For bookings call
Max VK3WT on
03 9005 9251
or email
wes2012@emdr.com.au
by 8 March.

Soft drinks, sausage sizzle on sale.
Free tea and coffee.

WE ARE HERE

MELWAYS
49 K11





AMSAT

David Giles VK5DG
e vk5dg@amsat.org

It's all a question of timing

The day after I sent off last month's column the good news came through that the Japanese ground station had successfully commanded FO-29 on. I have listened a few times during the last month and have heard the beacon each time. This month has news on new satellites and a clever approach to antenna construction.

VEGA

ESA's new launch vehicle, Vega, will have had its maiden flight during February. As I write it is still on the launch pad, so here is just a quick summary of what is on board. Next month I will have another report on whether it was successful or not.

Vega will be carrying eight student-built satellites using amateur radio [1].

ALMASat-1 from the University of Bologna, Italy, is a 12.5 kg satellite with a nitrogen thruster. It will have downlinks of 1k2 FSK on 437.465 MHz and 38k4 FSK on 2407.850 MHz. http://www.almasat.unibo.it/02_projects/almasat-1/almasat1.htm

e-st@r from the Politecnico di Torino, Italy, is a 1U size cubesat that will test an attitude determination and correction system. That is, it will orientate itself by using magnetorquer coils. It will have a 1k2 AFSK downlink on 437.445 MHz. <http://areeweb.polito.it/ricerca/E-STAR/>

Goliat from the University of Bucharest, Romania, is a 1U size cubesat with sensors for radiation

and meteorites as well as a camera. 1k2 AFSK downlink on 437.485 MHz.

MaSat-1 from the Budapest University of Technology and Economics, Hungary, will test various satellite subsystems. The website has software to demodulate and decode the telemetry using a PC soundcard. Its downlink of CW and GFSK is on 437.345 MHz. <http://cubesat.bme.hu/en/>

PW-Sat1 from the Warsaw University of Technology, Poland, will attempt to destroy itself by using a sail to slow down and thus de-orbit sooner than the other cubesats. PW-Sat has CW and BPSK telemetry and can be used as a voice transponder. Downlink is on 435.020 MHz and uplink on 145.9 MHz. <http://tinyurl.com/CubeSatPW-Sat>



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU
email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz
VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

Robusta from the University of Montpellier 2, France, will have a 1k2 AFSK downlink on 437.325 MHz. A 10 second frame of data is sent every 3 minutes.

<http://www.ies.univ-montp2.fr/robusta/satellite/?lang=en>

UNICubeSAT from the University of Rome, Italy, will measure atmospheric drag. The low perigee of the Vega launch (~350 km) allows this to happen. It will have 9k6 FSK downlinks on 437.305MHz or 437.345MHz.

http://www.gaussteam.com/index.php?option=com_content&view=article&id=97%3Aunicubesat&catid=36%3Aunicubesat&Itemid=145

XaTcobeo from the Universidad de Vigo, Spain, has a software defined radio, deployable solar panel and radiation detector. Downlinks on 437.365 MHz FFSK with AX.25 and 145.940 MHz.

<http://www.xatcobeo.com/>

Vega will launch these satellites into an elliptical orbit with an apogee of 1450 km and a perigee of 350 km. This will give an operational life of one to three years due to the low perigee.

Other satellites to look out for during 2012

AMSAT-UK's FUNcube-1 has been scheduled for launch during the third quarter of 2012 on a Russian DEPNR rocket. FUNcube-1 is an educational satellite and will have a mode U/V linear transponder. Also on the same launch will be Triton-1, Triton-2, UKube-1 and Delfi n3Xt. Triton-1 is a 3U size cubesat with two mode U/V transponders. Triton-2 is also a 3U size cubesat with a mode U/V transponder and a mode U/S transponder. UKube-1 will have a similar mode U/V transponder as FUNcube-1. Delfi n3Xt is the successor to DO-64 and will have a mode U/V linear transponder.

RS-39 Chibis-M

On 25 January after unloading supplies to the International Space Station, the Progress M13-M cargo ship was sent to an altitude of 500 km. There it deployed a 40 kg satellite called Chibis-M before firing its rockets once more to cause it to de-orbit. Chibis is Russian for 'Lapwing', the -M is short for Molniya which translates

as 'Thunderstorm'. Its mission is to 'study the interrelation of the transient plasma-wave processes connected with the manifestation in the ionosphere of solar-magnetosphere-ionosphere-atmosphere connections and the parameters of space weather. The fundamental goal is the search for universal laws governing transformation and dissipation of plasma-wave energy in the magnetosphere-ionosphere system' [2]. Simply put - it was found from other space missions that high altitude thunderstorms create large pulses of energy in the form of gamma, X-ray and radio waves. Chibis-M will be used to study these phenomena over its expected life of two years.

RS-39 carries instruments covering better than DC to daylight - a ULF/VLF receiver (0.1 to 40 kHz), HF/VHF receiver (20 to 50 MHz), optical camera, UV, X-Ray and Gamma ray detectors. All very good and hopefully add to our knowledge of the ionosphere. But where do amateurs fit in? Like RS-30, RS-39 has two CW beacons on 435.315 and 435.215 MHz giving telemetry on the spacecraft. High speed phase modulated data may also be transmitted. Also like RS-30 it does not have a transponder. Early telemetry reports received from amateurs showed RS-39 had a loud and clean CW signal. The telemetry also showed the battery voltage was low and the transmitter was turned off by the command ground station. RS-39 has flat solar panels that need proper orientation using three-axis stabilisation to get full power. The telemetry has been turned on again to confirm that RS-39 has better orientation. To help with the mission (and get a QSL card) you can email any telemetry received to amateur-rs39@chibis.cosmos.ru For the latest news, the main website is at <http://chibis.cosmos.ru/> but it is in Russian.

Mike Rupprecht DK3WN has written a telemetry decoding program for RS-39 and is available at <http://www.dk3wn.info/files/rs39.zip>

SO-67 not recovered

News has come through about SumbandilaSat SO-67. Its primary mission is over. There have been enough on-board failures that it can now

no longer take high resolution images. A solar storm damaged the power supply to one of the stabilisation wheels and its cameras. However the amateur transponder is probably fine. Hopefully they will be able to get SO-67's transponder running again. South Africa has plans for future satellites including a successor to SumbandilaSat [3].

Portable antenna

And now for a different approach to portable antenna design. The 2 m/70 cm portable Yagis such as the Arrow antenna have proven popular and are used on a regular basis for the FM birds. There have been plenty of variations homebrewed as well. In the January 2012 issue of QST magazine an article by John Portune W6NBC describes the construction of an antenna with three elements on two metres and five elements on 70 cm. The design uses PVC tubing for the boom and tape measure elements. The elements fold up and booms twist for easy storage or transportation. Originally it was just a two metre version for hidden transmitter hunts. For those of us who do not have the QST magazine, the article has been made available on Clint Bradford's K6LCS site at <http://www.work-sat.com/Work-Sat/Antennas.html>

Final pass

If you follow RS-39 on your tracking program you will see what the footprint would be like if the ISS was 100 km higher. It seems that important events happen at the end of the month right when I am compiling this column. More often than not they appear just after. As I finish off for another month AMSAT-NA are waiting for news from NASA that Fox-1 has been accepted into their 'Educational Launch of Nanosat' program. If successful then NASA will cover much of the integration and launch costs and AMSAT will have to speed up construction. If not then Fox-1 will require more funding and have to find another launch.

References

- [1] <http://www.uk.amsat.org/4180>
- [2] http://events.eoportal.org/get_announce.php?an_id=10003641
- [3] <http://www.uk.amsat.org/4076>



Salvaging parts: what to take and how to use it

Peter Parker VK3YE

Introduction

The escalation of home computing power and the phase-out of analogue television have made old PCs and TVs a frequent sight on kerbsides around the nation. TV antennas are also common, as householders (rightly or wrongly) upgrade to a 'digital-capable' antenna. This is nothing new – the same thing happened when valves replaced solid state, colour replaced black and white and CDs replaced cassettes and vinyl.

At the same time the number of outlets selling components has shrunk, as suppliers either shut or shifted to consumer electronics. Hardware stores are likewise fewer and further. And often one must buy several items when only one is required. Hence there is much to be said for having on-hand parts for a new project or repair, especially if they can be acquired for free.

The hunt and appetite for 'junk'

Tighter regulations have reduced the previously open access to rubbish tips. However street collections are still alive and well, although practices vary by area. For example some councils hold them once or twice per year while others require residents to call for collection.

'Junk' can also be obtained from your own household, friends, hamfests, op-shops, garage sales or Sunday markets. Electronic stores sometimes have baskets of cheap returned or unserviceable items. Such broken items are normally uneconomic to repair but their components can still be useful.

Appetites for junk vary. Beginners will often take almost anything – their junk boxes are shallow and it is hard to refuse even a small desk lamp or portable CD player. However discrimination deepens with one's junkbox, knowledge, and, in some cases, marital status. And besides it is sporting to leave something for the next person.

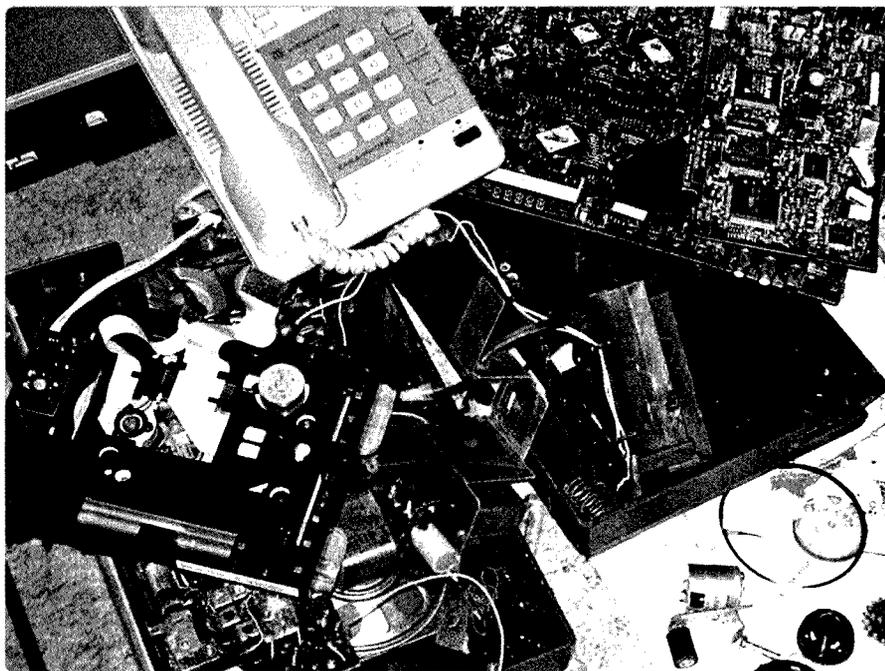


Photo 1: Circuit boards can provide a wealth of components.

Knowledge and creativity

Ingenuity, or applied creativity, requires both knowledge and imagination. The successful salvager and builder has both traits.

It is vital to know the sorts of parts that future projects will need. And whether these will be found in particular items. Learning this requires study of circuit diagrams for various projects and experience gained from taking things apart.

Hence a field strength meter (which is about the simplest project for the beginner) will need a meter movement, small case, telescopic antenna, diode, variable resistor and RF choke. And an HF receiver will probably require tuning capacitors, coils, an audio amplifier and other small parts.

Looking at many circuits increases the likelihood of finding one that uses common components. As an example, a product detector in a receiver could be built with diodes, bipolar transistors, single gate FETs, dual gate FETs, prepackaged mixers or specialist ICs. The prepackaged

mixers and specialist ICs are unlikely to be found, but many designs use more widely available diodes and transistors.

It helps to know what parts are typically found in discarded gear. For example, a portable stereo will have a small power transformer, bridge rectifier, ferrite rod, tuning capacitor, audio IC and speakers. There could also be a small motor, potentiometers, knobs and assorted other parts. Similarly a home computer will probably contain a switchmode power supply, LEDs, crystals and a case. There will also be screws, sockets and a fan. Cordless phones, baby monitors and remote controlled cars have crystals, RF transistors and telescopic antennas, while a novelty toy could have a battery holder, LEDs and audio amplifier.

Other key skills include being able to identify components and read their values. While resistors are fairly similar to one another, capacitors and inductors vary considerably in appearance. Values are often given

as a numerical (capacitors and some inductors) or colour (resistors and some inductors) code. Reading codes saves hours of time compared to having to desolder and measure each one. Experience will also allow certain common ICs to be identified – for example, an 8-legged chip that precedes a speaker is likely to be an audio amplifier such as an LM386 or TDA2822, and a TO220 package screwed to a heatsink could well be a common voltage regulator or power transistor.

Imagination should be cultivated as much as knowledge. The trained eye often sees usefulness in items made for another purpose. For example a kitchen chopping board could be cut for antenna insulators, irrigation tubing for open wire feedline spreaders and a loaf tin for a project chassis or box. Baking trays provide metal that is expensive to buy in small quantities. The question to ask is not so much 'Is it useful?', but 'How can it be useful?'

Either abundance or scarcity can drive design. An impatience to finish a project without waiting for a mail-order can lead one to examine what can be built from the parts on hand. Often the experimenter will modify an existing design to suit available parts. The ability to make working substitutions (both at the component and stage level) is a mark of skill. Even the will to complete a particular

project may be strengthened as one finds (for example) a nice tuning capacitor, dial drive or handy-sized box.

Tools

The salvager will need at least one soldering iron and a good solder sucker. I have found the metal cylindrical spring type better than the bulb type. However I doubt either would be any good if trying to remove tiny surface-mount parts.

A fine flat-bladed screwdriver (used as a pick or lever) is extremely useful for extracting components from the board. Long-nose pliers also sometimes help, but may break a part more often than fingers. Where leads are angled to be parallel with the circuit board (as was done with older equipment) it is often a good idea to straighten the lead (using a small screwdriver while applying heat) to allow the part to be pulled out with less pressure.

Most valued parts

The most valued parts for the radio constructor are those that are widely used in projects but are either rare or expensive to buy. Attitudes and circumstances vary; those with more time than money will save every resistor and power cord, while the time-poor or well-stocked would keep only the rare parts.

The following gives a rough idea as to the least and most valued parts:

Must-keep (hard to find or cost over \$10 new)

- Capacitors – particularly high-voltage, NPO ceramic, polystyrene or mica
- High-value compression or air-spaced trimmer capacitors
- Tuning capacitors (especially air-spaced)



Photo 3: Various fixed and trimmer capacitors.

- Dial drums, drives and cords
- Crystals, crystal filters, oscillator modules and ceramic resonators
- Germanium and varactor diodes
- Large power transformers
- Valves and valve sockets
- RF power transistors
- Meter movements
- Good quality enclosures (especially metal)
- Good quality rotary switches

Recommended to keep (not always obtainable or over \$2)

- Heatsinks
- Plastic boxes
- Sockets (especially headphone, microphone, antenna and binding posts)
- Ferrite rods and RF toroids
- RF chokes (these often look like fat resistors with a greenish body)
- Rocking armature earpieces (as in telephone handsets)
- Switches and potentiometers
- Known power transistors
- Known special-function ICs, for example, audio power amplifiers
- Voltage regulators
- Audio transformers
- Speakers and headphones
- Assorted hardware, for example, knobs, screws, nuts, washers, spacers
- Telescopic antennas

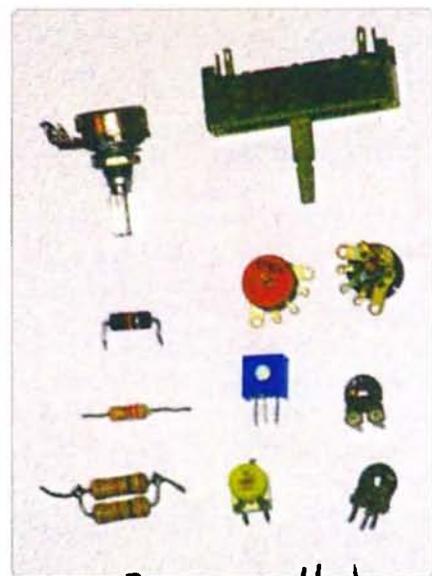


Photo 2: Various fixed and variable resistors.



Photo 4: Various inductors and RF chokes.

- Old TV antennas
- Audio or RF shielded cable

Less important but still handy

- Small signal transistors
- ICs
- Resistors and trimpots
- Capacitors (ceramic, polyester, electrolytic, tantalum)
- Diodes (including silicon, zener and LEDs)
- Wire

Where to put it all

The case is often bulkier than the insides of modern electronics. If the case is not very useful (for example, a plastic cabinet from a cheap stereo), discarding it and keeping only the circuit board and speakers will save space. Undoing a few screws and some wire snipping is usually enough to free the circuit board.

Some prefer to remove all useful parts from the circuit board and then discard the board. These parts can be placed in cabinets with drawers. Alternatively food storage containers, preferably stackable with clear snap-lock lids, can be used.

Like modern dentists, I prefer to keep extractions to a minimum and leave parts in their original boards until needed. Circuit boards are flat and will usually fit in a storage cube (again preferably stackable). Keeping boards intact also protects the parts and may give some clues if a part's pinout is unknown.

Using the parts

Use of parts requires a synthesis between what a project needs and what is available. Otherwise one just accumulates components and builds nothing. It is worth reading as many

circuits as possible and examining salvaged parts to see if any could be useful. Google is a great resource for identifying obscure transistors and ICs; a search will often reveal data sheets and suggested circuits.

Sometimes it is possible to take short-cuts and modify equipment rather than build everything. For example the receiver portion of a 160 metre AM transceiver could come from a modified AM transistor radio. A converter could be added to an AM car radio to provide HF or VHF reception. Or the audio stages from a portable stereo could simplify a homebrew receiver, saving the need to make from scratch. Careful tracing of input, output and power connections and use of a hacksaw could even allow the circuit board to be cut to include only the needed stages. Again use of IC data can help important connections to be identified.

Conclusion

This article should assist would-be builders with few parts on-hand. Key themes have included knowing what items projects require and what is typically inside discarded items. And always asking 'How can it be useful' encourages the creative mindset that allows best use of available parts.



Silent Key

John Baines VK7NJB

Tomas John Baines was born on 20 March 1934 and died on 18 November 2011.

John was licensed in 1988 and was a WIA member for a good many years. He was a keen operator on 2 m and 80 m, especially on the morning net on 3.615 MHz. In later years he was also active on 40 and 20 m.

One of his many interests was collecting and polishing rocks and minerals; his collection has gone to the Tasmanian Museum.

Vale John.

Contributed by Max Bowerman VK7MBP.



Silent Key

Len Dimmick formerly VK7ZLD

It is with sadness that we inform you of the passing of Len Dimmick on 8 January 2012.

Len was active on six and two metres in the late 70s. He is remembered by many as a radio class lecturer at Hobart Technical College. He was a keen volunteer at Aurora Disability Services, also a dedicated Rotarian and was well respected in the Fijian community.

Vale Len.

Contributed by Ian Filby VK7ZIF and Justin Giles-Clark VK7TW.



VK2news

Tim Mills VK2ZTM
e vk2ztm@wia.org.au

Pierce Healy VK2APQ became a Silent Key on 14 January, 2012. Pierce celebrated his 100th birthday in August last year. While Pierce had been involved in many aspects of the hobby it was the notes that he compiled for Radio and Hobbies for many years that most amateurs will remember. He was a Life Member of both the WIA and ARNSW.

Members of ARNSW are advised that with the AGM being held on Saturday, 21 April, 2012. The close of nominations, agenda items and notice of motions will be at 12 noon on Saturday, 10 March, 2012, a week later than notified in last month's VK2news. All paperwork

pertaining to the AGM will be posted to members this year; there will be no emails sent. Please make sure that your postal address is up to date with the Membership Secretary. You can check this by an email to membership@arnsw.org.au or telephone 02 9651 1490 or 0400 445 829 and leave your contact details. For other details see last month's notes. Check both VK2WI News and the ARNSW web site www.arnsw.org.au for updates.

The upgrade course for Standard and Advanced licence grades commences at VK2WI Dural on the first Monday evening (the 5th) in March. There will be a one day

Foundation course on Sunday, 18 March and assessments held the following Sunday, 25 March, which is also a Trash and Treasure day. Information is available by an email to education@arnsw.org.au or the phone numbers above. ARNSW assessors provided all grades of exams at the recent Central Coast field day.

The annual Urunga Convention will be held over Easter. The Oxley Region has advised that their June long weekend field day will be held again this year at the Tacking Point Surf Lifesaving Club Hall. There was no Radio Expo at Coffs Harbour this year.

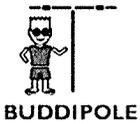
73 - Tim VK2ZTM



www.ttssystems.com.au

Phone: 03 5977 4808 Email: info@ttssystems.com.au

Your Australian reseller for:



...America's Best!



YouKits

New Products coming soon

AVAILABLE NOW

Hard Drawn Copper Wire, Insulators, Dipole Centres
Open Wire Transmission Line, Spreaders, Kevlar Guy Line
Spiderbeam Fibreglass Poles, Baluns and Switches



Meanwell power supplies
Diamond products
Daiwa products
Technical books
Amidon products
Custom cables made to order

See you at the Sewing Circle Barbeque held at Ross, Tasmania Sunday March 18

As always, you can get a free catalogue - just call!

Contests

Phil Smeaton VK4BAA

e vk4baa@wia.org.au

Contest Calendar for March 2012 – May 2012

Mar	3/4	ARRL International DX Contest	SSB
	10/11	RSGB Commonwealth Contest	CW
	17/18	John Moyle Field Day	CW/SSB/FM
	17/19	BARTG RTTY Contest	RTTY
	17/18	Russian DX Contest	CW/SSB
	24/25	CQ WW WPX Contest	SSB
April	1	QRP Hours	CW/PSK31/RTTY/SSB
	14/15	Japan International DX Contest	CW
	21/22	YU DX Contest	CW/SSB
	22	Harry Angel Sprint	CW/SSB
	28/29	Helvetia Contest	CW/SSB
	28/29	SP DX RTTY Contest	RTTY
May	14/15	CQ-M International DX Contest	CW/SSB
	7	VK/Trans-Tasman 80 metres Phone Contest	SSB
	28/29	CQ WW WPX Contest	CW

Note: Always check contest dates prior to the contest as they are often subject to change.

Welcome to this month's Contest column.

RD Contest

The RD has had something of a chequered history as regards management and rule changes. There has been a modicum of debate recently on the VK Contest Club (VKCC) reflector pertaining to the issue, with opinions sought for improvements. Some of the suggestions have been plausible and some would require a magic wand to implement, but the overall opinion and depth of feeling is very clear: the RD is far from optimum and needs immediate attention.

With Peter VK4OD's recent resignation as contest manager for the RD due to ill health, a volunteer is sought to fill these large shoes. No doubt, by the time this gets into print a successor might well have been named and made public, but at this stage the contest is without a leader for 2012. I wish you a speedy return to full health Peter! (*The WIA Board plans to appoint a new manager at its meeting on February 18 & 19. Ed.*)

In no particular order or preference, suggested changes and opinions, to date, are as follows:

- The diggers were in the trenches, so there could be a category for portable field operation, with bonus points available for portable stations and QSOs made with them;
- Bonus points for stations operating from an historic military location;
- Special event call signs which have some military significance could be distributed by WIA/ACMA. Bonus points for finding and working those stations;
- Run the CW section at a different time, even if it is not for 24 hours;
- One person using multiple call signs should be banned;
- State result should be the top ten scores taken from any category versus the top ten in each of the other states;
- Individual awards for various categories;
- No multi operators but any calls can operate from a club station;
- Limit transmission power to 100 watts;

- No repeaters of any type;
- Exchange should be a full report plus number plus first name;
- Adopt the sprint rule of moving after CQing;
- WWII equipment section should be dropped;
- Restrict CW to straight key only;
- Adjust scoring to accommodate the 'wee' hours and to promote band changes;
- Introduce high power, low power, F call sections;
- Delete VHF/UHF bands;
- Delete inter-state competition and make it inter-club instead? Or even Australia-wide, and;
- Remove not being able to work an HF Station in your own State.

The opinions/suggestions voiced on the VKCC reflector are neither definitive nor binding. The VKCC reflector is simply a forum for like-minded souls, so if you have any thoughts on the subject then do not hesitate to contact the contest manager once he or she has been appointed.

In my very humble opinion, the first thing is to decide what the contest is to achieve and what goals we have for it in the future. It seems to me that an almost continual changing of the rules to achieve the impossible, a level playing field, has confused the aims of the contest and even put people off participation. Contesting in VK is on the rise, generally, so the falling participation aspect seems to be contest specific. The contest was always intended to be a bit of relaxed competition between the states to celebrate the sacrifices made in the wars by fellow amateurs in an effort to preserve our freedoms. It developed over the years with various states getting annoyed the rules were not in their favour. Some really convoluted calculations resulted only to prove the level playing field is a mirage. So we seem to have the goal of a relaxed contest between states to commemorate sacrifice, but it is also a contest where we can all touch base with old friends.

For many, the RD Contest was their introduction to amateur radio so it is often described as a 'favourite' contest and talk of further changes will no doubt produce an emotive reaction from some. The General Rules printed in last month's AR have ruffled a feather or two apparently, so people are seemingly reticent to change. The rules were borne out of a group of contest focussed WIA Directors and the WIA contest managers, but they will not always

please everyone, regardless of intention. For the RD at least, we certainly need more participation and I am all for any changes that would see such an outcome. Without a major re-think, I suspect that the RD will ultimately pass into history as a lost opportunity for revival and ultimately fade into obscurity. The new manager is likely to need all the help he or she can get – but it is up to all of us to assist.

CQWPX SSB 2011 Results

The following VK stations submitted a log in the WPX SSB contest in 2011. The bands were lively just for once and much is hoped for a similar level of activity for 2012. At the time of writing, solar flares are making HF into something of a wasteland, unless someone has installed a huge Faraday Cage over my antenna system! Congratulations to all that entered to put VK onto the world map during the contest.

Last call for BERU 2012

Are you ready for the challenges of

Commonwealth Contest and the WPX CW this month? I ask the latter somewhat tongue-in-cheek, as my CW skills are still a mite rusty even after my faltering participation during CQ WW CW late last year – but at least they have moved on from what was originally described by fellow VK4KW team members as sounding akin to a goat standing on a corrugated tin roof.

VK will hopefully be entering a team or two for 2012 (no details unfortunately at the time of typing this wee ditty) but the contest is a single operator affair so no multi-op entries are permitted. Seriously though, I might be able to enter this year as the station antenna system is a bit more mature now and I can operate at my own CW speed and not feel the pressure to go faster.

Call	Category	Score	QSOs	WPX	Operator(s)
VK4KW	MULTI-TWO	26,528,482	5,756	1,369	VK4BAA VK7ZE VK4TI VK4SN VK4NDX VK4DX
VK4NM	MULTI-ONE	6,133,875	2,072	825	VK4NM VK4LAT
VK2IM	SO HP ALL	3,786,880	1,508	640	
VK6NC	MULTI-ONE	2,897,063	1,408	703	VK6RK VK6AL VK6BEC VK6VY VK6WX VK6NU
VK4EMM	SO HP ALL	2,856,276	1,376	636	
VK6IR	SA HP 15M (T)	2,263,494	1,252	654	
VK2CA	SA HP ALL (T)	2,015,059	1,217	571	
VK3TDX	SO HP ALL	1,989,376	1,073	608	
VK1CC	MULTI-MULTI	1,608,491	956	563	VK2KDP VK2MCI VK2BD VK2CCC
VK4WIP	MULTI-ONE	1,252,649	876	509	VK4MIA VK4QS VK4MN VK4FAAT VK4HGB VK4RJ
VK3DOG	SO HP ALL (R)	212,930	293	214	
VK3AVV	SO HP ALL	189,200	277	215	
VK4VDX	SO LP ALL	168,696	255	213	
VK6FDX	SO HP ALL	141,038	267	194	
VK3MDX	SO LP ALL	116,272	212	169	
VK3TZ	SO LP ALL	109,210	204	163	
VK7NET	SO LP ALL	100,110	206	141	
VK2HBG	SO LP ALL	98,596	203	157	
VK4IU	SO HP ALL	81,780	202	141	
VK1OO	SA LP ALL	72,765	160	135	
VK4FJ	SO LP 15M	68,497	175	143	
VK3LM	SO LP ALL	65,142	150	141	
VK4XES	SO LP ALL (T)	63,512	147	136	
VK2BCQ	SO HP ALL (T)	63,384	164	139	
VK4DMP	SO LP 20M	56,823	150	141	
VK6HAD	SO LP ALL	51,528	165	114	
VK1MJ	SO HP ALL	39,710	106	95	
VK2WTT	SO LP 20M	38,976	123	116	
VK2ERP	SO HP ALL	30,694	121	103	
VK2ACC	SO HP ALL	29,302	105	98	
VK2WAY	SO LP ALL (T)	29,058	98	87	
VK1PAR	SO LP ALL	28,644	97	84	
VK4BL	SO LP ALL (T)	28,608	111	96	
VK4ATH	SO QRP ALL	22,532	99	86	
VK5MK	SO LP ALL	17,822	74	67	
VK2FHRK	SO QRP ALL	12,201	55	49	
VK4MN	SO LP 20M (T)	5,625	45	45	
VK4QH	SO LP ALL	2,650	28	25	
VK3VTH	SO LP 20M (R)	2,052	27	27	
VK2HEK	SA LP ALL (T)	1,188	19	18	
VK1MAT	SO LP 20M (R)	225	9	9	
VK4FJAM	SO QRP ALL	48	6	6	
VK6FMAB	SO LP ALL (R)	40	6	5	
VK5FMPJ	SO LP 40M (R)	4	2	2	
VK5FCJM	SO LP 15M	3	1	1	
VK6WX	Check log				
VK7XX	Check log				

(R) = Rookie overlay category
(T) = Tribander/Wires overlay category

That's one of the fun parts of contesting – you can compete against a friend down the road, a station overseas, or just against yourself. The VK team members will need your callsign in their log for the points as long as you're in a different call area to them, so have a listen and give them a call if you hear a VK callsign calling 'CQ Beru' or 'CQ CC'.

CQ Awards

Shown in the photo is Steve VK3TDX, rightfully looking very pleased. The two CQ awards are for winning the



Steve VK3TDX with his two CW contest awards.

continent of Oceania in the CQ WW and CQ WPX RTTY contests of 2011. They are both very well deserved Steve - congratulations!

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk4baa@wia.org.au

See you on the bands.

73 de VK4BAA Phil Smeaton



WIA National Field Day 2012 Rules

National Field Day Coordination Team

1 Eligibility

The WIA National Field Day is open to all amateurs in Australia.

Stations residing in other regions may be contacted for credit, but are not eligible to submit entries.

2 Object

To promote amateur radio to the public, to engage potential amateur operators in amateur radio, and work as many stations as possible on any and all permitted amateur bands using a variety of modes. Please note that the event is not to be treated as a traditional contest. Clubs and individuals are encouraged to optimize their presentation to the public by participating in the scoring system.

3 Date and time period

The 2012 Field Day will commence at Friday, 13 April 2012 at 2300 UTC and conclude on Sunday, 15 April 2012 at 1100 UTC.

Stations that are operated for a period of more than 10 hours may only claim points for a maximum of one 10 hour period.

4 Entry categories

There will be two entry categories:

4.1 A Public Station

A group of amateur operators (which may be a club) operating from a public place, or at a club premise which is open to the public for the duration of the event, and use a single call sign. A Public Station may not be solely operated by an individual.

- Public Liability Insurance is highly recommended for all Public Stations.
- The safety of all participants and visitors to the station must be a part of the planning, operation and finalization of the station.

4.2 A Private Station

A station which does not fulfil the requirements of Public Station and includes an individual operation (including a portable or mobile operation, or operating from a private residence).

5 Location

Clubs or groups of operators participating in public areas will be responsible for obtaining any required permits or permission to operate at the desired place. It is recommended that an alternative location is considered during the

planning stages in case the preferred location is not available.

6 Regulations

All stations will be operated within the current ACMA rules and regulations.

7 Exchange

Stations are encouraged to log each contact. The exchange of a signal report via RS(T) and a three digit serial number commencing at 001 for each transmitter, mode or band used. This is to provide some flexibility for each station. True RS(T) reporting is to be encouraged as this will be more meaningful to the public.

8 Permitted modes and reworking

8.1 Separate bands

Phone, CW and each discrete digital mode (i.e. SSTV, PSK31, RTTY, MT63, etc.) on a band are considered as separate modes.

8.2 Reworking

A station may be re-worked and logged after one hour has elapsed from the previous contact on that band or mode. Stations may rework more frequently for demonstration purposes but points should not be claimed for these contacts.

8.3 Repeaters & Internet

Repeater contacts and use of IRLP, D-STAR, and EchoLink are permitted, each of which will be considered a different mode.

9 Logs and evidence

Logs and supporting evidence for bonus points must be received by the National Field Day Coordinator at the Wireless Institute of Australia, Unit 20, 11-13 Havelock Road, Bayswater, Vic 3153 by midday on Friday 18 May 2012. Logs may be mailed to Wireless Institute of Australia, PO Box 2042, Bayswater, Victoria, 3153.

9.1 Logs & receipt

It is recommended that large logs and supporting evidence should be presented as a number of easily identifiable files on CD or DVD media. These larger logs may be delivered in person or via mail. Stations are recommended to keep a copy of all material forwarded.

The email address to be used for all queries or submission of logs and evidence is nfd@wia.org.au

Large emailed logs or evidence has caused concern and issues in the past. Emailed logs and attachments are recommended to be less than 5 megabytes per emailed message. If broken into several messages, each message should be clearly marked in the title e.g. "Broken Valley Radio Club, NFD 2012 - 1 of 3".

9.2 Receipt of valid logs

All valid logs received prior to the closing date, will be acknowledged via email to the nominated representative.

10 Scoring

Scores are based on the total number of QSO points plus bonus points as detailed below. Stations will submit a summary sheet of the claimed points as a cover sheet of the log.

10.1 QSO points

All contacts regardless of band or mode count one point each.

10.2 Bonus points

The following bonus points will be awarded to Public Stations

10.2.1 Non licensed operators

Where a non-licensed, supervised person makes a contact or exchanges greetings via amateur radio at a Public Station and records their name and postcode in the log, an additional 50 points will be awarded for the first contact only made by that person.

10.2.2 Participation

Twenty points will be awarded for each amateur that assists in operating and/or promoting the activity at the station, and enters their name, callsign and the nature of their involvement in the logbook.

10.2.3 Public locations

Two hundred points will be awarded to a station which operates in a prominent public location (i.e. shopping centre, or adjacent to a public facility) – a supporting photograph of the station must be submitted with the log.

10.2.4 Operational transceiver

One hundred points will be awarded for each operational transceiver located at the station for which a log is submitted. Please note, multiple hand held transceivers operated at the station is not regarded to be in the spirit of the event and may not be used for the bonus points.

10.2.5 Renewable energy

Where the NFD station is substantially powered by renewable energy (i.e. solar, hydro, wind, human powered) an additional 200 points will be awarded.

Batteries may be deployed as part of these stations and charged from mains prior to and after the event. This is acceptable and will not exclude a station from claiming renewable energy points so long as the power load of the station is substantially provided by renewable energy.

10.2.6 Non-renewable portable power

Where the NFD station does not qualify as substantially powered by renewable energy but it is powered by a non-renewable portable power source (i.e. generator, batteries) and not connected to mains power, 100 points will be awarded.

Please consider safety in the configuration of the station power supplies and cabling.

A supporting photograph of the power source must be submitted with the log.

10.2.7 Digital and non-voice modes

Where a station operates and logs contacts using non-voice modes, 100 points will be awarded for each additional mode (EchoLink Text excluded as a non-voice mode for this bonus).

10.2.8 Publicity

Where a station operation is accompanied by publicity, the following points will be awarded:

10.2.8.1 Public broadcast television

Where the station is referred to on a non-amateur television station(s) – 200 points per reference.

10.2.8.2 Public broadcast radio

Where the station is referred to on a non-amateur radio station(s) – 200 points per reference.

10.2.8.3 Public press

Where the station is referred in a press publication(s) – 200 points per reference (Newspaper, magazine or newsletter generally accessible by the public).

10.2.8.4 Visit by prominent invited guests

Where the station is visited by an invited Government official (i.e. Member of Parliament, local government councillor, local mayor, local school principal or nominated representative) – 100 points per official. A supporting photograph of the station must be submitted with the log.

10.2.8.5 Visit by emergency services staff

Where the station is visited by an invited member of a community emergency service, preferably in uniform (i.e. CFA, SES, Coast Guard, Ambulance or Police) – 100 points per organization in attendance. A supporting photograph of the station must be submitted with the log.

10.2.8.6 Educational activity

Where the station hosts a structured amateur radio educational activity for five or more children below the age of 18, (i.e. formal training, kit building, fox hunting, licence examinations) – 200 points.

Where the station hosts a structured amateur radio educational activity for five or more adults over the age of 18, (i.e. formal training, kit building, fox hunting, licence examinations) – 100 points. A supporting photograph of the station and description must be submitted with the log.

10.2.8.7 Public information brochures

Where the station provides a public information table to promote amateur radio – 100 points.

10.2.8.8 Presentation material

Where the station submits photographs, or a video or a print press articles describing the activities of the Field Day operation at the station – 50 points will be awarded for each type of presentation submitted up to a maximum of 150 points.

Please note, video presentations have proven difficult to use as previous quality and format offered has proven difficult to reproduce quality images. Video images should not be the sole form of evidence offered. Quality still photos are preferred.

11 Awards

11.1 Registration

In order to be eligible for an award the station must have registered as a participant on the WIA National Field Day web site prior to commencement of the event.

11.2 Submitted valid log

All registered participating clubs who submit a receipted log prior to the closing date, will each receive a participation certificate.

11.3 Private Stations

All registered Private Stations who submit a receipted log prior to the closing date will each receive a participation certificate.

11.4 Outstanding efforts

11.4.1 Public Stations

The three highest scoring Public Stations will be acknowledged in *AR* magazine and on the WIA web site.

11.4.2 Private Stations

The three highest scoring Private Stations will be acknowledged in *AR* magazine and on the WIA web site.

11.5 Review

The WIA National Field Day Coordination Team will review valid logs, photographs etc. received based on general appearance and presentation of participants, location and equipment layout. Claimed scores may be adjusted and advice will be offered to the station if this is done.

11.6 Publication of material

Recommendations of reproduction of suitable material will be made to the Editor of *AR* and the WIA Webmaster.

11.7 Miscellaneous

11.7.1 Acceptance of Rules

By submitting an entry you agree to be bound by these rules and published guidelines regarding safety and insurance. Furthermore, you agree that the judge's decision on the interpretation of the rules awarding of points (including bonus points), certificates and awards will be final and that no correspondence will be entered into in this regard.

11.7.2 Copyright

The copyright in all material submitted must be held by the submitter and the WIA is expressly authorized to use the material for promotional purposes. Copyright of all provided material and images will be deemed to have been released to the WIA for publication unless specifically requested to be not for publication.

11.7.3 Images of minors

Images taken or offered of minors should be accompanied with specific parent or guardian's consent (e.g. a signed notation in the log book). Images of minors may be deemed by the WIA or other interested parties as not suitable for publication.



VK6news

John Ferrington VK6HZ

Some news from the MidWest Amateur Radio Group. Matt VK6MRG and Rick VK6XLR have been very busy over the past six months on an APRS mini IGate project. Matt had been looking for a low cost standalone IGate to eliminate the use of a standard PC, and a low power consumption device would be perfect for solar powered sites. After much searching he found a website by Andrew Quinn ZL1WJQ

that transformed a cheap D-LINK DSL-502T ADSL router into a receive only IGate. Matt contacted Andrew and shortly thereafter had a DSL502 IGate up and running.

Matt and Rick decided to build a few units from the ground up along with firmware help from Andrew. Over a couple of months a new PCB layout was designed for the miniTNC that resides inside the router. The PCBs manufactured in Asia are

double-sided, solder-masked and silk-screened. Quality is superb. Once the PCBs were populated with components and the routers modified, new firmware was flashed into both the miniTNCs and DSL502Ts. With a little reconfiguration, we now had our own 502Gates up and running. Currently six 502Gates are operational throughout VK6 with several more to come online within the next month or so.

MWARG now has LIVE aircraft and ship tracking available that shows what is happening in the Mid West's skies and seas. The aircraft feed is sponsored by AEGWA (Aircraft Enthusiasts Group of WA). It provides coverage to about Denham (Shark Bay), some 800 km north of Perth, filling the current void along the west coast. It is hoped that both Planeplotter and Planefinder users find it useful for tracking aircraft movements along this stretch of WA coastline. Further details can be found at the MidWest Amateur Radio Group website www.mwarg.org.au

Thanks Rick. Over to Bill at HARG.

Hello from HARG with a quick summary of the last four months of 2011. We have now presented two of our monthly Technical Talks. 'Software Defined Radio' was presented by Richard VK6BMW in September and 'Data Modes' by Steve VK6ST with assistance from Heath VK6TWO in October. Also in October we operated JOTA for the Guides with whom we share our clubrooms and next year we hope to repeat this with the addition of a simple electronic construction project or a fox hunt.

Our inaugural 'Show and Tell Day' was held at the November meeting. Six members showed their favourite bits and pieces including an ESR Meter, recently built by Bill VK6WJ, a vertical HF antenna system made by Onno VK6FLAB and a home brewed portable Slim Jim and 5/8 wave two metre mobile antenna from Alan VK6PWD. Richard VK6BMW showed his 60 year old 1000 watt Navy power meter, Meg VK6LUX demonstrated her hand held satellite antenna and Ronald VK6FRSK showed his four element two metre Quad made from copper wire threaded through poly pipe – not



Richard VK6BMW operates HF for the Guides during JOTA.

the most beautiful thing in the world but very quick and easy to build.

In December we organised a HARG table at the TET-Emtron Open Day and received several applications from prospective new members. Our final meeting for the year was our Christmas Barbecue on Saturday 10 December. We started off with hot dogs at lunch time then played with a satellite dish and receiver during the afternoon and finished off with delicious fish and chips in the evening. I think we must have the most versatile barbecue in WA – and it seems to stay really clean!

This year we will continue with our monthly technical talks and I will announce the subjects in the VK6 News section of the weekly WIA broadcasts.

73 and best wishes for 2012 from Bill VK6WJ, Publicity Manager – HARG.

Thanks Bill. Now, to Keith VK6RK at NCRG for an update.

The NCRG would like to thank all those amateurs who attended our Open Day/weekend on Saturday 14 and Sunday 15 January. It was nice to see some new faces and meet some old ones again. Thanks to Joe VK6BFI for his usual delicious Italian food, and all other members who

turned up to operate and give conducted tours of the site!

The weekend of 4 February will see the raising of our monster 'G' tower and the re-arrangement of the other towers around the site. This will give us a better operating system with HF monobanders no longer firing into each other at similar heights. Work has also commenced on our 80 metre four square antenna and improvements are planned for the 160 metre vertical. The club's 70 cm repeater

will also be installed at this time to allow club members to chat with a greater range than at present on our preferred two metre FM frequency.

The weekend of 15 January also saw the end of the WIA News re-broadcasts from the club. It was felt that the service we have provided for the past 26 years was no longer needed on 40 metres, and the 80 metre broadcast was not well supported, so a decision was made to cease transmissions. We have no intention of dismantling the news equipment, just mothballing it should it be needed in the future. Best wishes to all for 2012.

In early January we were informed of the passing of Don Graham VK6HK. Don died peacefully at home surrounded by his family, after a short illness. Vale Don.

See SK notice on page 45.

73 Keith VK6RK for the NCRG news. Busy times in VK6!

Well, that is it from VK6. If you have anything to contribute, please email me vk6hz@wia.org.au

See you next month!

de John VK6HZ



Tunnels in the sky?

Joseph Kasser G3ZCZ, VK5WU and 9V1CZ
 e jkasser@iee.org

Over the last 40 years I have noted what seems to be an anomaly. When the HF bands (1) are open there seem to be missing stations. So where are the missing HF stations?

Observations

In general non-contest operations when the band is open to a specific DX location, for example Adelaide, South Australia to the UK, only one or two stations from that DX area can be heard. The same phenomenon has been noted in contests; when the band is actually open to a DX area only one or two stations from that area could be heard. I have always put that down to the fact that there was a lack of activity at the other end. However, in the October 2010 SSB contest, the 20 m band was open to Europe from Singapore (my location) at about 1430 Z, the DXCluster showed DX spots announcing the activities by a number of stations in England, and a couple of stations in Ireland, yet when I tuned to those frequencies (my software can tune to the DX frequency spot automatically), none of the stations except for EI2CN could be copied. Why was EI2CN the only station that could be heard and contacted for 15 minutes or so? He was 59, so where were the weaker stations? Why couldn't the other UK stations that were being spotted on the DXCluster at that time be heard?

In both Australia and Singapore, there are few local stations (2). If you look at the great circle plot of Earth centred in turn on Adelaide, South Australia, London, Washington DC and Singapore you will notice that the radio amateur population is such that when the bands are open to short skip, there are many locals to work. In Adelaide and Singapore that is not true. There are so few stations that there is often nobody to contact unless the band is open to DX. For example, operating from Adelaide over the first decade in this century, the VK6RBP and ZL6B 20

metre beacons could be heard at many dB over S9 with one other station on the entire band (CW or SSB). Sometimes, calling CQ automatically for 30 minutes at a time resulted in no contacts. The local noise level was often as low as S1. In fact, when the band was open under poor conditions DX stations at S3 or so who were not able to hear me because of their local QRM or QRN levels could be heard (3). When conditions were good, different stations at various signal strengths could be heard.

Short wave radio propagation theory purports that the ionosphere reflects like a mirror. Different frequencies get reflected different distances at different times of day. There are times when there is no propagation between two locations and there are times when there is propagation. When there is propagation, the ionosphere acting as a mirror should reflect all the signals between the locations. However, when the band is actually open, not when predicted to be open, the stations that should be audible, since my receiver and antenna let me hear weak stations, are not being heard.

Analysis

The following aspects of the situation were considered.

- **My receiving set up.** I have generally been lucky and have had low local noise and can hear much further than I can speak as discussed above (4). I spend a lot of time listening and tuning. Occasionally I have worked weak stations that showed up on a frequency for a few minutes and then faded away.
- **Good and poor conditions.** The situation has been more or less the same through the last 10 years, 2000-2007 in Adelaide and 2008-2010 in Singapore.

- **The geometry of the path.**

The stations in the DX area may have had their beams edge on to Adelaide and Singapore; so yes, the signal levels would be down. However, since the local noise level is low, and I can hear weak stations, many of those stations not beaming directly at me should be heard at some weak signal level. In addition, stations not using beams ought to be audible. A typical three-element Yagi beam used by many radio amateurs on the 20 metre, 15 metre and 10 metre bands can have a front-to-side rejection ratio of 36 dB. If all the missing stations were beaming edge on, that would put their received signals 6 S units down as shown in Table 1 below. If one station booming in at S9+ can be heard, stations down to S1 and 2 should be audible and the other stations from that area should be heard. Operating during a contest from a location in Europe or North America, hearing stations at those low levels is often impossible (5). However, in Singapore and Adelaide hearing stations at S1 is no problem. Copying SSB voice at S2 is a breeze (6).

dB	Change	S units	Received reports
0 dB		Reference	1024 Watts = S9
3 dB	x2		
6 dB	x4	-1	256 Watts = S8
9 dB	x8		
10 dB	x10		
12 dB	x16	-2	64 Watts = S7
15 dB	x32		
18 dB	x 64	-3	16 Watts = S6
20 dB	x 100		
21 dB	x 128		
24 dB	x 256	-4	4 Watts = S5
30 dB		-5	1 Watt = S4
36 dB		-6	0.25 Watt = S3

Table 1 Power to signal strength relationships

- The relative signal levels. I am running low power; they may be running various power levels. But I am not discussing them hearing me; I am discussing my not hearing them. My receiver ought to have heard them as shown in Table 1 and discussed above.
- The frequency. It seems to happen on 10 metres through 40 metres. I haven't seriously operated on 80 and 160 metres, so have no data.

The way people operate. The serious contester in Singapore and Australia who spends most of the time calling CQ would probably not notice this phenomenon; he would respond to the strongest stations and assume that the missing stations were either not there or too weak for him to hear them. Other stations who tune for contacts might not notice the same phenomena if they do not have Internet DXCluster information.

- Why the issue has not been mentioned before. Digging through memory I do seem to have noticed the same thing operating from Silver Spring, MD (W3), England and Jerusalem (4X) over the years. I would tune the bands and hear only a few stations from one area (7). But from 1970 to 1990 I had no way to know if there were more stations active than those I could hear. By the early 1990s there were PacketClusters and then Internet DXClusters. And there was software that could tune the transceiver to the DX spot frequency. Operating from Silver Spring, MD, stations that were spotted by other East Coast stations were generally receivable. This just told me that I could hear the same stations that others were hearing. At that time, we had no way of knowing if any DX stations were transmitting and not being heard.

Serendipity struck. In my professional life I teach systems engineering. I needed to teach students how to create software models, test the models and put them together to make a simulation.

For that I needed a case study to use as an example where I could take the students through the whole system development lifecycle from conception to operation. I dug out a software simulation of the American Radio Relay League (ARRL) 1977 Sweepstakes contest that I had written 30 years ago (Kasser, 1984). The software contained five models that determined if a contact could be made with a specific ARRL Section at specific times of day; propagation of HF signals being but one of the models. Creating the lecture reminded me of these observations. And, by some coincidence there was an article on HF propagation in the December 2010 issue of QST (Nichols, 2010) which cited an earlier article (QST, 1940) which summarized the Bureau of Standards Letter Circular-575, an up-to-date [for 1940] summary of known ionosphere effects. I dug out the 1940 article to see if it could shed any light on my observations (8). The following issues appeared to be pertinent:

1. The ionosphere, located between about 50 and 500 kilometres above the surface of the Earth, can reflect radio signals transmitted from one area on the surface of the earth back to another area on the surface at a distant location.
2. There may be a considerable number of layers in the ionosphere at any one time but they can be grouped together.
3. Scattered reflections. "An irregular type of reflection from the ionosphere occurs at all seasons and is prevalent both day and night. These reflections are most noticeable within the skip zone, or at frequencies higher than those nominally receivable from the regular layers. Like sporadic E, they occur at frequencies which may exceed the F2 critical frequencies, but are unlike sporadic E in that they are complex and jumpy causing signal distortion; they occur and disappear fitfully, and are almost useless for communications purposes. Some types are of very

weak intensity. The scattered reflections are characterized by very great virtual heights. Usually somewhere from 400 to 1500 kilometres. Their occurrence was thought for a time to indicate the existence of another layer above the F2 layer which might be called the G layer. It is now, however, thought that they are of several types, and that some of them are due to complex reflections from small, ephemeral, scattered patches or "clouds" of ionization in or between the normal ionosphere layers, and thence to one or more layers and ground by single or multiple reflection." This looked like a description of meteor scatter to me.

Tunnels in the sky?

In 1940 the G layer theory was being replaced by a complex reflection theory. Today we describe these reflections as meteor scatter. The history of science can be considered as theories being replaced by subsequent theories once facts that do not fit the earlier theories are observed and accepted (Kuhn, 1970). I wondered if there was a way to modify the mirror reflection theory in some manner to explain the observations (9). Yes there was. It has been noted that VHF and UHF signals can be propagated for long distances via ducts that form between layers at different altitudes. The size and position of the ducts change and sometimes can be very localized such that if stations are only a few miles apart or even a few hundred meters apart, one can get signals into the duct and the other cannot. A hypothesis that seems to explain these observations of missing stations is that HF propagation through the ionosphere is via similar ducts or tunnels in the sky formed between the different sub-layers of a layer in the ionosphere rather than via a wide area mirror reflection. The ducts move around or change shape which is why propagation conditions vary (10). This article is not suggesting that the mechanism that forms a duct in the troposphere is the same

as the mechanism that forms the duct in the ionosphere; it is just postulating the existence of ducts in the ionosphere through which radio waves get propagated.

I also remember reading about some locations being better for working DX than others but can't locate the articles at this time. The ducting theory would postulate that some locations cannot access ducts that form in certain situations.

Back in Detroit in 1972, I was operating with a mobile whip from my balcony on the second floor (Kasser, 1974). By raising and lowering the end of the whip I could bring up the signal strength on some DX stations on 10 metres and 15 metres to the point where I could beat high powered locals in a DX pile up and come away with the contact. At the time the assumption was that changing the angle of elevation and optimising it for the particular path. Now I wonder if I was putting a better signal into an ionosphere duct.

Testing time

The scientific method requires that others be able to replicate the observations. So,

1. Has anybody made similar observations?
2. Has anybody noted that they cannot copy stations being reported by locals (to them) on the PacketCluster or the DXCluster after making allowances for the differences between the receiving set ups?
3. Would more stations from Australia, New Zealand and other locations where the band occupancy is sparse start to spot DX and whether they can copy DX being reported by their locals (11).

In these early years of the 21st century, amateur radio has real-time links to various parts of the world via the Internet. As well as the DXClusters some radio amateurs have connected their stations to the Internet. This facility provides functionality that was previously unavailable. For example in the closing hours of the 2001 ARRL Sweepstakes I was at my desk

in Adelaide where it was Monday morning. I remembered about, and linked to the W4MQ station web site in Northern Virginia and made 15 contacts in the contest as W4/G3ZCZ (announcing they were via W4MQ remote) (12). I tried the link a few times later from home but was never able to work myself. With the current advent of DXClusters, Software Defined Radios and other web-interfaced radios it should be possible to set up some experiments to determine:

- (a) if the observations are repeatable under controlled conditions, and
- (b) collect data that might give us some idea of the size, shape and nature of the ducts.

It was observations by radio amateurs that opened up the high frequency bands for communications in the early days of the 20th century. If something hasn't been overlooked, then perhaps this study will show that we, radio amateurs, can still contribute to the theory of radio propagation in the 21st century. We have at least two major advantages over the professionals – (1) there are a lot more of us, and (2) we do not need to wait for research grants/funding to conceive and carry out experiments.

Summary

Over the years I have noticed that when the HF bands were open all the stations that should have been operating from the DX locations were not being heard. The assumption was that this was due to a lack of activity in the DX location. However, recently, through the use of the DXCluster technology DX spots showing that stations that could not be heard were active from a DX area when at least one station from that area could be heard. According to the ionosphere mirror reflection theory they should have been audible, even if weakly. As a result this article has postulated that the ionosphere mirror theory needs to be modified to explain the observations of missing stations. I am requesting that if other stations have made similar observations, they report their observations. The hypothesis is

that radio waves in the ionosphere are propagated via ducts or tunnels in the sky in a similar manner to the propagation of UHF and VHF in the troposphere.

References

1. Kasser, J. E., "Apartment Dweller's Antenna System", 73, Vol. (1974).
2. Kasser, J. E., Software for Amateur Radio, TAB Books, Inc., Blue Ridge Summit, PA, 1984.
3. Kuhn, T. S., The Structure of Scientific Revolutions, The University of Chicago Press, 1970.
4. Nichols, E., "Gimme an X, Gimme an O, What's that Spell? - Radio", QST, Vol. 94 (2010), no. 12, 33-37.
5. QST, "The Ionosphere and Radio Transmission", QST, Vol. (1940), no. March, 32-96.

Notes

- 1: 40 metres to 10 metres.
- 2: In Europe and the US the problem is finding a clear frequency. In other parts of the world, the problem is reversed. The problem is finding someone to talk to.
- 3: I know, I have tried calling them. CW gets through much of time, but SSB is a lost cause under those circumstances.
- 4: And very frustrating it can be.
- 5: This difference between the signal levels produced by high-power transmitting stations being called by low-power DX stations is one reason for the many 'lack of ears' reports on the DX spots.
- 6: Don't be jealous, it's frustrating because they can't hear you.
- 7: Within a single skip zone and DX.
- 8: I teach my students that if they can, they should always check the original source.
- 9: This is the scientific method. Make some observations, state a hypothesis, and look for data to support or refute the hypothesis. If experimental data refutes the hypothesis, think again and make a new hypothesis. In layman's terms – trial and error.
- 10: This situation can be seen in instances of sporadic E on 10

metres and 6 metres. I remember watching 50 MHz Band 1 TV from Jerusalem on summer Sundays in 1981 and 1982 with a simple fixed dipole. I was able to see stations from Eastern Europe slowly being replaced by others further westwards. The pattern was repeatable. In addition, late in the evening, after the local TV

station had signed off, I was often able to view the Harare TV station via transequatorial propagation mostly with multipath 'ghosts' that made the picture unviewable, but apparently did not affect the FM audio.

11: Free software can be provided.
12: I claim the first contest operation via an Internet remote site. The

time delays made the operation interesting. Earlier experience operating as W3/G3ZCZ, Silver Spring, MD allowed me to anticipate the exchanges and most of the contacts did not realize they were communicating with a virtual station.



Silent Key **Dennis St Ruth VK2RM**

Dennis VK2RM passed away in late 2011 after a short illness.

Dennis was a life member of the Blue Mountains Amateur Radio Club. He initially gained his Novice call, and then progressed very quickly to a full call.

Dennis moved to Alstonville after he retired and was soon on air. It was mandatory for any BMARC member to call in and enjoy a cuppa with Dennis and his lovely lady when they travelled north.

The call VK2RM was assumed by Dennis at the request of the widow of another Blue Mountains Amateur Radio Club member, Richard Meerstadt. He could be heard most days on one net or another, was part of the 'Northern Division' of BMARC, and our 'Net Manager'. His melodious tones, his welcoming voice and the friendship he showed to those who knew him, will be sadly missed. Vale Dennis St Ruth VK2RM.

Submitted by Daniel Clift VK2DC.



ATN Antennas

wishes to advise that it is no longer manufacturing.

Ray Naughton VK3ATN wishes to thank the amateur community for its support over the last five years.

Anybody who needs spare parts is welcome to enquire via post to:

**PO Box 80
Birchip, Vic., 3483**

TET-EMTRON

TET-Emtron's own mobile autotune.

As seen at Kyneton and Wyong Field Days.

-160 through to 6 metres. Compatible with any radio- needs DC and RF only.

-True L/C tuner can have a longwire added when portable.

-Large range of whp sizes and accessories.



www.tet-emtron.com

TET-Emtron

80 Stock Road, HERNE HILL, WA 6056

Phone: 08 9296 3224

Strengthening the Foundations: How amateur radio enhances a marriage

Rananda Rich VK2FRAR, with technical support from Alex Taverner VK2RZ



Photo 1: This all makes a bit more sense to me.

A couple of years ago the opportunity came up to do my Foundation licence. My husband was sitting his Advanced theory examination on the same weekend, so together we would be able to go along to Waverly Amateur Radio Society where the training and testing was taking place. Normally I would not have considered doing such a thing. Like sailing, amateur radio is my husband's hobby. It's not like I would ask him to write a short story, let alone accompany me to a Pilates class.

However, communication and how and why we do it seems to be driving technology and modern culture forward very rapidly these days. Everyone seems to have a mobile phone; many have more than one, me included. Apparently we now surf the Internet more than we watch TV. Everything begins with 'E': e-mail, e-zines, e-business

etc... We listen to commercial radio all day long, in the car, through our earphones while we are exercising, while we work. Becoming involved in amateur radio seemed like an ideal opportunity for me to understand more about how we communicate. Maybe at the same time I could demystify my husband's contraption-filled study and the antenna-filled balcony...

The first day of the Foundation licence course was my first visit to the Waverly Amateur Radio Society shack at Rose Bay in Sydney. The timing of the course coincided with me coming to the end of an extremely busy period at work and the evening before had seen me have a few celebratory drinks after many months of long hours at the office. My husband had left *Your Entry Into Amateur Radio* lying around for a few weeks and once even found me flicking through it

briefly. He neglected to tell me that I should have read it from cover to cover but I was only to find this out later. I was totally unprepared.

My first impressions of the club were blurred because of another big difference between me and my husband. Timekeeping. I like to arrive early somewhere, check it out, and orientate myself to the surroundings. My husband, at best, likes to be 'on time', which in this instance meant that we arrived after the introductions of the course participants had commenced. I perched at the end of a table, hastily constructed a name badge, tried to read the names of the others in the room while listening to their reasons for doing the course. Residual fuzziness from the previous evening's drinks meant I could have done with a coffee.

It was only once we were into the first module about licences that I was able to fully take in my surroundings. We were sitting in a large scale version

of a typical bloke's shed. There were wires along all the walls and ceiling, bits of paper tacked to corkboards, tools all over the place, old comfortable sofas along the edges of the room and lots and lots of fluff on the floor. It looked like termites might also be co-habitants. There were lots of 'bits and bobs' all over the place. Some were in plastic trays, some on shelves, some fastened to display plates for educational purposes and some just plain lying around. Gradually over the two days, these things transformed into baluns, BNC plugs, coaxial lines, and other items that contribute to make functioning transceivers.

We learnt about electricity – it was like being back in a physics lesson at school as we worked our way through the technical basics. The course was more thorough than I expected. I had thought that communication protocol would be a bigger part of what we would cover, but actually, practicing aside, this was relatively straightforward and I appreciated learning the rules and guidelines within which we operate. Later, I mentioned to my husband that I was worried about getting into a conversation over the radio and not being able to close it out. I'm not a great conversation starter or finisher and I could foresee myself trapped in

an endless rambling discussion. He explained that in practice this is not the case. There is an etiquette that is well developed and well used.

A large part of the course was about antenna building, testing, and, overriding everything else, safety. The number and opportunities to try different things are limitless and all of a sudden I started to recognise how a retractable metal measuring tape might be used to construct a portable antenna (the use of a slinky still eludes me to this day).

By mid-morning my enthusiasm had been wetted thanks to the natural and boundless enthusiasm of our teachers. I would have appreciated it if my husband had explained that I needed to bring a passport photo along though, as I had to spend my lunch break in Rose Bay shops seeking out someone to take a post-hangover photo of my pallid demeanour that is now permanently affixed to my certificate of proficiency.

I am glad that I got up very early on Sunday morning to go over what we had covered the day before. Throughout the two days I was thinking of the multiple choice exam looming at the end along with the practical exam and, indeed, the biggest hurdle of the whole experience was the practical exam. My husband

had explained that this was just a ten minute hands on exercise, so, as one of the last to be called in, I wondered why it was taking the other course participants so long. Little did I know, until I went in for my test, that this was no mere practical but an oral exam of the entire syllabus! I am pleased to say that I passed but boy did my husband cop an earful on the way home about 'setting expectations'. He had an excuse – the examination process had changed since he did it a few years ago...Huh.

I am very proud of my certificate and of receiving my licence. I am pleased that I know how not to get electrocuted when converting electricity into radio waves and vice versa. I can discuss what's for dinner over the transceiver in the car on my way home – and I do not mind who listens in. I now have half an idea about what is going on in my husband's study.

It is said that the key to any strong relationship is communication. So this takes on a double meaning in our marriage now. Not only can we literally communicate with each other in a new and interesting way but I understand and share another common interest with my husband and the foundations of our marriage have been further reinforced.



VK5news

Christine Taylor VK5CTY

Adelaide Hills Amateur Radio Society (AHARS)

As usual the holiday months are mostly devoted to social activities but AHARS is certainly looking forward to the new venue for their meetings.

The club picnic in January was attended by over 70 people and although it was a hot day, the breeze and the company made it a very pleasant day.

During the Australia Day weekend the Club's assets were moved from the Belair Community Centre to the Blackwood Senior Citizens' Centre ready for the first meeting there on the

third Thursday in February, the 16th, starting at 7.30. All are welcome.

This will be the AGM and after supper we will have a short talk by Steve VK5AIM on the 'History of Vacuum Tubes (Valves)'. There will be a display of some of the different types of valves which should be of particular interest to the younger members, some of whom have possibly never used or seen valves. For the older members there will likely be many conversations that start with, 'I used one of those when I made my ...' or 'I remember a set I had some years ago that used those valves'.

The Shack will continue to be open on the second and fourth Saturday mornings for some socialising and on each of the fifth Saturdays for a club breakfast. The first breakfast will be in March.

The usual luncheons at the Blackwood RSL will be held on the second and fourth Fridays, members and partners are welcome.

The only official photographs taken at the picnic were of Christine VK5CTY sharing some of the single malt whiskey she had won at the Christmas dinner!



A one metre diameter magnetic loop for 14 MHz

Jim Tregellas VK5JST

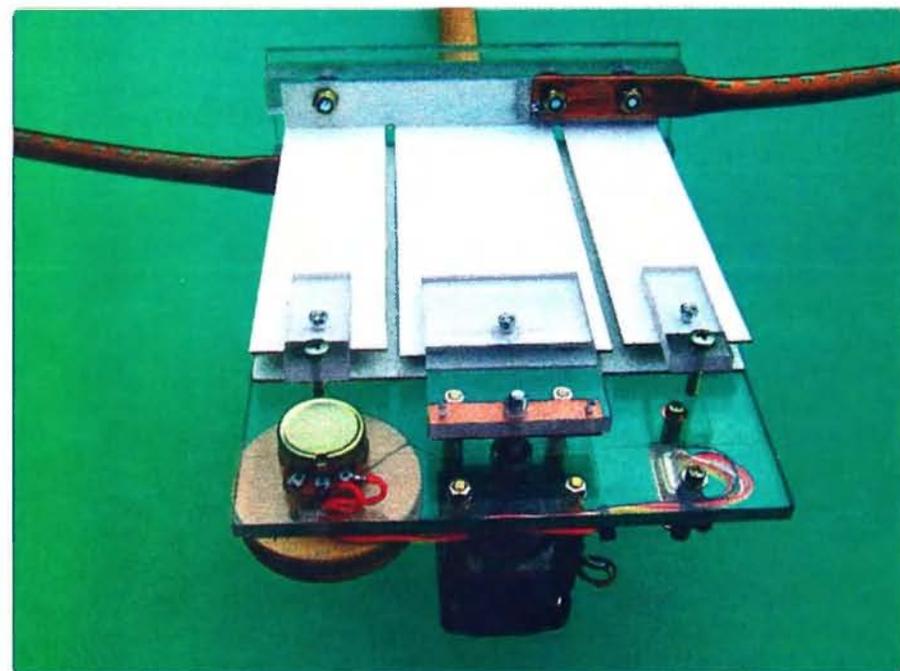


Photo 1a: The capacitor and stepper motor assembly.

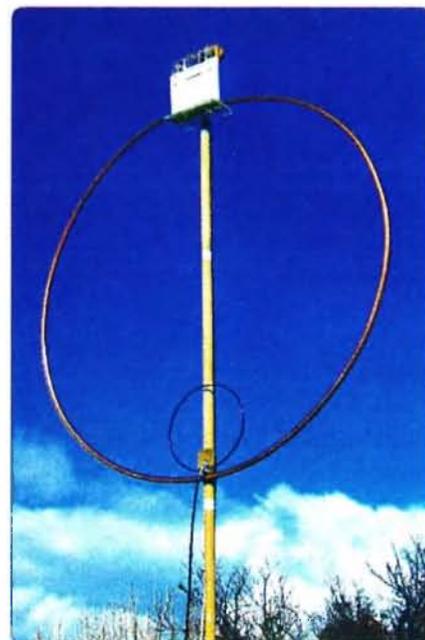


Photo 1b: The capacitor and stepper motor assembly.

Here is another design for a magnetic loop, and this time it is a 0.16 wavelength unit for the 20 metre band. Carefully built, it offers an efficiency of around 50% and will equal or better the performance of a half wave dipole. It will do this at a height above ground of three metres or more and in common with all loops has a very low radiation angle making it great for DX. This loop can be remotely tuned, and continuously operated at 100 watt power levels. It is intended to be installed out of the weather and out of sight under a non metallic roof and makes the perfect stealth antenna.

The theory

Reference should be made to my previous article (Reference 1), in which the theory behind the design of a magnetic loop and the selection of materials is covered in near exhaustive detail. This loop uses an identical approach, and also uses

the same controller circuitry and so there is no point in repeating this information.

The only significant differences between the two designs lie in the way the ultra low loss tuning capacitor is built and in the fact that 12.7 mm (half inch) copper water pipe is used for the main loop conductor.

Dealing with this last point first, at 14 MHz and above it is absolutely vital that the main loop conductor has a very smooth surface. The depth of the 'skin' in which the RF current flows on the outside of a conductor decreases rapidly as the frequency rises, and so it is simply not possible to use rough materials like the outer sheath of ordinary coaxial cable (e.g. RG8 and RG213) without incurring losses which are totally unacceptable. Because skin effect forces the current to remain on the very outside surface of a conductor, these large losses result

from the RF current having to hop from one strand to another in the sheath, as each strand disappears under another in the weaving. The result is a huge drop in the operating Q of the loop and a similarly huge drop in radiation efficiency. Of course, the outer sheaths of expensive and flexible coaxial cables such as LDF4-50 and LDF5-50 are still good propositions, but from a cost point of view are not as attractive as ordinary copper water pipe, which was used in this design. Despite the recent large increases in the price of copper, the 3200 mm length of water pipe used still results in a cheap antenna.

The design of the variable capacitor is novel, and relies on the fact that the operating frequency of the antenna only needs to be tuned from 14.0 - 14.35 MHz. This is a 2.5% frequency change, or just a 5% capacitance change, and so a simple, very low loss and high

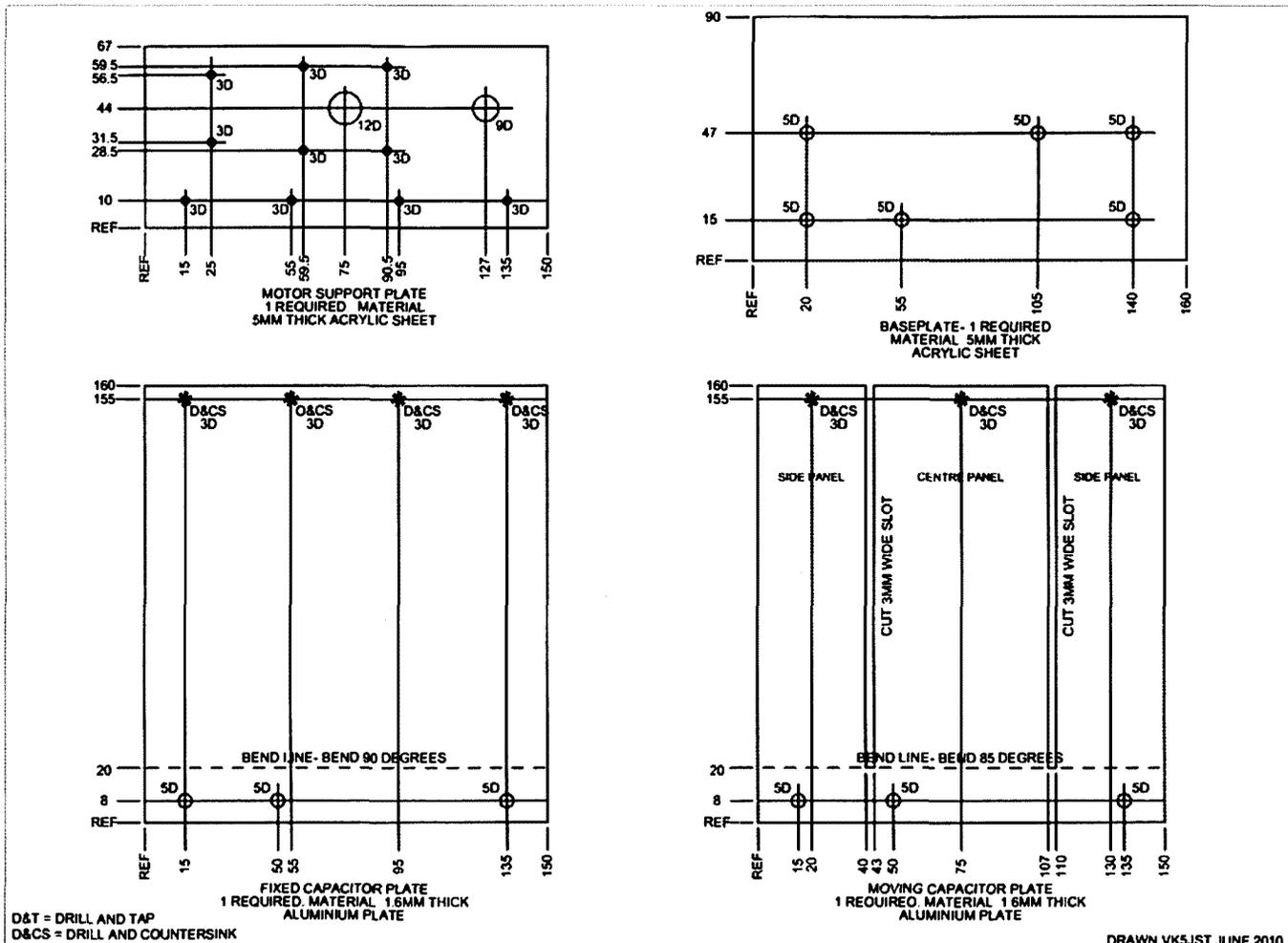


Figure 1: The technical drawing for the various aluminium and acrylic plates used in the magnetic loop antenna.

current tuning capacitor can be designed by arranging to move its two plates slightly apart to vary the capacitance.

In fact, in this design, one of the two capacitor plates is split into three sections, and it is only the central section of this plate which is moved in and out under the control of a stepper motor to vary the operating frequency. The outer two sections of this plate are adjusted during the setting up process for the antenna but thereafter remain fixed in value.

The inter-plate spacing has been chosen as 5 millimetres minimum, meaning that the capacitor structure will happily cope with peak voltages of 15 kV, or RMS voltages of 10.5 kV. This is considerably in excess of the requirements for operation of the antenna at 100 watt power levels, but it is nice to have some margin up your sleeve for the inevitable day when some six or eight legged

Australian beastie crawls into the capacitor air gap.

Building the antenna

To make construction easy, one needs access to a good circular saw, a bench drill, and a flycutter. And of course the usual marking out tools, including a good square, a sharp scribe, and a centre punch. All of the parts detailed in the drawings should be carefully made up. A little cunning is in order, and the capacitor plates should be made first. These can then be used to check your marking out on items such as the acrylic bottom spacers and base plate, and the plate on which the stepper motor and 1 kΩ linear feedback potentiometer are mounted. Note that the flange on the fixed capacitor plate should be bent at 90 degrees, while the flange on the moving plate should be bent at 85 degrees. This ensures that due to

the tension of bending, the stepper motor will always determine the position of the central section of this plate. Note that provision has been made on the motor plate to mount a DB9 connector on 12 mm long spacers. All motor and potentiometer connections should be terminated on this connector.

When assembling the capacitor plates and spacers to the base plate, space the bottom of the two capacitor plates exactly 5 mm apart using a temporary spacer.

Do not omit the spacers between the flanges of the capacitor plates and the base plate. During initial testing, a rapid drift in SWR was observed during long overs. This was traced to heat build up in the acrylic base plate, caused by its immersion in the intense electric field existing between the lower edges of the two capacitor plates. This heating caused a change in capacitance which

detuned the antenna and raised the SWR. Adding the two spacers totally fixed this problem. Note that the operating Q of this antenna is around 850, giving a 3 dB bandwidth of about 16 kHz. This figure is really only relevant to receiving mode, because under transmit conditions, the antenna tuning only needs to vary about 3 kHz to seriously upset the SWR and so the temperature coefficients in the loop need careful control.

To form the main loop, the 3200 mm length of 12.7 mm (half inch) copper water pipe should be bent into a circle using a temporary jig. I used an old bicycle rim to which I firmly taped one end of the copper pipe. I then rolled the rim along the ground to form a slightly small but perfect circle of tube. This was opened out by hand to the 1 metre diameter required, and I then

flattened both ends of the tube in a bench vice over a distance of 65 mm. These flattened areas were then drilled with holes 35 mm apart to match the holes in the flanges of the capacitor plates.

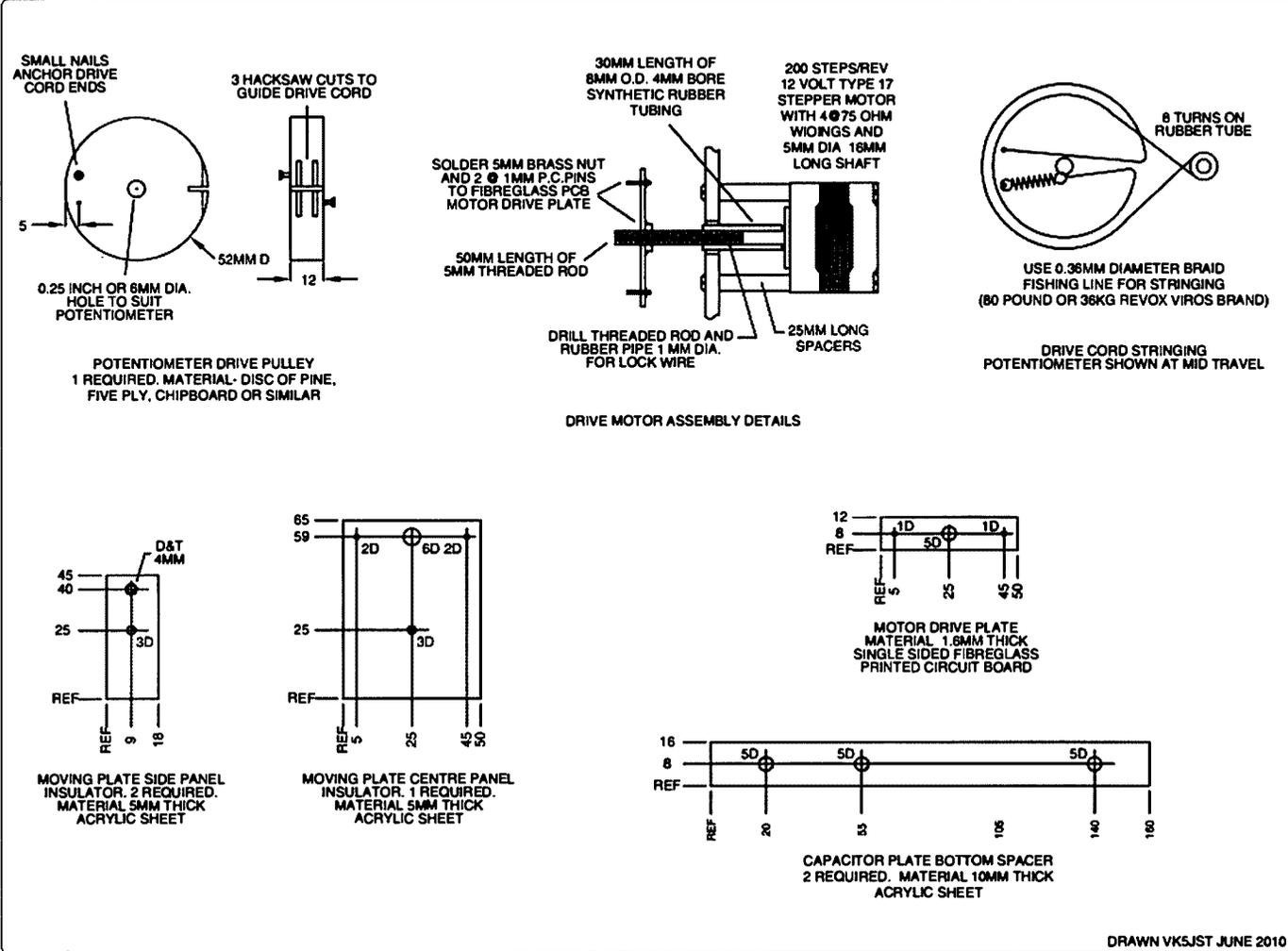
Note how drive from the stepper motor drive screw is transferred to the centre section of the moving capacitor plate. The piece of synthetic rubber tubing acts as a simple universal joint and the piece of printed circuit board with its two drive pins accommodates the bending of the capacitor plate as it moves back and forth.

Stringing the drive from the stepper motor may try your patience but it is worth persisting. Note the eight turns around the motor shaft. This, together with a piece of wire which passes through the rubber tube and drive screw ensures that there will be absolutely no slippage in

the potentiometer drive mechanism. Start your stringing on the nail on the potentiometer pulley closest to the motor support plate, which will allow you to finish your stringing (with tensioning spring) on a nail you can easily get to on the other side of the potentiometer pulley. Follow the diagrams closely. When you have finished, set your potentiometer to mid travel with the drive pulley in the position shown in the diagram and then lock the wooden pulley onto the potentiometer shaft with a dab of Araldite or similar. Alternatively, a small self tapping screw can be screwed into the gap between the flat on the potentiometer shaft and the pulley.

Make up the circular coupling loop from a 640 mm length of copper wire of around 2.5 mm diameter (or copper gas or hydraulic tube). As shown in the photos, position this

Figure 2: Technical drawings showing the drive motor assembly details, and capacitor and motor drive plate construction details.



DRAWN VKSJT JUNE 2010

at the bottom of the main loop at the current maximum opposite the tuning capacitor.

Finally, fabricate the control electronics as detailed in the previous article for the 80 metre loop in *Amateur Radio* magazine (Reference 1) and make up all interconnecting cabling.

Setting up

At the top of the capacitor, adjust the gap between the fixed plate and the central section of the moving plate to exactly 5 mm. This can be easily done by pulling the central section of the moving plate backwards, allowing the stepper motor drive plate to be spun up and down the drive screw. The potentiometer should be at one end of its travel when you do this. Using the adjusting screws provided on the top of the two outer sections of the

moving plates, adjust the antenna to resonance at 13.95 MHz. Try to equalise the two air gaps when doing this and keep your body well away from the loop to eliminate the effects of stray capacitance. The very high Q resonance will be difficult to find and you will need to tune your antenna analyser very carefully indeed.

Alternatively you can look for the noise peak on a general coverage receiver.

Next, use the potentiometer and its motor drive to move the central section of the moving plate outwards and check that the antenna resonates beyond 14.35 MHz. The stepper motor will move through approximately five turns. If the SWR is not quite optimum, it can be adjusted by stretching or flattening the coupling loop, and/or by slightly overlapping the main and driver loop conductors.

To ensure that the cabling to the stepper motor and feedback potentiometer has no effect on the loop resonant frequency, run it horizontally away from the motor for about 600 mm and then drop it vertically. I used some shielded six core computer cable I happened to have which is readily available (Altronics W2710, Jaycar WB-1875). Because the motor windings are 75 ohms and only draw around 120 milliamps each, very long runs (50 metres) of control cable will have no effect on operation of the system.

Good DXing.

References

1. Building an 80 metre magnetic loop for your attic, Jim Tregellas VK5JST, *Amateur Radio*, July & August, 2011.

Silent Key

Don Graham VK6HK

VK6HK Don built and operated amateur radio station VK6HK after gaining his licence in 1951. Apart from his HF activities he was renowned for operation on 50 MHz as well as VHF, UHF and microwaves to 10 GHz. The development of the adjacent property with 2 two storey houses cramped his 6 and 2 metre activities in his final years. However he was one of the few Perth amateurs to work into South Australia and Victoria on 144 and 432 MHz. Don died on 13 January 2012.

Don was a Foundation Member, President for a number of years, Life member and Trustee of the WA VHF Group. He was the engineering genius behind the Group's state-wide beacon network. The first beacon was established to help research on the propagation of radio waves in the International Geophysical Year 1957. At the time of his death he was working with Andrew Martin VK3OE and Phil Harman VK6APH and others in the development of a software controlled digital identification

system, a chirp radar that has world-wide significance.

He was also a founder of the Perth Amateur Television Group, constructing the ATV repeater located on the Darling Scarp (since de-commissioned).

Apart from these, Don was a member of the WIA, a contributor to *Amateur Radio* magazine, a member of the WA Repeater Group and resurrected radio equipment for the Air Force Museum at Bull Creek.

Following National Service in the RAAF as a Wireless Maintenance Mechanic, his first job was at the Department of Civil Aviation (DCA). In 1960 he decided to further his education by starting a communications engineering degree at the Western Australian Institute of Technology (now Curtin University). By then juggling full time work at the PMG Department, and a young family, alongside his studies, it must have taken a lot of determination - and he successfully graduated in 1967.

He joined the Australian Broadcasting Control Board in 1970 as the Assistant

State Broadcasting Engineer, working on technical regulation and site planning later becoming the WA State Broadcasting Engineer for the Department of Transport and Communications for many years prior to retirement. He was regarded by the broadcasting industry as a fine engineer with an excellent understanding of broadcasting equipment, communications systems and radiofrequency propagation.

Don has left a lasting legacy and he has one final message for us amateurs. He showed his appreciation for the love and support of his wife Patricia by culling his "junk", indicating the likely sale value of his equipment and leaving advice on how to dismantle his tower. We should do similarly for our loved ones.

Wally Howse VK6KZ

DX-News & Views

John Bazley VK4OQ

e john.bazley@bigpond.com

Well, what a start to 2012, with DX 'aplenty'. At the time of writing, there is activity from HK0/M, VP6, TN2, C21 and T32 – not forgetting Trevor VK0TH on VK0/M.

Trevor VK0TH, in an endeavour to give out as many QSOs as possible before leaving **Macquarie Island** in April, has really suffered terrific QRM from stations continually calling on his frequency. He is now limiting his activity from 0700 to 1200 UTC. He has relocated the multi-band vertical to the 'top of Ham Shack Hill' and also put up a broadband dipole. In the last few weeks he has worked some 2,500 QSOs on the vertical and his total number of QSOs is over 8,000. Trevor is active on SSB, CW, PSK, RTTY and Hell. Kevin VK0KEV is now back in Australia having completed his tour of duty. All QSLs for both Kevin and Trevor are via JE1LET.

Another DXpedition has just been announced to 3C, **Equatorial Guinea**, and 3C0, **Annobon Island**, set for February-March. Departure from Spain is scheduled for February 21 but a departure on February 14 is still a possibility. 3C6A will be from Bioko Island, Equatorial Guinea, and 3C0E will be from Annobon Island. Consecutive operations apparently!

The two operators will be Elmo EA5BYP and Javier EA5KM. They will be equipped with a pair of Yaesu



Photo 3: The VP6T gang, with host Betty VP6YL, from L-R: Nigel G3TXF, Betty VP6YL, Vincent F4BKV, Jacques F6BEE and Michel FM5CD, on Pitcairn Island.

rigs and an Icom to a Spiderbeam and Hexbeam, each for five bands, with kilowatt amplifiers. For 160-30 they will have verticals. They hope to meet the demand for contacts on 160 metres and will announce a day ahead a special night of 160 metre. The emphasis here is waiting for a night of promising propagation, with low noise. Also available will be at least one Beverage receiving antenna and a five element Yagi for six metres. The operation will be expensive and the operators welcome financial support. QSL direct with self-addressed envelope and enough postage to cover the

have a few stations on the air simultaneously from **Tonga** during the period 7 to 24 March, with the call A35YZ, with operations on 160-6 m CW and SSB, plus one station dedicated to digital modes and SSTV. <http://dl7df.com/a35yz/>

Gerard F2JD will be departing for Copan, **Honduras** on February 2. Listen for HR5/F2JD to be QRV on all bands and modes until May 6. He will have an online log at <http://lesnouvellesdx.fr/voirlogs.php> QSL via F6AJA.

3D2YA from **Fiji** will be active from 15 to 21 March, with Yoshida JA1NLX operating. He plans to be on Yageta Island, OC-156, on 80-10 m CW, with

return QSL. That should be two US dollars or two IRCs or, within Europe, one US dollar or one IRC. The log will be put on LoTW a few months later. QSL via EA5BYP. The website can be found at <http://www.gdgdx.net/3c0e/> Sigi DL7DF and nine experienced operators will

Photo 1: Trevor VK0TH in his Macquarie Island shack.



Photo 2: Trevor VK0TH out and about on Macquarie Island, with a few of the locals in the background.



possibly some RTTY and SSB. QSL via JA1NLX. Every QSO will get a bureau card and the log will be put on LoTW when he is back in Japan. <http://ja1nlx-aki.blogspot.com>

John AD8J will be a scuba tour guide first and operate amateur radio second from Little Cayman, **Cayman Islands** from 1 to 10 March. He will be using an IC-746PRO and signing ZF2AG/ZF8 on 20-10 m CW and SSB. QSL via AD8J either direct, via the bureau or LoTW.

The 10-15 March TX5Q operation from **Clipperton Island** has been cancelled 'due to unforeseen problems with logistics and costs. We will plan to carry out a major DXpedition to Clipperton in early 2013. If you are interested in the project, please contact 'KK6EK at cordell.org'.

Plans for a DXpedition to **Layang Layang, Spratly Islands** are developing. A large team of operators from Malaysia, Japan and England, divided up into three groups, is expected to be active as 9M0L indicatively between 5 and 17 April. A website is under construction at <http://9m0l.legendchew.com/>

'The 3D20CR crew is on tour again!' E51M is the callsign for their **Manihiki, North Cooks**, operation from 28 March to 10 April. Operators will be DJ8NK, DJ9HX, DJ9KH, DK9KX, DL6JGN, PA3EWP and SP3DOI, on 160-6 m CW, SSB and RTTY. The flights are booked and paid for and all the equipment except transceivers is already prepositioned on Manihiki. There will be 11 vertical antennas and a four element beam for six metres. The table top gear will be Elecraft K3s with 500 watt amps. The log will be on LoTW 'in due time'. There will be no internet connection on the island, so there will not be an online log. They have a web page: <http://manihiki2012.de/>. To offer financial support, contact them at <http://manihiki2012.de/help.html>

QSL direct or bureau to DJ8NK, Jan B.B. Harders, Kalckreuthweg 17, 22607 Hamburg, Germany. Online QSL requests for bureau and direct cards can be made after 20 April at <http://manihiki2012.de/OQRS.html>

V21FS is the **Antigua** callsign for Babs DL7AFS, while Lot DJ7ZG

has the callsign V21ZG for their operation that starts 5 March. They will be there for 'a few weeks'. They say they will focus on 15-6 m and will make a special effort to look for Japanese and QRP stations. Their QTH is the Villa Sundowners near the Pottery Village. QSL to DL7AFS or via the DARC QSL bureau. www.qsl.net/dl7afs/

5H3MB in **Tanzania** will be active from 4 March to 4 April. Maurizio IK2GZU will operate, while he is there, at the 'Mission Ilembula' doing work at the new hospital and orphanage. He will do some HF operating with his own FT-100 rig and the TS-850 that belongs to the mission. There is a tribander fixed on Europe and a vertical and dipole. The mission is 800 kilometres south of Dar es Salaam. He will put the log on LoTW when he is back home. QSL via IK2GZU.

Susan W7KFI has postponed her planned KH3 **Johnston Atoll**. The US Fish & Wildlife Service, that controls the island, is requiring that she pull her boat out of the water and scrape and repaint the hull. The boatyard was not available to do the work immediately. Departure from Hawaii will be sometime in February 'at the earliest'.

Randy N0TG and Jeff N1SNB plan to be QRV from the **US Virgin Islands** as NP2/N0TG and NP2/N1SNB from March 7 to 14. QSL both via N0TG.

Take JG8NQJ returned to **Minami Torishima Island** during January where he will stay for three months working at the weather station. Plans are to begin operating on the air about a week later, after he builds and installs his antennas. 'He will operate mainly CW and some SSB, no RTTY this time' says Toshi JA1ELY. In order not to interfere with the weather station equipment he will not be able to run high power, therefore he will be running 50 watts. A three element Yagi will be used on 20, 15 and 10 metres and dipoles for all other bands, except 80 and 160, where there is presumed to be no activity. While on the island there can be no personal use of the Internet, so Take will be mailing his log monthly

to his QSL manager JA8CJY. Direct cards only go to: Susumu Sanada: 5-17, 5 Jyo-4 Chome, Shinei, Kiyota, Sapporo, JAPAN 004-0835. Bureau requests should go via JG8NQJ, not JA8CJY.

Dave VO1AU has just finalized his 'travel arrangements' to the Henga Lodge on **Chatham Island (ZL7)**. Plans are to be there from March 8 to 13, including the BERU contest.

Sergiy UV5EVJ (ex 5X1VJ) has announced plans to be working with the UN at the Monusco mission from the **Katanga province in the Democratic Republic of Congo (9Q)** starting March 12 through May 9. Plans are to be QRV on 3.5 through 28 MHz on CW and SSB in his spare time. His callsign is yet to be announced. QSL via UV5EVJ either direct or via the Ukrainian QSL Bureau.

QSL 3B8FA - Patrice 'Pat' Momphe 3B8FA has been inactive for a long time and is now QRV again from **Mauritius**. He has chosen Buzz NI5DX, as his QSL manager. He will be able to confirm only contacts made with 3B8FA from 23 January 2012 onward. Buzz will be designing a card and having it printed; it will take about five weeks for him to receive the cards from the printer.

R1MV - **Malyj Vysotskij**. This 'country' will no doubt become 'DELETED' sometime in mid-February. It became a 'new country' in 1988 and saw several DXpeditions over twenty years or so. The 'lease' by Finland, from Russia, was due to expire in 2013. After re-negotiation and all the diplomatic things were completed, the necessary documents were signed and exchanged January 17. The new agreement was to take effect one month later, on February 17.

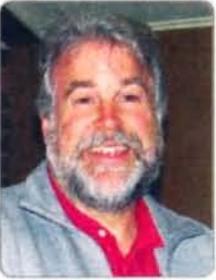
Good luck in the pile-ups until next month.

Special thanks to the authors of *The Daily DX (W3UR)*, 425 *DX News (1JQJ)*, *QRZ.DX* and *JE1LET* for information appearing in this month's *DX News & Views*. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from www.dailydx.com/trial.htm



VHF/UHF - An Expanding World

David Smith VK3HZ
e vk3hz@wia.org.au



Weak Signal

After the spectacular end to the year, January began with a bang but then ran out of steam as conditions rapidly fell away. However, before we get to the New Year, I received a number of reports from people about the final day of 2011 that are worthy of inclusion.

Kevin VK4UH, west of Brisbane, reports that after being alerted by a phone call from Colin VK5DK, he briefly(!) left a houseful of guests and the preparations for a New Year's celebration and worked VK5DK, VK3HY, VK3KH, VK3HZ, VK3BDL, VK3BBB, VK3OER, VK3LY, VK3BJM, VK3EJ, VK5NY, VK5PJ, VK3AMZ, VK5AKK, VK5JG, VK5ZK, VK5NZ, VK3MIR and VK5CP/p.

Ron VK4BRG near Bundaberg reports: *I worked stations from 0158 to 0514 UTC - a duration of 3 hours 16 minutes, which is far in excess of anything I have previously experienced. Stations worked included FK8IA on both SSB and FM, 1 each VK1 and VK7, 3 x VK2, 15 x VK3 and 5 x VK5. The opening was even more remarkable as far as I was concerned as I was running 100 W to just a 5/8 vertical, 3.5 m high on my garage roof!*

From Colin VK5DK: *My first contact was with VK4KR at 0220Z. In all I managed to work 21 VK4 and four northern VK2 stations. They were in order of contacts VK4KR, VK4JF, VK4ACE, VK4OX, VK2XW, VK4IBR, VK4ZAA, VK4KKY, VK2XN, VK4VDX, VK4MJF, VK2FZR, VK4ARN, VK4QSY, VK2PB, VK4ADC, VK4KSY, VK4NWH, VK4NE, VK4UH, VK4CDI, VK4HJ, VK4FPFH, VK4BRG and VK4BLK.*

To complete the evening I was able to work Joe VK7JG, Winston VK7EM in northern Tasmania, Nick VK3VFO in Morwell, Ross VK3MY in

Melbourne and, after over 48 years of trying, I was able to work Bob ZL3TY at 1055Z on Tropo. Bob was on CW (5/2/9) and I was on SSB with 5/2 reports exchanged.

So, on to 2012.

Following on from the previous column, New Year's Day had Bob ZL3TY busy working stations up and down the east coast via tropo – as far west as Andrew VK3OE in Melbourne.

On January 2nd, good conditions across to ZL continued with Nick ZL1IU, Steve ZL1TPH/P and Bob ZL3TY working across to VK2 and VK4 stations on both 2 m and 70 cm.

The 3rd of January brought the most spectacular day of propagation that has been experienced in many a year – many say it was THE best. From about 2300Z to 0330Z, an Es cloud over the Tasman Sea produced a huge opening on 2 m across to New Zealand. The opening covered all of NZ and extended west to Adelaide and beyond. Stations from VK1, 2, 3, 4, 5 and 7 on one side worked ZL1, 2, 3 and 4. A plot of the contacts logged on the VK Logger is shown on Figure 1.

At times signals were so strong that stations in Melbourne with only a dipole or a vertical whip were easily able to work into ZL. There were so many stations on that 2 m was, at times, like 20 m on a busy day.

Brian VK5BC, who was portable



Figure 1: Two metre contacts on 3rd January 2012 from 2200Z to 0400Z.

at Corny Point on the southern end of the Yorke Peninsula, worked what could be termed a quadrella of stations - ZL1TPH/p, ZL2WHO, ZL3TY and ZL4PLM. At 0107Z, he also worked Dave ZL2OK on the far side of the north island for possibly the longest distance for the day – 3493 km – and a new VK5 distance record.

Colin VK5DK in Mt Gambier was also having a busy time. He writes: *I was working some very unusual propagation on 50 MHz with very strong backscatter signals into the Melbourne area, all the while checking on 144 MHz. At 2350Z, I heard and worked ZL1TPH/p, which was the beginning of a three hour Es opening to ZL from this QTH. The following ZL stations were worked in order of contacts: ZL1TPH/p again worked at 0001Z at 5x9 then ZL1TBG 5x9, ZL2WHO 5x5, ZL3TY 5x9, ZL3AAU 5x5, ZL3NW, 5x7, ZL3ADT 5x7, ZL4PLM 5x5 and concluded with ZL3MH 5x5 at 0307Z.*

Tony VK5ZAI reports that his best contact on 2 metres was 3122 km with Mark ZL2WHO in Palmerston with 5x7 reports both ways. Other 2

metre contacts were with Bob ZL3TY and Ross ZL3ADT.

Steve ZL1TPH spent four days portable at Cape Reinga (RF65) at the top of New Zealand. He had two days of 2 metre Es and three days of tropo. During that time, he logged 86 contacts to 46 different stations. Highlights were working VK5BC/p, VK5NY and VK5DK on Es, the many VK3 stations on Es and also five stations worked on 432 MHz from VK2.

Ron VK3AFW reports: *Having missed out on the big VK4/2 to VK3/5/7 Es on 2 metres in late December, I was pleased to have a compensation prize this morning (3 Jan), six countries on 6 metres and then six ZLs on 2 metres with as many heard but not completed with. I also worked VK5s from Mt Gambier to Cory Point at good strength on backscatter on 6 metres.*

ZL3TY for 10 minutes was showing all green and two red LEDs on my guess meter, others giving similar reports. He qualifies as the loudest ZL heard in Melbourne. He must have worked 30 VK3s during the best hour. Some operators I had presumed were deceased showed up. A couple of VK3s used simple vertical whips to work into ZL.

Most stations came up out of the noise for a short time before sliding back, repeating this several times during the opening. The footprint moved around with stations only a few km apart having quite different signals. All typical Es.

Not to be outdone the VK7s and VK5s managed a number of 2 metre ZL contacts. Of course, the coastal VK2s and VK4s had some tropo with perhaps some Es.

Needless to say, January 3rd 2012 will be talked about for many years. The rest of January, however, is another matter. Conditions dropped back to 'normal' with only a few brief Es openings between VK1/2/5 and VK4 on January 8th, 10th and 11th.

Across the Bight, the VK6REP beacon was being heard regularly in Adelaide, but no contacts were being made.

On the morning of January 19th, Norm VK7AC managed to work into

Adelaide (1010 km) on 70 cm having contacts with VK5ZK, VK5AKK, VK5TH and VK5ACY.

January 25th brought more good conditions across the Bight – this time with a number of contacts. At 2145Z, Jim VK3II worked Ron VK6VOX (2560 km). That afternoon, Wally VK6WG made an appearance working Colin VK5DK, Chas VK3PY, Graeme VK3GL and several Adelaide stations on 2 metres. On 70 cm, he also worked Colin and Brian VK5BC. Bob VK6BE was also on air working Ian VK3AXH and a number of Adelaide stations.

Colin VK5DK again reports: *I heard a signal on 144.100 with the antennas beaming east. It turned out to be Wally VK6WG calling from Albany in WA (2071 km). We were able to complete a good QSO with signals peaking to S9 both ways. A contact on 70 cm was completed at 0629Z with signals from Wally at S9+20 db. An attempt on 23 cm was made, but although Wally received my signals quite well he was having trouble transmitting on 23 cm, so no two-way contact was made. The VK6REP Esperance beacon on 144.5665 MHz had been peaking to S7 at my QTH.*

It is a pity that there is no beacon operational at the present in Albany – both the 2 metre and 70 cm beacons are off air, reasons unknown at this stage.

And so January came to a close with only a whimper compared to the spectacular opening on the 3rd.

Vale Don Graham VK6HK

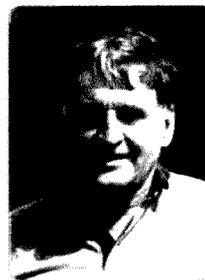
Sad news during the month was that VHF/UHF legend Don Graham VK6HK passed away on January 13th. Wally VK6KZ writes: *Don was one of the major drivers of the West Australian VHF Group state-wide system of VHF/UHF and microwave beacons. His understanding of*

the bureaucratic requirements for licenses together with engineering knowledge and skills were among his key contributions.

Much of his station was constructed by him and his operating techniques were a model for others to copy. His current activities were in the digital world helping Andrew Martin VK3OE and Phil Harman VK6APH develop hardware and software for a world leading chirp radar beacon.

He will be sorely missed!

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au



Digital DX Modes

*Rex Moncur
VK7MO*

10 GHz Grid Square Tour

During January, 2012 Rex VK7MO activated some rare grid squares on 10 GHz as set out in Table 1.

QF57 was activated from Bald Mountain on the property of Tom Burt VK2TB – thanks to Tom for providing such a great location. See Photo 1.

Photo 1: Operations from QF57 Bald Mountain near Mudgee, NSW. Tom Burt VK2BT features in the photo.

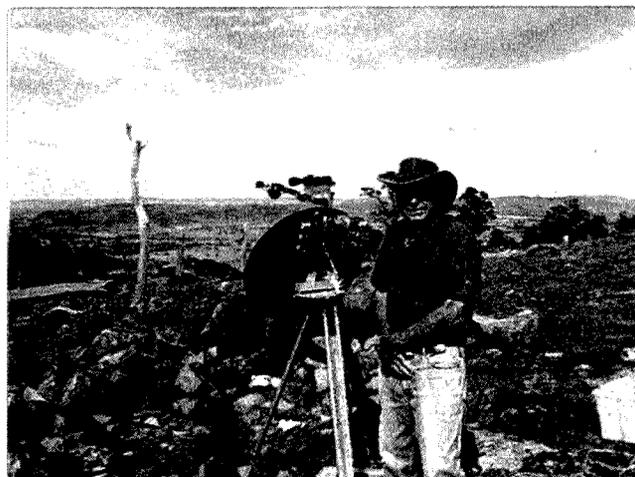




Photo 2: Operations from PF86 near Cleve, South Australia, with Jim Walford in the photo.

The location at PF86, near Cleve SA, was identified by Jim VK5JW who also participated. See Photo 2.

It was noted that the troposcatter contact with VK5DK from PF85 was spread around 60 Hz (typical of long distance troposcatter on 10 GHz) whereas the tropoducting contacts from PF75 with VK5DK and VK3HZ showed no spreading. This feature of tropoducting should provide a useful advantage when using narrow bandwidth modes such as JT65. It is also noted that aircraft scatter causes no significant spreading giving it an advantage over troposcatter with narrow bandwidth modes. These features of tropoducting and aircraft scatter suggest that such modes will have even greater benefits at

24 GHz and higher frequencies.

An issue with aircraft scatter is the Doppler shift, with JT65 requiring the aircraft to cross at no more than 10 to 15 degrees whereas the wider bandwidth mode ISCAT-A allows the aircraft to cross at right angles – but has about 8 dB less sensitivity.

The digital contacts from PF86 and PF75 to VK3HZ resulted in new national digital records at 832 km and 843 km and the SSB contact from PF75 to VK3HZ a new VK3 record. There is some evidence that the longer distance aircraft scatter contacts are assisted by improved tropoducting conditions as indicated on the Hepburn charts and if this proves to be repeatable offers the prospect of making longer aircraft scatter contacts.

(Rex did manage to attract quite a deal of interest during his operations at Port Lincoln. One person filming a time-lapse of the dawn view from the lookout was intrigued enough to film an impromptu interview that was immediately uploaded to YouTube: <http://www.youtube.com/watch?v=tHU85RHURGs>

The local press also interviewed Rex:

<http://www.portlincolntimes.com.au/news/local/news/general/record-set-at-winter-hill/2430604.aspx>

All very good publicity for our hobby).

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

The Magic Band – 6 m DX

Brian Cleland VK5BC

As reported in last month's notes, the first few days of January were very exciting on 6 metres with a great opening to W5 on 1st January followed by openings to central America, XE, TI5, HP3 and OA4 on the 2nd and 3rd. Roger VK2ZRH has produced a great analysis of these openings as follows:

Spectacular Trans-Pacific 6 metre event 2-3 January, 2012

Six metre propagation put on a spectacular performance over the first couple of days of the New Year for six metre operators on either side of the Pacific, in both northern and southern hemispheres.

Grid	Location	Station	Station's Location	Mode	Propagation	Distance	Rpt Sent & RXed
QF57	Bald Mt NSW	VK3HZ	Near High Camp Vic	ISCAT-A JT65c	Aircraft Aircraft	715 km 715 km	-12, -20 -17, -20
QF29	Tilpa NSW	VK3HZ	Mt Macedon Vic	ISCAT-A	Aircraft	721 km	-20, -11
PF84	Tourbridge Hill SA	VK3HZ	Balwyn Vic	JT65c	Aircraft	728 km	-17, -19
PF85	Near Yorketown SA	VK5DK	Mt Gambier	JT65c	Tropo-Scatter	446 km	-17, -14
PF85	Near Ardrossan SA	VK3HZ	Mt Macedon	JT65c	Aircraft	699 km	-25, -17
QF53	Narooma NSW	VK3HZ	Near High Camp Vic	JT65c SSB	Aircraft Aircraft	482 km 482 km	-15, -13 5/1, 4/1
PF86	Near Cleve SA	VK3HZ	Mt Macedon	JT65c	Aircraft	832 km	-19, -25
PF75	Port Lincoln SA	VK5DK	Mt Gambier	JT65c	Tropo-duct	568 km	-19, -15
PF75	Port Lincoln SA	VK3HZ	Mt Macedon	JT65c SSB	Tropo-duct Tropo-duct	843 km 843 km	2/1, 3/1 -14, -15

Table 1. QSOs on 10 GHz, January 2012, grid square tour.



Figure 2: A spectacular day on six metres!

The snapshot map in Figure 2 above, created from VKLogger spots by Adam VK4GHZ, gives an overview. Intense Es openings around Australasia over 2-3 January UTC bloomed into transequatorial propagation to north and central America, and a surprise – long-range Es between Peru and VK/ZL.

As reported in the Jan/Feb issue of *Amateur Radio*, on New Year's day (VK time), 6 metres was open to FK8 from 0005 UTC, a foretaste of what was to come. From 0020, stations in EM00 Texas – W3XO/5, W5OZI and N5TSP – worked VK2, VK3, VK5 and VK7; K5RK in EL29 joined in and the XE2HWB/B beacon was heard in VK5. The opening lasted nearly two hours.

But the next day (2nd and 3rd UTC) was even better. Six metres opened from 0000 UTC to Costa Rica and Panama. TI5XP (EK70NM) worked into VK2, VK4 and VK5. TI7/N5BEK (EK70CK) worked into VK4, VK5 and VK7, followed by TI2KI/8 (EJ79) into VK2. HP3TA in Panama (EJ88) worked into VK3 and VK5. XE2HWB worked into VK2 and VK3. In the midst of the action, the previous day's US stations in EM00 worked into VK2, VK3, VK5 and VK7, picking up ZL contacts along the way. All these contacts, and those the day before, were clearly Es-extended, skewed-path transequatorial propagation (TEP).

Over the South Pacific end of these paths, Es provided the extra skip between the southern equatorial ionospheric anomaly (EIA). The ionosonde on Niue Island lies pretty much beneath the southern EIA. The combination of foF2 values and height of the F2 layer over the period the contacts occurred created the necessary conditions to

support chordal hop (TEP) across the geomagnetic equator.

At 2158 UTC, 2 January, OA4TT (Canete, Peru) worked VK4DDC, followed a minute later by E51EME (BG80CT) on Raratonga, Cook Islands. Six metres was open between VK and ZL, and in the half hour after 2200 UT, OA4TT worked VK2OT, ZL2TPY, ZL1NX, ZL3ADT, VK4WTN, VK2FLR, VK4HJ and VK4CZ. Distances extended from 8870 km (E51EME) to 13,239 km (VK4WTN). The time difference between OA4TT and eastern VK is nine hours – morning in VK (and ZL) and afternoon in Peru. So the event fits the 'classic' summer solstice short path (SSSP), or 'extreme range' E's, propagation characteristics.

The event provided an opportunity to characterise the OA4TT-VK/ZL path, based on the methodology I have detailed online in a posting titled '*Signal Strengths of VHF sporadic E propagation*' (on the VKLogger Forum at Band by Band > Propagation & Solar Cycle News). This enables the determination of total transmission path losses for Es propagation.

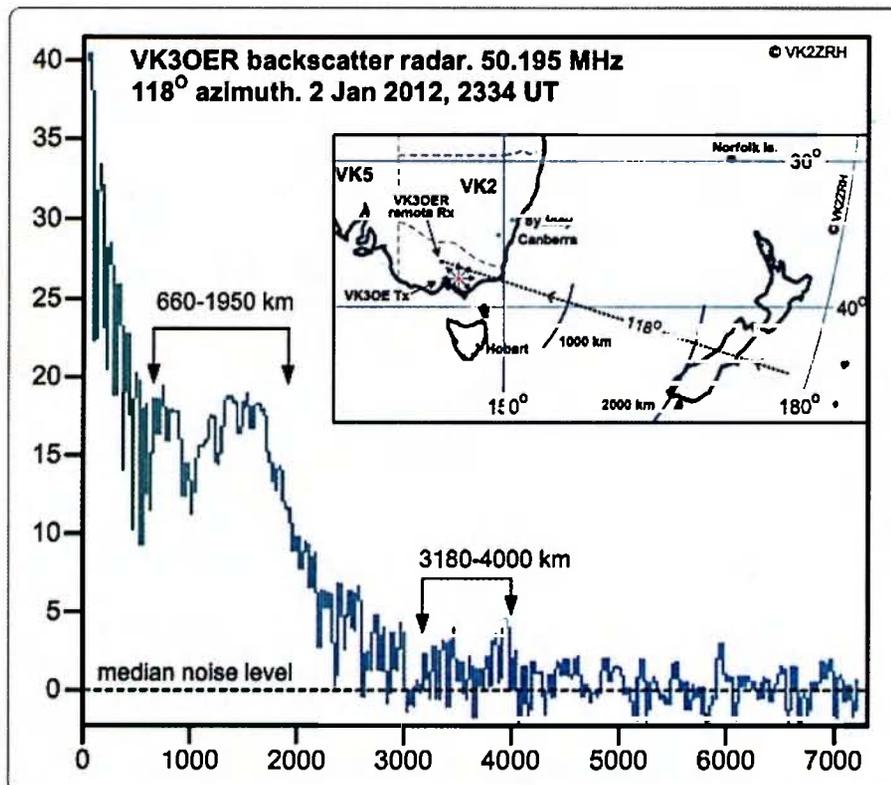


Figure 3: Bistatic backscatter chirp radar sounding by VK3OE during the great trans-Pacific six metre opening.

For the exercise, my friend of 40 years, Mike VK2FLR, provided key details of his contact and station equipment. OA4TT's QRZ.com pages provided details of his station. IPS ionosondes at the VK end, together with a backscatter radar sounding [2] by VK3OER, in Figure 3 below, added useful information.

The VK2FLR-OA4TT path is 12,817 km long. The usual rule-of-thumb would indicate six-hop Es at 2137 km per hop, close to the limiting case maximum (zero ray path elevation angle) [3]. I analysed the likely path characteristics based on ionograms at the western end, showing sufficient Es electron density, with the height at 99 km. The backscatter sounding from VK3OER, in Figure 4, shows contiguous multi-hop Es from 660 km out to 4000 km, east of ZL. From VK/ZL to Peru, across the south pacific region, Es events most often occur at 105 km height, based on studies of radio occultation of GPS signals. The resultant propagation analysis is shown in Figure 4. It's eight hops, sporadic E all the way! A check against the passage of the southern EIA showed that the last hop or two closest to OA4TT were quite unlikely to be F2 skip as electron densities that late in the day near South America would not have supported 50 MHz.

The VK2FLR-OA4TT transmission path loss analysis gave a S/N ratio for OA4TT at VK2FLR of 18 dB, confirmed by VK2FLR (quote: 'S3 by ear' - Mike's an experienced operator). Could it have been even hops? The analysis gave a negative

SNRI Could it have been more hops? At ray path elevation angles best suited to the antenna elevation radiation angles at each end, the path would be 12 hops, but losses reduce the SNR well below that reported.

OA4TT runs 1 kW to an eight element Yagi at 20 metres height, while VK2FLR was running around 100 W to a three element Yagi at 10 metres height at his inner-city location of Glebe Point, in Sydney.

Amazing stuff! Roger Harrison VK2ZRH

[1] 'Afternoon Transequatorial VHF Propagation', Roger Harrison VK2ZRH, at: <http://home.iprimus.com.au/toddemsle/aTEP-Harrison.htm>

[2] 'A Bistatic Backscatter Chirp Radar for Amateur Radio Use', Andrew Martin VK3OE, DUBUS 2/2010.

[2] 'On Sporadic E, VHF Propagation, MUFs and Petit Chordal Hop', Roger Harrison VK2ZRH, DUBUS 2/2011.

Thanks Roger, great report.

1st January, as well as the W opening in the afternoon a good opening from VK5 to JA1, 2 and 3.

On the morning of 3rd January many VK3 and VK5s worked both TI5XP & TI7/N5BEK Costa Rica with Steve VK3ZAZ, Garry VK5ZK and John VK5PO also working HP3TA Panama.

On 4th January, a good opening to northern Japan with many VK3, VK5 and VK7s working JA8GFB and JA8CIC.

On 8th January, Brian VK4DDC worked HP3TA CW 519 and Tony

3D2AG/p Rotuma Island worked into VK2 and VK4.

On 15th January, Frank VK7DX had a good early evening opening with contacts into VK4, VK5 and VK6 and Mark VK8MS in Darwin, plus ZL.

On 16th January, an early opening from VK6 to VK5, with VK6RO working Col VK5RO and Brian VK5BC/p.

On 17th January, an opening from JA to VK2 with John VK2BHO and Mike VK2ZQ working several JAs. Mike reported working JR2HCB, JA2KRE, JA2NBV, JA3APL and JA9RKU on 50.130. John VK7XX also worked several JAs.

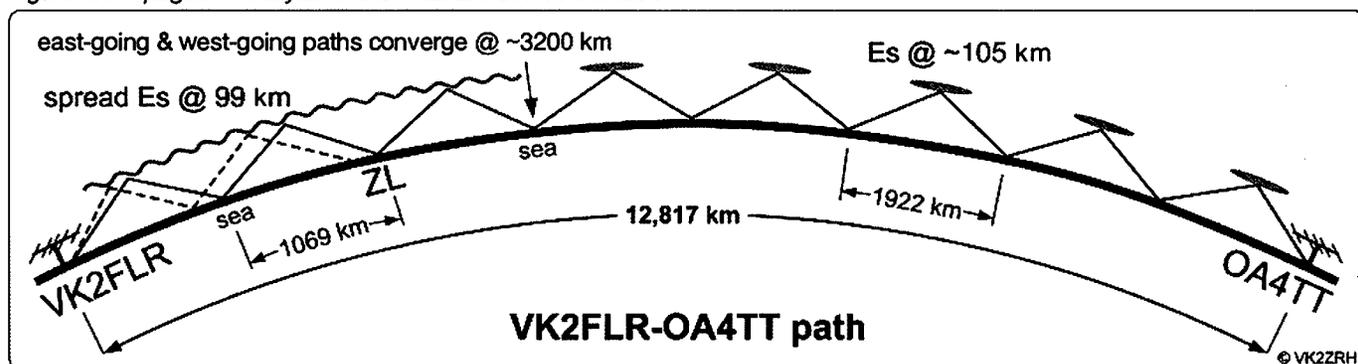
On 23rd January, a good Es from VK5 to VK2 and VK4 in the morning and VK5 to VK6 in the afternoon. ZL3NW worked three stations in W4 and W5 in the morning.

On 24th January, Steve VK3ZAZ started to hear signals from ZL (Es) in the morning and after calling CQ was answered by a K4MM and completed a CW contact over a distance of 15868 km. Steve went on to work several Ws and XE1FAA, all in CW.

On 27th January, a late afternoon opening from VK5 to JA with Garry VK5ZK and Brian VK5BC/p working JR2HCB.

Andy VK6OX reports the following from VK6: *December last year saw a continuation of Sporadic E openings to the East, with contacts made on 20 days to VK2, 3, 4, 5 and 7 plus ZL. Openings of note included a good afternoon session to JA on 7th December spanning 0800Z - 1000Z. JA areas 2, 3, 6 and 9 were worked.*

Figure 4: Propagation analysis of the VK2FLR-OA4TT contact.



On 21st December several of us here in Perth were fortunate enough to hear Bob E51EME from the South Cook Islands calling CQ on 50.1106 but conditions were marginal so he wasn't worked. However on the 30th I finally managed to work him on CW at 0235Z. Distance between stations 8293 km, a fair haul!

On to January 2012, where Es conditions started to taper off, with just the odd opening to the eastern states with only moderate signals. New Year's Day provided some excitement with FK8IA and 3D2AG/P Rotuma Island both worked. Bob E51EME was again worked on two occasions: 2nd January 0857Z and 21st January 0710Z, the latter QSO via JT65A.

John VK6JJ has kindly sent me a summary of his activities over the past two months. Please see table on next column.

Please send any six metre information to Brian VK5BC at briancleland@bigpond.com



13.12.11	0726	50	SSB	VK5PO	59	59	John
20.12.11	0436	50	SSB	VK5BC	59	59	Brian
27.12.11	0614	50	CW	ZL3NW	559	539	
27.12.11	0637	50	SSB	ZL3ADT	53	44	Ross
31.12.11	0245	50	SSB	VK2HC	57	57	Peter
31.12.11	0249	50	SSB	VK4KLC	57	57	Ron
31.12.11	0315	50	CW	VK2BJ	559	559	Barry
31.12.11	0319	50	CW	VK4WTN	579	579	Wayne
31.12.11	0322	50	CW	VK2OT	569	569	Mike
31.12.11	0335	50	SSB	VK2OT	58	58	Mike
31.12.11	0356	50	SSB	VK2IZI	59	59	Neil
31.12.11	0457	50	SSB	VK4AMG	57	57	George
31.12.11	0517	50	CW	VK4WM	589	599	Wade
31.12.11	0613	50	SSB	VK4IIO	55	55	Phil
31.12.11	0724	50	SSB	VK4WQ	59	59	George
31.12.11	0739	50	SSB	VK4KR	53	44	Errol
01.01.12	0658	50	CW	3D2AG/p	559	559	
01.01.12	0706	50	SSB	VK4VN	59	59	Steve
02.01.12	0430	50	CW	VK5PO	559	559	John
02.01.12	0640	50	SSB	VK5AYD	59	59	
02.01.12	0645	50	SSB	VK8MS	59	58	Mark
02.01.12	0734	50	SSB	VK6ARW	59	53	Rex
02.01.12	0843	50	SSB	VK5NY	59	59	Roger
08.01.12	0610	50	SSB	9V1TT	55	55	Andrew
10.01.12	0340	50	SSB	VK4HJ	57	57	Chris
10.01.12	0344	50	SSB	VK4AHW	57	57	Harvey
10.01.12	0418	50	SSB	VK4VN	56	56	Steve
10.01.12	0447	50	SSB	VK4WDM	56	59	Lost in QSB
11.01.12	0149	50	SSB	ZL2WHA	52	41	
11.01.12	0232	50	SSB	ZL2WHO	55	42	Mark
11.01.12	0300	50	SSB	ZL3NW	55	55	Rod
13.01.12	0205	50	SSB	VK4HJ	59	59	Chris
13.01.12	0305	50	SSB	VK6KP	59	59	Rod
25.01.12	0310	50	SSB	VK5BC	55	55	Brian
29.01.12	0153	50	SSB	VK5BC/P	57	57	Brian

K5B – The Bataan Memorial Death March Marathon

The Mesilla Valley Radio Club of Las Cruces, New Mexico will be operating special events station K5B on March 25, 2012 in conjunction with the 23rd annual Bataan Memorial Death March Marathon held annually at the White Sands Missile Range. K5B will operate from 1000Z to 2300Z.

K5B will be operating as near as possible to 21.337, 14.330, 7.225, and 3.893 MHz as band conditions permit. Last year, K5B spent most of its time on twenty metres. A commemorative QSL card for the

event will be available by request. Send your QSL card confirming your contact with a business sized self-addressed stamped envelope [please use a Forever stamp]. Please write 'K5B' in big letters on the lower, left hand corner of the outer envelope.

The K5B mailing address is:
Special Events Station K5B
c/o Mesilla Valley Radio Club
P. O. Box 1443
Las Cruces, NM 88004-1443

All QSL requests must be received by Friday, April 20. Please allow

four to six weeks from that date to receive the K5B QSL card.

DX stations wanting our card should send their QSL to us. If you don't send an SASE with U.S. postage, we will send it to you via the ARRL Outgoing QSL bureau.

We cannot accept cash due to event policy. So please do not send us money as we will just have to return it to you.

The URL for the event is <http://www.bataanmarch.com> The URL for K5B is <http://www.n5bl.org/bataan>



Hamads

WANTED – NATIONAL

Copies of Radio Weekly magazine.
 The WIA Archive is seeking copies of Radio Weekly for copying and/or adding to the WIA Archive's shelves.
 Little is known about this magazine. The WIA holds two copies only. Volume 1, Number 1 and Volume 2, Number 2. They contain about 36 pages and issues included articles of general radio interest in addition to the odd experimental article.
 The magazine was published in Melbourne commencing in February 1925 and claimed a circulation of 25000! For those who have responded to previous requests for copies of early magazines, thank you. We are gradually building up our collection of important Australian magazines which will be available to future researchers.
 Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate copies of this magazine.

FOR SALE – NSW

Yaesu FT-1000MP and MD-1 microphone, S/N 8J330124, \$1400 ONO.
 Contact Scott VK2LS on mobile 0427 544 104.

WANTED – SA

Misplaced book - believed loaned to another VK5: "Seventy years of radio tubes & valves" by John Stokes. Return appreciated ASAP. Steve Mahony VK5AIM, QTHR, (08) 8255 7397.

Vol. 1, No. 1 Guaranteed Circulation 25,000 February 25, 1925

PRICE POPULAR 1^D
RADIO WEEKLY
"If It's in the Air, You will get It"

WECOVALVES

Do You Enjoy Perfect Freedom from Valve Noises ?



WECOVALVE
Actual Size

THE Weco Dull Emitter Valve is absolutely non-microphonic and noiseless in operation. A midget in size it is a giant in results. KGO has been received on two Wecos on many occasions. Wecos are available for all purposes—R.F. and A.F. amplification and detection

OPERATING CHARACTERISTICS

Filament Current	0.25
Filament Voltage.....	0.5-1.1 volts
Detector Plate Voltage.....	17-22
Amplifier Plate Voltage.....	2-45

Obtainable from all dealers or direct from

C. R. FOSTER,

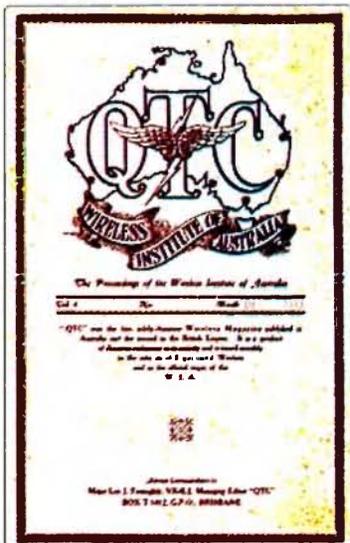
Agent for
Western Electric Company
(Australia) Ltd.

588 BOURKE STREET, MELBOURNE

Phone: Cent. 8336 and 8811.

Features

Mr. Frank Tate on Radio
 First Steps for Beginners
 Hook-Ups for Experimenters



WANTED – NATIONAL

Early copies of QTC magazine.

The WIA Archive is seeking early copies of QTC magazine for copying and/or adding to the WIA Archive's shelves.

QTC was published in Queensland and claimed to be the first solely Amateur Wireless magazine in Australia and second in the British Empire!

The format was duplicated foolscap pages stapled, with a light blue/grey front cover. QTC was published in the late 1920s/early 1930s, ceasing in November 1931; VK4LG was the dedicated editor. There was a later version in Queensland. We are presently interested in the early editions only.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

About Hamads

- Submit by email (MUCH PREFERRED) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

AMIDON FERROMAGNETIC CORES



tts systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystems.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links
related to Amateur Radio
and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the
appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products

Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**



JACKSON BROS

www.jacksonbrothers.com.au

Highest quality products made by UK craftsmen

Variable and trimmer
capacitors, reduction drives,
dials, ceramic standoffs



CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES

HAMMOND MANUFACTURING Large range of quality electronic
enclosures for the discerning Radio Amateur.
Diecast, extruded aluminium and plastic enclosures
and instrument cases. As seen in many ARRL projects.



Cookson Controls CHARLES I COOKSON
PTY LTD

11-13 Port Rd Queenstown SA 5014

Tel: (08) 8240 3200 Fax: (08) 8240 3233

sales@jacksonbrothers.com.au

ccoakson@hammfg.com

ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND



Tecsun PL 600 HF Receiver

Easy to use 600 memories

Large LCD display, direct frequency
entry, LW, MW and continuous
SW coverage to 29,999KHz, SSB,
supplied with approved charger
and NiMh batteries.



**ONLY \$139 +
shipping**

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100
Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au

www.avcomm.com.au

ADVERTISERS INDEX

Av-com	55
ATRC	19
Com-an-tena	21
Cookson (Jackson Bros)	55
Hamak Electrical Industries	55
Icom	OBC
Jaycar	9
TET-Emtron	39
TTS	8, 29, 55
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Directory



National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>

The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au

- * John Bishop VK2BK
- Dominic Dahl VK2YDD
- * Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- * Bob Tait VK3XP
- Luke Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- * Michael Charteris VK4QS
- Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- * David Clegg VK5KC
- * Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- * Martin Stretton VK6ZMS
- * Heath Walder VK6TWO
- Craig Lamb VK6FLAM

Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- * Justin Giles-Clark VK7TW
- Peter Rumble VK7IY

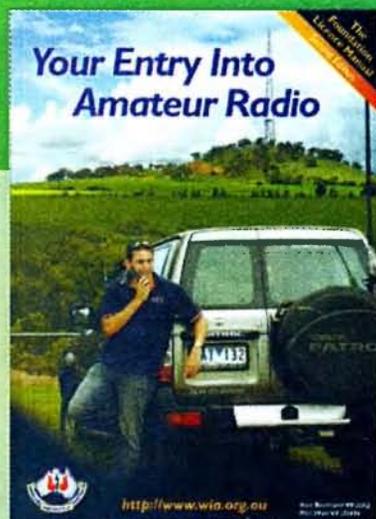
Northern Territory Advisory Committee

Email: vk8advisory@wia.org.au

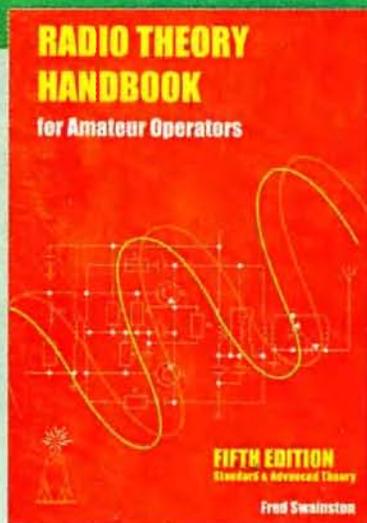
- * Peter Blackadder VK8HPB
- Garry Woods VK8GW
- * Alan Baker VK8AB
- Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board
("Nominated Member")



WIA Bookshop



Two of the great learning resources available from our online bookshop.

Visit <http://www.wia.org.au/members/bookshop/> to see more!

WIA 2012 Callbook

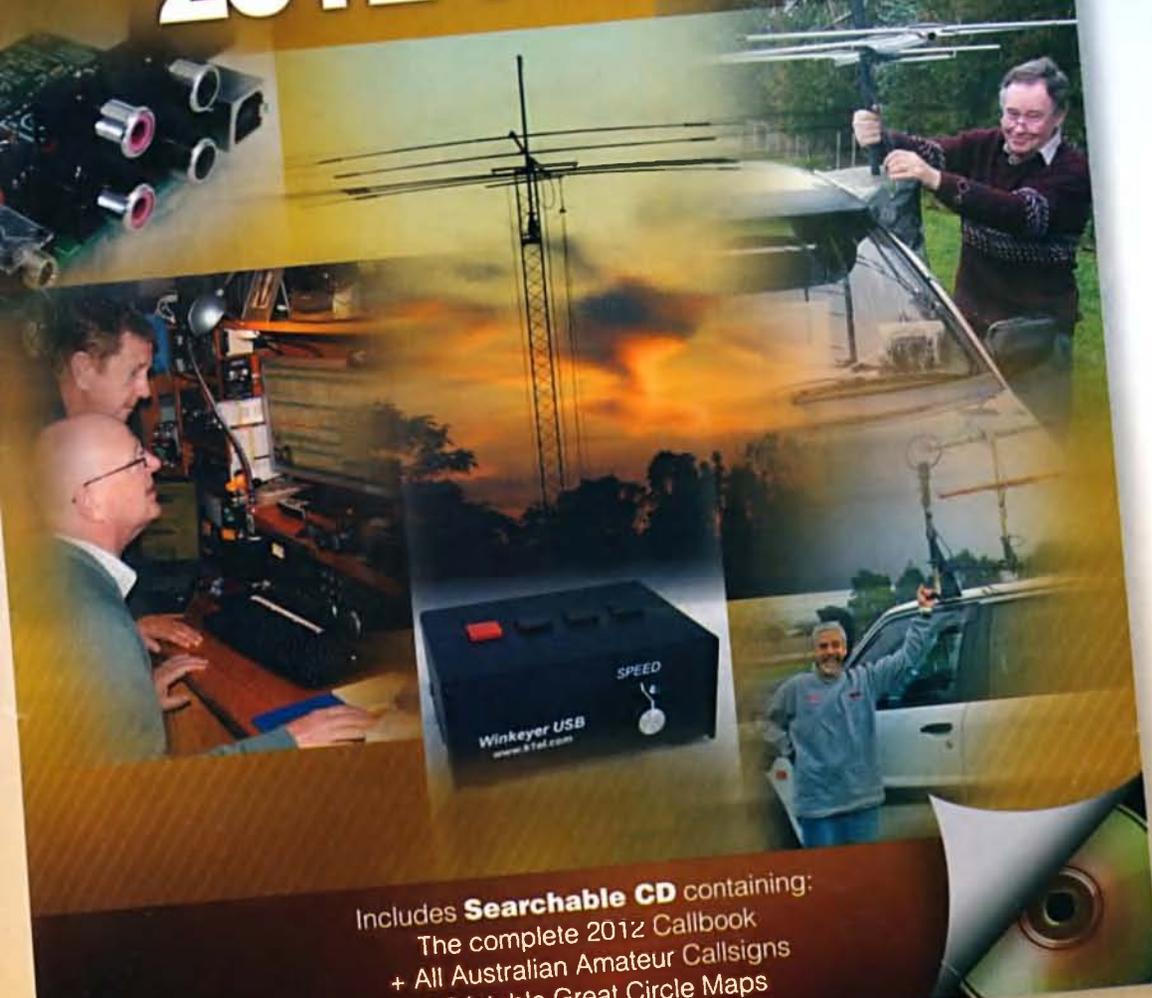
Now available



Wireless Institute of Australia

2012 Callbook

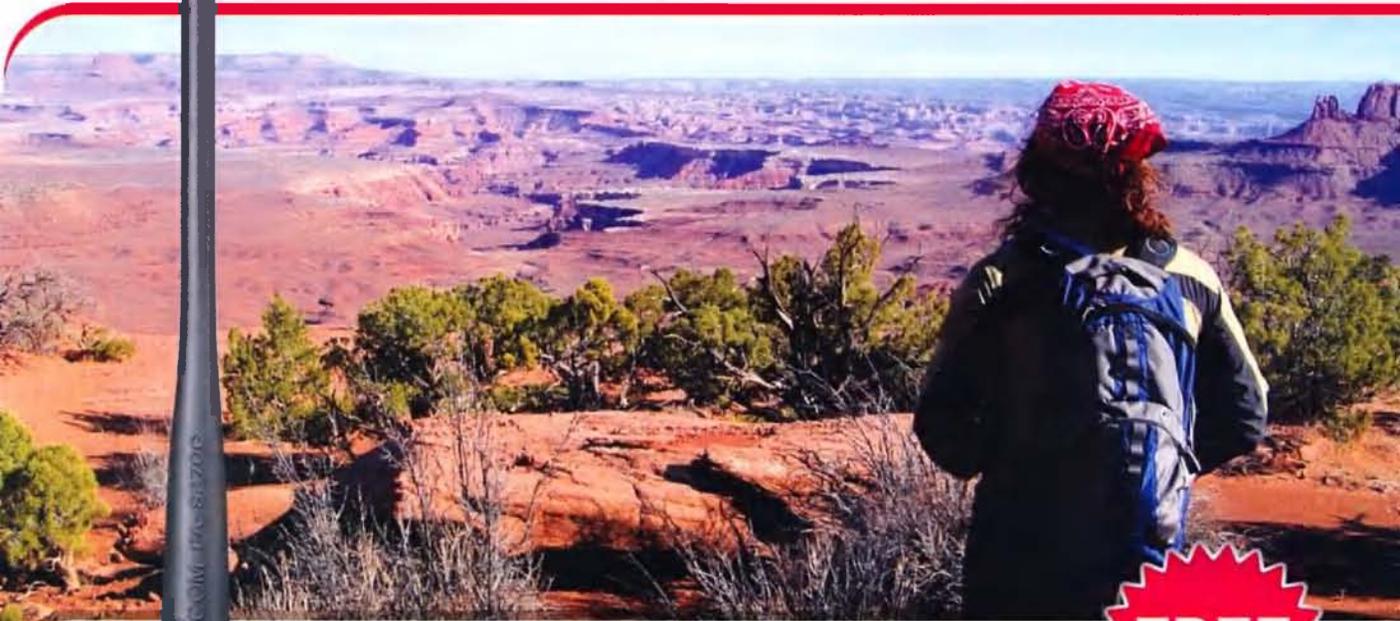
Visit our
online
bookshop
for details.



Includes **Searchable CD** containing:
+ The complete 2012 Callbook
+ All Australian Amateur Callsigns
+ Printable Great Circle Maps

www.wia.org.au/bookshop

The Evolution of D-STAR Continues



**FREE
SD CARD***



ID-31A

- Slim, Compact and Lightweight
- IPX7 Waterproof (1m Depth for 30 Minutes)
- GPS Built-In
- GPS Logging
- Micro SD Card Slot
- Pre-programmed with main worldwide repeater frequencies
- 1252 Memory Channels (500 Regular, 700 D-STAR Repeater Memories, 50 Scan Edges, 2 Call Channels)
- CS-31 Cloning Software Included (Update available from Icom Inc. website)
- D-STAR DV Mode and Analogue FM Mode
- Directional Keypad and Quick Menu Button
- Large Dot-Matrix Display

* Free 2GB SD Card available for a limited time only.

ICOM

ICOM 609

To find out more about our latest products, call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

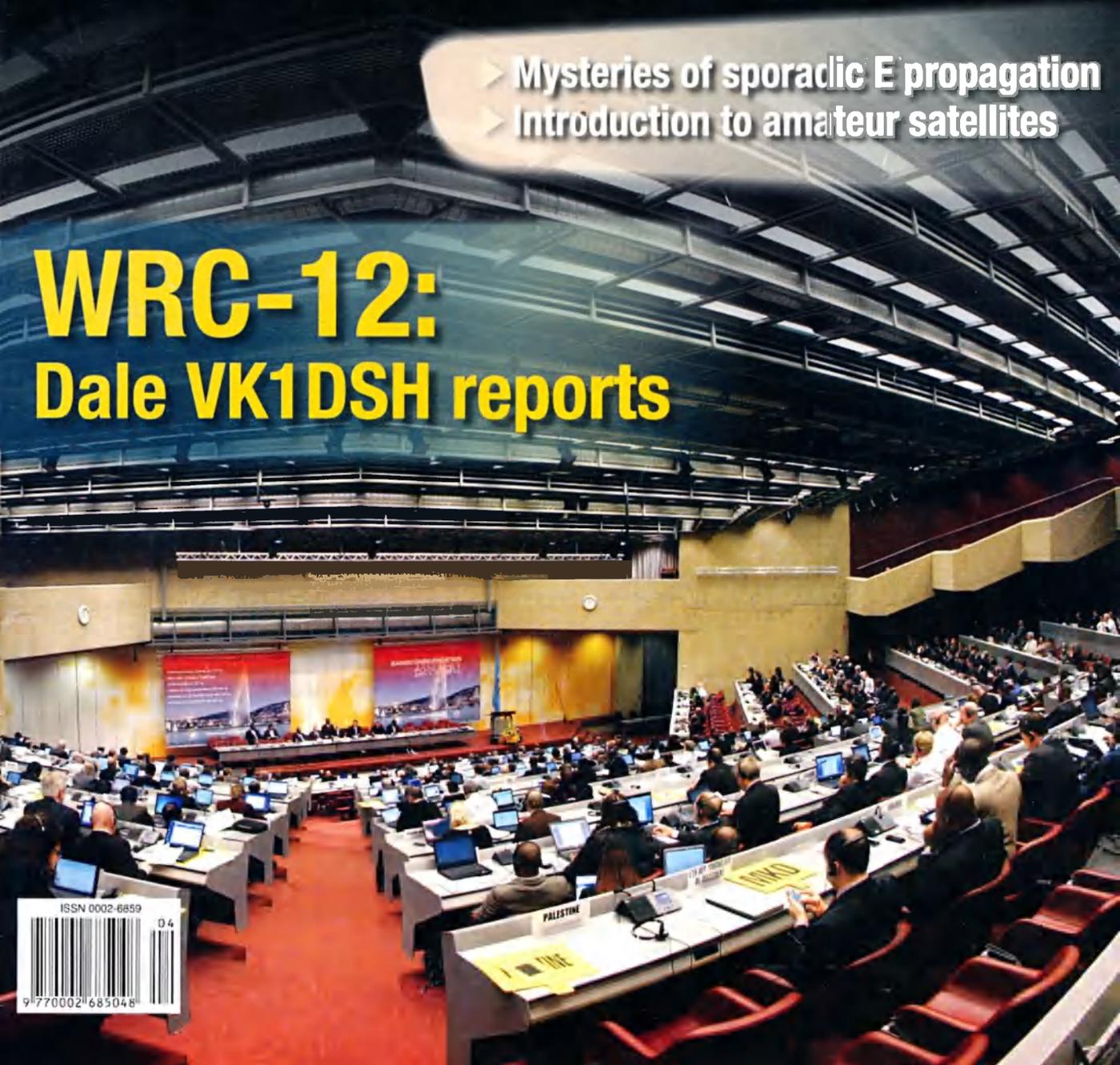
Volume 80
Number 4
April 2012
Price: \$8 incl GST

www.wia.org.au



- > Mysteries of sporadic E propagation
- > Introduction to amateur satellites

WRC-12: Dale VK1DSH reports



ISSN 0002-6859 04

9 770002 685048



A TECHNOLOGY BREAKTHROUGH

THE NEW PRESTIGIOUS COMPACT RADIO WITH APRS



VX-8DR/E



VX-8GR/E



Amateur Radio

Volume 80
Number 4
April 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor

Peter Freeman VK3PF
editor@wia.org.au

Technical Editor

Peter Gibson VK3AZL

Publications committee

Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters

nationaloffice@wia.org.au

How to submit material

Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor

Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising

All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office

Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines

All articles, columns, hamads and
advertising booking by **first day of
previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

WIA proposes operating principles 7
WIA Board

The ITU, World Radio Conferences
and you... 8

Dale Hughes VK1DSH

WICEN Victoria's training exercise –
the Murray Marathon 2011 14

Graham Mason VK3KMG

Gridsquare Standings
at 17 February 2012 25

Guy Fletcher VK2KU

Technical

Foundation Corner 19: 28
An introduction to amateur satellites

Ross Pittard VK3CE

On sporadic E VHF propagation and
solving a mystery about maximum 40
usable frequencies – Part 1

Roger Harrison VK2ZRH

Columns

ALARA 13

AMSAT 36

Contests 18, 20, 21

DX - News & Views 46

Editorial 2, 5

Hamads 54

Over to You 12

Silent Key 6, 30, 34

Spotlight On SWLing 32

VHF/UHF – An Expanding World 48

WIA Comment 3, 5

WIA News 4, 5

News from:

VK2 33

VK3 27, 31

VK5 30

VK6 38

VK7 16, 53



This month's cover

*A plenary meeting of WRC-12 in session.
Some 2000 delegates attend each plenary
session. Read the report from Dale Hughes
VK1DSH commencing on page 8 about this
important international conference and the
impacts of the decisions on the amateur
service. Photo courtesy of the ITU.*

Contributions to Amateur Radio



Amateur Radio is a forum for
WIA members' amateur radio
experiments, experiences,
opinions and news. Manuscripts
with drawings and/or photos are
welcome and will be considered
for publication. Articles attached to
email are especially welcome. The

WIA cannot be responsible for loss or damage to any material.
Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage within
Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are available
to members at \$2.50 each (plus an additional \$2 for each additional
issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect
the official view of the WIA and the WIA cannot be held responsible
for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road
Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mai Brooks	VK3FDL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDZ

Board of Directors

<i>President</i>	Michael Owen	VK3KI
<i>Vice-President</i>	Phil Wait	VK2ASD
<i>Directors</i>	Phillip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Piatt	VK5CP
	Trent Sampson	VK4TI
<i>Secretary</i>	Sarah Thompson	VK3AUD
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Piatt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
<i>NTAC</i>	John Martin	VK3KM
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Piatt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV
<i>International Travel Host</i>	John Miller	VK3DJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
<i>QSL Curator</i>	National Office	
<i>Repeater</i>	Peter Mill	VK3ZPP
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Wait	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV

Editorial

Peter Freeman VK3PF



An annual collection of AR?

Many readers may be aware that the ARRL has available for sale "2011 Periodicals on CD-ROM" which includes electronic copies of that year's issues of their magazines: QST, QEX and NCJ (National Contest Journal). They also have available collations of most other years dating back to 1996. The latest of these CD-ROMs sells at \$24.95 plus postage. Similarly, the RSGB also have an annual collation of RadCom available on CD-ROM, which sells at £19.99 plus postage. The RSGB also have a number of multi-year collections available for sale.

Of course, the WIA has available the "AR Magazine 1933 - 1939 on CD", by WIA and Will McGhie VK6UU, selling at \$20.00 plus postage.

Over recent years I have received enquiries about if AR could be made available in electronic format, and have discussed this in previous Editorials. I will not discuss that topic again in this piece.

One thing that we can consider is the preparation of an annual collection of AR, starting with all of the issues published in 2011. This should be a relatively easy task given the current contractual arrangements with our publishing house. In fact, at its recent meeting, the Publications Committee discussed this topic and requested Sergio Fontana to prepare an estimate of the cost of preparing such a collection.

We can undertake the task, but will it be worthwhile? Is there demand for such a product from you our readers? If you are interested in buying such a collection, what do you consider to be a fair price? The Publications Committee is interested in what you think, so please email the National Office with your views: nationaloffice@wia.org.au

Field Days

This Editorial was being prepared shortly before the John Moyle Field Day. In Victoria, the weather was looking to be potentially damp, if not wet, at the start of the weekend and probably clearing up. I trust that all that ventured into the field did not have a trying time with weather.

In the middle of this month we have the WIA National Field Day. Not really a contest in my eyes, rather it is aimed at encouraging groups, especially clubs, to set up stations in prominent public locations and promoting our hobby to the wider public. It will be important that appropriate OHS precautions are taken when setting up such stations. Is your club participating? Do not forget to appoint someone to record the events and to prepare a report – it might be published in a later edition of AR.

Call for articles

Our stock of articles is slowly declining. We have a stock for about six months or so, assuming that the regular column and club contributions continue as normal.

I encourage you to consider writing an article and submitting it for publication. It could be on any topic related to our hobby. Our stock of technical articles is definitely in need of bolstering – write up that latest construction project.

You can find some guidelines on the AR magazine pages on the WIA website – look for the link "Contributing material".

Continued on page 5

WIA comment

Michael Owen VK3KI

That's what we do



In this month's issue we publish an article by Dale Hughes VK1DSH.

In this month's issue we also publish a letter from David Sumner K1ZZ Chief Executive Officer of the ARRL.

In his article Dale writes about WRC-12, the work leading up to WRC-12, addresses the importance of the regional telecommunications organisation, identifies the matters that affect us as amateurs and puts a WRC in context, and explains why it is important for every amateur.

As we have said so often, it all starts there in Geneva.

Dale was a member of the Australian delegation to WRC-12 nominated and paid for by the Wireless Institute of Australia. Within the terms of the Australian brief, he was representing the amateur service.

Dale started on his journey of representing the Australian amateur in this area in late 2009 when the late Keith Malcolm VK1KM suggested he become involved. Prior to that Dale was best known for his technical articles published in this magazine on a pretty regular basis since November 2000.

Keith had represented the amateur service on the WIA delegations to the WRC since 2003, and had made a significant contribution to amateur radio in many other ways.

But, of course, life was a little simpler in 2003. The Region 3 regional telecommunications organisation, the Asia-Pacific Telecommunity, the APT, was not as effective as it is now. Today, the Regional Telecommunication organisations are an essential step to a WRC.

That is why Dale attended two of the APT's preparatory meetings for

WRC-12, one in Hong Kong and one in Busan, South Korea.

Dale also attended an ITU Study Group meeting in Geneva in November 2010, one of the meetings that provide a technical basis for the agenda items to be resolved at the WRC.

Through all of this Dale was able to learn how it all works and to meet the other people involved in this incredible process, including the amateur representatives from other countries, and those representing the IARU, the International Amateur Radio Union. The IARU is only an observer at a WRC, which is a meeting of the sovereign states that form the membership of the ITU, but is a Sector Member and so may participate directly in the Study Groups.

Not only that, he was able to present the studies undertaken here in Australia, and to provide technical evidence supporting the amateur case.

That the amateur service was adequately represented at all of the many steps that culminate in a WRC and at the WRC, does not depend on one person or indeed one national society.

It depends on a number of the world's national amateur societies and their federation, the IARU, and the people of knowledge and experience and with special skills who they can call upon to undertake this vital work.

But the process does not stop with the conclusion of a WRC. Each WRC proposes the agenda for future WRCs and immediately one WRC ends the preparatory meetings for the next WRC commence.

As Dale points out, the Agenda for the next WRC in 2015 or 2016

includes items of particular interest to the amateur services, and in particular the proposal originating from Cuba for a small secondary allocation to the amateur service in the range 5250 to 5450 kHz.

I know it sounds very glamorous to participate in these conferences, and in truth it can be really fascinating. But it can be very far from fun. In 2003 the Plenary meetings during the last week started at 9 am and ran through to 3 am next morning, only to start again a 9 am.

May I share with you that is not fun.

But I headed this comment "That is what we do".

By that, I meant that for me that role of representing the Australian amateurs in the national preparation for a WRC, the regional preparation for a WRC, the technical preparation for a WRC and the actual WRC is the most important of all the functions that we undertake.

When I attended the recent Wyong hamfest I met an amateur who wished to become a member of the WIA because that was necessary if he was to become a Learning Facilitator or Assessor, as he believed that attracting, training and qualifying new amateurs was critical for our future. He had not become a member in the past, because he did not find the magazine interesting or the other facilities particularly relevant for his interests.

We then discussed the very matters I write about in this Comment, the representational and advocacy roles of the WIA.

Continued on page 5

New WIA Awards Manager announced

Following discussion at its February meeting, the WIA Board has appointed Stephen Chamberlain VK6IR as the WIA Awards Manager.

Chris Piatt VK5CP remains the WIA Director responsible for Awards.

VK4SN new RD Contest Manager

The WIA Board meeting in Melbourne over the weekend of 18/19 February 2012 appointed Alan Shannon VK4SN the new Contest Manager for the WIA Remembrance Day Contest, following the retirement of Peter Harding VK4OD. He will be supported in this role by the Lockyer Valley Radio & Electronics Club Inc.

The Board, in appointing Alan, acknowledged and thanked the other amateurs who had indicated that they would be interested in the position.

The Board also appointed Trent Sampson VK4TI as the WIA Director responsible for Contests.

New RD Manager proposes major changes to the Contest

The new Manager of the Remembrance Day Contest is Alan Shannon VK4SN, and a consistent competitor in most contests and brings with him a new way of looking at the RD Contest.

With every change comes housekeeping and Alan has moved forward at a rapid pace with changes to the operating conditions in the RD. These have been put forward to the Contesting Committee and are on the WIA website for final comment prior to publication in *AR*. Go to Members Area, then Contests and under the Remembrance Day Contest you will find the new rules for comment.

One of the big changes that Alan has proposed is the introduction of a Single Transmitter Multi operator class and the introduction of a combined teams section.

Please send your feedback to Alan at his WIA email address: vk4sn@wia.org.au

WIA releases additional higher power trial information

The WIA has released additional information in relation to the High Power Trials.

The additional information includes the WIA's recommended log information, the additional calculated data to include a power of 500 watts mean in the guide "Human Exposure to EMR: Assessment of Amateur Radio Stations for Compliance with ACA Requirements" as well as some general advice and a downloadable ACMA form for an application.

The information is currently available on the WIA web site. Go to "Your Amateur Radio Licence" then "Australian Amateur Licensing and Callsigns", and then "High Power Trial" can be found under the "Operating Guidelines".

It is hoped that anyone considering applying for a variation of their licence to allow the higher power will find this information helpful.

WIA Board Meets

The WIA Board met at the Bayswater, Victoria offices over the weekend 18 and 19 February 2012.

Because the Board only meets face to face two or three times a year, one of which is at the Annual General Meeting, there is a great deal of work to do, and very many matters were discussed, and some just not reached.

WIA Treasurer John Longayroux and Secretary Sarah Thomson were also present and WIA Manager Mal Brooks kept the minutes.

Some of the issues that were addressed by the Board included the appointment of a new RD Contest Manager, to replace Peter Harding VK4OD. Alan Shannon VK4SN, who will be supported by the Lockyer Valley Radio & Electronics Club, was appointed RD Contest Manager, and others who had expressed a willingness to help, were thanked for their interest.

The Board made it clear that while it expected that there would be some rule changes for the 2012 contest, and it expected these changes to be placed on the WIA web site to allow comment, it hoped that there would not be further changes for some years.

Trent Sampson VK4TI is now the Director responsible for contests.

Concern was expressed at the number of members not renewing, and the number of non-members participating in some clubs was also highlighted. The Board agreed to attempt better communication with the clubs, continuing to provide the services it could to help them and at the same time seeking their support in attracting and retaining members.

The Board consulted with Peter Mill, the Beacon and Repeater Coordinator, and understood some of the difficulties he faced. It was agreed to use a new method of tracking beacon and repeater applications, so the office, once it was implemented, would be able to know the precise stage each application was at, and advise the applicants accordingly.

Considerable time was devoted to reviewing WIA Awards. A number of changes are contemplated and the Director responsible for Awards Chris Piatt will be reporting on that directly, after he has consulted with the Awards Committee.

The Board agreed with the general approach of the ACMA to the higher power trials.

The WIA website will provide additional information.

A design for a travelling badge based on the design suggested by Murray de Plater VK1MDP was chosen, and production will now be investigated.

Time was spent discussing the Commonwealth's proposed uniform health and work safety laws, as yet to be adopted by many of the states. These laws require a duty of care to volunteers and create offences for not discharging that duty.

Among the many other matters discussed and decided were a budget for the current year, the implications of result of the WRC-12, including agenda for the next WRC, the on-going discussion with the ACMA on a number of matters, including the inspection of stations and the possession of transmitters by amateur licensees, the magazine, the Mildura Annual Conference, a new award for the first person to make a contact on two metres between Africa and Australia presented by Eric Jamieson VK5LP.

The Board will continue to exchange ideas and reach conclusions by email, with its next face to face meeting in Mildura, after the Annual Conference.

Proposals for 2013 WIA Annual Conference

At its February meeting, the Board of the WIA considered the venue for the 2013 Annual Conference weekend.

It had before it two submissions, one complete and another under development.

The Board has deferred its decision in this matter until the end of March and encourages any club (or group of clubs) considering applying to do so by close of business Friday March 30th.

Full details of what should be included in any application can be found by referring to the President's Comment in the July 2011 edition of "Amateur Radio".

The Eric Jamieson Indian Ocean Awards Announced

The WIA Board, meeting in Melbourne over the weekend of 18/19 February 2012 accepted the offer of Eric Jamieson VK5LP to sponsor awards for the first amateur radio contacts on the two metre band spanning the Indian Ocean between Australia and Africa.

There will be three awards, for voice, CW and digital modes and will be known as the Eric Jamieson Indian Ocean Awards.

In presenting a sum of money to the Wireless Institute of Australia Foundation to fund the Awards, Eric said "I acknowledge that spanning the Indian Ocean will not be easy but one cannot say that it will never be accomplished. The degree of difficulty may be judged from the so far inability to span the much shorter Atlantic Ocean despite concerted attempts in order to win the Brendan Atlantic Ocean trophies."

The very simple Rules for the Award provide that contacts made by EME, or with the assistance of meteor scatter, satellites, aircraft enhancement or the like will not be eligible.

The WIA Board acknowledged the generosity of Eric in making this Award available, and expressed the hope that it will encourage amateurs to attempt a truly difficult challenge.



Editorial

Continued from page 2

As always, have the camera ready – we are always looking for well composed high resolution photographs that might suit the front cover.

Annual Conference

Time is running out for people to register for the Annual Conference, being held 25 to 27 May in Mildura. Make sure that you do not leave it too late. If possible, please use the

on-line registration form at the WIA web site – it will make the job much easier for the office team.

In addition to the Annual General Meeting and Open Forum, the weekend is shaping up to be an excellent mix of social and technical activities. Personally, I am very interested to hear about the equipment used in the Project Horus high altitude balloon experiments,

having followed some of the past launches from afar via the web. It will also be interesting to hear the latest on the chirp radar system. I hope to make the event and look forward to making contact with many of you then.

Cheers,

Peter VK3PF



WIA comment

Continued from page 3

He agreed that this, in itself, was a reason for joining the WIA.

I am proud of the fact that the WIA is one of those national societies that can contribute in this way.

We need proper representation. That is what we do.

It is because of what we do that we can and do ask that every amateur and potential amateur becomes a member of the WIA and contributes to the cost of what we do.

And the agenda for the next WRC means we too must start preparing now.

But we are particularly lucky that we have people like Dale Hughes to represent us so well.

In this issue we publish a letter from Dave Sumner of the ARRL, one of the most experienced WRC participants for the IARU who I know.

I cannot resist quoting one paragraph from his letter.

"I wish all of your members could have had the experience of watching Dale Hughes in action on their behalf at the World Radiocommunication Conference earlier this year. Dale is just the latest in the long string of capable representatives that WIA has sent to Geneva over a span of many decades."



Silent Key Wally Green VK6WG

The world lost a leading pioneering radio amateur on 7 March 2012.

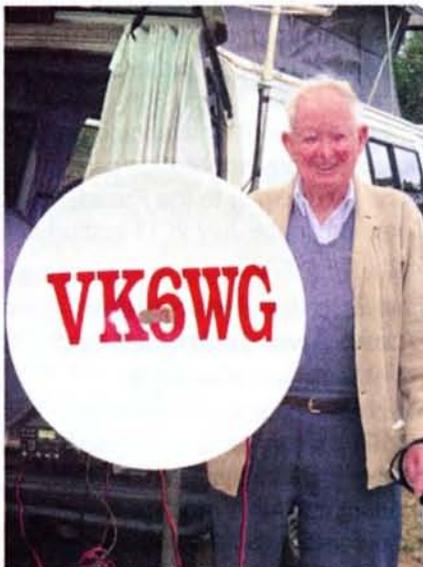
Wally Green was born at King River near Albany on 11 August 1911. He left school at the age of 14 years and worked in a variety of trades such as automotive mechanics and electrical finally joining the WA Public Works Department in 1949. Between 1963 and 1967 he was stationed in Derby, moving to Norseman in 1968 and returning to Albany in 1972. He retired in 1976.

Wally was licensed in 1936. He was a proficient CW operator, competent at speeds up to 25 wpm. His initial operations were on 7 and 14 MHz but he had a desire to work at higher and higher frequencies. In 1948, he heard a contact between two VK5 amateurs on 50 MHz using a 6 metre converter fed into a 7 MHz receiver. The signals were so good that his daughter Vi (in her biography of her Dad) reported that Wally thought these were 7 MHz signal breakthrough. A few days later he heard that the signals were 50 MHz ones. Wally had his first 6 metre contact on 15 November 1948 with VK5GB. Also on that day he worked Reg Galle VK5QR – a man who would provide him with contacts on higher bands ultimately culminating 40 years later with contacts on 3456 MHz!

Wally built his own home in Albany. After clearing the block, he began felling timber for the stumps and after trying with a pit saw, found and used a diesel engine to power the saw. He also cut the floor boards for the garage that ultimately provided space for his shack and other timber for the house. He and his wife Grace did the framing, cladding, roofing and interior fit-out. The house was completed in the early 50s.

Of course amateur radio was not neglected in this period and Vi tells of tuning the 6 metre band during summer months to see if they could hear signals. If so, the cry "the band is open" was enough to get Wally back into the shack and Vi and her sister Elaine sometimes receiving a "spotter's fee" of 2 shillings!

Wally's pioneering work on VHF, UHF and microwaves was



Wally VK6WG out helping to check the performance of the Mt Barker 10 GHz beacon in 2008. Photo by VK6KZ.

described in some detail in the article on pages 8 and 9 of the August 2011 issue of *Amateur Radio*. It is worth reminding younger radio amateurs that Wally was largely a self-educated radio man exploring and constructing equipment without any of more recent test equipment and availability of components. Lecher lines to measure frequencies; torch globes and diodes to detect transmitter output.



Wally Green VK6WG arriving at his 100th birthday celebration in a celebration in a 1911 Darracq car. Photo by VK6KZ.

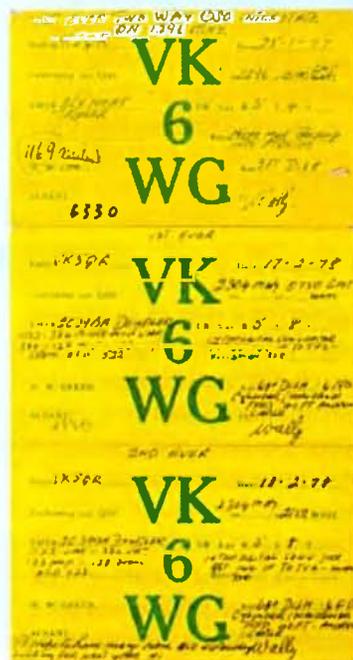
Components were hard to source – especially in a country town like Albany (remember that frequencies above 1 GHz were not in common use in those times). Wally made waveguide from ordinary copper pipe; bent metal and fabricated his parabolic dishes; electroplated cavities and other items to reduce losses.

Living about 2000 km from Adelaide, it was a remarkable feat that he and the late Reg Galle VK5QR were able to find the right frequencies at 1296, 2304 and 3456 MHz and were dedicated enough to spend the hours searching for one another's signals over unproven distances! Reg reckoned that they could have made it on 5760 MHz as well if Wally had not been so enthusiastically making apricot jam from fruit from his garden (Reg was an English teacher, so like Wally lacked a formal engineering background!).

After the death of his wife Grace in 1985, Wally continued to live alone in his home until his death. He was supported by his son Brian VK6YAU and wife Carol and his daughters Elaine in Albany and Vi in the Gold Coast. He continued to operate his station VK6WG giving great delight to many in the east. His last contacts were less than a month ago at age 100 years 6 months!

We will all miss him!!

Wally Howse VK6KZ



WIA proposes operating principles

WIA Board

Although the WIA has a Corporate Ethics Policy that is intended to apply to everyone representing the WIA, it has been suggested that the WIA lacks any operating principles which could be used as a guide for the conduct of the hobby of amateur radio.

The Board of the WIA considered the suggestion at its last meeting in Melbourne and it was agreed that the adoption of appropriate operating principles, a new Australian Amateur's Code, could be helpful.

It was suggested that a model could be something similar to the Amateur's Code, written in the early days of amateur radio by Paul Segal W9EEA in 1928, and several of the WIA Directors spent time preparing a first draft set out below.

It was also decided to consult with all amateurs and with all clubs and to invite comment and suggestions. The Board recognises that not only can the language be improved but other or

different concepts could be incorporated in such principles. However, the Board is keen to keep such Operating Principles brief and general in nature, so they have the best chance of remaining relevant well into the future.

All clubs and all individual amateurs are invited to send their comments and suggestions to the WIA Manager Mai Brooks who will collate and distribute them to the Board.

Please either post your contribution to the WIA at PO Box 2042, Bayswater, VIC, 3153 or send it by email to nationaloffice@wia.org.au by 1 May 2012.

Operating Principles

The Board of the Wireless Institute of Australia has adopted the following Operating Principles as a guide for all amateurs:

We, the Australian Radio Amateurs will at all times:

- act and operate with integrity;
- be honest in our dealings;

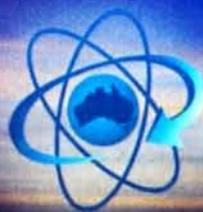
- ensure that the operating equipment of our station is safe for ourselves and for visitors to our station;
- show respect to and extend courtesy to fellow amateurs and other spectrum users;
- be aware of and comply with our licence conditions and the other laws and regulations that govern the installation and operation of our station;
- encourage others to participate in amateur radio;
- strive to improve our technical and operating skills;
- assist our community in emergencies;
- ensure that any spectrum interference issues resulting from the operation of our station are resolved promptly and with courtesy, and
- promote the benefits of amateur radio to the community.



info@rfsolutions.com.au

07 3264 6443

www.rfsolutions.com.au



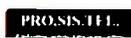
RF SOLUTIONS

your supplier of choice in *excellent* radio products

RF SOLUTIONS is your authorised distributor of outstanding amateur radio products.

RF SOLUTIONS offers:

- superior and leading edge amateur radio products
- products for the casual operator as well as the most serious DX-ing and contesting operator
- personalised customer service and support
- in-depth technical knowledge



The ITU, World Radio Conferences and you...

Dale Hughes VK1DSH



Photo 1: A plenary meeting in session. Some 2000 delegates attend each plenary session. Photo courtesy of the ITU.

Background and history

You may have read or heard about World Radio Conferences, or what were previously called World Administrative Radio Conferences. This year, the 2012 World Radio Conference (WRC12) was held between January 23 and February 17 in Geneva, Switzerland. The conference was organised and run by the International Telecommunications Union (ITU) and was a vast and complex affair. Approximately 3500 delegates from 165 ITU member states and sector members attended WRC12. The conference budget was in excess of \$5 million Australian dollars, many thousands of input documents were considered and approximately 10,000 pages of text was translated

into six different languages for the 'final acts' of the conference. The range of frequencies covered by the input contributions was from about 8 kHz to 3,000 GHz and virtually every application of radio technology and its use was discussed.

During WRC12, Australia's interests were presented and defended by members of the Australian delegation. The approximately 30 delegates represented all areas of the Australian radio user community, for example, ACMA (the lead agency), Defence, AMSA, Airservices Australia, Telstra, CSIRO, BOM, broadcasters, satellite users and operators, private industry, WIA, and others. All delegates had to abide by a code of conduct which outlined our duties and obligations,

and each delegate was approved by the Government before departure. My role was to look after the issues of interest to Australian amateur operators and my expenses were covered by the WIA. The delegations of other countries were similarly organised.

As an amateur you might ask: what are these conferences and how do they work? Does a WRC affect what you do in your shack? This article attempts to answer those questions as well as describe the process and the final conference outcome for the amateur service, but first we need to have a look at the history of the ITU, where it fits into world affairs and its mission. The ITU website (www.itu.int) explains:

ITU was **founded in Paris in 1865** as the International Telegraph Union. It took its present name in 1934, and in **1947 became a specialized agency of the United Nations**. Although its first area of expertise was the telegraph, the work of ITU now covers the whole ICT (**information and communication technologies**) sector, from digital broadcasting to the Internet, and from mobile technologies to 3D TV. An organization of public-private partnership since its inception, ITU currently has a **membership of 193 countries and some 700 private-sector entities**. ITU is headquartered in Geneva...

The ITU mission is also clearly defined:

The ITU Radiocommunication Sector (ITU-R) plays a vital role in the global management of the radio-frequency spectrum and satellite orbits - limited natural resources which are increasingly in demand from a large and growing number of services such as fixed, mobile, broadcasting, amateur, space research, emergency telecommunications, meteorology, global positioning systems, environmental monitoring and communication services - that ensure safety of life on land, at sea and in the skies.

Our mission is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using satellite orbits, and to carry out studies and approve Recommendations on radiocommunication matters.

The focus of this article is on the radio communication aspects of the work of the ITU; for amateur radio operators, the above paragraphs are the crux of the matter. All radio spectrum and its use is governed by Radio Regulations that are developed and/or modified at WRC conferences. The ITU, through its Radio Bureau, publishes and helps

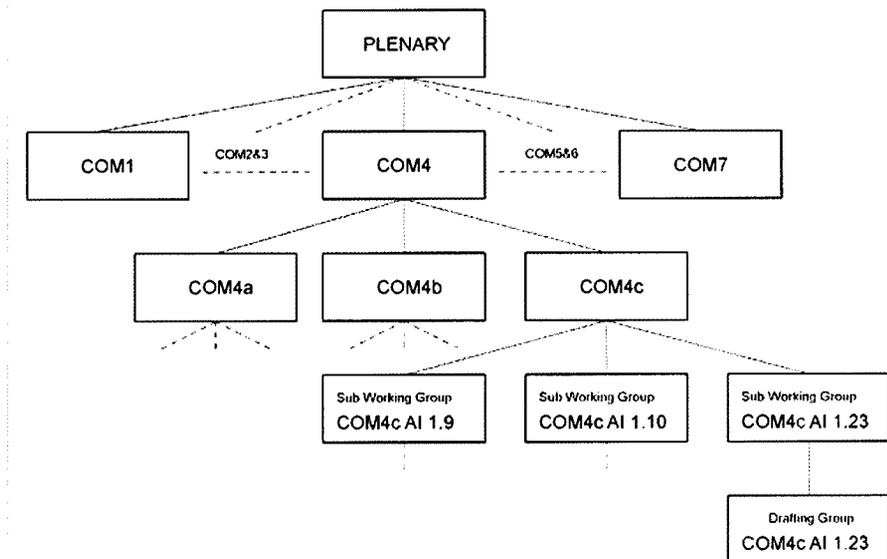


Figure 1: WRC12 committee structure. Not all sub-working groups formed drafting groups, but all sub-working groups produced output documents for their higher level committees.

enforce application of the Radio Regulations through the spectrum management agencies of each country (the ACMA in Australia). Hence, every time you use any radio communications service, for example, make a call on your mobile telephone, watch TV, operate your amateur transceiver and the like you are relying on the work of the ITU.

More to the point, the amateur and amateur satellite service is defined in article 1 of the ITU Radio Regulations:

1.56 amateur service: A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

1.57 amateur-satellite service: A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service.

The above definitions of the amateur service are the bases of our continued access to the radio frequency spectrum and make amateur operators legitimate stakeholders in the discussions about frequency use and allocations.

All radio services, whether 'primary' or 'secondary' have one or more entries in the ITU Table of Frequency Allocations. The allocation table is maintained and modified through actions of the ITU and WRCs, so it is very important to be listed as a radio service.

There is a process that has to be followed for any radio service to change an entry in the Frequency Allocation Table and the ITU website provides some information about this:

World Radiocommunication Conferences (WRC) are held every three to four years. It is the job of WRC to review, and, if necessary, revise the Radio Regulations, the international treaty governing the use of the radio-frequency spectrum and the geostationary-satellite and non-geostationary-satellite orbits. Revisions are made on the basis of an agenda determined by the ITU Council, which takes into account recommendations made by previous world radiocommunication conferences.

As you might expect, the process is complicated because of:

- The complexity of radio communications technology and its rapid pace of change.

- Cultural and political differences between countries.
- Security, defence and public safety issues.
- The huge number of services and users, many of which are incompatible.
- Etc...

Leading up to WRC12

The best way to explain what happens in the years preceding a WRC is by following an example. For this I will use the issue that was the focus of activity for the amateur service at WRC12. The WRC12 Agenda Item (AI) was:
'1.23 to consider an allocation of about 15 kHz in parts of the band 415-526.5 kHz to the amateur service on a secondary basis, taking into account the need to protect existing services.'

For any issue to be discussed at a WRC, it has to be agreed beforehand by the preceding WRC, or even the one prior to that. At WRC12 there were discussions about agenda items for WRC15 and WRC18. So the WRC12 agenda item above was agreed to by the WRC07 meeting. Making the list of agenda items for future WRCs provides a mandate for the ITU to form study groups and working parties to fully explore the technical issues. This is especially critical for allowing new services into the spectrum space of other users. A general principal for all studies and negotiations is that the existing or incumbent service has priority and that new users *'...shall not cause harmful interference to, and shall not claim protection from...'* the incumbent service. This is summed up by the phrase *'...taking into account the need to protect existing services.'* Note however, that this may not be true if the new service is a 'primary' service.

In the case of AI 1.23, this means that the amateur service must not cause interference to the aeronautical radio navigation service or the maritime mobile service who are the existing primary and secondary users of the band 415 to 525.6 kHz, nor can the amateur service complain about

any interference that those services might cause to amateur operation in that band.

Compatibility and sharing studies undertaken by working parties generally produce a report about whether the services are compatible and whether sharing is possible or not. The working party for AI 1.23 was chaired by Dr Ken Pulfer VE3PU and the working party took input from delegates representing various national administrations and interested ITU members (International Maritime Organisation, International Civil Aviation Organisation, International Amateur Radio Union etc.) Input documents were presented by many delegates and extensively discussed.

Input documents for ITU study groups and working parties are created by national study groups that mirror the ITU process. In Australia there are regular meetings of the Australian Radio Study Groups and WRC Preparatory Group. The WIA is one stake holder in these meetings as are many other Australian users of the radio frequency spectrum. The WIA presents the views and needs of the Australian amateur operator community to the Australian administration and other spectrum users. The other parties also present their views and needs, all of these views are discussed in the ARSG meetings and the final result becomes part of the national position that is presented to the ITU.

Over the last four and a half years, there have been seven, two week long, ITU working party meetings at which AI 1.23 was discussed and the end result of this process was the publication of three ITU documents prior to WRC12 (1):

- *REPORT ITU-R M.2200 Characteristics of amateur radio stations in the range 415-526.5 kHz for sharing studies*
- *REPORT ITU-R M.22031 Compatibility of amateur service stations with existing services in the range 415-526.5 kHz*
- *REPORT ITU-R M.2226 Description of amateur and experimental operation between 415 and 526.5 kHz in some countries*

These documents provide all the information necessary to formulate protection measures for incumbent services in the band in question and they showed that sharing the band between incumbent services and stations of the amateur service was possible under some circumstances, if the appropriate protection measures were applied. The measures in this case were frequency and geographic spacing based on transmitted power.

REPORT ITU-R M.2226 contains the results of experimental activities in support of AI 1.23 and the WIA provided a significant amount of support through the provision of a 'third party licence' that allowed a number of interested Australian amateurs to establish stations to operate between 505 and 515 kHz. This work resulted in a formal report that was presented to the ACMA and subsequently became part of Australia's contribution to the last APT and ITU working party meetings in late 2011. The value of the report was that it showed that amateurs could actually do something useful with an MF allocation and that we could co-exist with other users of the band. A large part of the Australian report is now found in *REPORT ITU-R M.2226*.

Getting a regional perspective

To further complicate matters, there is also a regional perspective to consider. Just as the radio world is divided up into administrative regions (1, 2 and 3), there are regional blocs of nations that are members of the ITU and who take part in the WRC process. Australia belongs to a group known as the Asia-Pacific Telecommunity (see www.apf.int) and this group promotes the ICT interests of the Asia-Pacific region. Through regular meetings the APT tries to develop a consensus position on WRC agenda items and it is a powerful tool during WRC meetings if a region has a common view on a particular topic. The agenda item coordinator can speak for many nations and this can help speed up the WRC process. In the event that a global decision cannot be reached

on a particular agenda item, there may be a regional solution that can be achieved through regional consensus and this can be presented at the WRC if appropriate. During WRC12 I was the APT coordinator for AI 1.23 and this allowed me to speak during meetings so that I could present both the Asia-Pacific position as well as the Australian view point.

There are various regional groups: CITEL for the Americas, the RCC for the Russian Federation, CEPT for Western Europe, ATU for Africa and the ASMG for the Arab Middle Eastern countries.

WRC process

As there are many issues to discuss at a WRC, each agenda item is allocated to particular WRC committee that cover issues with some similarity. The committee structure is hierarchical as shown in Figure 1. Agenda Item 1.23 was allocated to Committee 4 (COM4) as were a number of maritime issues. COM4 was further broken up into a number of smaller groups. The other higher level committees dealt with issues such as satellite coordination, aeronautical issues, international mobile telephony, broadcasting, meeting procedures and budgeting, and so on.

The sub-working group and drafting group (where formed) meetings were the site of intense technical and national interest discussion. The Chairman of the sub-working group responsible for AI 1.23 was Brennan Price N4QX. I chaired the two meetings of the AI 1.23 drafting group. The meetings attempted to forge a consensus position that all people were happy with, or sometimes a position that everyone was equally unhappy with... Many meetings were held on most agenda items and in the case of AI 1.23 there were two meetings of the drafting group and 12 meetings of the sub-working group. While the ideal outcome of each sub-working group was a consensus position, it was not always achieved. For AI 1.23 the output document contained both the consensus

position of administrations that wanted an amateur allocation, and the 'No Change' (NOC) position of administrations that did not want a new amateur allocation. The issue went from the sub-working group to COM4C to COM4 where the NOC position was debated and finally defeated. In general, the result of ITU meetings is determined by consensus as voting is almost unheard of.

At this stage, the proposal existed in the six official languages of the ITU and it then passed to the plenary meeting for a first and second reading of the document. After two attempts at a first reading and confirmation at the second reading the proposal was passed by the plenary session. The new amateur allocation became part of the ITU Radio Regulations and part of an international treaty which was signed by 153 member countries during the closing ceremony. The new Radio Regulations that were formulated at WRC12 will come into force on 1 January 2013 and changes to national rules and regulations will occur sometime after that. Noting however, that a national allocation is not automatic and an administration may decide not to authorise operation in any particular band.

For the amateur service, the final outcome is a new global secondary allocation covering the band of frequencies between 472 and 479 kHz, with a power limit of 1 W e.i.r.p, or 5 W e.i.r.p for countries more than 800 km from the border of countries listed in footnote 5.A123 of the Radio Regulations. Footnote 5.B123 allows countries who do not want the new amateur allocation to 'opt out' and this is similar to the current provisions for the 135.7 to 137.8 kHz amateur allocation.

Possible future agenda items for WRC15

A number of items of interest/concern to amateurs are listed as agenda items for the next WRC in 2015 or 2016:

- A proposal which originated from Cuba was for a small secondary

allocation for the amateur service in the frequency range 5250 to 5450 kHz. The basis of this proposal is the disaster relief activities undertaken by amateurs in many parts of the world. The favourable propagation characteristics of the 5 MHz band are likely to allow propagation when both the adjacent bands of 3.5 MHz and 7 MHz are not available due to ionospheric or noise factors. This makes the bands very suitable for reliable medium range communications in many parts of the world.

- A number of issues which might affect use of the amateur bands at 10 GHz and 78 GHz.
- The ever present search for additional bandwidth for both mobile telephony and wireless broadband access and applications. One estimate of the required additional bandwidth is 500 MHz at somewhere below 4 GHz. This amount of spectrum will be difficult to find...

These agenda items will be the subject of studies in the appropriate working parties to be held over the next few years and the results of the studies will be used to inform the discussions during the next WRC.

Conclusion

There were two questions posed at the beginning of this article and I will answer them in reverse order:

Does a WRC affect what you do in your shack? Yes, access to our amateur bands is through decisions made at World Radio Conferences which formulate the Radio Regulations that govern what we do, how we do it and what frequency bands we have available. National regulations are derived directly from the ITU Radio Regulations.

What are these conferences and how do they work? Hopefully this article has provided an insight into the WRC process. It is worth noting that the amateur service is well represented at each WRC by the various national amateur radio societies and the International Amateur Radio Union. While the process is lengthy, it appears to

work reasonably well and ensures equitable access to the radio frequency spectrum and general compatibility between the various radio services.

The new MF allocation to the amateur service was a good outcome and represents a compromise position that meets the fundamental needs of all the users of that part of the radio spectrum.

Acknowledgements

I would like to thank the following organisations and people:

- The WIA for the opportunity to represent Australia at WRC12 and ITU study group 5A meetings. It was a challenging and interesting experience.
- The Australian Communications and Media Authority for their organisation of the Australian WRC12 delegation and the preceding study and preparatory group meetings.
- The IARU and other national amateur radio societies for their continued support of the amateur service at the international level.

- The ITU for the excellent facilities and services provided during the WRC and study group meetings.
- The other Australian and foreign delegates for their support and fellowship during the WRC and associated meetings.

Reference

1. These documents can be downloaded from the ITU website: <http://www.itu.int/pub/R-REP-M/en>



Over to you

March Editorial

Editor:

I read the March 2012 *Amateur Radio* editorial with a mixture of pride and dismay – pride that *ARRL* membership is recognized as good value, but dismay that *WIA*'s performance in this regard might be seen as suffering by comparison.

The resources and economies of scale that are available to an association with 158,000 members simply are not accessible to an organization the size of the *WIA*. Viewed from afar, the quality and quantity of work done by and through *WIA* on behalf of the radio amateurs of Australia is quite incredible, all the more so when one considers how much is performed by volunteers.

I wish all of your members could have had the experience of watching Dale Hughes in action on their behalf at the World Radiocommunication Conference earlier this year. Dale is just the latest in the long string of capable representatives that *WIA* has sent to Geneva over a span of many decades.

WIA has begun its second century in fine style. *ARRL* can only hope to do as well when our turn comes, two years from now.

Sincere 73,

David Sumner, K1ZZ
Chief Executive Officer
ARRL



Under the patronage of
Minister of Youth and Sports of Algeria
in the occasion of 50th Anniversary of Independence of Algeria
and the 50th anniversary of the Djelfa Radio Club (ZAR) the
in the direction of the Youth and Sports of Djelfa
organizes the 4th International Ham Meeting
from 20 to 26 May 2012
For support we provide
transportation from airport to Djelfa and Djelfa airport
accommodation and catering and day of commissioning for
excursions, rock carvings, and visit oases Djelfa oasis and
radio associations, radio clubs, OM's, XYL's, YL's
If you want to participate in this international event
please send us their confirmation at the following address:
to send them official invitation:
President of Djelfa Radio Club
Email: bodi17000@yahoo.fr
skype contact: bodi17000

Hospitality is our motto
We aim to strengthen friendship and brotherhood among radio amateurs
and to promote the exchange of experiences of technology transfer

ALARA

Margaret Blight VK3FMAB – Publicity Officer

I am happy to once more be back on the air. For some time it has been difficult to take part in the ALARA net on Monday evenings and I had put the problem down to antenna difficulties thinking our neighbourhood possums may have damaged some wiring. However, two guardian angels from the local club came to the rescue and removed my tuner and replacing it with another and the results were instantaneous. Wonderful!

The autumn season is well and truly with us. Many clubs will have already commenced organizing their White Elephant offerings by now and hopefully there will be ALARA members making their presence felt on these occasions, either by organizing an event, manning an ALARA information table or even being one of the stall holders. It is important to participate and demonstrate that women club members are also enthusiastic about their hobby.

Last month the WARO 50th Birthday was celebrated in Rotorua, New Zealand. ALARA was well represented by a number of members and their OMs who travelled there for the occasion. As a coincidence this 50 year celebration was held on the actual date of the original meeting and at the same venue. Celia ZL1ALK was a special participant. She was present at the first, foundation meeting of WARO and has been a stalwart supporter of all its activities, throughout the following years. Further details of the celebrations will be published in the next edition.

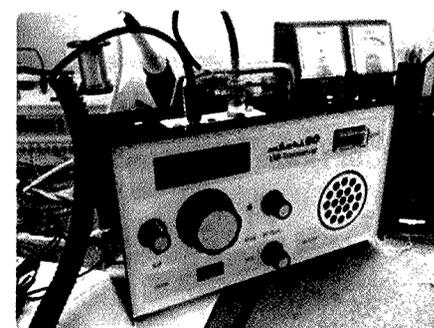


Photo 1: The completed radio built by Carmel VK2CAR.

In the March edition of AR magazine was an article for an 80 metre QRP transceiver built by Carmel VK2CAR. Unfortunately there were no photos of her project printed in time to accompany the article so here we take the opportunity to demonstrate her completed work.

News from VK4

State representative Lyn VK4SWE and her OM Tex decided to tour the Whitsundays on board MV Trim. While they had paper charts and their GPS to navigate with they learnt that their voyage clearly showed on Tex's new iPad which ran the iSailor chart software. They considered this an amazing piece of technology.

Some of the trip was smooth while on other days it was quite rough. When things got rough, Tex battled the seas and Lyn turned her hand to polishing up a Morse Key that had been a present from another ALARA member.

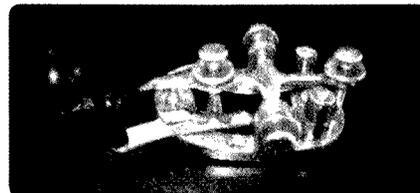


Photo 2: The 19th century Western Union key, which is turning out to have a very interesting past as more markings are uncovered all the time.

News from VK5 - Christine VK5CTY

At ALARA's regular luncheon in Adelaide there were nine regular members, including Leslie VK5LQL, back from visiting her family in Townsville (where she was happy to welcome her son-in-law home from Afghanistan) and Jeanne who was in the UK last year and since then has had several trips back and forth to VK6, helping a friend over there who has no family in Australia.

We also had two Sharon's join us. First there was Sharon from ZL land, and also her friend Sharon from Adelaide. But I omitted to take a photo, sorry girls. Our next luncheon

on Friday 13 April will be at Tina VK5TMC's QTH so we can have a Busy Bee, packing goodie bags for the YL International.

The next regular luncheon at the Grand Chancellor in the city will be for the May meeting when several of us will be somewhere in the wilds of Central Australia as part of the extension to the YLMEET in Adelaide.



Photo 3: Jenny VK3WQ at Kyneton.

News from VK3

Here is a short item from Jenny VK3WQ on the Central Victoria RadioFest at Kyneton.

'It wasn't a great day as far as ALARA was concerned, but I enjoyed myself. The hardest part was keeping out of the 'icy blast' and keeping the laminated pictures of various ALARA activities on the table!

I only saw a small number of ALARA members while there but Lia VK3LPH told me as we entered that I wasn't to leave until she'd paid me her membership, or words to that effect. I was happy to catch up with her later, when she had finished her duties on the gate.

Heidi VK3FHID came and spoke to me, and Dianne VK3FDIZ from National Office was working hard on the WIA table, most of the time, though we did get time to chat in the quieter moments'.

Silent Key

Members of the EMDRC were saddened to hear of the death of Andrew VK3BFA who was a regular participant with other OMs at ALARA events.



WICEN Victoria's training exercise – the Murray Marathon 2011

Graham Mason VK3KMG

WICEN Victoria continues to provide training exercises for its members and other amateurs. In late December 2011 the VicSuper Murray Marathon was conducted between Christmas and New Year. This Marathon is a 404 km canoe race on the Murray River, conducted over a five day period between Yarrowonga and Swan Hill.

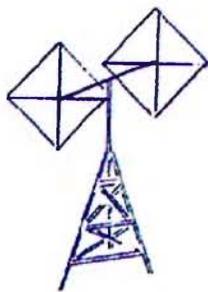
WICEN provides communication and logistical support during the progress of the event by establishing seven HF stations each day at the checkpoints on the riverbank amongst the red gums. The HF operations were conducted on 80 and 40 metres as a controlled net managed by VK3AWI while the remote stations used special call signs approved by the ACMA, such as Start, Bravo and Finish. WICEN



Photo 1: The WICEN group at the Murray Marathon 2011 event.

thanks amateurs who kept clear of the relevant frequencies to allow us to get on with the exercise.

Each check point also operated on VHF to support another eight stations in boats and cars that



VK5SR

SOUTH-EAST RADIO GROUP

Affiliated with W.I.A.
P.O. BOX 1103,
MOUNT GAMBIER,
S.A. 5290
email: VK5SR@wia.org.au

VK5RMG/6



We're back! Yes, the SERG Convention and Australian Fox Hunting Championship will be held on the Queen's Birthday Weekend - 9th and 10th June 2012.

The Convention will be at its usual home, the Margaret Street Scout Hall. Doors open at 12:00 noon on Saturday with the first fox hunt to start at 11:00am from the Lakes area. On Sunday, doors open at 9:00am. Entry fee is \$5 for the weekend.

We will have the fires going at the hall to keep warm. With our Master Chef back on duty again this year there will be plenty of fine food available to fill the spot.

Ross from Strictly Ham will be there. Stalls with second hand equipment and our Home Brew Contest will be bigger than ever.

Trophy Presentations will be 17:00 at the SERG clubrooms. Following the Presentations we will have a BBQ to catch up on the weekend's activities. All are invited.

Keep up to date at <http://serg.mountgambier.org/> or email VK5SR@WIA.ORG.AU

carried the safety team down the river, keeping track of the canoes during each day's racing. This year VHF operations were on the Coast Guard domestic frequencies and this provided new challenges to operators as they used commercial equipment belonging to another service.

There were only 120 canoes entered in the event this year, and although this was disappointing to YMCA it had no impact on the successful outcome of the training exercise.

Of the twenty-five amateurs that took part only 12 of these were WICEN members but they all shared great camaraderie as they camped together each night. There was plenty of practice setting up stations in remote places and passing of formal messages.

The event will be on again next year between Christmas and New Year. If anyone would like to be involved you can contact the author Graham Mason VK3KMG by telephoning 03 5972 0704 and your name will be placed on next year's list.

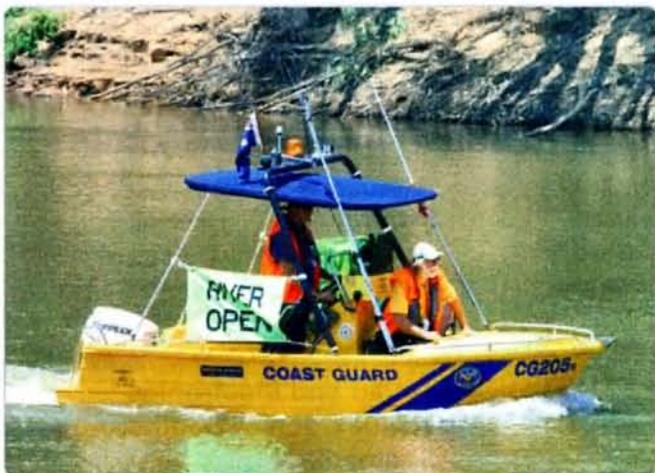


Photo 2: The Coast Guard patrol boat on the Murray during the Murray Marathon 2011.



Tableland Radio Group AM and CW on ANZAC DAY

Operate **AM** and **CW** on **ANZAC DAY 2012**.

On ANZAC Day, 25th of April 2012, a group of amateurs in North Queensland, *Tableland Radio Group*, are encouraging all amateurs who can do so, to operate on AM and CW modes during the afternoon and evening of ANZAC Day as a mark of remembrance to the servicemen and women who served our countries during time of conflict.

Electronics Enthusiasts

Jaycar Electronics - Better, More Technical



5W VHF Marine Radio Transceiver

With a compact and splash proof housing made for life on the water, this powerful 5W hand-held transceiver gives you coverage of all International VHF marine channels. The antenna is detachable so units can be connected to a larger antenna mounted on a boat. Includes Li-ion rechargeable battery pack, AC adaptor, charging cradle and belt clip.

- 1W/5W switchable output power
- LCD backlit display
- Dual and triple watch function
- Channel scan function
- One-touch emergency channel 16
- Auto power saver mode



\$119.00



NEW

Velleman Rechargeable Handheld Pocket Scope

A complete portable oscilloscope with a tiny size. With many features found on full size digital scopes you'll wonder how they squeezed all of it into a package a little larger than a Smartphone. Aside from standard scope features, it has nifty tools for measurement of RMS speaker power, display hold function, and memory storage for 2 signals. Housed in a durable rubber surround with backlit LCD display and inbuilt NiMH battery. See our website or in-store for full specifications.

- 10MHz
- Rechargeable
- CRO probe and USB charge cable supplied
- Size: 114(H) x 74(W) x 29(D)mm

NEW

\$249.00



IP67 True RMS Autoranging Cat IV DMM with Wireless USB

A quality true RMS multimeter with a wireless USB computer interface and included logging software allows for computer based live data logging whilst keeping your computer completely isolated and protected. Also features double moulded housing and IP67 waterproof rating makes this DMM capable of even the harshest conditions.

- Non-contact voltage indicator, data hold
- Size: 170(L) x 79(W) x 50(H)mm

\$109.00



NEW

2KW SINE WAVE INVERTER GENERATOR

This inverter generator unit is petrol powered pure sine wave inverter then converts the DC to a stable pure sine 230VAC, suitable for appliances including sensitive electronics. No matter what the load is on the generator, the output remains at 230VAC 50Hz. The added benefit is that the petrol motor is far better matched to the load, reducing overall size, keeping engine speed in line with the load, reducing noise and increasing fuel efficiency.

- Electric start & recoil start
- Low noise (58dBA - No Load, 65dBA - Full Load @ 7m)
- 7L fuel capacity (approx 6.5hr run time)
- 2 x 230/240V GPO power outlets
- 12V 8.3A vehicle battery charger output
- LED indicators for output, overload and oil level

\$899.00

Note: Not stocked in all stores but can be ordered. Call your nearest store for details. MG-4502



To order call 1800 022 888
www.jaycar.com.au

Jaycar
Electronics
Better. More Technical



VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/

Congratulations to Rex VK7MO, David VK3QM/7 and Ken VK3AKK/7 who progressively set the inaugural VK7 24 GHz record up to 161 km from Mt Barrow to Mt Wellington in the last month. Rex also let the author know that a Bass Strait path of 421 km looks very promising thanks to digital mode tests with David VK3HZ/3. We look forward to hearing about more VK7 activity in these microwave bands.

Northern Tasmania Amateur Radio Club

NTARC held their Annual General Meeting (AGM) with the election of the following office holders: President Peter Ralph VK7PL, Vice-President Lewis Lagarto VK3FLPL, Secretary Yvonne Maxwell VK7FYM, Treasurer Kevin Norris VK7HKN and Committee Member Alan Burke VK7AN.

Please note the VK7TAZ IRLP node (6700) is back on the air from the VK7RAA repeater on 147 MHz thanks to Tony VK7YBG. The new commercial VK7RAA antenna mounting bracket has been installed

by Air Services Australia staff on their tower to their specifications. Thanks to all who contributed to the cost of replacing this bracket on what is surely VK's best repeater!

Cradle Coast Amateur Radio Club

The CCARC AGM was held on 18 February 2012, with the following office holders elected: President David Spicer VK7EX, Vice-President Dick Van Beek VK7DIK, Secretary Dave Cleland VK7DC, Treasurer Dick Whatley VK7FORF and Committee Member Eric Edwards VK7NFI. We welcome and congratulate Rachel Rawlings who passed her Foundation licence assessment and is on the air with the callsign VK7FRMR.

CCARC has had a very busy month with provision of radio communications for the Pure Tasmanian Cycle Challenge which saw 14 amateurs help out with commercial and amateur frequencies being used across the Devonport to Strahan course. I understand that even 40 metres was used for

a particularly difficult part of the course. The following weekend saw many CCARC amateurs help out with an Equine Endurance event in the north-west of VK7.

North West Tasmanian ATV Group

NWTATVG held its AGM on 4 February 2012 with the following office holders elected: President: Tony Bedelph VK7AX, Vice-President: Jim Hiley VK7JH, Secretary: Steve Bush VK7EQ, Treasurer: Ivan Ling VK7XL and Executive Member: Neil Southwell, VK7ZNX. NWATVG amateurs assisted with radio communications on the 130 km Cradle Coast Rally Challenge held over the February 25/26 weekend.

Radio and Electronics Association of Southern Tasmania

Congratulations to Scott Bragg our recently successful Standard licensee who is now sporting his new callsign of VK7LXX. Our DATV Experimenters' nights welcomed special guests Chris NU3L from the Delaware Lehigh Amateur Radio Club in Pennsylvania USA and David VK3QM and Ken VK3AKK both from the Geelong ARC who had been all over VK7 from 50 MHz to 24 GHz including working five grid squares. Our show and tell included homebrew techniques, robotics platforms, marine radar unit and principles, Meccano No.1 Clockwork Motor, a Brunton Pocket Transit geologist/surveyor's compass and we have been featuring the author's homebrewed 160/80 metre AM/CW valve transmitter of VK3XU design.

Our video presentations have included the CODEC2 talk given to the 2012 Linux Conference and interestingly the first question at the

Photo 1: Watching a Mt Roland sunrise on the cycle course. Photo by VK7EX.





talk, by David Rowe VK5DGR, was asked by Tom VK7NML – on ya Tom! We have included space videos, balloon launches, GE historic videos, AmateurLogic TV episodes and much more. Wednesday nights from 1930 on DVB-T (446.5 MHz) around Hobart and streaming on <http://batc.tv/> and go to members stream - VK7OTC. See you there.

Photo 2: The author and his homebrew 160/80 metre AM/CW valve transmitter. Photo by VK7HT.

BRISBANE AMATEUR RADIO CLUB BARCFEST 2012

Saturday 26th May 2012

This year's BARCFEST will be at Mt Gravatt Showgrounds, Logan Road, Mt Gravatt.

Doors open 9.30 am. Admission \$7.00.

Food and drinks available at reasonable prices.

Hope to see you there on **26th May**.

Contact Les VK4SO ph **0411 729 642** or email: parkerlf@optusnet.com.au

Please note the change of date for this year only.

Don't forget

23 - 25 June

Winter VHF-UHF Field Day

The Winter VHF-UHF Field Day will be held over the weekend of June 23/24. For full details please refer to the contest web page:

<http://www.wia.org.au/members/contests/vhfuhf/>

Amateur Radio Specialist

Look forward to hearing from you

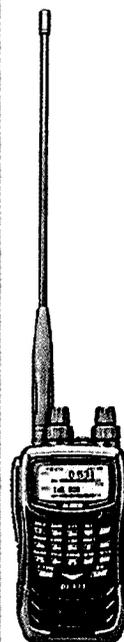


AMATEUR TRANSCIVER RADIO CENTRE

Australia's largest stockist
of Amateur Equipment

We supply these
famous brands

- ALINCO • ICOM • KENWOOD • LDG*
- YAESU • DIAMOND • BUTTERNUT*
- DAIWA • PALSTAR • ALPHA DELTA*
- VERTEX STANDARD • TARHEEL*
- CUSHCRAFT • GAP*
- RADIOWAVZ* • HUSTLER*
- SUPER ANTENNAS*
- MOSLEY • HEIL SOUND
- SGC • STARTEK*
- COMMANDER AMPLIFIERS*
- M2 ANTENNA SYSTEMS
- HI-Q-ANTENNAS* • TGM*
- COMET* • UNIDEN*
- SPIDERBEAM* • AVAIR*
- MALDOL* • AUTOTENA*
- PALOMAR AMPLIFIERS*
- BUCKMASTER*
- BUXCOMM* • ZCG SCALAR*
- SYNCRO* • MOBILE ONE*
- OUTBACKER* • BENELEC*
- RF INDUSTRIES* • CRE-ATE* • HEAR IT* • RF PARTS*
- N2VZ ENTERPRISES*
- RM ELECTRONICS*
- CHAMELEON ANTENNAS*



*Only equipment purchased from an authorised dealer carries the full manufacturer's warranty.

We have DJ-X11

(02) 9896 2545

www.atrc.com.au

Check out our Hot Specials

Level 2, 141 Gilba Road
Girraween NSW 2145

inquiries@atrc.com.au

Ask what we can do for you,
Les VK2MPZ

We Ship Anywhere

Contests

Phil Smeaton VK4BAA

e vk4baa@wia.org.au

Contest Calendar for April 2012 – June 2012

March	3/4	ARRL International DX Contest	SSB
	10/11	RSGB Commonwealth Contest	CW
	17/18	John Moyle Field Day	CW/SSB/FM
	17/19	BARTG RTTY Contest	RTTY
	17/18	Russian DX Contest	CW/SSB
	24/25	CQWW WPX Contest	SSB
April	14	QRP Hours	CW/PSK31/RTTY SSB
	14/15	Japan International DX Contest	CW
	21/22	YU DX Contest	CW/SSB
	28/29	Helvetia Contest	CW/SSB
	28/29	SP DX RTTY Contest	RTTY
May	5	Harry Angel Sprint	CW/SSB
	7	VK/Trans-Tasman 80 metres Phone Contest	SSB
	14/15	CQ-M International DX Contest	CW/SSB
	28/29	CQ WW WPX Contest	CW
June	2/3	IARU Region 1 Field Day	CW
	9	Asia/Pacific Sprint	SSB
	16/17	All Asia DX	CW
	23/24	ARRL Field Day	All

Note: Always check contest dates prior to the contest as they are often subject to change. Also, please note the corrected date for the Harry Angel Sprint contest.

Welcome to this month's Contest column.

Sunshine Coast Radio Club

Trent VK4TS (nee VK4TI) has sent some information about his (now) local radio club. The club gets together for various contest weekends and enjoy portable operation – see the two photos below.

Sunshine Coast Amateur Radio Club have a very good VHF/UHF contesting setup and a keen crew. For the recent Summer VHF UHF Field Day, club members travelled from as far away as Brisbane and Laidley to the site claimed by the club as their own, Howells Knob at Maleny QG63JF. Howells Knob is about four km out of Maleny on the

Reesville Road and is almost at the centre of the Sunshine Coast hinterland, offering views over most of Moreton Bay and Brisbane and has been the club's prominent contest site for many years.

The club has their own bright yellow WICEN insignia caravan

for portable purposes and for the larger efforts an additional van from the local SES is pushed into service. Hopefully the push is not to start it! Wayne VK4WS and Richard VK4RY organised the troops and Lester VK4ALH kept a watchful eye over the 6 m logging.

Bands active for the field day were six metres from the club van and two metres, 70 cm and higher were from the SES van. 1296 MHz, 2.4 GHz, 3.4 GHz, 10 GHz and 24 GHz were all used to good effect and the EME team showed off their low signal prowess on many bands. VK4JMC John brought along his backup setup which is attached to the rear of his 4X4 and over the weekend around ten Sunshine Coast members operated from the site. The enticement of the regular club Sunday BBQ on the hill helped motivate a few to make the trip up to the hinterland.

Field Days offer great camaraderie for a club and if your club has not tried one, make it a must do for 2012. Sunshine Coast club finished 3rd place Australia wide Multi Operator 24 hour section which is an effort of some note from remote VK4.



Photo 2: Greg VK4FSCC and Les VK4ALH.

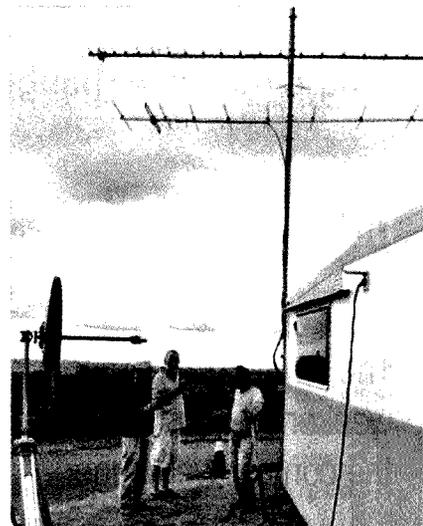


Photo 1: Ches VK4WT, Wayne VK4WS and John VK4JMC and the WICEN caravan.

It is good to see the club making a big effort and getting out and about for the contest. Seeing their set-up takes me back to my time in G-land and contesting with like-minded souls in the RSGB VHF/UHF Field Day every July. It was my task to provide the 70 cm station, so I made a transverter for my FT-1000MP, along with a mast head preamp and chunky linear amplifier. The station worked very well, gaining several wins over the years and I was soon approached by the two metre station operators to build them a similar setup.

Bringing the equipment to the portable site was often fraught with hassles. One year, the large wind-up mast for 70 cm which was being towed along a country lane, suddenly decided to try and overtake the vehicle ahead of it. The tow ball had broken off and the tower was pulled for a while by the safety chain until finding a hedge to hide in. A makeshift attachment was formed between the tower and the car and we sped away, after leaving a note for the hedge owner. My car was behind the tower at the time but I was only just able to stop without hitting anything as my car was weighted down with several large valve amplifiers and their associated anode power supplies. Thanks heavens for ABS.

I still have the 70 cm transverter and all of the VHF/UHF amplifiers that I made all that time ago. Maybe I should dust them off and fire them up someday...

Claimed scores for CQWW SSB 2011

The following callsigns appeared as submitted logs for the contest. It is good to see so many VK callsigns in the listing and so many 'sections' being entered from all of the 'main' call areas of VK.

The chaps at NCRG operated as VI6NC, having acquired permission to use the special prefix for CHOGM in Perth. The prefix may have helped increase the QSO tally as the total for the contest was in excess of 5,000. There were one or two others using the special prefix also from VK6, but I have not heard if they considered it to be an enhancement or not.

M/2 HP
VI6NC...7,056,751.

M/M HP
VK1CC...1,698,477.

M/S HP
VK4KW...8,117,417;
VK2GGC...1,295,325.

SOAB HP
VK3TDX...2,272,536;
VK2IM...1,707,284;
VK7ZE...963,980; VK4IU...738,150;
VK2GWK...344,715;
VK4DMC...253,800;
VK4SDD...158,046;
VK3AVV...156,078;
VK4HG...125,316; VK4GH...94,696;
VK3CTN...21,420; VK2BO...7,812;
VK4VI...7,665; VK2TTP...5,250;
VK2PN...4,278; VK2ACC...2,242;
VK5MK...2,065.

SOAB LP
VK2LAW...581,400;
VK3TZ...200,970;
VK4VDX...200,912;
VK4BOF...131,066;
VK2MWG...92,736;
VK2ERP...83,053; VK4BL...76,050;
VK3FM...51,272; VK3WZ...36,663;
VK4FAT...25,220; VK4XES...24,708;
VK8AR...9,452; VK5AKH...9,024;
VK3SMC...5,671; VK2GR...4,140;
VK8HPB...2,860; VI6CR...2,680;
VK1XYZ...2,279; VK7BEN...2,160;
VK4MON...561; VK5MPJ...70;
VK6WX...0.

SOAB QRP
VK4ATH...50,553.

SOAB(A) HP
VK4QH...2,129,976;
VK2BCQ...247,520;
VK3GK...218,025.

SOAB(A) LP
VK1OO...58,870.

SOSB(A)/10 HP
VK4MA...2,781,980;
VK6DXI...420,840; VI6XX...175,489.

SOSB(A)/10 LP
VK8DX...1,324,432; VK6DU...36,334.

SOSB/10 LP
VK4EJ...138,276; VK2NU...38,420.

SOSB/15 HP
VK4TL...32,370.

SOSB/80 LP
VK1SV...121.

RD Contest – Under New Management

It should be common knowledge that Alan VK4SN is the new contest manager for the RD, with the backing of the Lockyer Valley Radio and Electronics Club. The rules will have undergone something of a revamp and should possibly be on the WIA website; if not already, then they will be soon. It is never an easy task to take on such a challenge as the risk of upsetting someone's applegart is always very apparent. Unfortunately, the rules of the RD have become so convoluted over the years for a myriad of historic reasons, that it is my belief that the applegart not only needs upsetting, but ripping apart and exposed to a full body make over. As per the pommy TV show, a sixty minute make-over would not be enough! I digress! Well, I kind-of digress. I by no means wish to cast aspersions upon anyone's management prowess with a dodgy old metaphor, but a complete revamp is what the RD contest needs – and Alan is the right man for the job. I wish you well in your new endeavours All!

CQWPX SSB 2012

Well, did you have a go in this one? I will give a report on the contest next month but as I sit typing this, the contest is yet to start next month (March) and I am off work fighting off pneumonia. After swallowing more tablets than Moses could carry up a hill, I should be back to full strength again in time to fire up the station and give it a crack along with the rest of the team. It has ruined my chances of participating in BERU however.

All this has meant that preparation time for WPX has been somewhat curtailed. The VK4KW station was originally lined-up for various improvements and upgrades, but these plans have been limited in their execution due to all manner of reasons, including health aspects. This work will have to wait until after WPX, along with a few other upgrades that are currently being planned. The simplest 'upgrade' is likely to be the application for a

licence variation to allow 1 kW output. The additional 3 dB or so will be very welcome, especially on LF where gain is difficult to come by. That having been said, 160 metres does not appear on the allocated bands list for some reason, possibly due to the secondary status for amateur transmissions maybe? 40 metres is also not across the full band, with the upper cut-off being 7.100 MHz, possibly for the same reason.

Although the ACMA offering is currently a temporary facility there should be no reason why VK cannot retain the enhancement, as long as people act sensibly and do not try to operate at these power levels from suburbia, for example. That would be asking for trouble as regards TVI, I suspect. It would be a shame for 'the few' to un-do the hard work and results achieved by the WIA in gaining this excellent licence enhancement.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk4baa@wia.org.au

See you on the bands.

73 de VK4BAA Phil Smeaton



Harry Angel Sprint 2102 – Rules

Kevin Johnston VK4UH - Manager, Harry Angel Sprint

Date: Saturday 5 May, 2012, from 1000 UTC - 1146 UTC.

The Harry Angel Sprint is an annual 80 metre contest event, first established in 1999, to commemorate the life of Harry Angel VK4HA who, at the time of his death in 1988 at the age of 106, was the oldest licensed amateur in Australia.

The length of the contest is 106 minutes, in reference to that age.

The contest is open to all amateurs licensed to use 80 metres, including 'single' individual operators or to 'single' operators on behalf of a licensed club or society.

The aim of the competition will be to make as many contacts as possible in the allotted time. Each station may be worked on one occasion only per mode.

There will be three sections, PHONE, CW or MIXED. Entries may only be made in one section.

Frequencies: CW 3500 - 3535 kHz; Phone 3535 - 3590 kHz and 3650 - 3665 kHz.

Exchange: RS(T) and serial number commencing at 001.

Scoring: Two points per CW QSO, one point per phone QSO.

Log: To show time UTC, callsign of stations worked, mode, RS(T) sent and received. Each entry shall be accompanied by a statement to the effect that 'Operation was conducted within the rules and spirit of the competition'.

Entries: Logs may be submitted in electronic format, the preferred method, or printed in the above format. Entries must be received by last post on Monday 21 May, 2012.

Electronic submission to:
harryangel@redclifferadioclub.org.au

Postal submissions to:
Harry Angel Sprint Manager,
Redcliffe and District Radio Club,
Box 20, Woody Point. Qld. 4019.

Certificates will be awarded for the top three entries in each section.

The Harry Angel Sprint 2012 is being managed on behalf of the Redcliffe and District Radio Club by Kevin Johnston VK4UH, following the retirement of Ian Godsil VK3JS. On behalf of the contesting community, the Redcliffe and District Radio Club and the current manager wishes to formally congratulate and thank Ian for the many years of his involvement with this contest.

After 2012 it is anticipated that the contest will again be managed by the Redcliffe and District Radio Club under the auspices of the WIA and its Contest Committee. At that time it is possible that the date and/or rules may be adjusted in line with WIA general contest rules and recommendations as they are developed.

Further information regarding the contest will shortly be posted on the R&DRC website <http://www.redclifferadioclub.org.au>



WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

www.wia.org.au/members/contests/about

COQC QRP Hours Contest 2012

Sponsored by the CW Operators' QRP Club (COQC), the aim of the QRP Hours Contest is to make as many contacts as possible within a one-hour period using your choice of mode. While it is hoped that the event will be strongly supported by COQC members, it is open to all licensed amateur radio operators.

The contest is divided into two (2) one-hour periods. Modes and frequency sub-bands are allocated to each hour as shown in the table below.

Scoring

- Score one (1) point per contact regardless of mode.
- No multipliers apply.
- QRP stations can count contacts with QRO stations towards their final score.

Logs

- Logs must show full details for each QSO, namely time (UTC), station worked, mode, exchange serial sent, and exchange serial received.

Date / Time:	Saturday, 14th April 2012, from 1000-1159 UTC.
Frequency Band:	80 metres – see Frequency/Mode table below.
Category:	Single Operator.
Modes:	CW or PSK31 or RTTY/SSB – see Frequency/Mode table below.
Power:	Preferably 5 watts, but not more than 10 watts average (CW/PSK31/RTTY) or PEP (SSB) at the transmitter output – this is to stress the QRP nature of the event.
Exchange:	A three-digit serial number starting at 001 and incrementing by one for each new contact.
Repeat Contacts:	No repeats – only one contact per mode per hour.

- A Summary Sheet showing operator's callsign, name, address and total points claimed must accompany the Log.
- The preferred method of sending the log is email, but entrants must still include their postal address as per the Summary Sheet.
- Send Logs and Summary Sheet to the Contest Manager, Mike Dower VK2IG – email qrphours@exemail.com.au or snail mail: PO Box 8013, Gundaroo. NSW. 2620.
- Emailed logs must be postmarked no later than 2359 AEST on Wednesday, 2 May, 2012; snail mailed logs must be postmarked no later than Wednesday, 2 May, 2012.
- Feel free to include information about your station and band conditions, and any comments on what you liked or what you'd like to see included or improved.

Certificates will be awarded to the highest scores in each mode in each VK state or territory and ZL.

These rules can also be found at http://vkqrpclub.org/contest_page.php



Hour	Time (UTC)	Mode	Frequency (MHz)
First Hour	1000-1059	CW or PSK31 or RTTY	3.500-3.535 (CW)
			3.620-3.630 (PSK31/RTTY)
Second Hour	1100-1159	SSB	3.550-3.590

Summer VHF-UHF Field Day 2012: Results

Contest Manager: John Martin VK3KM.

Most entrants reported favourable weather (except for some rain in parts of VK2 and VK4), and plenty of activity. The total number of logs was 93, and there was activity on

all bands up to 47 GHz. The section winners were: Iain Crawford VK5ZD, Ralph Edgar VK3WRE, multi operator stations VK3UHF and VK3ALB, Barry Miller VK3BJM and Tim Dixon VK5ZT.

Congratulations to all, and thanks to all participants for making another successful Field Day.

The next Field Day will be held over the weekend of June 23/24.

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
Section A: Single Operator, 24 Hours													
VK5ZD	Iain Crawford	PF95, PF96	59	336	565	888	890	910	800	800	660	-	5908
VK5KK	David Minchin	PF95, PF95	53	174	400	712	730	730	670	670	550	-	4689
VK3WRE	Ralph Edgar	QF31	-	492	750	896	870	370	440	440	-	-	4258
VK3JTM	Tim Morgan	QF12	61	429	615	872	840	-	380	610	-	-	3807
VK4OE	Doug Friend	QG61, QG62	59	333	390	536	580	430	420	550	320	-	3618
VK5TX	Ben Hennessy	PF95	21	342	535	672	460	330	440	-	-	-	2800
VK5LD	Dale Loffler	PF96	86	474	810	744	-	-	-	-	-	-	2114
VK3LY	Bill Day	QF03	108	477	615	704	-	-	-	-	-	-	1904
VK4HBG	John Collins	QG62	76	624	435	-	-	-	-	-	-	-	1135

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
VK5OQ	Keith Gooley	PF95	70	201	275	272	-	210	-	-	-	-	1028
VK1DSH	Dale Hughes	QF45	43	327	180	224	-	-	-	210	-	-	984
VK2AMS	Mark Swannack	QF68	28	237	220	192	230	-	-	-	-	-	907
VK5AR	Alan Rafferty	PF94, PF95	59	261	420	-	-	-	-	-	-	-	740
VK1AI	Greg Patkhurst	QF44	60	417	260	-	-	-	-	-	-	-	737
VK2JDS	David Scott	QF46	-	219	160	168	-	-	-	-	-	-	547
VK5KLV	Les Virgo	PF87	78	183	170	-	-	-	-	-	-	-	431
VK3AZR	Trevor Jones	QF22	50	126	190	-	-	-	-	-	-	-	366
VK5NY	Roger Bowman	PF94	73	135	37	-	-	-	-	-	-	-	245
Section B: Single Operator, 8 Hours													
VK3WRE	Ralph Edgar	QF31	-	456	705	840	710	350	430	430	-	-	3921
VK5KK	David Minchin	PF95	21	105	255	496	500	500	450	450	330	-	3107
VK2XDE	Steven Harrison	QF67, QF68	44	165	220	352	440	440	440	550	330	-	2981
VK3JTM	Tim Morgan	QF12	56	258	415	664	670	-	330	550	-	-	2943
VK2DAG	Matt Hetherington	QF58	44	132	220	352	440	440	440	440	330	-	2838
VK5TX	Ben Hennessy	PF95	21	243	400	560	450	330	440	-	-	-	2444
VK3HY	Gavin Brain	QF32	81	540	665	704	-	-	-	330	-	-	2320
VK3YFL	Bryon Dunkley-Smith	QF22	73	372	440	680	-	-	-	350	-	-	1915
VK5TE	Simon Brandenburg	PF94	47	225	315	464	350	360	-	-	-	-	1761
VK5NI	John Ross	PF95	23	186	230	328	-	340	-	330	-	-	1437
VK5LD	Dale Loffler	PF96	68	300	500	560	-	-	-	-	-	-	1428
VK2GG	Dan Joyce	QF56, QF57	43	171	230	344	-	-	-	540	-	-	1328
VK2HRX	Compton Allen	QF56	41	315	395	376	-	-	-	-	-	-	1127
VK5AIM	Steve Mahoney	PF95	68	141	230	256	-	210	-	-	-	-	905
VK4ADC	Doug Hunter	QG61	54	183	250	176	-	-	-	-	-	-	663
VK3TCX	Ian Hoffman	QF42	44	222	190	-	-	-	-	-	-	-	456
VK5KLV	Les Virgo	PF87	78	177	170	-	-	-	-	-	-	-	425
VK5KPR	Peter Banks	PF87	66	177	110	-	-	-	-	-	-	-	343
VK3ZHQ	Eric Warren-Smith	QF22	21	228	-	-	-	-	-	-	-	-	249
Section C: Multi Operator, 24 Hours													
VK3UHF		QF21	216	828	1255	1352	1090	850	870	1000	590	540	8591
VK3ALB		QF11	60	519	630	752	770	480	590	500	230	-	4531
VK4WIS	SCARC	QG63	310	492	580	544	470	320	-	320	210	-	3246
VK3KQ		QF13	96	732	675	680	530	-	-	-	-	-	2713
VK5ARC	SCARC	PF94	156	582	680	744	-	-	-	-	-	-	2162
VK2BOZ		QF68	87	717	630	488	-	-	-	-	-	-	1922
VK1DA		QF44	90	624	660	328	-	-	-	210	-	-	1912
VK4WIE	CBRS	QG61	100	501	435	616	-	-	-	-	-	-	1652
VK4GHZ		QG61	72	366	435	360	-	-	-	-	-	-	1233
VK3YVG	YVARG	QF22	123	537	-	-	-	-	-	-	-	-	660
VK1MT		QF44	50	294	240	-	-	-	-	-	-	-	584
Section D: Multi Operator, 8 Hours													
VK3ALB		QF11	57	423	560	688	730	460	570	470	220	-	4178
VK3TPR		QF21	-	342	550	856	920	330	220	570	220	-	3998
VK5SR	SERG	QF02	67	396	565	648	450	330	330	460	-	-	3246
VK3KQ		QF13	68	465	545	480	450	-	-	-	-	-	2008
VK4IZ	RDRC	QG62	72	246	295	384	-	-	-	210	-	-	1207
VK2MB	MWRS	QF56	-	324	270	-	-	-	-	-	-	-	594
VK2LE	SGARS	QF56	66	183	295	-	-	-	-	-	-	-	544
VK2WFD		QF56	38	285	190	-	-	-	-	-	-	-	513
VK3EGC	EGARC	QF42	33	186	170	-	-	-	-	-	-	-	389
Section E: Home Station, 24 Hours													
VK3BJM	Barry Miller	QF22	173	702	725	928	860	-	-	-	-	-	3388
VK3MY	Ross Keogh	QF22	116	624	875	968	610	-	-	-	-	-	3193
VK5AKM	Keith Minchin	PF95	33	249	530	640	630	710	-	-	-	-	2792
VK3VFO	Nick Kraehe	QF31	26	645	660	448	340	-	-	-	-	-	2119
VK3NFI	Dean Webster	QF31	22	486	545	616	-	-	-	-	-	-	1669
VK3QI	Peter Forbes	QF22	-	207	275	792	350	-	-	-	-	-	1624
VK3BQ	Andrew Scott	QF22	78	489	510	504	-	-	-	-	-	-	1581
VK4VDX	Roland Lang	QG62	48	405	460	448	-	-	-	-	-	-	1361
VK4NE	Mick Marinkovic	QG62	135	321	330	464	-	-	-	-	-	-	1250
VK1KW	Robert Quick	QF44	68	387	315	320	-	-	-	-	-	-	1090
VK5KC	David Clegg	PF94	47	186	330	472	-	-	-	-	-	-	1035
VK4KLC	Ron Melton	QG62	191	333	470	-	-	-	-	-	-	-	994
VK5NE	Paul Roehrs	PF95	37	252	390	304	-	-	-	-	-	-	983

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
VK4JAM	Andrew Mason	QG62	56	198	260	392	-	-	-	-	-	-	906
VK5ALX	Alex Gliński	PF86	68	258	335	208	-	-	-	-	-	-	869
VK4ZDP	David Purkis	QH32	59	228	295	184	-	-	-	-	-	-	766
VK3AVV	Mike Subocz	QF22	26	414	280	-	-	-	-	-	-	-	720
VK2EI	Neil Sandford	QF68	38	285	160	-	230	-	-	-	-	-	713
VK5OM	Jim Bywaters	QF03	-	129	210	336	-	-	-	-	-	-	675
VK2TG	Robert Demkiw	QF55	54	288	305	-	-	-	-	-	-	-	647
VK3VL	David Harms	QF33	-	306	335	-	-	-	-	-	-	-	641
VK4NBL	Peter Fauth	QG63	36	165	195	192	-	-	-	-	-	-	588
VK3TOM	Tom Steadman	QF31	25	237	270	-	-	-	-	-	-	-	532
VK5FPAW	Paul Schulz	PF95	-	213	300	-	-	-	-	-	-	-	513
VK3WWW	Jack Bramham	QF22	-	129	115	176	-	-	-	-	-	-	420
VK2NR	David Porter	QF56	32	168	185	-	-	-	-	-	-	-	385
VK5VAB	Bruce Gauci	PF95	22	162	190	-	-	-	-	-	-	-	374
VK1FD	Daniel Flakelar	QF44	55	108	155	-	-	-	-	-	-	-	318
VK5ZQV	Gerard Rankin	PF95	-	123	185	-	-	-	-	-	-	-	308
VK5KX	Peter Murphy	PF95	-	108	70	-	-	-	-	-	-	-	278
VK2ZQX	John Watson	QF58	-	105	-	-	-	-	-	-	-	-	105
VK2ACL	Matt Maguire	QF56	21	-	-	-	-	-	-	-	-	-	21
Section F: Rover Station, 24 Hours													
VK5ZT	Tim Dixon	PF85, PF86, PF94, PF95, PF96	75	366	575	896	990	900	990	980	740	-	6512
VK5KK	David Minchin	PF84, 94, 95	53	207	490	848	860	850	790	790	760	-	5648
VK2CU	Justin Lavery	QF57, QF58, QF59, QF68, QF69, QG50	90	357	470	736	560	560	560	560	440	-	4333
VK3AKK	Ken Jewell	QF11, 12, 21, 22	-	-	-	-	-	540	430	-	540	540	2050
Notes													
VK1A	Andrew Davis	VK1DA, Adan Willemse	VK1FJAW										
VK1MT	Matt Bowman	VK1MT, Shane Goodwin	VK1MAD										
VK2LE	St George Amateur Radio Society: Paul Howarth VK2GX, Greg Bain VK2HIP, Cameron McKay VK2CKP, Lesley Stanger (SWL)												
VK2MB	Manly-Warringah Radio Society: Nick VK2FS, Geoff VK2MIA, Carlo VK2FLUX												
VK2BOZ	Cris Perrett VK2BOZ, Brenda Taylor VK2FSMI, Doug Tufrey VK2FWWD												
VK2WFD	Col Matten VK2KCM, Carlos Peco VK2KTS, Rod Jarman VK2FVRJ, Ed Durrant VK2ARE												
VK3KQ	Damian VK3KQ, Ralph VK3LL												
VK3ALB	Lou Blasco VK3ALB, Nik Presser VK3BA, Peter Westgarth VK3APW, Jenni Blasco VK3FJEN, Michael Blasco VK3FMIC												
VK3EGC	East Gippsland ARC: Zac Brown VK3FZRB, Ian Hoffman VK3TCX												
VK3TPR	Michael Coleman VK3KH, Alan Devlin VK3XPD, Peter Roberts VK3TPR												
VK3UHF	Ken Jewell VK3NW, Charlie Kahwagi VK3NX, Chas Gnaccarini VK3PY, David Learmonth VK3QM, Arie Groen VK3AMZ, Carlo Leone VK3BCL												
VK3YVG	Yarra Valley Amateur Radio Group: Brian VK3ABJ, Rob VK3PPC, Fred VK3DAC, Kevin VK3AUQ, Steve VK3TSR, Ken VK3TKQ, Trevor VK3HTL												
VK4IZ	Redcliffe & District Radio Club: Kevin Johnston VK4UH, David Close VK4DC, John Maudsley VK4YJV, Peter Schrader VK4EA												
VK4GHZ	Alan VK4WR, Graeme VK4FI, Scott VK4CZ, Adam VK4GHZ												
VK4WIE	City of Brisbane Radio Society: John Morris VK4MJF, David Noble VK4KSY, Darren Bumpstead VK4DJB, Ken Myers VK4GC												
VK4WIS	Sunshine Coast ARC: Ches Bassingthwaighte VK4WT, Glen Campbell VK4FSCC, Kirsty Golder VK4FXL, Leicester Hibbert VK4ALH, John McPherson VK4JMC, Richard Philp VK4RY, Wayne Shaw VK4WS												
VK5ARC	South Coast Amateur Radio Club: Barry Bates VK5KBJ, Stef Daniels VK5HSX, Alex Daniels (SWL)												
VK5SR	South East Radio Group: Charles VK5HD, Trevor VK5NC, Owen VK5FORS, Colin VK5DK												

Don't forget

14-15 April | WIA National Field Day

Amateur Radio, The first technology based social network!

Mark your calendars for this day to demonstrate our hobby to the public in your area.

Start looking for links into community events, **NOW!**

Watch the WIA website for more info.

WIA Board Coordinator Philip Adams VK3JNI vk3jni@wia.org.au

Ross Hull Memorial VHF-UHF Contest 2012: Results

Contest manager: John Martin VK3KM

This year's results are a very mixed bag. In Section A, the top two scores were gained by Bob McQuarrie ZL3TY and Stephen Hayman ZL1TPH - the first time the Ross Hull Contest has been won by a station outside Australia. Coming third as the top scoring VK station was Ted Thrift VK2ARA. And who says there isn't enough activity in VK6? Next in line was Barrie Burns VK6ADI.

In the digital section, top score went to Dave VK2JDS with a log of 1296 MHz EME contacts, followed by one station from each of VK1, 4, 6, 7 and ZL. Congratulations to all.

These scores provide plenty of

food for thought. The number of logs is on the increase again, but with only one or two entrants from each call area, there is certainly plenty of opportunity for others to join in and to do very well.

There were plenty of stations making DX contacts during the contest, but they didn't send in logs. One reason is that during DX openings, time is often too short to exchange serial numbers or to explain the contest to people who haven't participated before. The rules allow the exchange of serial numbers to be skipped for contacts made during short-lived openings. It may

help next time if the rule is further relaxed to require only the exchange of call signs and signal reports for any contacts. This rule already applies to Section B, so maybe it should apply to Section A as well. That would mean that any contact you make would be eligible to go straight into your Ross Hull Contest entry.

Remember that the contest runs for a month but scoring is based on the best seven days during that month. But you do not need to operate for even seven days. Many of this year's entrants sent in logs that covered only three or four days of operation.

Call	Name	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
Section A: All Bands												
ZL3TY	Bob McQuarrie	-	5145	-	-	-	-	-	-	-	-	5145
ZL1TPH	Stephen Hayman	-	3258	415	-	-	-	-	-	-	-	3673
VK2ARA	Ted Thrift	1704	591	50	-	-	-	-	-	-	-	2345
VK6ADI	Barrie Burns	1584	54	20	-	-	-	-	-	-	-	1658
VK2AH	Brian Farrar	1150	687	150	-	-	-	-	-	-	-	1987
VK5APN	Wayne Pearson	-	1626	-	-	-	-	-	-	-	-	1626
VK2JDS	David Scott	-	-	-	1256	-	-	-	-	-	-	1256
VK3HY	Gavin Brain	34	201	225	216	-	-	-	50	-	-	726
VK3YFL	Bryon Dunkley-Smith	52	108	90	144	-	-	-	40	-	-	434
VK3FEZZ	John Witte	-	39	25	-	-	-	-	-	-	-	64
Section B: All Bands, Digital Modes												
VK2JDS	David Scott	-	-	-	12800	-	-	-	-	-	-	12800
VK5APN	Wayne Pearson	-	9930	-	-	-	-	-	-	-	-	9940
VK4CDI	Phil Moat	-	-	1450	3266	-	-	-	-	-	-	4716
ZL3TY	Bob McQuarrie	-	1251	-	-	-	-	-	-	-	-	1251
VK7MO	Rex Moncur	-	-	755	-	-	-	-	450	-	-	1205
VK1WJ	Waldis Jirgens	-	255	-	-	-	-	-	-	-	-	255
VK6ADI	Barrie Burns	22	42	5	-	-	-	-	-	-	-	69



It is almost that time again: GippTech 2012 will be happening on the weekend of 7 and 8 July, at Monash University Gippsland Campus in Churchill, Victoria, about 170 km east of Melbourne.

Those wishing to present at this year's conference should contact the Chair as soon as possible:

vk3pf@wia.org.au

Peter VK3PF
Conference Chair

GippTech has a well-recognised reputation as a premier amateur radio technical conference, with its focus primarily on techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts. Even if you are new to these areas of amateur radio, you will learn a great deal of information during the weekend.

A Partner's Tour will be conducted, together with an informal social gathering for dinner on Friday and a Conference Dinner on Saturday.

Details of the conference are available from the Eastern Zone Amateur Radio Club website: <http://www.vk3bez.org/>

Registration forms will be available in the near future.

Gridsquare Standings at 17 February 2012

Guy Fletcher VK2KU

144 MHz		Terrestrial
VK2FLR	Mike	120
VK3NX	Charlie	107
VK2KU	Guy	102
VK3HZ	David	91
VK3PF	Peter	90
VK2ZT	Steve	86 SSB
VK5AKK	Phil	84 SSB
VK3PY	Chas	80 SSB
VK2ZAB	Gordon	78 SSB
VK2DVZ	Ross	77 SSB
VK3BDL	Mike	71 SSB
VK3BJM	Barry	69 SSB
VK2AMS	Mark	68 SSB
VK3II	Jim	66
VK3QM	David	66 SSB
VK7MO	Rex	66
VK2EI	Neil	65
VK2TK	John	62
VK3II	Jim	62 SSB
VK2MER	Kirk	61 SSB
VK3WRE	Ralph	60 SSB
VK4FNQ	John	59
VK4FNQ	John	58 SSB
VK3PF	Peter	56 SSB
VK5BC/p	Brian	55 SSB
VK5BC	Brian	53 SSB
VK3KH	Michael	52 SSB
VK3ZLS	Les	51 SSB
VK4CDI	Phil	51
VK3HY	Gavin	49
VK4CDI	Phil	47 SSB
VK3VG	Trevor	46 SSB
VK7MO	Rex	46 SSB
VK7MO	Rex	46 Digi
VK3AKK	Ken	45 SSB
VK4KZR	Rod	43
ZL3TY	Bob	42
VK4TJ	John	41 SSB
VK3EJ	Gordon	40 SSB
VK3PF	Peter	40 Digi
VK2TG	Bob	39 SSB
VK3UH	Ken	38
VK2TK	John	35 SSB
VK3DXE	Alan	35
VK2KOL	Colin	34 SSB
VK3II	Jim	33 Digi
VK3ZUX	Denis	33 SSB
VK1DA/p	Andrew	31
VK1WJ	Waldis	29
VK3DXE	Alan	28 SSB
VK4KSY	David	28 SSB
VK2TK	John	27 Digi
VK1WJ	Waldis	25 Digi
VK4CDI	Phil	25 Digi
VK3TLW	Mark	24 SSB
VK4EME	Allan	23
VK3ALB/p	GARC Team	22 SSB
VK3BG	Ed	22 SSB
VK3KH	Michael	21 Digi
VK3ECH	Rob	20 SSB

VK6KZ	Wally	20
VK2ZT	Steve	19 Digi
VK4EME	Allan	19 SSB
VK3AL	Alan	18 SSB
VK6KZ/p	Wally	16
ZL3TY	Bob	15 Digi
VK5APN	Wayne	13
VK2DVZ	Ross	12 Digi
VK2EI	Neil	12 Digi
VK4EME	Allan	12 Digi
VK2AMS	Mark	10 Digi
VK2KOL	Colin	9 Digi
VK1WJ	Waldis	7 SSB
VK5APN	Wayne	7 Digi
VK5APN	Wayne	7 SSB
ZL3TY	Bob	7 CW
VK1WJ	Waldis	5 CW
VK4AE	Denis	5 SSB
VK4KSY	David	5 Digi
VK4JAZ	Grant	4 FM
VK2GG	Dan	3
VK3DXE	Alan	2 Digi
VK3DXE	Alan	2 CW
VK3QM	David	1 Digi
VK4FNQ	John	1 FM

144 MHz		EME
VK2KU	Guy	464
VK2KU	Guy	450 Digi
ZL3TY	Bob	403
VK3AXH	Ian	343 Digi
VK4CDI	Phil	249 Digi
VK5APN	Wayne	234
VK5APN	Wayne	229 Digi
VK7MO	Rex	157 Digi
VK2FLR	Mike	120
VK2DVZ	Ross	110 Digi
VK3II	Jim	87 Digi
VK2AWD	David	82 Digi
VK3KH	Michael	50 Digi
VK2KU	Guy	44 CW
VK3DDU	Paul	39 Digi
VK2ZT	Steve	28 Digi
VK3HZ	David	19
VK5APN	Wayne	15 CW
VK3DXE	Alan	7 Digi
VK3NX	Charlie	5 CW
VK4EME	Allan	5 Digi
VK3AXH	Ian	3 CW
VK2DVZ	Ross	2 CW
VK3AXH	Ian	1 SSB

432 MHz		Terrestrial
VK2ZAB	Gordon	57 SSB
VK3PY	Chas	51 SSB
VK3NX	Charlie	50 SSB
VK3QM	David	50 SSB
VK3HZ	David	40
VK3ZLS	Les	40 SSB
VK3BJM	Barry	39 SSB
VK5AKK	Phil	39 SSB
VK2KU	Guy	38

VK2ZT	Steve	35 SSB
VK2DVZ	Ross	34 SSB
VK3BDL	Mike	34 SSB
VK3WRE	Ralph	33 SSB
VK3PF	Peter	32
VK3PF	Peter	30 SSB
VK5BC	Brian	26 SSB
VK1DA/p	Andrew	24
VK2MER	Kirk	24 SSB
VK3KH	Michael	22 SSB
VK3VG	Trevor	20 SSB
VK5BC/p	Brian	20 SSB
VK7MO	Rex	20
VK2AMS	Mark	19 SSB
VK2TK	John	18
VK3ALB/p	GARC Team	18 SSB
VK7MO	Rex	18 SSB
VK2TK	John	17 SSB
VK3AKK	Ken	15 SSB
VK3BG	Ed	15 SSB
VK3TLW	Mark	15 SSB
VK3ZUX	Denis	15 SSB
VK4CDI	Phil	15
VK4CDI	Phil	15 SSB
VK4KZR	Rod	15
VK6KZ	Wally	13
VK2EI	Neil	12 SSB
VK2KOL	Colin	12 SSB
VK2TG	Bob	11 SSB
VK4TJ	John	11 SSB
VK3AL	Alan	10 SSB
VK3ECH	Rob	10 SSB
VK4FNQ	John	10 SSB
VK3UH	Ken	8
VK6KZ/p	Wally	8
VK3KH	Michael	7 Digi
VK7MO	Rex	7 Digi
ZL3TY	Bob	7
VK4CDI	Phil	6 Digi
VK4EME	Allan	6 SSB
VK1WJ	Waldis	5 SSB
VK2DVZ	Ross	4 Digi
VK2ZT	Steve	4 Digi
VK3PF	Peter	4 Digi
VK3PY	Chas	4 Digi
VK3QM	David	4 Digi
VK2AMS	Mark	3 Digi
VK3DXE	Alan	3 SSB
VK4AIG	Denis	3 SSB
VK4JAZ	Grant	3 FM
VK2GG	Dan	2
VK2KOL	Colin	1 Digi
VK2TK	John	1 Digi

432 MHz		EME
VK4EME	Allan	62
VK4EME	Allan	57 Digi
VK4CDI	Phil	39 Digi
VK7MO	Rex	10
VK4EME	Allan	9 CW
VK7MO	Rex	9 Digi
VK3NX	Charlie	5 CW

VK3AXH	Ian	4 Digi
VK3HZ	David	4
VK3KH	Michael	3 Digi
VK3NX	Charlie	3 Digi
VK2ZT	Steve	2 Digi
VK5BC	Brian	1
ZL3TY	Bob	1
1296 MHz Terrestrial		
VK3PY	Chas	41 SSB
VK3QM	David	41 SSB
VK3NX	Charlie	37 SSB
VK2ZAB	Gordon	29 SSB
VK2DVZ	Ross	26 SSB
VK3ZLS	Les	26 SSB
VK5AKK	Phil	26 SSB
VK2KU	Guy	25
VK3BJM	Barry	22 SSB
VK3PF	Peter	22
VK3PF	Peter	20 SSB
VK3WRE	Ralph	20 SSB
VK3HZ	David	19
VK3KWA	John	19
VK3BDL	Mike	18 SSB
VK3KH	Michael	17 SSB
VK3ALB/p	GARC Team	16 SSB
VK2ZT	Steve	13 SSB
VK3VG	Trevor	12 SSB
VK4KZR	Rod	12
VK3BG	Ed	11 SSB
VK5BC	Brian	11 SSB
VK7MO	Rex	11 SSB
VK1DA/p	Andrew	10
VK2TK	John	10 SSB
VK2AMS	Mark	9 SSB
VK5BC/p	Brian	9 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3UH	Ken	7
VK2MER	Kirk	6
VK3ECH	Rob	6 SSB
VK3ZUX	Denis	5 SSB
VK4CDI	Phil	5
VK4CDI	Phil	5 SSB
VK4TJ	John	5 SSB
VK6KZ/p	Wally	5
VK3KH	Michael	4 Digi
VK6KZ	Wally	4
VK4EME	Allan	3 SSB
VK7MO	Rex	3 Digi
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK2TG	Bob	2 SSB
VK3PF	Peter	2 Digi
VK3QM	David	2 Digi
VK4AIG	Denis	2 SSB
VK4CDI	Phil	2 Digi
VK4FNQ	John	2 SSB
VK2DVZ	Ross	1 Digi
VK2ZT	Steve	1 Digi
ZL3TY	Bob	1 SSB
1296 MHz EME		
VK4CDI	Phil	78
VK4CDI	Phil	66 Digi
VK3NX	Charlie	56 CW
VK7MO	Rex	41
VK7MO	Rex	36 Digi
VK4CDI	Phil	27 CW

VK2AMS	Mark	20 Digi
VK3AXH	Ian	14 Digi
VK4CDI	Phil	3 SSB
2.4 GHz Terrestrial		
VK3PY	Chas	18 SSB
VK3NX	Charlie	17 SSB
VK3QM	David	17 SSB
VK3AKK	Ken	15 SSB
VK3WRE	Ralph	11 SSB
VK3ALB/p	GARC Team	7 SSB
VK3BJM	Barry	7 SSB
VK3PF	Peter	7 SSB
VK3KH	Michael	6 SSB
VK3HZ	David	5
VK4KZR	Rod	4
VK6KZ	Wally	4
VK2EI	Neil	3 SSB
VK3KH	Michael	3 Digi
VK1DA/p	Andrew	2
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK3PF	Peter	2 Digi
VK2DVZ	Ross	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB
2.4 GHz EME		
VK3NX	Charlie	41 CW
VK7MO	Rex	14
VK7MO	Rex	10 Digi
3.4 GHz Terrestrial		
VK3NX	Charlie	14 SSB
VK3QM	David	14 SSB
VK3WRE	Ralph	9 SSB
VK3PY	Chas	7 SSB
VK3PF	Peter	6 SSB
VK6KZ	Wally	4
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK2AMS	Mark	1 Digi
VK2EI	Neil	1 SSB
VK2EI	Neil	1 Digi
3.4 GHz EME		
VK3NX	Charlie	16 CW
5.7 GHz TERRESTRIAL		
VK3NX	Charlie	14 SSB
VK3QM	David	12 SSB
VK3PY	Chas	11 SSB
VK3WRE	Ralph	9 SSB
VK3PF	Peter	7 SSB
VK3ALB/p	GARC Team	6 SSB
VK6KZ	Wally	4
VK2GG	Dan	3
VK3BJM	Barry	2 SSB
VK3PF	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK2AMS	Mark	1 SSB
VK2EI	Neil	1 SSB
VK3ZUX	Denis	1 SSB
5.7 GHz EME		
VK3NX	Charlie	24 CW
10 GHz Terrestrial		
VK3HZ	David	69
VK3HZ	David	27 SSB

VK3PY	Chas	20 SSB
VK3QM	David	17 SSB
VK3AKK	Ken	16 SSB
VK3NX	Charlie	16 SSB
VK3PF	Peter	11 SSB
VK3WRE	Ralph	11 SSB
VK6BHT	Neil	9 SSB
VK3ALB/p	GARC Team	7 SSB
VK2EI	Neil	6
VK6KZ	Wally	5
VK2AMS	Mark	3 SSB
VK2EI	Neil	3 Digi
VK2EM	Bruce	3 SSB
VK3KH	Michael	3 SSB
VK3KH	Michael	3 Digi
VK3TLW	Mark	3 SSB
VK7MO	Rex	3
VK2GG	Dan	2
VK3BJM	Barry	2 SSB
VK3UH	Ken	2
VK3ZUX	Denis	2 SSB
VK4KZR	Rod	2
VK1DA/p	Andrew	1
VK3BG	Ed	1 SSB
VK3NX	Charlie	1 Digi
10 GHz EME		
VK3NX	Charlie	16 CW
24 GHz Terrestrial		
VK3NX	Charlie	4 SSB
VK3QM	David	3 SSB
VK6BHT	Neil	3 SSB
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK6KZ	Wally	2
VK3WRE	Ralph	1 SSB
47 GHz Terrestrial		
VK3NX	Charlie	4 SSB
VK3QM	David	4 SSB
VK2GG	Dan	2
76 GHz Terrestrial		
VK3KH	Michael	1 SSB
122 GHz Terrestrial		
VK3KH	Michael	1 SSB
474 THz		
VK3WRE	Ralph	3 AM
VK3HZ	David	2
VK7MO	Rex	2
VK7MO	Rex	2 Digi
VK7TW	Justin	2
VK7TW	Justin	1 Digi

Additions, updates and requests for the guidelines to Guy VK2KU.

The guidelines (and the latest League Table) are also available on the VK VHF DX Site at <http://vhfdx.radiocorner.net> - click on Gridsquares.

Next update of this table will close on or about 15 June 2012.

Stations who do not confirm their status for more than 12 months may be dropped from the table.





VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC

The Tasmanian microwave DXpedition

For some time now the microwave experimenters group (LUMEG) within the Geelong Amateur Radio Club have been chasing grid squares as a means of proving the efficiency of the equipment that they have designed and assembled over many years. VK7 offered six grid squares across the northern half of Tasmania with the potential of distances in excess of 400 km. As there is limited microwave activity below 10 GHz in Tasmania the GARC experimenters group decided to do it themselves. In all they spent 10 days on the island after travelling there by ferry with all the gear in David VK3QM's four wheel drive.

Their primary aim was to work the GARC home team of Chas VK3PY, Charlie VK3NX and Lou VK3ALB from QE38 Devonport, QE28 Burnie, QE29 Table Cape, QE39 Petal Point, QE49 Mussleroe Bay and QE48 Mt Poimena. The expedition was equipped for all bands from 50 MHz to 24 GHz, although the highest band was a last minute inclusion.

On the day they landed they operated from the three north-west grids, QE38, QE28 and QE29. That night they drove across the island and in the morning set up camp first in QE49 then in QE39. They then drove down the east coast to QE47 where they worked Rex VK7MO on four bands and then moved on to Hobart.



Photo 2: David VK3QM and Peter VK7PD.

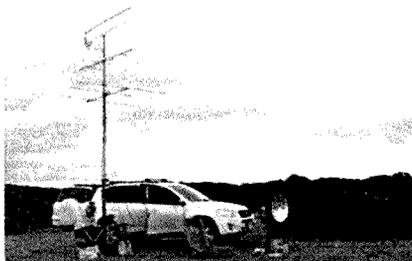


Photo 1: The Tasmanian DXpedition microwave set-up.

Whilst they were there they did some tests with Rex and had their first two way contact in VK7 on 24 GHz.

A day or so later they moved back north again where they operated from Mt Barrow, the site of the VK7RAA repeater, and established a VK7 record on 24 GHz of approximately 160 km, back to Mt Wellington near Hobart with Rex VK7MO.

Back on the road again it was off to Mt Poimena and QE48 where they had to carry all the gear one km up the mountain to operate from the final grid square. Ken and David then went off to stay with VK7PD for a rest and meet some of the locals before catching the ferry back to Victoria. As a result of this operation many people worked new grid squares on various bands and the team had about 300 contacts across Bass Straight on all the microwave bands, except 24 GHz.

In all eight GARC members were worked including Gary VK3FWGR who was the only F call they heard. The expedition established new VK3 to VK7 distance records on 2.4 GHz and 5.7 GHz, at approximately 470 km and they also found time to visit amateur radio clubs in both Hobart and Launceston.

In all the expedition, over the 10 day period, provided a lot of activity on the VHF, UHF and microwave bands as well as developing some valuable VK7 contacts for a return visit in the future; with a view to activating some more, rare, grid squares. Thanks to Ken VK3NW for the narrative and David VK3QM for the photographs.

COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$255
Coup/ld res/tr dipole tri band	\$680
20 m confined space beam 3 el.	\$459
Mobile screw driver antenna 10-80	\$338
15 m 3 el. 3.6 m boom	\$314
M b vert auto switch 10-80 m	\$360
40 m lin load 2 el. cap hats	\$670
6 m 5 el 3.6 m 1 boom	\$314
6 m 7 el. 6.8 boom bal feed	\$456
23 cm 36 el. 2 m l boom n-con	\$249
70 cm hi/gain Yagi 3 mtr boom	\$170
2 m 10 el. hi/gain Yagi	\$190
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$319
Open sleeve 10-15 m vert 3 dB	\$274
Rotatable dipole 40 m	\$298
Tri band 10/15/20 - 5 el.	\$860

Guyed masts 13 or 21 metres

Winch up, tilt-over,
aluminium and stainless steel
three sided construction.
Auto brake winches.

115 John Street
Glenroy VIC 3046

Phone

0419 542 437

Foundation Corner 19:

An introduction to amateur satellites

Ross Pittard VK3CE

Australian amateurs have been at the forefront of amateur satellite communications since the inception of the amateur satellite program.

Oscar 5, built at University of Melbourne was launched on a Thor Delta rocket from the Vandenberg Air Force base in the USA on 23 January, 1970. It was piggy backed with a TIROS-M weather satellite. Students at the university constructed the battery powered satellite which transmitted telemetry data on both the 2 m and 10 m amateur bands and was one of the forerunners of the modern amateur communication satellites.

Since these early experiments amateurs from around the world have all participated in the design and construction of amateur satellites. For a complete list of the satellites past and present have a look at Wikipedia, per Reference 1.

Amateur Radio magazine publishes a list of the operational satellites twice a year (January/July) which provides useful information on the transponder frequencies, satellite status and beacon frequencies. For many new amateurs it looks a daunting prospect to be able to work through an amateur satellite. In the case of satellites using 23 cm and higher frequencies this is certainly true, but surprisingly a dual band hand held radio even with a rubber ducky antenna and a piece of prediction software is really all that is required to begin using and enjoying the amateur satellites.

One of the easier satellites to work for the beginner is AO-51; launched in 2004 this satellite has, amongst others, an FM transponder 145.920 MHz uplink and 435.300 MHz downlink with a 67 Hz tone access. The current status of AO-51 can be seen at Reference 2. (*Editor's Note: As of mid-September 2011, AO-51 has only limited operational capability and may have failed before*

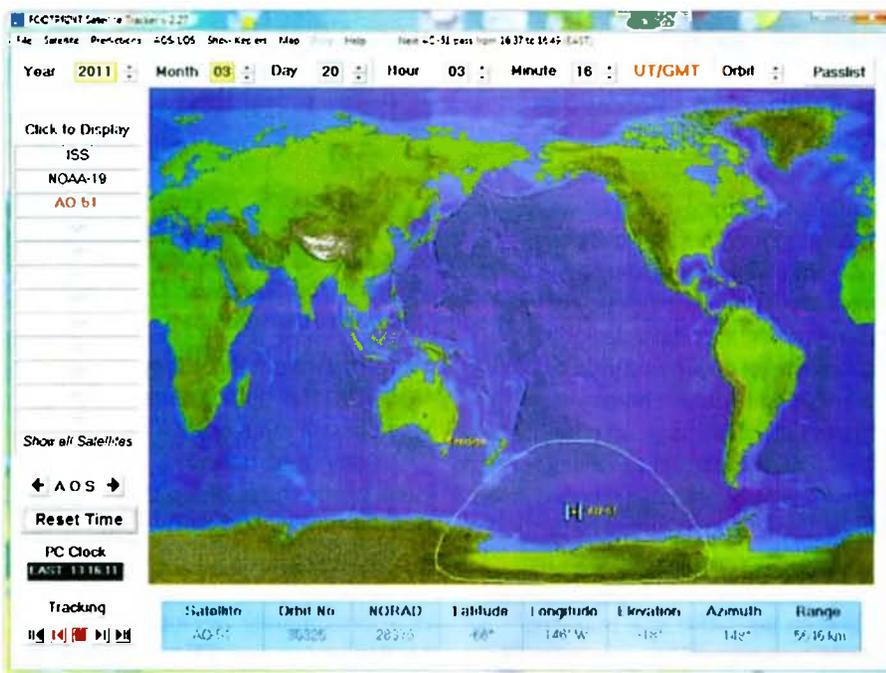


Photo 1: Screen shot of footprint program in action.

this article is published.)

There are many programs around to predict satellite passes, both freeware and commercial; the one I use is called 'Footprint', available at Reference 4. It is easy to install and the best part is it is free. As the name implies the program displays a map of the world with the 'footprint' of the satellite superimposed on it, continually updating in real time, and it is only a matter of glancing at the screen to see if the satellite is within range. To be able to accurately predict satellite passes the program requires what is called Keplerian elements; this is data provided by NASA that gives the current orbital characteristics of the satellite in question. I subscribe to these on the AMSAT web site, Reference 5, and they contain Keps for all the amateur and weather satellites, as well as the space shuttle, and are emailed to me every Friday afternoon. Once received it is a simple matter of importing and saving them into the 'Footprint' program.

Providing your PC clock is

accurate to within a few seconds and your latitude/longitude is set in the program the satellite should be heard when the footprint is shown over your QTH. On the subject of your PC's time, another useful utility program to try is Net Time, refer Reference 8, which will keep your PC clock synchronised to one of a user selectable list of time servers which are accurate to a few milliseconds.

If you own one of the newer dual band handhelds try programming the 2 m/70 cm frequencies into the unit and it should be possible to hear the satellite when it is over your QTH. If using a rubber ducky antenna only passes directly overhead may be heard. If a small Yagi, Reference 3, or perhaps a base antenna is used more passes will be workable. Once one is hooked on satellites there are many base station antennas to construct including crossed dipoles, Lindenblads, Reference 6, and quadrifilars, Reference 7.

Many amateurs successfully work AO-51 using a dual band antenna directly connected to a HH.

Do not hold the radio with the antenna vertical as you would when operating through a repeater; it is best to have the antenna orientated at right angles to the elevation angle of the satellite.

The other important consideration for the newcomer to satellites is the phenomenon called 'Doppler shift'. This is the same effect as when you hear a police siren; it sounds higher in pitch as it is coming towards you and lower in pitch when it is going away from you. When using a hand held radio just program a frequency, say 5 kHz, above and below the nominal frequency to allow for the Doppler shift. It is then a simple matter to change memories as the satellite passes above you.

If the handheld you are using has full duplex mode, that is, it simultaneously receives and transmits try using a pair of headphones or an ear piece to monitor the downlink frequency when transmitting.

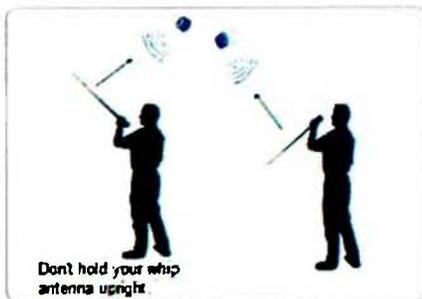


Photo 2: Antenna orientation.

Before transmitting try listening to the satellite, or perhaps record a few passes to get an idea of the way things happen and remember to use as low a power setting as needed to get a good signal through the device.

Don't be afraid to give it a go!

Some common terms used in satellite work

Azimuth - the compass direction from the viewer to the satellite.

Elevation - the angle from the horizon up to the satellite.

Footprint - the area of the earth's surface visible to the satellite.

Apogee - the point in the satellites orbit that it is farthest from the earth.

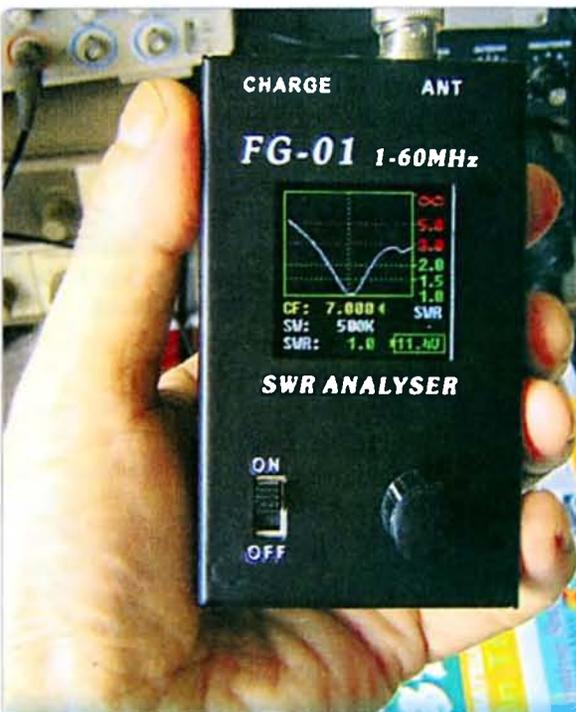
Perigee - the point in the satellites orbit that it is closest to the earth.

LEO - Low earth orbit.

Doppler Shift - the change in frequency of a received signal due to the motion of the satellite.

References

1. http://en.wikipedia.org/wiki/OSCAR#Satellites_previously_launched
2. <http://www.amsat.org/amsat-new/echo/>
3. <http://www.wa5vjb.com/references/Cheap%20Antennas-LEOs.pdf>
4. <http://myweb.tiscali.co.uk/wxsatellite/footprint.htm>
5. <http://www.amsat.org/amsat-new/tools/keps.php>
6. <http://www.k17uw.com/LBant.htm>
<http://jccoppens.com/ant/qth/calc.en.php>
7. <http://nettime.sourceforge.net/>



New from

YouKits

The ultimate in affordable, portable HF antenna analyzers

- ▶ Frequency range 1 to 60 MHz
- ▶ Displays both Impedance and VSWR plots
- ▶ Variable sweep widths 50, 20, 10, 5, 2, 1, 0.5, 0.2, 0.1, 0.05, 0.02, 0.01 MHz
- ▶ Daylight usable color LCD display
- ▶ 12V external supply or optional internal Lithium-ion battery pack

Australian distribution by



tts systems

Phone 03 59774808

Fax 03 59774801

Email info@ttssystems.com.au

Web www.ttssystems.com.au



VK5news

Christine Taylor VK5CTY

Adelaide Hills Amateur Radio Society (AHARS)



Photo 1: The AHARS committee, minus Jean VK5TSX.

VK5HH, Rob VK5RG and Roy VK5NRG. The two co-opted members are Wolf VK5HWL and Tina VK5TMC.

After supper Steve VK5AIM gave a short talk about valves, with a well-mounted collection to demonstrate the similarities and differences and the historical development of valves. Many of the

It is important to remember that it is theoretically possible for a large enough electromagnetic pulse (such as Earth experiences when there are large active sunspots – some small ones would be welcome!) – to disrupt some solid state electronic equipment and satellites so that we could need to rely on valves again one day.

Regular meetings are now held in the Senior Citizen's Building, just behind the Blackwood Shopping Centre, on the third Thursday of each month. Visitors are always welcome.

The AGM of AHARS was held in February. The committee was elected unopposed with two co-opted members to deal with the management of the antenna analyser kits designed by Jim VK5TR. These kits were prepared and sold through South Coast ARC until recently when they had to move premises and found they no longer had the storage space to continue.

The new committee of AHARS is David VK5KC, President, Barry VK5BW, vice President, Robert VK5ZHW, Treasurer, Jean VK5TSX, Secretary, with Committee members Denis

valves evoked comments from some of the older members as they remembered the application to which they used the item of interest. For some of the valves there were common names that often arose because of their appearance, such as the 'light globe', the 'door knob' etc. Although few valves are used by amateurs these days they are still in use in some larger commercial transmitters and the like and they are still being produced in factories scattered around the globe.



Photo 2: Some of the valves on display at the AHARS presentation by Steve VK5AIM.

Silent Key Roy Knox Mahoney VK4BAY

It is with great sadness that I report that Roy Knox Mahoney VK4BAY, of Manly West, in Brisbane is now a silent key. Roy was born in Mundubbera in 1922, and his hand was taken from the key a few hours short of his 90th birthday.

Sixty years ago Roy was my teacher, we remained friends and in August, 1984 we joined the fraternity of amateurs. Roy was a member of the WIA and a foundation member of the Bayside Amateur Radio Society Inc. He was a strong supporter of the club, was President for a term, as well as an examiner and instructor.

He trained as a primary teacher and after a short time joined the RAAF as a wireless air gunner, and served with 459 Squadron in North Africa and the Mediterranean theatre of WW2. His plane was shot down over Crete and the crew was returned to Athens only after a daring rescue from an enemy occupied aerodrome.

Post war Roy returned to teaching, and was a dedicated teacher held in very high esteem. He was equally formidable in the playground where he coached rugby, cricket, athletics and gymnastics.

Being a competent Morse operator he soon obtained the coveted DXCC award, and participated in many competitions. Dear to his heart was the annual RD contest, which he regarded as the ANZAC Day of the air.

Roy is survived by Beth, his loving wife of 60 years, daughters Jillian, Marilyn and Robyn, and their families. His legacy will live on to all who knew him. May he rest in peace and rise in glory.

Contributed by George Roberts VK4BSH.

Jim Linton VK3PC

● arv@amateurradio.com.au www.amateurradio.com.au

They're still talking about it

The Centre Victoria RadioFest held at Kyneton Racecourse on 12 February was another success. Thank you to those who worked behind the scenes in the months leading up to the event and on the day. We appreciate the strong support shown by the commercial traders, exhibitors, second-hand sellers and all who attended.

Mini-Lecture Program

Coordinator Peter Cossins VK3BFG had his hands full gathering and organising the line-up of speakers. Comments received from those who gave presentations and from the audience made it all worthwhile. Those giving talks included a very entertaining look at home-brewing a DVB-S ATV transmitter via the DigiLite method presented by Ross Pittard VK3CE, who runs the VK3RBO ATV repeater at Bendigo and is a leader in digital television.

There was a tour, through a PowerPoint display, of the ZL6QU super-station at Quartz Hill by Brian Miller VK3MI/ZL1AZE. He showed us what was possible for the contester.

From the digital slow scan television mob was Steve Ireland VK3SIR and David Park VK3JDA who talked of the pleasure and challenges of the mode, made easier with the latest free software.

From the ACMA Field Staff, Mark Tell told a packed audience of the approach taken to interference and regulatory matters. He talked about how an attempt to extend the range of mobile telephone service at a site in south-east Victoria using amplifiers was counter-productive, which is often the case. After negotiations a new mobile cell tower was installed to greatly improve the service.

Mark also showed us phone jammers that would blank out a train carriage or with a larger model an entire area. These can silence mobile phones even when a user wants to



Photo 1: A car boot seller hard at work explaining his offering to a potential customer.

make an urgent or life threatening call for help. They are outlawed in Australia.

He mentioned some recent cases of piracy on the broadcast bands. The most famous was last October when ACMA inspectors shut down a pirate AM broadcasting station operating from Chadstone in Melbourne's south east. More recently, a further two unlicensed stations have been shut down. In early February, inspectors from the ACMA's Field Operations Section issued an individual with a warning notice for operating an FM transmitter without a licence on Queensland's Gold Coast. Later in the month, after receiving complaints from the public, ACMA Field Operations Inspectors from Melbourne visited a 27 year old man in Bendigo. Investigations revealed he had been operating an unlicensed FM broadcasting station for several months, using a 40 watt transmitter from a 20 metre tower located in his back yard. A warning notice was also issued and the broadcasting equipment was surrendered to the ACMA.

Mark told us that in order to gain an audience the illegal broadcasters resorted to social media which was one way to find out who may be responsible. Unlicensed broadcasting stations have the

potential to cause harmful interference to other licensed services. The operation or possession of an unlicensed transmitter is an offence under the Radiocommunications Act. Fines of up to \$165,000 or two years imprisonment apply.

Repeater frequency swap

The UHF repeater VK3RMM Mt Macedon has

a new frequency of 439.825 MHz while VK3RPU at Arthurs Seat is now 439.850 MHz. Both require the standard 91.5 MHz tone access. The change in frequency is necessary to overcome an on-going interference problem. The Mt Stanley VK3RNU building works should commence shortly and are expected to be completed by the middle of the year. This facility was lost in the Black Saturday bushfires.

Among other repeaters back in service are the six metre repeater VK3RMS at Olinda, thanks to an equipment upgrade. The VK3BW1 broadcast service is now automated. A call-back session is held after the 10.30 am broadcast on the VK3RMM two metre repeater and the 8 pm re-broadcast service has resumed. The HF broadcasts are likely to be reinstated.

Give the warship a call

A reminder that VK3RAN will be on air on Anzac Day, 25 April, from the museum ship HMAS Castlemaine moored at Gem Pier, Williamstown. During the special effort VK3RAN will again be using amplitude modulation (AM), under the control of Terry Murphy VK3UP. He will join others on ships and other museums in the afternoon. All are welcome.





Spotlight on SWLing

Robin L Harwood VK7RH
e vk7rh@icqmail.com

Well, winter is fast approaching and I shall be spending more time listening to shortwave. The ever-increasing gaps are becoming so noticeable now with the major players opting out broadcasting directly to Europe, the Americas, Australasia and East Asia. Fortunately there are some choosing to remain on HF, especially targeting Africa and parts of Asia, where there is poor or little access to IT available. Another trend is the disappearance of smaller domestic outlets that were formerly on shortwave, especially in Latin America and Indonesia. FM has largely replaced HF as the audience has shrunk because the only ones listening seem to be wistful DXers and not locals.

As I have previously mentioned, the BBC World Service is leaving the iconic Bush House for a new complex near Oxford Circus, which will combine all BBC news platforms into one central location. This will mean that the remaining BBC World Service will become a rolling 24/7 news format. The new central location will give the World Service access to domestic radio and television stories and vice versa, more World Service stories available for domestic consumption. On 29th February, the BBC World Service celebrated their 80th anniversary with an Open Day at Bush House. It was also presumably a good-bye to it as the 'Beeb' has been there for 71 years.

I recently received a query re an SSB feeder on approximately 5.77 MHz from a Victorian monitor.

He had stumbled across an Armed Forces' Network feeder in Guam that is for units without access to the normal satellite feeds. The actual frequency is 5.765 MHz and is on upper sideband. There are other feeders located in Key West, Florida, and Diego Garcia in the Indian Ocean. Several are within maritime allocations and are easily heard when operational. They seem to be irregular and when I have observed them, are relaying the public NPR network. I remember hearing the AFRTS on shortwave when I commenced monitoring some 52 years ago. I remember going to a house in Lime Avenue here in Launceston and a school friend, who eventually became a radio amateur, built a small receiver for 21 MHz and the AFRTS provided a very strong signal. Unfortunately they kept broadcasting descriptions of baseball games, which was extremely boring for me.

The 15th of this month will be the centenary of the sinking of the Titanic. I am aware that there will be commemorative amateur stations operating in England, Nova Scotia and the United States and details are available elsewhere. This event has some significance as radio was used to summon help to rescue the passengers and crew.

Unfortunately some ships that were close by were not monitoring the frequency and were unaware until later of the disaster. As a result, it became mandatory for a compulsory listening watch to be maintained on the common distress frequency of 500 K/cs (500 kHz) as it was then and until the 1990s when technology and automation rendered the radio officers redundant. It is a pity that no recordings were made of those fateful communications although they were written down for posterity.

Thinking of recordings has made me ponder if there is a historical archive containing important radio events that have influenced us. It would be a pity if these were lost and deleted. What about an archive of silent keys? Sadly too many I have worked over the years have passed on. Are there any available and perhaps the WIA could start an on-going archive of amateurs and perhaps historical moments in amateur radio history here in VK. I think there may be scattered collections in many locations yet there needs to be a central repository and website. These may be already there. I honestly don't know so please enlighten me. What do you think?

Well that is all for this month. Don't forget you can email me at vk7rh@wia.org.au



Special event station W6G

San Francisco Amateur Radio Club will be holding a Special Event Station - **W6G** - to celebrate the 75th Anniversary of the Golden Gate Bridge on May 26, 2012 at 2000Z to May 27, 2012 at 2200Z. Details can be found at <http://www.sfarc.org/timeline05262712.htm>



VK2news

Tim Mills VK2ZTM
e vk2ztm@wia.org.au

Amateur Radio NSW will be holding its AGM on Saturday morning, 21 April 2012 at the Centenary Building, 63 Quarry Road, Dural. Paperwork is being posted to members this year. There are no planned email postings. The guest speaker will be Jeff Johnson VK4XJJ who last year walked from east to west across Australia. Jeff did this as a fund raising operation for NETS. Previously, Jeff had walked from south to north across the centre of Australia.

Easter will see the annual Urunga Convention, which has been continuous since 1949. Attendees will start gathering on Friday evening but the main days are Saturday 7th and Sunday 8th. The event is promoted as the longest running Fox Hunt field day in Australia. Indeed the weekend has continuous mobile and pedestrian fox hunts. A dinner is scheduled for Saturday night at the Bowling Club, and numbers are required. The base for activities is the regular venue, the Senior Citizens Hall in Bowra St., Urunga. The old trophies from the early days are on display at the Ocean View Hotel. Ken VK2DGT is the contact at either krgolden46@hotmail.com or telephone 02 6652 3177.

The Oxley Region ARC has their annual field day across two days of the June long weekend. This year will again be at the Tacking Point Surf Lifesaving Club Hall on Saturday 9th and Sunday 10th June. This is a quiet location, ideal for fox hunting. The club had to move their planned assessments to this month. Too many activities on each weekend last month! Contact the club via Box 712, Port Macquarie 2444 for inquiries and bookings for all licence grades. There is a lot of interest in APRS within the club, many members having acquired equipment. APRS

equipment is to be installed at both their repeater sites, VK2RPM and VK2RCN.

NSW WICEN advise that their sister squad, the Bushwalkers Wilderness Rescue Squad will be offering their Comprehensive Remote Area First Aid Course on the first and third weekends in May. The web site for WICEN is www.nsw.wicen.org.au and has the calendar of upcoming events.

HADARC plan to be active in the International Marconi Day, on 21 April. The Central Coast ARC has test transmissions on their 70 cm ATV repeater VK2RTG Monday and Tuesday at 1930 hours. It is planned to convert the present analogue transmission to digital. Waverley ARS have a Foundation weekend planned for the 12th and 13th May. Inquire at education@vk2bv.org Fishers Ghost ARC held their AGM on 29th February.

The upgrade class at ARNSW on Monday evening is underway, although additional students are welcome to join. The next Foundation Sunday will be 20 May. Assessments for all licence grades will be held on Sunday 27 May during the morning of the bi-monthly Trash & Treasure.

2012 Central Coast Field Day

Fine weather hosted in the 2012 Central Coast ARC Field Day at the Wyong Racecourse on Sunday, 26th February. Just after first light the flea market traders started setting up with the buyers hot on their heels. Perhaps in future years keeping the buyers out while the traders set up could be a benefit. This policy applies to the main trader's floor while they set up. This area opens at 9 am. This year there were fewer traders, including some of the major



A view of the Wyong 2012 Field Day activity. As always, there seems to be lots of action.

players in both locations. General attendance also appeared to be down a bit on recent years. Scanning the name tags did show a good collection of interstate visitors. A new paved car park this year was a welcome addition but the overflow cars still had to park in the grassed area. An attendance estimate was in excess of a thousand.

The WIA had a good display of books and services and was kept busy throughout the day. Exam assessors from ARNSW conducted six assessments with five successful candidates. Three technical lectures were conducted. The CCARC had arranged to have slots for groups to get together but no one took up the offer. Several groups set up and provided displays of their areas of interest.

The Central Coast ARC, their members and helpers have to be thanked for putting on another successful annual event which is often billed as the largest amateur field day in the southern hemisphere.

Other smaller field activities in VK2 will be the Urunga Convention over Easter and the Oxley Region ARC at Port Macquarie over the June long weekend.

A view from Tim VK2ZTM



Silent Key

Angus Graham Thornton VK3IY

Born in Melbourne on 18 November, 1926, Graham was raised in Warrandyte close by the Yarra River. During his childhood he developed a passion for steam trains which remained with him all his life. His children have memories of him listening to records of steam trains climbing through cuttings and saying, 'Now if you listen carefully you'll hear the sharper puff puff of the K class loco at the rear of the train', and then go into raptures over trains blowing their whistles.

While his mother Dr Mary Thornton was working in New Zealand, he spent his early school years at boarding school. He later attended Ivanhoe and Melbourne Grammar schools where his classmates included such notables as Frank Thring of later acting fame. He then went on to study at Swinburne Tech which is where he kindled his interest in electronics.

On turning eighteen, Graham enlisted in the Australian Army Signal Corps. He trained as a coast watcher and was due to be deployed, complete with radio, by parachute onto a Pacific Island to report on Japanese shipping movements; however, the end of hostilities intervened before this occurred.

After the war he courted a local Warrandyte girl Phyllis May Hussey and they were married on 13 May, 1948.

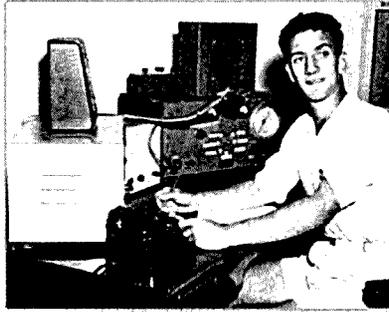
In the early 1950s, Graham became involved with the Warrandyte Fire Brigade, installing radios in the fire station and fire truck, something which is taken for granted today but was an innovation back then.

It was 1955 when Graham was appointed initial Base Manager of the Royal Flying Doctor Service (Victorian Section) in Derby, WA. When he arrived in Derby all pastoral stations were still using pedal radios. Within two years every station on the RFDS network had the latest Traeger HF radios that were state of the art at the time.

Shortly after his arrival in Derby, the RFDS Avro Anson crashed during a night time mercy flight on the return journey to Derby, killing the pilot, medical staff and the patient. Graham was convinced it was brought down by a tornado as there was a narrow strip of wind shear through the trees close to the crash site.

Graham established many life time friendships with the people of the Kimberley, among them Ann and John Thompson who, with Graham's technical support, provided 'School of the Air' for the remote outback.

Many years before cyclone 'Tracey' devastated Darwin, Koolan Island, a BHP iron ore mining site in King George Sound, was flattened by a cyclone on New Year's Eve, severing all their communications except the radio link to the base station



in Derby. New Year's Eve is not the easiest time to contact anybody, let alone convince them that you really do have an emergency requiring an immediate response.

However, Graham persisted and was able to convince a Melbourne commercial radio station to broadcast a message for the managing director of BHP to contact him in Derby, which he subsequently did and disaster relief was mobilised.

Realising after nine years that employment opportunities in the Kimberley for his children were limited, Graham moved the family back to Melbourne.

At the age of 37 he 'ran away to sea' and joined the merchant marine as a radio operator on the MV Lemana. Many of these voyages were to Hobart, a place which captured Graham's imagination and influenced his decision to later live there.

After the passing of Dr Mary in 1965, Graham came ashore and took up teaching at Blackburn High School until he decided that the only thing he enjoyed about teaching was the holidays.

He then accepted a position with the CSIRO operating one of the first Mass Spectrometers in Australia and decided that a 90 cc Honda motorcycle was the best way to commute between Warrandyte and Clayton. 'Little Red' soon gave way to 'Big Red', a Honda CB250 'real motorbike'.



Graham was a familiar sight around Warrandyte with his mutton chop whiskers protruding through his helmet and 'Snoopy on Kennel' cartoon on the back of his red and white striped 'bikie' jacket and emblazoned with the words 'C'est Le Baron Rouge'.

In 1975 Graham moved to Howrah on the eastern shore of the Derwent in Hobart. Still hearing the call of the sea, Graham purchased a fishing boat and crayfish licence, and began catching crayfish in season and tuna in the off season. He was very proud of his locally built fishing boat and often boasted that the Huon Pine it was constructed from would last a thousand years. Realising the wives onshore were concerned about the welfare of their men at sea, Graham thought they would receive some comfort if they could listen in to their husband's radio traffic, so he developed the 'Fish Widow', an SSB receiver constructed in a cake tin.

Sadly, Phyllis passed away from cancer on Graham's 59th birthday. Without Phyllis the magic of the Hobart lifestyle disappeared, and Graham eventually returned to Melbourne where he married Rosalind Anderson.

First licensed in January, 1964 as VK3AXN, Graham operated mainly CW, with 'ragchewing' interspersed with some DX contacts. In 1986, Graham's father, Angus Pollard Thornton, passed away and Graham inherited his father's call sign VK3IY and his radio equipment.

From May, 1989 until June, 1992 Graham was the Managing Editor of Amateur Radio magazine, and then continued as a proofreader until May, 1998. He also served as a proofreader of OTN magazine from September, 2007 until his death.

I only knew Graham for a little over 20 years but enjoyed our many somewhat pedantic debates and discussions over a variety of matters, mostly to do with electronic technical items or the correct use of English grammar. Many of these discussions took place when we worked together in the WIA Federal office in the late 1980s and during the 1990s, and in later years via email and in person at the biannual RAOTC luncheons.

Graham did not enjoy the best of health in the last few years and passed away in his sleep on 16 January, 2012 at just over 85 years of age. Graham, with that gravelly voice and the wicked twinkle in his eye, will be sorely missed!

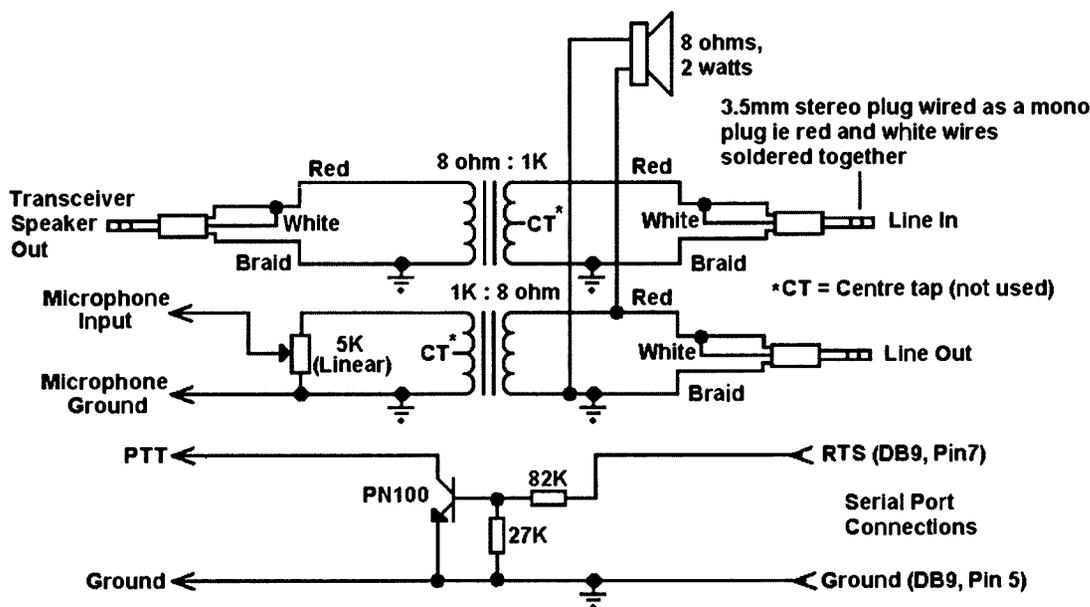
Much of the above information came from the eulogy delivered at Graham's funeral by his second son, Vince. Our condolences to Ros and Graham's family.

This obituary was first printed in the March, 2012 edition of OTN. It was contributed by Bill Roper VK3BR.



Erratum

The 'Dibble' – A digital mode interface box, with an introduction to PSK31



The author of this article, published in the January/February 2012 issue of AR, Ross Fraser VK2WN advises that the original Figure 4 had a couple of mistakes and that the replacement Figure 4 has corrected those errors – being the placement of a speaker in the line out circuit and the addition of an earth in the PTT section.

Figure 4: Schematic diagram of the 'Dibble'.



YouKits
New Products coming soon

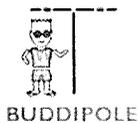
www.ttssystems.com.au

Phone: 03 5977 4808 Email: info@ttssystems.com.au

Your Australian reseller for:

AVAILABLE NOW

Hard Drawn Copper Wire, Insulators, Dipole Centres
Open Wire Transmission Line, Spreaders, Kevlar Guy Line
Spiderbeam Fibreglass Poles, Baluns and Switches



Meanwell power supplies
Diamond products
Daiwa products
Technical books
Amidon products
Custom cables made to order

As always, you can get a free catalogue - just call!



AMSAT

David Giles VK5DG
e vk5dg@amsat.org

It's all a question of timing - part 2

Eight new satellites, two more in trouble and Fox-1 given a boost by NASA.

Vega

ESA's Vega launch was a success. There are now another eight satellites orbiting around the Earth. A two hour video of the launch was made by ESA and is available from the MaSat-1 website [1]. They achieved the planned elliptical orbit with an apogee of ~1450 km and perigee of ~300 km (to give the satellites a maximum of 25 years in orbit). So depending on where in the orbit you are, you can have maximum pass times of 10 to 23 minutes. So far, the number of times I have heard the afternoon passes it has been at the longer end of the range.

But not all satellites are created equal and there have been varying degrees of success. ESA has collated reports from the first few hours after launch. Looking at each in turn:

ALMASat-1 started well with telemetry decoded soon after launch. From Mike Rupprecht DK3WN's SatBlog he notes that signals deteriorated and have not been heard since the 14 February.

e-st@r has been heard. The signal was described as feeble after launch and has been confirmed by amateurs. The controllers are hoping it is just an orientation problem as there are solar panels on only five of the six sides. I haven't heard from e-st@r yet on its 437.445 MHz downlink. Reception reports will earn a QSL card. Website is at areweb.polito.it/ricerca/E-STAR/#

Goliat has been heard and its signal was also described as feeble. It

transmits 1200 baud AFSK and CW on 437.485 MHz and a high speed downlink on 2.4 GHz when over the Romanian ground station. The CW beacon has been decoded by the controllers. At this stage I have not heard from Goliat either. Their English website is at www.goliat.ro

MaSat-1 has been the most successful so far. Its continuous CW and digital downlink have been heard on all passes I've listened. Like DO-64, MaSat-1's satellite team have released software to demodulate, decode and send telemetry back to the university in Budapest, Hungary via the Internet. It is written in Java so can be used by Windows, Linux and Mac users alike and is found at [2]. Within the first fortnight over 100,000 packets have been received by 118 amateurs worldwide.

MaSat-1's mission is to test various satellite sub-systems such as an Attitude Determination and Control System (that is, it can measure and orientate its position in space), ultra-reliable power system, and redundant on-board computer. Bill Tynan W3XO announced that the operators of MaSat-1 have applied for and been issued with an OSCAR number. It is now designated MagyarSat-OSCAR 72 (or MO-72).

PW-SAT-1 – I made a mistake in last month's article. The uplink is 435.020 MHz and the downlink is 145.900 MHz. I have managed to hear the 1200 baud BPSK downlink. This is the same type as used on AO-16, LO-19, IO-26, DO-64. I have heard the telemetry beacon but it wasn't on continuously, just the occasional short burst. It looks promising for the future transponder activation.

Robusta. The downlink frequency has been changed to 437.350 MHz from the published frequency of

437.325 MHz and ESA reported signals heard after the launch were feeble. The Robusta website doesn't have any more news. <http://www.ies.univ-montp2.fr/robusta/>

UNICubeSAT-GG is reported by ESA to have been heard but telemetry not decoded. As it sends a frame of 9600 GMSK every six minutes you may be lucky to get two chances per pass. The telemetry details have been posted at their website at <http://www.gaussteam.com>

XaTcobeo was heard by the Spanish ground station soon after launch. It has CW telemetry which is keyed 800 Hz on its FM downlink, so can be easily heard on a FM receiver at 437.365 MHz. It sends a frame of 20 WPM telemetry every 75 or 150 seconds. I have heard this one and it has a good, strong signal, claimed to be 500 mW. More details on the telemetry have been posted at www.xatcobeo.com and look under the 'Radio Amateurs' tab (in English).

NASA to help with Fox-1

On 10th February NASA announced that AMSAT-NA's Fox-1 had been selected to join thirty-two others in their third round of cubesat mission candidates. The others come from universities, Department of Defence institutions and NASA field centres around the USA. Competition will be tight as from the thirty-two satellites selected in previous rounds only eight have flown. If Fox-1 is selected for flight then NASA will cover the costs of integrating it into the launch vehicle and the launch itself. These flights are planned for the next three years and the cubesats are a secondary payload. Fox-1 will have a mode U/V FM voice transponder and is designed to keep operating while in sunlight when the batteries finally fail. It will be a test bed for the planned successor Fox-2 which will have a software defined transponder similar to ARISSat-1.



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU
email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz

VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz
IRLP node 6124

VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

More satellites in trouble

More late-breaking news is that two more satellites are in trouble. Compass-1's computer shut down due to low temperature and battery voltage. This has happened before and with amateur's help they were able to compensate. This time the battery is much weaker but they were able to reset it after two days of silence. Now they have to adjust for the new conditions. Currently the beacon has been set to activate every eight minutes instead of three to reduce power consumption.

Worse is the news that ever reliable VUSAT VO-52 has gone silent. All beacons and transponders have shut down. Currently it is in the hands of the Indian Space Research Organisation. Hopefully I will have good news about VO-52 next month.

Final Pass

Congratulations to ESA and the various universities on a successful launch. MaSat-1 is by some standards a simple satellite. Its function is to test basic satellite subsystems; no transponder, no

scientific experiments, no bells and whistles. But MaSat-1 and the team have done the job very well. The website is informative and kept up to date. The software gets the telemetry from receiver to the university from anywhere in the world simply and efficiently. Other organisations should take note for their cubesat projects.

References

- [1] <http://cubesat.bme.hu/en/hirek/>
- [2] <http://cubesat.bme.hu/en/radioamatoroknek/kliens-szoftver/>



Don't forget

3 - 17 May | YL International Meeting in Adelaide

YL International Meeting Starting in Adelaide and finishing in Darwin.

YL meet from around the world with their OMs. The Meet is open to YLs and their OMs. You don't have to be a member of any organization or even licensed but should be interested in amateur radio. Most participants are active on air but that is not a requirement for attendance.

Check our website www.ylinternational2012.com for more details.



Photo 2: The principal antenna mover, the crane, in the operating position.

of the work aloft...scary stuff being up at 23 metres'. After lunch some of us ran the co-axial and rotator cables into the shack and terminated them ready for use, with only

Photo 3: The tower team. Bottom L to R – Gerald VK6XI, Anthony VK6AL, Ian VK6ZIC, Zeljko VK6VY, Phil VK6IP, Ian VK6TWJ, Arthur VK6CY, Andrew VK6IA (Antenna Coordinator), Greg VK6ED, Steve VK6IR, Leigh VK6WA. Top L to R – Mitch VK6FLEX, Wayne VK6EH, Larry VK6LOL.

minor adjustments needed. Thanks all for a great effort'.

Thanks Wayne. I would also like to take a moment to personally thank everyone from the club who has been involved with this project. It's a fantastic sight.

Please don't forget HARGFEST on 28 April.

Until next month, 73 from John de VK6HZ/VK6XX.

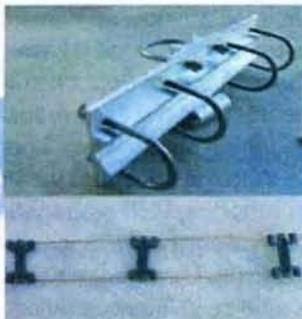


TET-EMTRON



Large range of aluminium sizes now available cut to size, including Drawn Tube, Rectangular Hollow Section, Box and Flat. Look at the Home brew section for more details and to download the calculator and pricing.

Various other parts available in our new Home Brew section.



Coming Soon!
Antenna Kits.



As seen at Kyneton and Wyong Field Days.

TET-Emtron's own mobile auto tune.

160 through to 6 metres.

Compatible with any radio – needs DC and RF only. True L/C tuner can have a long wire added when portable. Large range of whip sizes and accessories.

www.tet-emtron.com

TET-Emtron

80 Stock Road, HERNE HILL, WA 6056

Phone: 08 9296 3224

On sporadic E VHF propagation and solving a mystery about maximum usable frequencies – Part 1

Roger Harrison VK2ZRH.

The classical model of Es propagation can support maximum usable frequencies above 144 MHz, but only rarely. How, then, to explain the frequent reports, worldwide, of VHF propagation with high maximum usable frequencies (MUFs)? This paper demonstrates, for the first time, that this propagation likely occurs by means of *petit chordal hop* in a disturbed Es layer, and outlines another possible high-MUF mode – *layer trapping*.

An outline version of this article was posted on the VK Logger's *Propagation & Solar Cycle News* forum on 17 March, 2011. Without the facility of the VK Logger, the research behind it would have been much more difficult and lengthy, if not impossible. For that, we have Adam Maurer VK4CP to thank. He is the developer and maintainer of the VK Logger (www.vklogger.com).

Introduction

There has been much comment, discussion and speculation over decades on the whys and wherefores of sporadic E (Es) propagation at VHF. Given that it is an ionospheric mode, just how Es supports propagation at frequencies into the mid-VHF range and higher has puzzled amateurs and scientists alike and led to some interesting speculation on occasions.

Sporadic E contacts between amateurs on the 50 MHz band have been commonplace for many decades. With the proliferation of amateurs operating on 144 MHz in countries the world over, reporting of contacts via sporadic E has burgeoned over the last 20 years. It is almost 50 years since I first experienced Es DX on 6 m and 2 m, 40 years since I first researched ionospheric sporadic E and VHF propagation.

Sporadic E has been denoted as Es in the scientific and technical

literature for more than 70 years. Writing it with an apostrophe – E's – is unnecessary. When speaking of sporadic E, the term is pronounced "ee ess", NOT "eez". End of soap box session.

In my early career, during the 1970s, I worked in a senior technical position at the Australian IPS Radio and Space Services (IPS) for some seven years. I learned a lot about the ionosphere and ionospheric radio propagation. I learned to interpret and scale ionograms (read off the parameters). I worked in transequatorial VHF propagation research and ionosonde technology, among other things, and pursued my interest in sporadic E in my own time, with the encouragement of colleagues at IPS. I have trawled through and scaled many thousands of ionograms, recorded on 35 mm and 16 mm film in that era. When I rekindled my interest in sporadic E in recent years, all this experience came in handy.

Es propagation on 50 MHz (and 70 MHz in Europe) is generally considered to be via conventional ionospheric propagation mechanics. The simple geometry you learned about when studying for your licence exam. But many amateurs are sceptical of or do not believe this could hold up at 144 MHz (or even 100 MHz in the FM broadcast band). Or if it did, such events would be extremely rare. But reports of widespread 144 MHz Es DX over decades are now so numerous as to confound that [1], while the observations of Pocock and Dyer on the 88-108 MHz FM broadcast band are legion [2]. So what is happening?

With the advent of the VK Logger for reporting VHF propagation, and the availability of IPS ionograms online [3], I have been able to scrutinise VHF propagation paths where the mid-points are located within 'view' of an ionosonde as

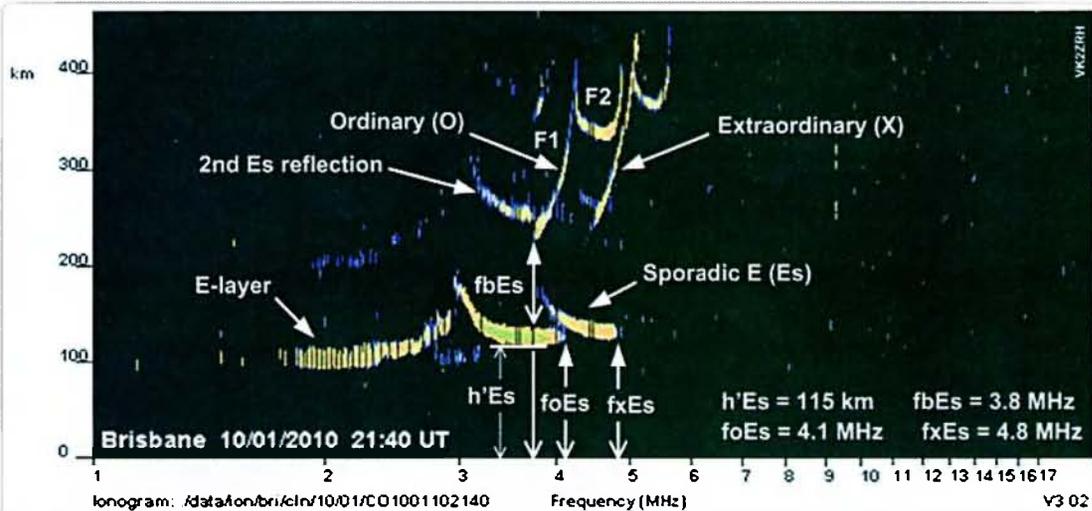
this enables direct modelling of the propagation geometry and its relation to ionospheric conditions. The results have been both 'as expected' and delightfully surprising!

Mid-latitude sporadic E consists of thin, dense layers of ionisation formed by wind shears in the E-region that compress long-lived metallic ions into horizontal clouds or 'patches' from less than one km to about five km thick, appearing at heights ranging generally between 90 and 130 km altitude. Patches may be only 100 m across, with clouds up to 1000s of km in extent [4, 5, 6].

Many amateurs confuse the E-region (often called the E-layer, but it is not really a layer, being 40 km thick) and sporadic E, as if the latter is an "extension" of the E-region. It is not. It is more akin to a thin, horizontal sheet of gelatin floating within a column of water. That is, a sporadic E layer is a "stranger", or "foreigner", appearing in the E-region. The ions within a sporadic E layer are long-lived metallic ions, principally iron (Fe⁺) and magnesium (Mg⁺), while the ions in the E-region are generally oxygen (O⁺), nitrogen (N⁺) and nitric oxides (NO_x⁺), which dissipate at night. The electron density (electrons/cm³) in sporadic E generally exceeds that in the E-region by many times, and the peak Es electron density can exceed that in the F-region by many orders of magnitude.

I have found that VHF propagation by sporadic E occurs by at least two principal modes:

- (a) conventional ionospheric reflection ("classical") by a thin, 'plane' Es layer, and
- (b) by successive reflections via the crests of ripples or other structures in an Es layer that subsequently returns the raypath to Earth – which I call '*petit chordal hop*'.



frequency, $fxEs$, is 0.7 MHz higher than $foEs$. The difference (called the 'split') is half the gyrofrequency (fH), the natural 'spin rate' of electrons in the ionosphere, which is 1.4 MHz at Brisbane [7]. Hence, $fxEs - foEs = 0.7$ MHz.

The ionosonde 'view'

IPS ionosonde antennas are upward pointing crossed-deltas (many ionospheric stations use these antennas). They have a half-

power beamwidth of about 90° through the mid-HF range, narrowing to about 60° above 10 MHz.

As illustrated in Figure 2, when Es is present, the antenna system "illuminates" an area with a radius equal to the height of the Es layer (also referred to as "whole sky" illumination) and the receiver will respond to returns from within the entire area covered. If $h'Es$ is 100 km, the view radius is 100 km. At the narrower beamwidth, the radius of the circle illuminated is about 58% of that for the wider beamwidth. Nevertheless, the ionosonde receiver responds to echoes across the whole area, particularly when the Es has ripples or other structures within it.

E, F1 and F2 echoes curve upwards to a cusp as frequency increases due to group retardation of the signal near the peak electron density. The Es traces do not curve up as the layer is very thin and the ionosonde resolution is insufficient to resolve it. Note the multiple reflections. After the first return, the others are from repeated ground-ionosphere-ground echoes.

The ordinary ray penetration frequency, or $foEs$, is important because it is a measure of the layer's peak electron density. The Es virtual height, or $h'Es$, plays a key role in determining the propagation path distances and, in conjunction with $foEs$, the MUF of the path. The extraordinary ray penetration

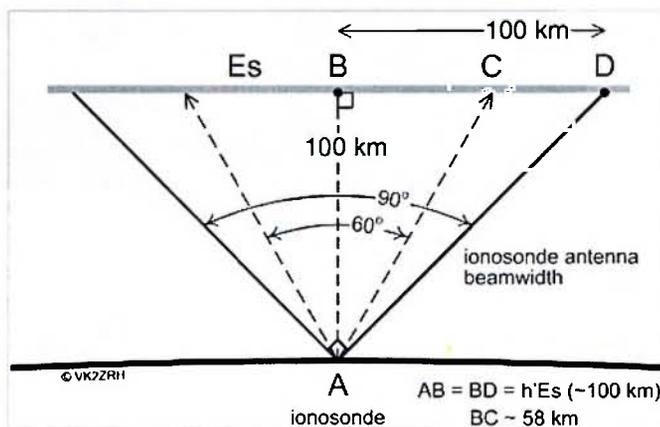


Figure 2: Vertical elevation, showing geometry of the ionosonde 'view' of a sporadic E layer (not to scale). As shown, if $h'Es$ is 100 km, the antenna system illuminates a circle of 100 km radius (BD). If $h'Es$ is 115 km, then the view radius is 115 km.

In each case, I can demonstrate that the well-established propagation geometry and ionospheric science can be applied to analyse and model the propagation and the maximum usable frequency for a path. Mode (b), petit chordal hop, nearly doubles the MUF for a path, yielding MUFs to at least 230 MHz with intense Es. However, there may be a third propagation mode, that I have dubbed 'layer trapping', and capable of supporting even higher MUFs, which I will discuss later.

Before going into the details of the models for these propagation modes, it is first necessary to understand something about sporadic E as seen on vertical incidence (VI) ionograms.

Es on ionograms

VI ionograms are produced by swept frequency, pulsed RF HF radars with antennas pointed straight up. The echoes returned from the various regions of the ionosphere are displayed on a graph of height versus frequency. Figure 1 is a fairly typical summer morning ionogram for Brisbane, showing the E, F1 and F2 layers and sporadic E [3]. I have marked the various features. The ordinary (O) and extraordinary (X) reflections are clearly seen, O to the left, X to the right. The 'split' reflections result from the effect of the Earth's magnetic field on RF propagation in the ionosphere. The

Ionograms of particular interest

Figure 3 is an ionogram showing Es typical of a flat (or 'plane'), thin, dense layer over Brisbane. Note the multiple reflections. No F-layer echoes can be seen, so the Es is said to be fully blanketing. The virtual height of the first return is 110 km, and it ceases at the 'top' penetration frequency, denoted as ftEs, which is 9.6 MHz.

To determine foEs from an ionogram like this, ftEs is generally assumed to be fxEs, and foEs is found by subtracting half the gyrofrequency. So in this instance, ftEs - 0.7 MHz = foEs = 8.9 MHz.

Figure 4 is another ionogram, this time showing "spread" Es. The spreading of the Es traces likely arises from crinkles, ripples or other structures in the Es layer, which reflect the transmitter pulses from varying ranges at oblique angles, as well as from directly overhead, perhaps at different heights. Group retardation also contributes to the spreading. Note that the Es trace extends off-scale at 20 MHz and only partially blankets the F-layer. Spread Es is a common phenomenon.

VHF propagation via a thin, 'plane' Es layer

The geometry of a propagation path via plane Es is illustrated in Figure 5. A plane Es layer lies parallel to

the Earth's surface, not tilted across its extent or having ripples or other structures in it (no lumpy bits!).

The raypath of a signal from a transmitter at A, at an angle (e) above ground, travels towards the

Es layer, is refracted towards the ground at P and received at B. The common convention refers to this as reflection. Here, (i) is the angle between the incident raypath and the vertical line through P, while (r) is

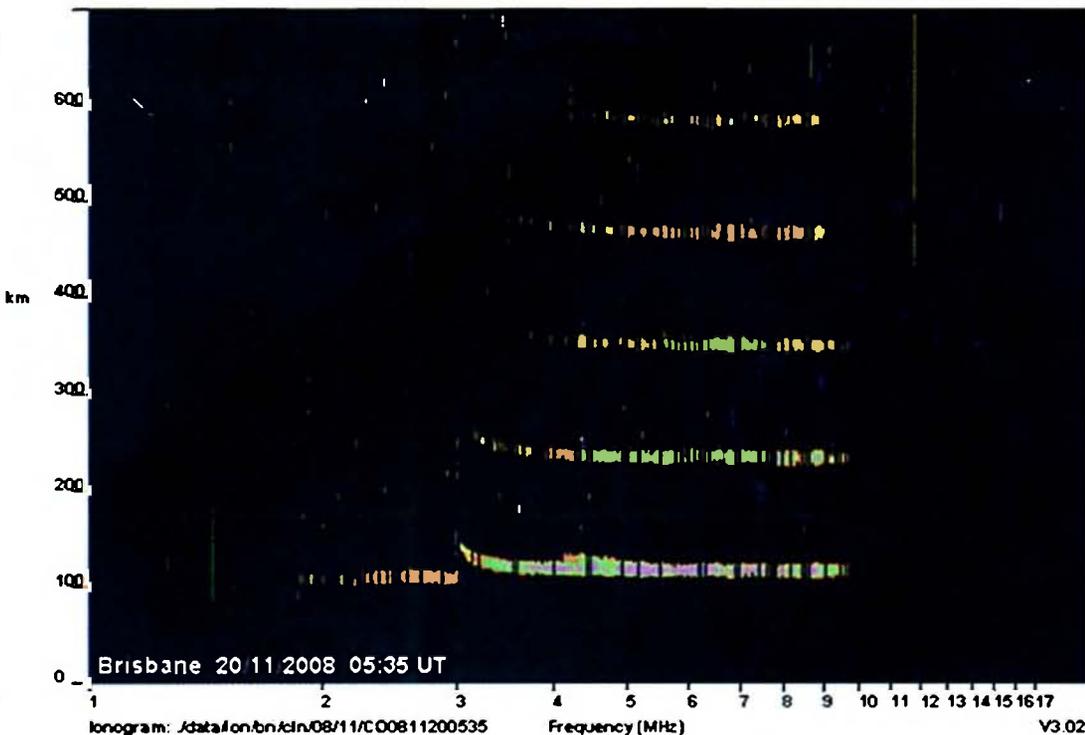


Figure 3: Ionogram showing a dense, totally reflecting plane Es layer at 110 km, having a high value for ftEs of 9.6 MHz. Hence, foEs here is 8.9 MHz.

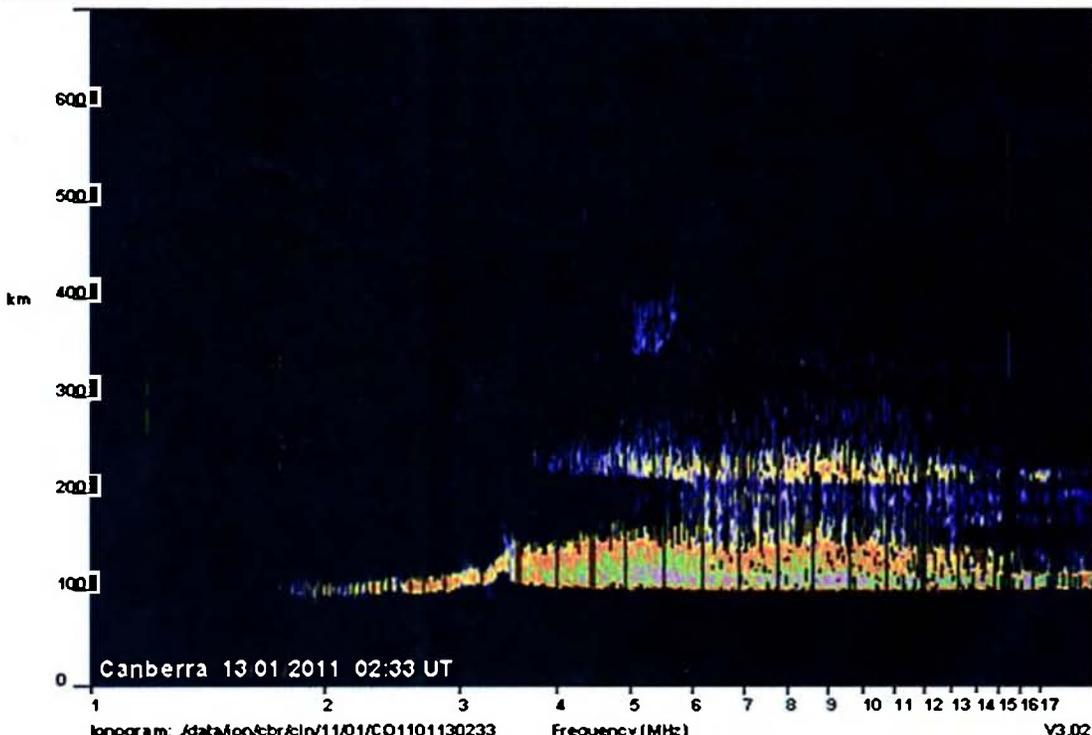


Figure 4: An example of "spread Es". The first F-layer echo is mid-image; fbEs is 5 MHz. Lowest virtual height, h'Es, is 99 km. The top frequency is above 20 MHz, so peak electron density is very high.

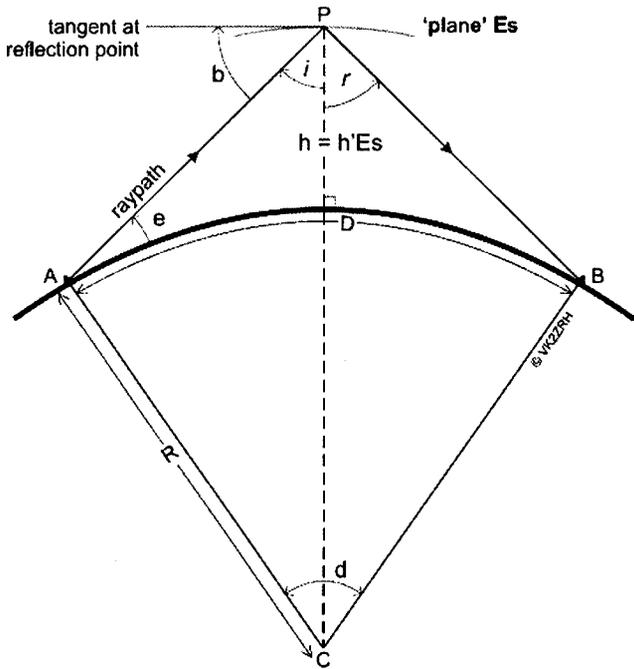


Figure 5: Geometry of propagation via plane Es (exaggerated scale). R is the radius of the Earth. D is the distance over the Earth's surface between A and B . The line from C to P is at right angles to the Earth's surface and has a length of $R + h$. Angle $(b) = 90 - (i)$.

the angle between the vertical and the emerging raypath. Angle (e) is the raypath elevation angle, while angle (b) is that between the incident raypath and a tangent to the reflection point at P , which is a horizontal line. These angles are important in determining the MUF for a path.

In *Ionospheric Radio* [8], author Davies sets out the relationships for propagation in a thin layer in a series of very useful equations.

$$f_{OP} = foEs \cdot \sec(i) \quad (1.0)$$

where f_{OP} is the usable operating frequency, and
 $foEs$ the measured ordinary ray vertical incidence penetration frequency at P
 $\sec(i)$ is the secant of the angle of incidence

This is the well-known "secant law" relationship, from which the "classical MUF" can be evaluated. The secant of an angle varies from 1.0 at 0° to infinity at 90° . So you can see immediately that the larger the incident angle, the greater the usable operating frequency for a given value of $foEs$. There is a maximum value for (i) , which is reached when the raypath elevation angle is tangent to the Earth, ie. angle $(e) = 0^\circ$. Triangle CAP is now a right angle triangle. Hence, $\sin(i) = CA/CP$. The length of CA is R , while CP is $R+h$, so we can find the maximum of angle (i) as follows:

$$f_{OP} = foEs \cdot \sec(i) \quad (1.1)$$

The term 'arcsin' means the angle (in degrees) for this numeric value of sine.

When (e) is 0° , this sets the maximum (theoretical) one-hop range or path distance, expressed as:

$$D_{MAX} = \sqrt{8Rh} \quad (1.2)$$

This situation also sets the maximum possible usable frequency, expressed as:

$$f_{MAX} = foEs \sqrt{\left(1 + \frac{R}{2h}\right)} \quad (1.3)$$

These three equations cover the "limiting case", where $(e) = 0^\circ$. Equation 1.3 gives us the MUF for the limiting case. Clearly, the height of the Es layer ($h'Es = h$) is important to all these relationships, so all the critical parameters of Es propagation are determined by $foEs$ and $h'Es$. For a given value of $foEs$, the maximum path distance and f_{MAX} vary directly with the Es layer height, as shown in Table 1. The mean radius of the Earth used in the calculations is 6371 km [9].

foEs	h'Es (km)	D_{MAX}	Angle (i)	f_{MAX}
9 MHz	90	2141.8	80.43	54.2
	100	2257.6	79.91	51.5
	110	2367.8	79.43	49.2
	120	2473.1	78.97	47.2
	130	2574.1	78.52	45.4

Table 1: Es propagation parameters for the limiting case, where angle $(e) = 0^\circ$. Indicative values of f_{MAX} are derived for $foEs$ of 9 MHz. Note how D_{MAX} and f_{MAX} vary with $h'Es$.

Achieving a raypath elevation of 0° is generally impractical, but many Es propagation paths occur at remarkably low angles, often in the range $1-3^\circ$. VHF antenna radiation patterns in the vertical plane may show low responses at such angles compared to the peak gain elevation angle, but the response is not zero. Remember that aircraft enhanced propagation on long paths (eg. 500+ km) occurs at angles below 1° , for example.

For path geometries other than the limiting case, that is, generally 'usual' circumstances, a little trigonometry provides the following equations for determining (i) and D :

$$(i) = \arcsin \left[\frac{R}{(R+h)} \sin(90 + e) \right] \quad (2.1)$$

$$D = \frac{2R}{57.3} \left[(90 - e) - i \right] \quad (2.2)$$

The MUF is determined by the secant law:

$$MUF = foEs \cdot \sec(i) \quad (2.3)$$

Knowing $foEs$ and $h'Es$ at a path mid-point, and thus being able to derive angle (i) , $\sec(i)$ is referred to as the "M factor" (multiplier), for obvious reasons. To make life easier in determining the MUF, it is more convenient to deal with the more familiar sine and cosine trigonometric functions, which are 'standard' functions on scientific calculators

and in printed tables of sin, cos and tan values. The secant of an angle is the inverse of its cosine, so 2.3 can be rewritten as:

$$MUF = \frac{foEs}{\cos(i)} \quad (2.4)$$

As angle (b) is the complement of (i) [that is, 90 - (i)] and sine is the complement of cosine, 2.4 can be rewritten as:

$$MUF = \frac{foEs}{\sin(b)} \quad (2.5)$$

Thus, the M factor can be evaluated from either 1/cos(i) or 1/sin(b).

$$M \text{ factor} = \frac{1}{\cos(i)} = \frac{1}{\sin(b)} \quad (2.6)$$

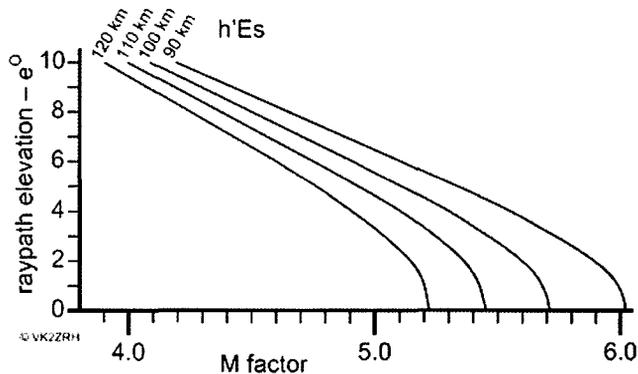


Figure 6: How the M factor varies with the raypath elevation angle and height of a plane Es layer.

The relationship between the raypath elevation angle (e) and the M factor is non-linear, with a different curve for different Es layer heights, as illustrated in Figure 6. Es layers at the lower heights yield a higher M factor and thus higher MUFs. A lower raypath elevation angle, with

longer paths, rapidly improves the M factor, but angles below 2° experience a flattening of the M factor increase in all cases.

Table 2 illustrates the MUFs achievable for a variety of ionospheric and path parameters. The range of h'Es values here are commonly observed on ionograms (e.g. Figures 3 and 4) and the path lengths are generally typical, at least in the Australasian-South Pacific region. A column listing foEs values for a 98 MHz MUF, in the middle of the FM broadcast band is included as this band is widely used as a propagation indicator. For Es propagation at 144.5 MHz, note that foEs needs to be above 24 MHz for elevation angles up to 4° or 6°. I have personally observed such values of foEs on ionograms when 'sondes swept 1-30 MHz (1950s-70s era). Indeed, I have seen ionograms with off-scale Es (at 30 MHz) from that era. However, while memorable, they were not common. Instances of off-scale Es (at 20 MHz) on present era ionograms are readily found among the online displays of the IPS network stations [3].

Figure 7 sums up the case for the geometry of VHF propagation via plane Es. As Es is very thin compared to its altitude, the trigonometry is much simpler than that employed for F-layer propagation and parallels optical reflection from a mirror.

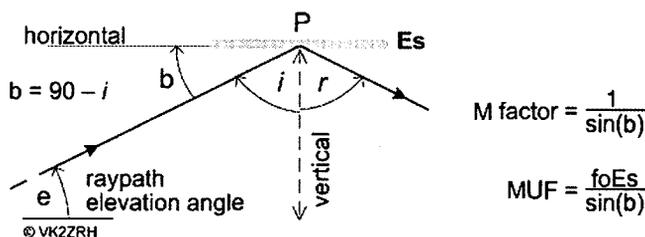


Figure 7: Close up of the geometry for propagation via plane Es.

h'Es	(e)	(i)	D (km)	M factor	MUF for foEs of 9 MHz 20 MHz	foEs for MUF ³ (MHz) 50.5 98.0 144.5
90 km	1	80.37	1919.1	5.98	53.82 119.6	8.5 16.4 24.2
	2	80.22	1730.1	5.89	53.01 117.8	8.6 16.7 24.6
	4	79.63	1416.5	5.56	50.04 111.1	9.1 17.7 26.0
	6	78.72	1174.1	5.11	45.99 102.2	9.9 19.2 28.3
	8	77.55	989.6	4.64	41.76 92.8	10.9 21.2 >30
100 km	1	79.87	2030.3	5.69	51.21 113.8	8.9 17.3 25.4
	2	79.72	1841.3	5.6	50.4 112	9.1 17.5 25.8
	4	79.16	1521	5.32	47.88 106.4	9.5 18.5 27.2
	6	78.28	1271.9	4.92	44.28 98.4	10.3 20.0 29.4
	8	77.15	1078.5	4.5	40.5 90	11.3 21.8 >30
110 km	1	79.38	2139.2	5.42	48.78 108.4	9.4 18.1 26.7
	2	79.24	1948	5.36	48.24 107.20	9.5 18.3 27.0
	4	78.71	1621.1	5.11	45.99 102.2	9.9 19.2 28.3
	6	77.86	1365.4	4.76	42.84 95.2	10.7 20.6 >30
	8	76.77	1163	4.37	39.33 87.4	11.6 22.5 >30

Table 2: MUFs achievable via plane Es for common path geometry parameters and two indicative values of foEs, plus foEs values required for propagation on 6 m, the FM BC band and 2 m. Note how relatively small changes in h'Es and path elevation angle (e) affects the MUF.

A case study of plane Es VHF propagation

Figure 8 shows a path between VK4 and VK7 where the path mid-point passes within the view of the Canberra ionosonde at Es heights. The mid-point, and likely point of reflection, is marked PoR. Scott VK4CZ frequently spots this 50.057 MHz beacon on the VK Logger with RST reports ranging from 419 through 599. Figure 9 is the ionogram nearest to the time of one such spot – 2304 UTC on 2/01/2009. Here, f_tE_s is 10.2 MHz. As f^oH is 1.6 MHz at Canberra [7], f_oE_s would be $10.2 - 0.8 = 9.4$ MHz. As the path length is known, the elevation angle (e) is calculated to be 2.6° , and angle (i) to be 79.98° . Hence, angle (b) is 10.02° . Thus, $MUF = 9.4/\sin(b) = 9.4/0.17399 = 54.026$ MHz. We can be confident that it was Es within the Canberra 'sonde's view that supported the propagation on this occasion as the VK7RAE signal raypath to the north of the PoR passes below the Es layer at the latitude of the Sydney 'sonde' by at least 15 km. A raypath from VK7RAE slightly lower than 2.6° would be reflected from the Es layer in the Sydney 'sonde's view, but make landfall some 100 km north of VK4CZ (in the sea!).

End Part 1.

This article will be concluded in an upcoming issue.

References

- [1] Kraft, J. DL8HCZ/CT1HZE 2008, "Midlatitude Sporadic E on VHF in Correlation to the 22-year Magnetic Cycle of the Sun", DUBUS Technik 8.
- [2] Pocock, E. and Dyer, P.J. 1992, "Eleven Years of Sporadic E", QST, March, pp23-28.
- [3] www.ips.gov.au/HF_Systems/1/3
- [4] Whitehead, J.D. 1997, "Sporadic E – A Mystery Solved?", QST, October and November.
- [5] Whitehead, J.D. 1989, "Recent work on mid-latitude and equatorial sporadic-E", Journal of Atmospheric and Terrestrial Physics, Vol. 51, No. 5, pp 401-424.
- [6] Harrison, R. VK2ZRH 2007, "Sporadic E: turmoil, turbulence and torment", Proceedings from the Gippsland Technical Conference, 7/8 July 2007. www.vk3bez.org/gippstech.htm
- [7] www.ips.gov.au/World_Data_Centre/2/1/28
- [8] Davies, K. 1990, "Ionospheric Radio (IEE Electromagnetic Waves Series, Vol. 31)", P. Peregrinus, London, ISBN 10 086341186X; chapter 6, Oblique propagation.
- [9] http://en.wikipedia.org/wiki/Radius_of_earth
- [10] www.vklogger.com/beacon.php

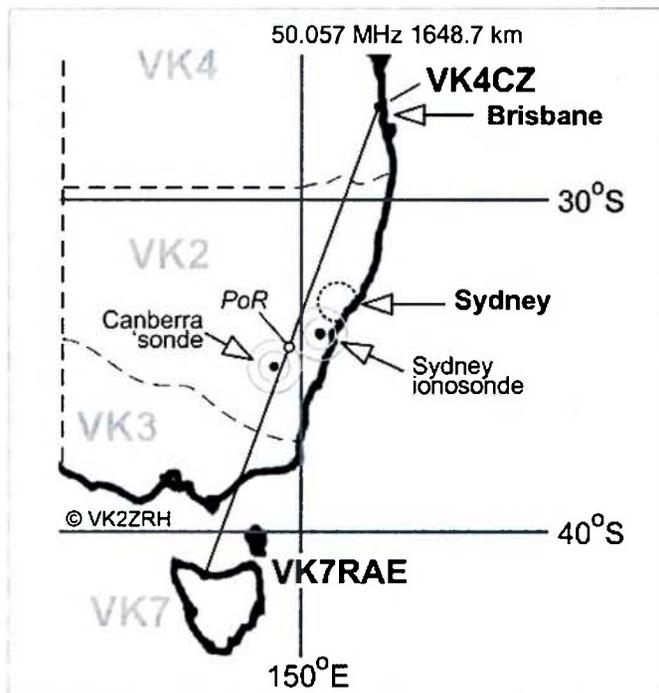


Figure 8: The path between the VK7RAE 50.057 MHz beacon at Devonport and VK4CZ on the north side of Brisbane. The circles around the two ionosonde locations show each ionosonde's view at Es heights; they don't quite overlap.

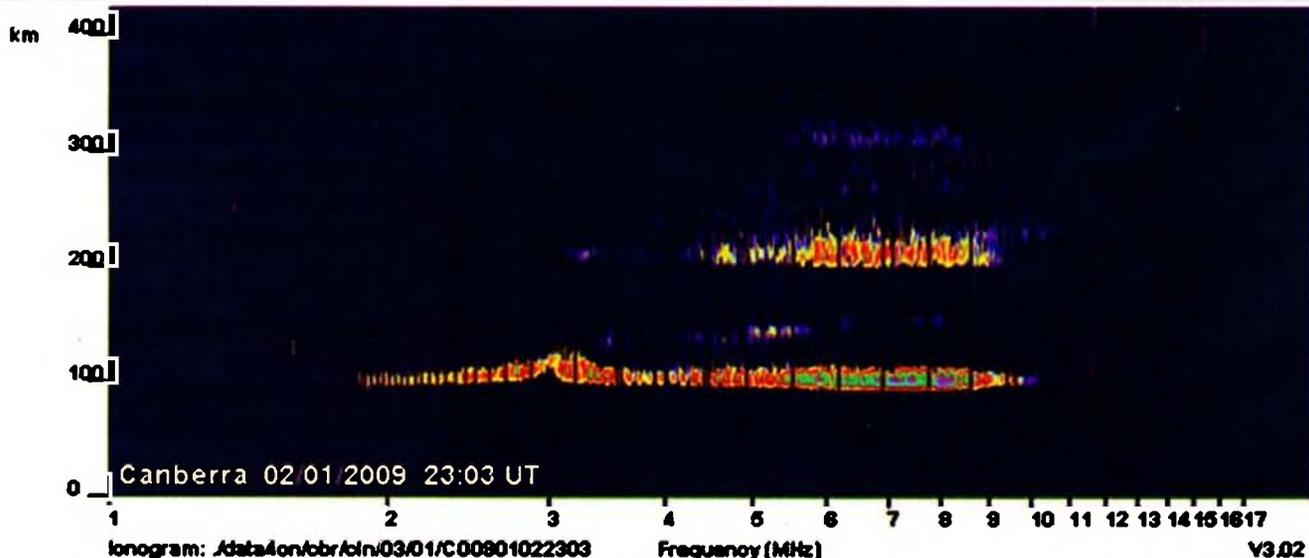


Figure 9: Ionogram for the VK7RAE (beacon) spot by VK4CZ on 2304 UTC 2/01/2009. The beacon runs 20 W to crossed dipoles [10]. RST was 549. $h'E_s$ is 92 km. f_tE_s is 10.2 MHz. An echo from another Es cloud at a large oblique angle (44°) is evident. Path length is 1648.7 km.

DX-News & Views

John Bazley VK4OQ
✉ john.bazley@bigpond.com



The following announcement by Chris and Steve is understandable in the current financial climate, but it does, once again, highlight the very high costs involved of mounting such an operation. The good news is that it has been 'put on hold'. 'Chris VK3FY and Steve VK6IR advise the DX community that the planned 2013 trip to Heard Island (VK0/M) has been put on hold until further notice'. The decision is due in part to the current global financial situation, plus the extremely high estimated financial cost of around US\$500,000. Both are still interested and have a number of helpful hints, however at this time the financial risks are far too great.

As a matter of interest, the HK0NA operation will break the DXpedition record set by VP6DX of 183,686 QSOs. That is the record for DXpeditions that you cannot fly into and where the operation does not take place at a hotel with all the comforts of food, water and power

supplied. It is commonly called the 'tent and generator' DXpedition record. 'We should break it by a comfortable margin. Considering the rarity of Malpelo on the DXCC 'most wanted' list at #12 and the extreme difficulties of the basically vertical terrain, we can be very proud of our accomplishment. We give full credit to our Colombian marine friends and the crew of the **Seawolf** for doing most of the heavy lifting', noted Bob K4UEE.

A team from Malaysia, Japan and England are heading to Layang-Layang (Swallow Reefs), the Malaysian claimed island in the **Spratly Islands** chain, where there is a 90 room three star resort. Team members include 7K4QOK, JK1FNL, G3TXF, JE1CKA, JP1TRJ, 9M2/JE1SCJ, 9M8YY, JQ2GYU, JA1LZR, 9M2PX, 9M2CLN and 9M2TO. The dates are April 10th to 24th. They have a website at <http://9m0l.legendchew.com> Not all the details have been released at the time of

writing. The call will be 9M0L and QSLs go direct to (9M2TO) 9M0L Team Penang, Box 125, GPO 10710, Penang Island, Malaysia or via the Malaysian Amateur Radio Transmitter's Society QSL bureau.

Trevor VK0TH, who is currently on **Macquarie Island**, has been away from the main base for a while. He has been working on the island since September, 2011 and now only has four more weeks left before going home. He plans to 'post a schedule and frequencies for those wanting to get VK0/M in the log before his operations cease' on his QRZ.com page.

There are no amateur radio operators expected to be on the 'incoming team' and Trevor believes it could be at least May 2013, and possibly longer, before Macquarie activates again.

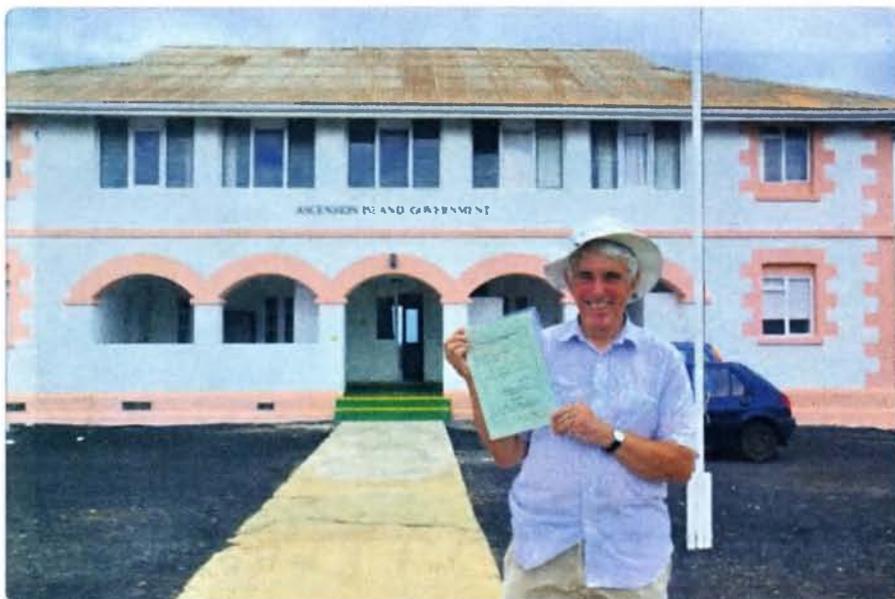
The 'Italian DXpedition Team' of I2YSB, IK2CIO, IK2CKR, IK2DIA and IK2HKT will be QRV from Mali as TZ5T from April 12th to 27th. Current plans include three Elecraft K3 transceivers and three KPA500 amps as well as one FT-857D. Activity will be on 1.8 through 50 MHz on CW, SSB and RTTY. On the low bands they will be using verticals. They will have two Spiderbeams and a five element Yagi for the high bands and a three element cubical quad on 50 MHz. Suggested frequencies are as follows:

CW - 1823, 3505, 7005, 10106, 14025, 18075, 21025, 24895, 28025 and 50105 kHz

SSB - 3780, 7056/7180, 14195, 18145, 21295, 24945, 28495 and 50105 kHz

RTTY - 7041, 10142, 14080, 18103, 21080, 24915 and 28080 kHz.

Art IK7JWY will be the TZ5T team's pilot station and can be contacted at ik7jwy@gmail.com.



One of the world's leading DXers, Nigel G3TXF shown collecting his ZD8XF licence at Government House in Georgetown, Ascension Island. He was able to operate only for 24 hours. Photo courtesy of Nigel G3TXF/ZD8XF.

They have a web site at <http://www.i2ysb.com> which will include a log search and OQRS. QSL via I2YSB direct only or IK2CIO via the bureau.

Commencing on April 29th the following will be active from **Chihijima**, IOTA AS-031, Ogasawara Islands, JD1YBT, JD1BLC and JI1LET/JD1. Activity will be on 1.8 through 50 MHz on CW, SSB and RTTY, until May 5th. Equipment includes an FT-2000, TS-870 and FT-920 running 50-200 watts. They will be using a long wire for 160 and 80 metres, a dipole on 40 and 30 metres, a two element HB9CV on 20, 17, 15, 12 and 10 metres and a four element HB9CV on six Metres. QSL JD1YBT and JD1BLC via JP1IOF and JI1LET/JD1 via JI1LET.

Alan VK4WR and Graeme VK4FI will be active from **E51** from the 8th of April to the 27th. Callsigns are E51BKM for Alan and E51GMH for Graeme. They will be active from **Rarotonga** and **Aitutaki**. Their main band of interest will be six metres and HF on 40, 20, 17, 15 and 10 metres. Rigs will be an IC-706 and FT-450, and no amplifiers. Antennas will be a five element beam for six metres and an OCF dipole for HF. Modes are CW and SSB. QSL to VK4FI, via QRZ.com, with US\$2 postage.

Vlad UA4WHX is now QRT from **Timor Leste** where he was active as 4W0VB from the main island of Timor (OC-148) between 11th January and 8th February, with a brief activity as 4W0VB/p from Atauro Island (OC-232). All of the QSOs have now been uploaded to LoTW. QSL instructions for paper cards can be found at www.qrz.com/db/4W0VB

Cyprien 9Q1KS reports that Sergiy UV5EVJ is operating legitimately with the Amateur Radio Association of **Democratic Republic of Congo** (ARAC) club call 9Q0HQ. Sergiy is operating from the extreme eastern DRC in Lubumbashi as 9Q0HQ/7. Length of stay is unknown as of press time. QSL via UV5EVJ.

A DXpedition from **Macau** is scheduled for May. Nine members of the 'A DX Group' (ADXG) will be active from Coloane Island (AS-075, grid OL62SC) between May 17th

and 23rd. Operators will be Ruben EA5BZ, team leader, Jose EA1ACP, Jose EB5BBM, Pasqua, EA5CEE, Fernando EA5FX, Biel EA6DD, Francisco EA7FTR, David EB7DX and Adrian F5VLY. Activity will be on 160-6 metres, including the 30/17/12 metre bands, using CW, SSB and RTTY, with at least three stations on the air at the same time on different bands and modes.

Suggested frequencies are: CW - 1823, 3523, 7023, 10103, 14023, 18073, 21023, 24893 and 28023 kHz; SSB - 1825, 3780, 7065/7160, 14145, 18145, 21295, 24945 and 28495 kHz; RTTY - 7035, 10140, 14080, 18100, 21080, 24921 and 28080 kHz, and for six metres CW on 50103 and SSB on 50115 kHz.

A survey is available on their web page for the most wanted bands/modes. The group's callsign will not be announced until the beginning of their DXpedition. QSL is via EB7DX, either direct or by the Spanish bureau. All QSO's will be confirmed via LoTW. For more details and updates, visit the ADXG web page at <http://www.adxg.org/xx9>

W2GJ/KH0 will be QRV from Saipan, **Northern Mariana Islands** (OC-086) from April 29th to May 3rd. Activity will be on 3.5 through 28 MHz, and possibly 50 MHz too, on all modes. QSL via W2GJ.

W6DXO will be operating from St. John Island, **US Virgin Island** as KP2/W6DXO from April 18th to 23rd. He will be on all bands. QSL via KF6JOQ.

Recently it was reported that only licensed staff of the Olonkin base will get a licence for JX. Starting in March, Svein LA9JKA is going to work on **Jan Mayen** for one year and plans to become active as JX9JKA. QSL only via his home call. From VK/ZL this is a difficult one to catch. His preference will be SSB and data modes.

The upcoming July 26th to August 1st **Sable Island** DXpedition now has a website. For those readers requiring more information on this operation, it is <http://www.cy9m.com/>

Stephane F5UOW plans to be QRV from **Reunion Island** from March 24th to April 14th. He will be

operating as FR/F5UOW during that time period, but also with special call TO2R from March 26th to April 9th. During his free time he will be on 7 through 28 MHz on CW only. QSL via F5UOW either direct or via the REF QSL bureau.

Finally DXCC News: The **Republic of South Sudan**, which joined the United Nations (UN) on July 14 at 1400Z, as the 193rd member has been assigned the callsign prefix block Z8A through Z8Z. The ARRL added country number 341 to the ARRL DXCC list and the first and only DXpedition to South Sudan was that of ST0R during late July and early August of last year. The following South Sudan information can be used for those with logging software.

DXCC Entity: Republic of South Sudan; Current Prefix: Z8; CQ Zone: 34; ITU Zone: 48; Start Date: July 14, 2011; QSL Bureau: No; UTC Offset: 3 hours ahead of UTC; Continent: Africa; Longitude: 31 37' East; Latitude: 4 51' North.

Malyj Vysotskij Island (MVI), R1M, was deleted from the DXCC list as of February 17, 2012, and added to the Deleted Entities List.

Administratively at ARRL HQ, they will not make the necessary changes to the DXCC system until after the final data processing for 2011 is complete - this includes the tables shown in LoTW.

DXCC members will see their current entity totals drop by one on their Mixed awards, and on the bands and modes where MVI credit is given. They will also see their DXCC Challenge totals drop commensurately.

Good DXing until next month.

Special thanks to the authors of *The Daily DX* (W3UR), *425 DX News* (I1JQJ) and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from www.dailydx.com/trial.htm



VHF/UHF - An Expanding World

David Smith VK3HZ

● vk3hz@wia.org.au

Weak Signal

After the great start to January, February has been very quiet on the propagation front.

On February 15th at 2153Z, Phil VK5AKK worked Joe VK7JG over a path of 1020 km. Reports were 5x2. On the 18th, Adrian VK4OX had more success with his SSB contacts via meteor scatter. At 2150Z, he worked Jim VK3II and, minutes later, Norm VK3DUT during long burns. On the evening of the 21st, Phil VK5AKK worked Bob VK6BE in Albany at 5x6. The following evening, Brian VK5BC worked Bob at 5x5.

Mini VK7 DXpedition

In mid-February, David VK3QM and Ken VK3AKK travelled around northern Tasmania activating grid locators, to the benefit of a number of VK3 stations. They had all bands from 50MHz to 24 GHz. On Saturday February 18th they travelled across the northwest activating QE38, 28 and 29. On Sunday, it was over to the northeast and QE49 and 39. In the following week, they headed south and met up with Rex VK7MO to work him from three squares on 10 GHz and 24 GHz (see below). Then the following Saturday (February 25th), they carted their equipment up Mt Poimena in QE47 and worked back into the Geelong area. On Sunday, they rested!

Barry VK3BJM reports on his efforts to work them:

As it happened, I was away from home most of Saturday, and by the time I got into the shack David and Ken were in the process of winding up operations from QE29ub. I would have been amongst the very last to work them on 144.180 MHz, and whilst I didn't need the grid locator on two metres, I called at 0629Z to confirm how well they were hearing me. VK3AKK/7 was

certainly a good signal (57) to my QTH, which is hardly coastal, being 95 km NW of Melbourne and technically on the northern side of the Great Divide. I was more than happy with the 53 I received from Ken, as this was with my station running sans SSPA - about 500 mW, perhaps a little less. The path is 426 km.

Sunday morning I was in the shack early, but with David and Ken relocating to the NE corner of VK7, it was a whole different ball game. Both their sites, in QE49af and QE39xf, were at 142 and 143 degrees azimuth - basically straight through Mount Macedon, 22 km from my QTH. (I should also note that it is very tall...) The paths were a little longer (503 and 499 km respectively) and conditions a bit flatter than Saturday. And to help matters, I had a little power line noise at S1-S2 to contend with, particularly later in the afternoon. I did, at least (and with thanks to our esteemed columnist for assistance in this repair), have my 400 W SSPA back inline after a little issue with a vanishing bias line.

From QE49af, Ken was worked at 51, for a 55 in return, at 0035Z. He was just audible on 432.180 MHz, but I let that band slip for others to work him as I already had QE49 on 70 cm. However, I did not have that locator on 23 cm so, once that coastal dogpiles had subsided, keyers were run from both ends of the path. The keyers were heard from both ends, but only just. A couple of voice calls were made as well, but again whilst audible they were not readable. Not quite enough lift, and too much Mount Macedon.

Needless to say 2.4 GHz was not attempted!

I then patiently lay in wait as they shifted to Petal Point, QE39ef. This locator was of particular interest, as I did not have it on 2, 70, 23, 13, anywhere... But as soon as Ken and David started operating, I knew I was

both behind Mount Macedon and up a creek. Again, I listened, attempted peaking the array and adjusted noise reduction to try and combat the power line noise that had appeared during the afternoon, whilst the Melbourne/Geelong stations exchanged 54 and similar reports with Ken. At my QTH, Ken was mostly 31 under S2 noise. (Noise would occasionally pause long enough to determine Ken was simply 31.) Eventually there was a break and I called; Ken gave me a 52, and I sent my 31 report to him. QSB struck as he was sending his receipt confirmation, and I asked him to repeat himself. It was while waiting for the signal to rise back up again that someone, presumably in Melbourne (I didn't recognise the voice and no callsign was given), came up at a sparkling 57 and said 'Ken's got your report, Barry'.

At that point I chose to ignore what threatened to invalidate the only contact into what was, out of all those locators being activated by David and Ken, the only new locator for me, and kept listening for Ken. Fortunately, Ken's signal did come up just enough to hear the confirmation straight from the horse's mouth. Conditions had dropped to the point that nothing was being heard on 70 and 23 cm (I didn't even bother glancing at 13 cm!) so at that point I went clear.

But... to whoever that was who piped up during this contact, please, DON'T! You could have only made a bigger faux pas if you'd passed on Ken's RS report to me! You may have thought you were helping, but you were not; the RS and confirmation of receipt of RS has to take place directly between the two stations, not via a third party. You very nearly UNmade my day.

My thanks to David and Ken for such a massive (and well planned) DXpedition. Terrific stuff - just a shame that the propagation was rather ordinary.

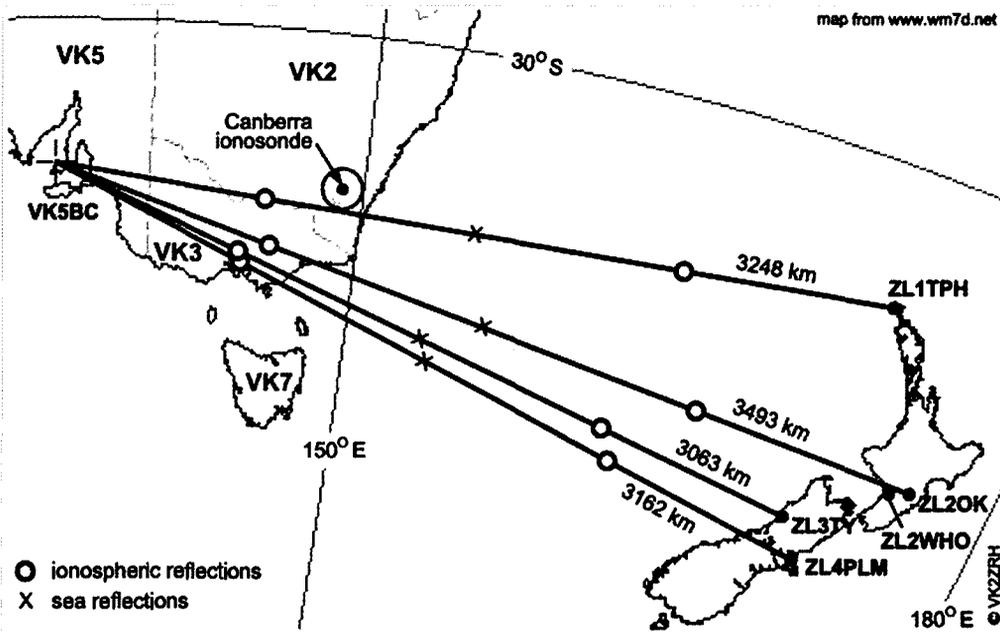


Figure 1: Geographic view of the VK5BC to ZL contacts.

First VK7 state record on 24 GHz

During David VK3QM and Ken VK3AKK's visit to Tasmania, the opportunity was taken to check out Rex VK7MO's newly completed 24 GHz system with QSOs firstly across his lounge room, then down the drive, six km across the river, 17 km from Mt Wellington to Coningham and finally 161 km from Mt Wellington to Mt Barrow with signals 5-1 and 5-6. A 199 km test from Mt Wellington to Mt Poimena showed no evidence of signals while 10 GHz signals were present at up to 5/7 with very heavy QSB. Rex now has three grid squares on 24 GHz and also three new grid squares on 10 GHz.

Analysis of two metre Es Opening, 3 January, 2012

Roger VK2ZRH has done a detailed analysis of the more spectacular contacts in early January. He reports:

As reported in last month's column, two metre propagation put on a spectacular show on this day over more than five hours, from about 2300 UTC through 0340 UTC. It seems a new VK-ZL two metre record may have been established with a contact between Brian VK5BC/p at Corny Point (PF85MC) and David ZL2OK in Takapau (RE89EX), a distance of about 3493 km; 5x8 reports sent both ways. Brian worked all ZL call areas, starting at 2300 UTC (2 January) with

ZL1TPH at RF65IN. This was followed just after 0100 UTC with ZL2WHO (RE79TP) and ZL2OK in quick succession. Then, just after 0200 UTC, he worked ZL4PM (RE66DL) and ZL3TY (RE57OM).

As all four paths exceed 3000 km, the propagation was clearly double-hop Es. Or maybe more! A propagation analysis of the longest path, VK5BC/p to ZL2OK, revealed that it was most likely mixed 2-hop and 3-hop! Figure 1 shows the four paths, the 2-hop ionospheric reflection points and the sea reflections. The map is an azimuth-equidistance projection, centred on VK5BC, thus showing great circle paths.

The IPS ionosonde at Canberra is relatively close to the likely ionospheric reflection points at the western end of the paths. As Es clouds drift in a westerly to north westerly direction at speeds ranging from about 70 m/s to 120 m/s in this region, the ionograms relating to the reflection points grouped over Victoria are earlier than the times of the contacts. The geographic spread of contacts indicated an extensive Es cloud (or cloud cluster). Such an extensive Es cloud drifting generally west at 75 m/s will pass the meridian of the Canberra 'sonde and take another 55 minutes to pass the meridian through the westerly reflection point on the VK5BC-ZL2OK path. The contact occurred at about

0107 UTC. The ionogram for 0013 UTC (54 minutes earlier) shows an intense, spread Es trace at 94 km, with a top frequency (ftEs) of 13.5 MHz. The ionospheric 'split' at Canberra is 0.8 MHz, so the penetration frequency, foEs, is 12.7 MHz. As the contact was confirmed, it can be safely assumed that similar or better conditions prevailed further east along the path, over the Tasman Sea.

The Es layer at the time was 'crinkled' or 'rippled', providing the conditions for petit chordal hop, which dramatically raises the MUF. [1, 2]. With foEs at 12.7 MHz, the electron density of the rippled Es layer was sufficient

to support propagation with an MUF of about 145.7 MHz on this occasion. As the raypath elevation angles calculated for the VK5BC-ZL2OK path fall within the range that petit chordal hop will support [1, 2], I investigated whether 2-hop or 3-hop propagation supported the VK5BC-ZL2OK contact.

For 2-hop propagation on this path with Es at 94 km, the raypath elevation angle is 2.1°. As it happens, VK5BC was using stacked 5-element Yagis at about seven metres height. The vertical radiation pattern would have the primary lobe at 3° elevation, and the next lobe at about 7.5°. At 2.1°, the gain is only about 1dB down. ZL2OK has a 16-element Yagi, with the primary lobe at 2.0° elevation, and the next lobe at 6.2°. The primary lobes of the antennas at each end are clearly well-matched to the 2-hop raypath elevation angle. However, the 3-hop raypath elevation angle turns out to be 6.5°, which is accommodated quite well by ZL2OK's Yagi, while the response of VK5BC's 5/5 array is about 5dB down. It's entirely possible that both 2-hop and 3-hop modes carried the signals. Figure 2 sets out the general geometry. Discussion on path loss is a subject for a GippsTech conference sometime!

From my viewpoint, the other notable contact of the day was spotted at 0340 UTC, between ZL4DK and VK3DUT, with a 5x2 report.

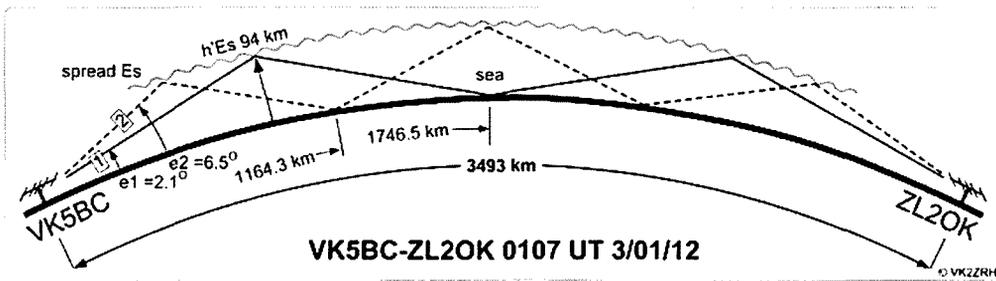


Figure 2: Propagation path analysis of the VK5BC-ZL20K contact. Path 1 is 2-hop, path 2 is 3-hop; it's likely that both supported the contact.

Path distance is 2068.3 km which, at first glance, looks like 'classic' single-hop Es. An analysis of the propagation revealed that that's unlikely, and the most likely mode is 2-hop. Figure 3 lays out the path parameters.

The Canberra ionograms showed intense, very spread, Es at a height of 99 km having ftEs values above 15 MHz for over two hours (0458 to 0718 UTC), thus giving a strong indication of the passage of the Es cloud, or cloud cluster and the extent of Es over the Tasman during the opening.

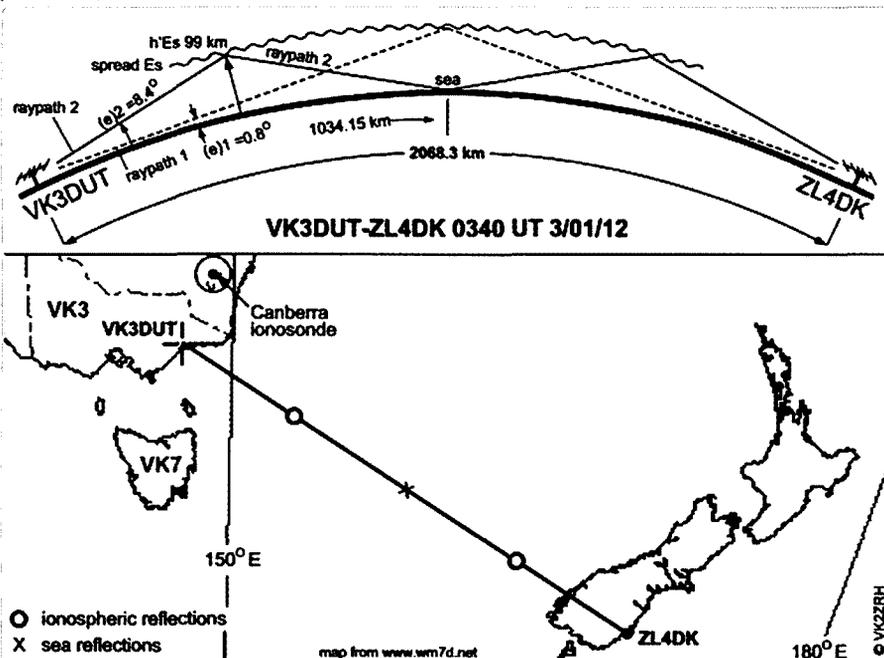
For 1-hop Es at a height of 99 km, the ZL4DK-VK3DUT raypath elevation angle would be 0.8°! VK3DUT was using his 4x13-eie Yagi array (13 m high), while ZL4DK was using a 6-ele Yagi (about 8 m high). The primary lobe of VK3DUT's array is at about 2° elevation, but the response at 0.8° would be about

9-10 dB down. ZL4DK's antenna primary lobe is at about 3° elevation and the response at 0.8° would be about 15 dB down. Not encouraging.

However, the raypath elevation angle for 2-hop Es propagation is 8.4°, which affords a better match to each of the antennas' elevation radiation patterns. In ZL4DK's case, the second lobe response at 8.4° elevation is only about 0.5 dB down from the primary lobe. In VK3DUT's case, the raypath elevation angle falls on the third lobe of the elevation pattern, again about 15 dB down, that is, the antenna has pretty much the same gain at 0.8° and 8.4°. The stronger signal would have been from the 2-hop path. Given the 5x2 signal report, the 1-hop signal would have been well below the 2-hop signal strength.

The path MUF for 1-hop propagation ZL4DK-VK3DUT works

Figure 3: Path parameters for the ZL4DK-VK3DUT contact; the 2-hop path prevailed, it seems.



out to be around 207 MHz, while for 2-hop propagation, the MUF is about 156 MHz [1,2]. These values were calculated from the 0503 UTC ionogram, with an ftEs of 19 MHz (foEs of 18.2 MHz), which is indicative of the Es in the vicinity of the reflection point closest to VK3DUT an hour and twenty minutes before the 0340 UTC

contact, taking the Es cloud to have drifted westward at about 75 m/s.

Sporadic E always has surprises in store!

Thanks to Brian VK5BC, Norm VK3DUT and David ZL4DK for help in providing information for these analyses, and Adam VK4CP/VK4GHZ for the VKLogger, a wonderful resource.

- [1] "On Sporadic E, VHF Propagation, MUFs and Petit Chordal Hop", Roger Harrison VK2ZRH, DUBUS 2/2011.
- [2] "A New Model of VHF Sporadic E Propagation", Roger Harrison VK2ZRH, at www.vklogger.com/forum/viewtopic.php?f=43&t=9832

Summer VHF/UHF Field Day

John Martin VK3KM, also known as the WIA VHF/UHF Contest Manager, reports that a total of 91 logs have been received from 82 entrants:

VK1 AI DA FD KW MT DSH

VK2 CU EI GG LE MB NR TG ACL
AMS BOZ DAG HRX JDS WFD XDE
ZQX

VK3 BQ HY KQ LY MY QI VL AKK
ALB AVV AZR BJM EGC JTM NFI
TCX TOM TPR UHF VFO WRE WWW
YFL YVG ZHQ

VK4 IZ NE OE ADC GHZ HBG JAM
KLC VDX WIE WIS ZDP

VK5 AR KC KK KX LD NE NI NY OQ
SR TE TX ZD ZT AIM AKM ALX ARC
KLV KPR VAB ZQV FPAW

Well done to all who participated. Results are included elsewhere in this issue.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au



Digital DX Modes

Rex Moncur
VK7MO

144 MHz FSK tests to North Queensland

Kevin VK4UH provided the following report:

Throughout January and February this year, a number of meteor scatter operators from southern VK4 have been turning their beams to the north in an attempt to 'stir up' some interest and activity from the north of the state. It was clear from emails received that a number of stations around the Rockhampton and Cairns areas had tried Meteor Scatter in the past without success - out of range probably from the majority of VK2 and VK3 operators while most of the VK4s from the SE of Queensland were probably beaming away from them.

A series of activity sessions, with SE VK4s beaming north, has been running on Saturday and Sunday mornings from 2100Z after the normal activity periods. Operation has been on 144.330, the secondary MS frequency to avoid any conflict with stations continuing after the nominal end of the normal sessions. Unusually of course with the southerly VK4s transmitting in the FSK441 'First Period'. Stations participating from the south included Kevin VK4UH, David VK4KSY, Robert VK4LHD, Phil VK4CDI and John VK4MJF.

A number of operators, all new to MS and FSK441, including Frank VK4FLR at Zilzie QG56JR, Ulf VK4TUL at Trinity Beach QH23UF and Chris VK4FR at Townsville expressed interest in participating in the activity sessions. On 25 February Frank successfully decoded pings from VK4LHD and VK4UH. Just under 500 km distance. The contacts were not completed as no return signals were returned in that session. It is easy to forget how complex WSJT can seem without some 'On the Spot' guidance with screen settings and protocol etc.

As the author recalls, before hearing my first ping I couldn't believe it was possible. After that ping I couldn't leave it alone!

The activity sessions will continue as long as interest continues and all operators, new and old, at either end of the state are invited to participate. Kevin VK4UH is happy to receive emails for any advice or guidance required by operators new to the mode - vk4uh@wia.org.au

24 GHz aircraft scatter

During December David VK3HZ and Rex VK7MO undertook tests of aircraft scatter on 24 GHz from David's home QTH in Melbourne to about 20 km northwest of Albury over a 220 km path. The path crosses the Melbourne-Sydney aircraft route. An issue with 24 GHz is absorption loss, due mainly to water vapour. It was thought that as the majority of the aircraft scatter path is high in the atmosphere where losses are significantly lower, aircraft scatter may still be possible. Tests were only one way as Rex only had his receiver operational but by using a single tone we did see weak aircraft scatter signals at around -28 dB on the JT65c scale with larger aircraft such as 747s. To get some idea of the absorption losses on an aircraft scatter path a spread sheet has been developed that uses radiosonde data that is available on the Web. This spread sheet is available at: www.vk3hz.net/microwave/Aircraft_Absorption_Loss_by_VK7MO.xlsx

For the day of the tests, the total absorption losses were around 11dB as shown by example as set up on the web site. While this is early days and both Rex and David are still getting their 24 GHz systems sorted out, the results are sufficient to show that aircraft scatter is a possibility on 24 GHz.

24 GHz tests across Bass Strait

Following the 24 GHz SSB tests reported in the Weak Signal section, Rex VK7MO and David VK3HZ undertook a test over a 421 km path across Bass Strait on 24 GHz using JT65c. VK7MO was located at Mt Barrow at 1300 metres and VK3HZ at John's Hill lookout at 400 metres. The tests were undertaken on 24 February 2012 at a time when

the Hepburn chart indicated the possibility of ducting. While a QSO was not completed, signals were evident for an 11 minute period in over two hours of testing and decodes were exchanged both ways. A detailed report on these tests is available on the following website: www.vk3hz.net/microwave/24GHz_Tests_1.pdf

Included on the website with that report are spread sheets used to analyse the tests as follows.

Absorption Loss Calculator by VK7MO: www.vk3hz.net/microwave/Absorption_Loss_Calculator_by_VK7MO.xls

Refractive Gradient Plotter by VK3OE: http://www.vk3hz.net/microwave/Refractive_Gradient_Plotter_by_VK3OE.xls

The main conclusions of the tests are:

- It seems likely that the 24 GHz propagation was via high level tropo-ducting at around 3200 metres.
- Comparisons between 10 GHz and 24 GHz together with calculations of absorption loss support the fact that a high level duct was involved.
- Calculations of absorption loss are consistent with the 40 dB weaker signals at 24 GHz compared to 10 GHz.
- The ducting signals are stable in frequency and constrained within a few Hz and thus JT65c is useful for tropo-ducting at 24 GHz.
- It seems that for planning purposes it will be necessary to use high ducts to avoid excessive absorption and that it will be preferable also to have elevated TX and RX locations to reduce absorption losses.
- While a QSO was not completed in this case (due mainly to minor stuff-ups at both ends) there is evidence that such a path is possible given that this was our first attempt and we have both been operational on 24 GHz for only a few days.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au



The Magic Band – 6 m DX

Brian Cleland
VK5BC

After an exciting January, conditions slowed down in February with one good opening into southern USA from VK4 early in the month. Towards the end of February some afternoon and evening TEP started to appear particularly in northern areas of VK.

Scott VK4CZ in Brisbane reports on the USA opening on 8th February.

Who would have ever thought that we could be working trans-Pacific F2 paths on six metres with a SFI that was fast receding back to levels of below 100! But Wednesday 8 February proved us wrong.

The day didn't show much promise. Early monitoring of the usual propagation indicators had shown short Es paths between VK and ZL north island, but little else.

However at around 0130Z Remi FK8CP was being reported by stations in W4 and W5, and ever hopeful (but with low expectations) that the path would extend the additional 1,500 km to us I started tuning the frequencies which some of the Ws were supposedly CQing on. At 0149Z N5DG [EH20ab] was first heard on 50.105 CW @ RST419 with significant QSB.

By 0151Z I completed with N5DG on 50.105 CW and QSYed to 50.098 to CQ. At 020Zz worked K5RK [EL29rh] RST519 who subsequently worked VK4WM. I QSYed to 50.096 to again commence CQing and at 0213Z worked K4RX [EM70ue] RST519. Soon after I received a report that AC4TO [EM70xl] was hearing me and for the next 15 minutes we tried, occasionally hearing bits of each other, but failed to complete!

Wayne VK4WTN in Hervey Bay also had a good morning on 8th February completing contacts with K5RK 529, N5DG 529, W3UUM 529, K5MV 319, K4RX 419 and ZK2C 519.

On 15th February John VK4FNQ in Charters Towers reports working Fred KH7Y 0640z SSB 59 and Remi FK8CP 0914Z CW 559.

The 23rd February was an interesting day with VK4s working into T1 early in the morning and then early evening a good Es opening from VK5 and VK3 to ZL1, 2 and 3 as well as opening from VK5 to VK2 and 4. Mark VK8MS and John VK8JM in Darwin worked BA4SI and JA's later in the evening with VK3XDX also completing with BA4SI and JA's CW.

On 25th February a good mid-afternoon opening to southern VK4 with George VK4AMG and Tim VK4TIM working several JAs and Scott VK4CZ completing some RTTY contacts. The opening extended into northern NSW, where VK2FZR had a great time working 28 x JA stations. At the same time Leigh VK2KRR near Wagga Wagga and Brian VK5BC were running WSPR and being decoded by JAs. Meanwhile Wade VK4WM also worked some JAs in CW along with HL2NF and DS1QMV in southern Korea. The opening then moved across to VK6 where many contacts to JA were completed; VK6APH worked 34 JAs in 45 minutes and Peter VK6KXW on 50.090 MHz RTTY worked 38 x JA stations plus DS1QMV. KG6DX was also reported from VK4.

Peter VK6RZ summarized the opening as follows;
Good opening to JA yesterday Saturday 25/2. Heard JR2HCB calling CQ on 110 SSB at 0635Z, worked him then QSYd down to 50.102 and put out a short CQ on CW - instant pile up! Worked my way through 40 QSOs all JA until 0745Z when band dropped out.

It's been a fairly quiet summer here on six or maybe I have been too busy elsewhere. Anyway it sure is nice to get an opening like that. It does not happen very often in VK6 (unless you happen to be north!)

By the end of February there were TEP openings to JA etc. most nights from northern VK, Darwin and NW VK6 in particular. On the evening of the 26th it did extend to VK5 with Brian VK5BC working Hide JR6EXN 5/5 SSB.

Good Es openings from VK5 to VK6 on the 12th and 15th of February with steady solid signals. Brian VK5BC worked VK6's KDX, OX, RO, GL, KXW and AB during the opening on the 15th.

Alan VK4WR and Graeme VK4FI advise they will be active on six metres from both Rarotonga and Aitutaki, Southern Cook Islands from the 8th to 27th of April with the callsigns of E51BKM for Alan and E51GMH for Graeme. They will be using an IC-706 and FT-450 for rigs running 100 watts into a five element Yagi and operating both SSB and CW. They will also be active on the HF bands of 40, 20, 17, 15 and 10 metres. QSL to VK4FI, info on QRZ, and US\$2 postage required.

A message from Mike ZS2FM who advises that in previous sunspot cycle peaks the MUF usually peaks during the first week or so of April, and VK signals used to appear around 0700 UTC, in the morning at his QTH in South Africa.

Since equinox time is coming up he plans to turn the ZS2X FSK beacon in the VK direction from 1st March until end of April, 2012. The mark frequency is 50.0079 MHz and spaced -250 Hz. It runs 25 watts into a two element horizontal Yagi that will overlook the sea. During this period ZSs in the Port Elizabeth area will also be monitoring the Bunbury beacon on 50,306 MHz and Mike will also check the Wagga Wagga TV on 46.240 MHz to see if the MUF reaches that height. If by the end of March there have been traces of band openings skeds could be arranged for the first two weeks of April.

Please send any six metre information to Brian VK5BC at briancleland@bigpond.com



WICEN Tasmania (South) assists Tasmania Fire Service

A multi-agency (Fire, Parks and Forestry) Incident Management Team (IMT) was set up to manage the fires burning in the Derwent Valley of southern Tasmania between 25th February and 4th March 2012.

The larger of the two fires involved over 5,000 hectares of vineyard, grass and forest land, starting near the Meadowbank Dam power station. A number of small population centres were under threat over several days. The smaller fire, involving around 395 hectares of grassland and light bush near Ouse, was fast moving on Sunday 26th February.

WICEN is a registered resource and was called, on day one of the fire, to assist by providing radio operators for the IMT established at the Tasmania Fire Service training centre at Cambridge near Hobart airport.

Fourteen amateurs provided 34 shifts over the nine days of the fire. Shifts varied in length from three to

Photo 2: The author Roger VK7ARN – note the formal ID swing tag hanging around his neck – a wonderful advertisement for amateur radio's disaster support role.



Photo 1: Nicole Sweeney VK7FNJS, one of a number of provisional amateurs on the IMT, on the job at the Tasmania Fire Service training centre at Cambridge, near Hobart airport.

thirteen hours. Teams of, usually, two worked each shift, though there were some shifts with one and three operators. The radio room was remote from the operations room so a message form 'runner' between the two was desirable.

Of the thirteen operators, eight had completed the course PUAOPE002 – Operate Communications Systems and Equipment. This course was run by the Tasmania Fire Service for WICEN and tailored to the role,

circumstances and the prior learning of the participants. A similar module is included in the WIA Emergency Communications Officer course.

Those involved, in order of shifts worked, were VK7s Peter Henry TPE, Roger Nichols ARN (WIA ECO), Scott Evans HSE, Stu Braunholz NXX, Michael Sweeney FMRS, Gavin O'Shea HGO, Chris Webb FCDW, Cedric Lockley CL, Nicola Sweeney FNJS, Damien Almond VAO, Garry Duenche JGD, Reg Emmett KK, Justin Giles-Clark TW, Warren Nicholas FEET.

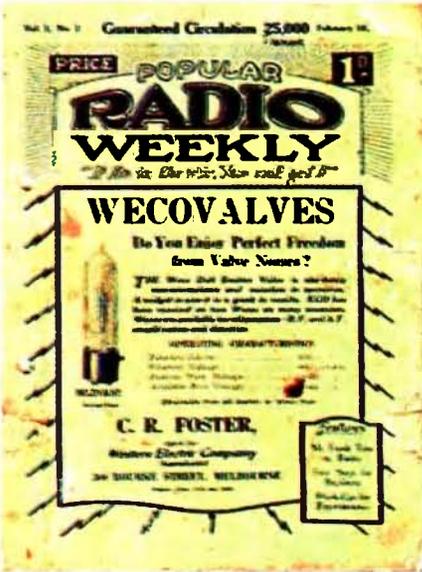
This was the fourth WICEN

activation for a major Tasmanian bushfires, the others being Broadmarsh in 2003, Kellevie in 2006 and Wayatinah in 2010.

Photo 3: Peter VK7TPE and Chris VK7FCDW.



Hamads



WANTED – NATIONAL

Copies of Radio Weekly magazine. The WIA Archive is seeking copies of Radio Weekly for copying and/or adding to the WIA Archive's shelves. Little is known about this magazine. The WIA holds two copies only. Volume 1, Number 1 and Volume 2, Number 2. They contain about 36 pages and issues included articles of general radio interest in addition to the odd experimental article.

The magazine was published in Melbourne commencing in February 1925 and claimed a circulation of 25000! For those who have responded to previous requests for copies of early magazines, thank you. We are gradually building up our collection of important Australian magazines which will be available to future researchers. Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate copies of this magazine.

FOR SALE – VIC

Nally tower, 13.7 metre wind up, tilt over, with in-ground mast column, top bearing, rotator and extension tube. Drawings and engineers computations are available. It is uninstalled and ready for transport, \$2000. Contact Ian VK3XID, on 03 9734 1507, or vk3xid@wia.org.au

WANTED – NSW

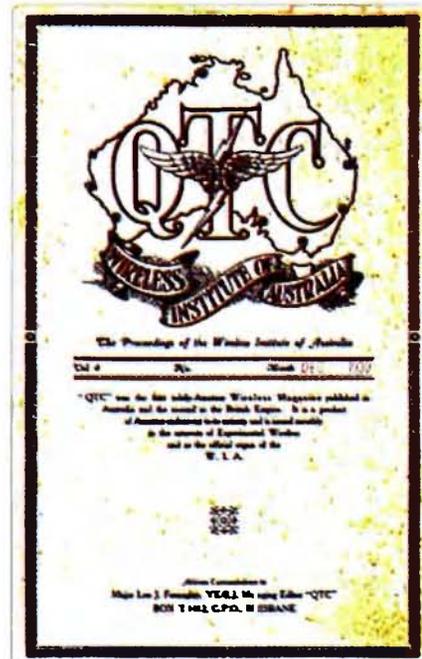
Looking for a lightweight headset, with a boom microphone, to suit a FT-817, FT-857 or FT-897 transceiver. Contact David VK2EZD, QTHR, 4 Blackwood Way, Albion Park Rail, NSW 2527.

FOR SALE – QLD

Four (4) meters, two watt meters, 2k and 200 watts, one current meter (Ip, Ep, Ig). These are brand new, never been used and were meant for the Dentron linear. All have 200 microamp movements. They are reasonably priced and would be very good for a linear project. Contact VK4DV at vk4dv@yahoo.com. au or by phone at night, on 07 4928 5537 QTHR.

FOR SALE – SA

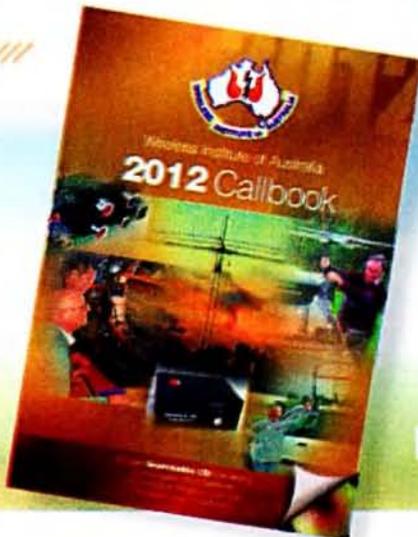
Yaesu FL-2000B amplifier with book, S/N H912237. All offers considered. Also four x 3 W UHF amps, model PATVA/5-3B. S/N 728, 729, 736, 738. I will sell as a package or separately. All offers considered. Contact Lindsay Porter, on phone 0407 795 038 or 08 8564 2379.



WANTED – NATIONAL

Early copies of QTC magazine. The WIA Archive is seeking early copies of QTC magazine for copying and/or adding to the WIA Archive's shelves. QTC was published in Queensland and claimed to be the first solely Amateur Wireless magazine in Australia and second in the British Empire! The format was duplicated foolscap pages stapled, with a light blue/grey front cover. QTC was published in the late 1920s/early 1930s, ceasing in November 1931; VK4LG was the dedicated editor. There was a later version in Queensland. We are presently interested in the early editions only. Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.

Is your
Callbook
current?



The WIA
2012 Callbook
is now available
www.wia.org.au/bookshop



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

AMIDON FERROMAGNETIC CORES



tts systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystems.com.au

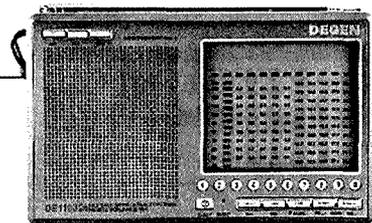
VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links related to Amateur Radio and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...



DEGEN 1103 HF Receiver

Pocket sized, 100 kHz - 29,999 kHz

LCD display, SSB, AM wide/narrow FM Stereo, DX/Local, 10 m long wire NiMH batteries & charger
Earphone & Carrycase included
Full review Silicon Chip Jan 2007



ONLY \$99
with 12 month warranty

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100

Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au

www.avcomm.com.au

About Hamads

- Submit by email (MUCH PREFERRED) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products
Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**

JACKSON BROS

www.jacksonbrothers.com.au

Highest quality products made by UK craftsmen
Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES

HAMMOND MANUFACTURING. Large range of quality electronic enclosures for the discerning Radio Amateur.
Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many ARRL projects.

Cookson Controls CHARLES I COOKSON PTY LTD
11-13 Port Rd Queenstown SA 5014

Tel: (08) 8240 3200 Fax: (08) 8240 3233

sales@jacksonbrothers.com.au

ccookson@hammfg.com

ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND

ADVERTISERS INDEX

Av-comm	55
ATRC	17
Com-an-tena	27
Cookson (Jackson Bros)	55
Hamak Electrical Industries	55
Icom	OBC
Jaycar	15
RF Solutions	7
TET-Emtron	39
TTS	29, 35, 55
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Directory



National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>

The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au

- * John Bishop VK2BK
- Dominic Dahl VK2YDD
- * Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- * * Bob Tait VK3XP
- Luke Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- * * Michael Charteris VK4QS
- Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- * David Clegg VK5KC
- * Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- * Martin Stretton VK6ZMS
- * Heath Walder VK6TWO
- Craig Lamb VK6FLAM

Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- * * Justin Giles-Clark VK7TW
- Peter Rumble VK7IY

Northern Territory Advisory Committee

Email: vk8advisory@wia.org.au

- * Peter Blackadder VK8HPB
- Garry Woods VK8GW
- * Alan Baker VK8AB
- Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board
(*Nominated Member)

The WIA Online Bookshop



- A service provided by the Wireless Institute of Australia.
- Over 100 locally and internationally sourced publications.
- Discounts for WIA members.
- Secure online ordering.
- Delivery to your door.

Visit the WIA Online bookshop today at www.wia.org.au

Mildura 25th - 27th May 2012

Weekend Highlights

Project Horus



The Project Horus group have become famous amongst amateur circles for their weather balloon launches with payloads capturing data at altitudes in excess of 35,000 m. Tracked by GPS and radio communications - once the balloon has burst, the payload descends to Earth and is retrieved. Hear about their exciting Horus launches and be part of history in the making when on Sunday morning Horus 88 will be launched. Join in the

chase to be the first to recover the payload to win a brand new Yaesu FT-1900R 2 m mobile transceiver.



AMSAT and Jan King

Jan King W3GEY was a co-founder of the Radio Amateur Satellite Corporation (AMSAT) in Washington, DC, also serving on the AMSAT Board of Directors. He was project manager for a series of 12 small satellites. Jan brings to

the technical symposium a wealth of experience and stories about some of our most popular satellites.



Councillor Max Thorburn

Max Thorburn is an experienced journalist and radio announcer who now operates two narrowcast AM stations, manages the local community radio, and also runs an "on line"

newspaper. Max will be our guest speaker at the Saturday night WIA annual dinner.



Paddleboat Mundoo

The Paddleboat Mundoo is of steel hull construction, 34.9 metres long, with modern conveniences, kitchen and dining facilities to cater for up to 180 passengers, in one

comfortable area featuring attractive quality timber ceilings and bar facilities. Enjoy lunch and the WIA Annual Conference special event station on board during the 4 hour cruise.

Technical Symposium

Amateur Radio technology to the future. Hear what the experts have to say, learn about the cutting edge technology and what our Australian Amateurs have been working on, and the bright future for our hobby.



Andrew Martin VK3OE

Andrew is a qualified Telecommunications Engineer. Andrew has developed a remote internet controlled site and chirp radar for amateur use. Andrew will discuss his remote site together with recent developments and results obtained with the chirp radar.



Peter Cossins VK3BFG

Peter is a digital ATV guru, having been involved with the ATV repeater VK3RTV since 1977. Peter will be presenting a brand new very affordable DVBS system which is claimed to put digital ATV transmission within the reach of just about anyone. A detailed look at this new DVBS system will be the main feature of Peter's ATV presentation.



Terry Baum VK5VZI

Terry Baum, 23 years of age, was first licensed in 2010 and is the principal lead for the Project Horus team. Terry works in Adelaide as a freelance IT consultant and recently presented the work of the Project Horus team to the Linux conference in Ballarat.



Jan King W3GEY

Jan is a world recognized expert on satellite design and space communications. Jan's initial involvement with AMSAT started with Oscar 5 in the late sixties.

The Program

Friday 25th May	2 - 5 pm	Registration at the Mildura Grand Hotel
	6:00 pm	Dinner at the Settlers Club
	8:30 pm	Guest speaker Alan Cameron
Saturday 26th May	8 - 9 am	Registration at the Mildura Grand Hotel
	9:00 am	WIA AGM & Open Forum
	1:00 pm	Lunch at the Mildura Grand Hotel
	2:00 pm	Technical Symposium
	6:00 pm	Pre dinner drinks in the Club Lounge
	7:00 pm	Annual dinner in the Mildura Grand Ballroom
	8:30 pm	Guest speaker Max Thorburn
Sunday 27th May	8:00 am	Project Horus balloon launch
	11:30 am	Paddleboat Mundoo & Lunch
	5:30 pm	Evening BBQ at Fergus Park



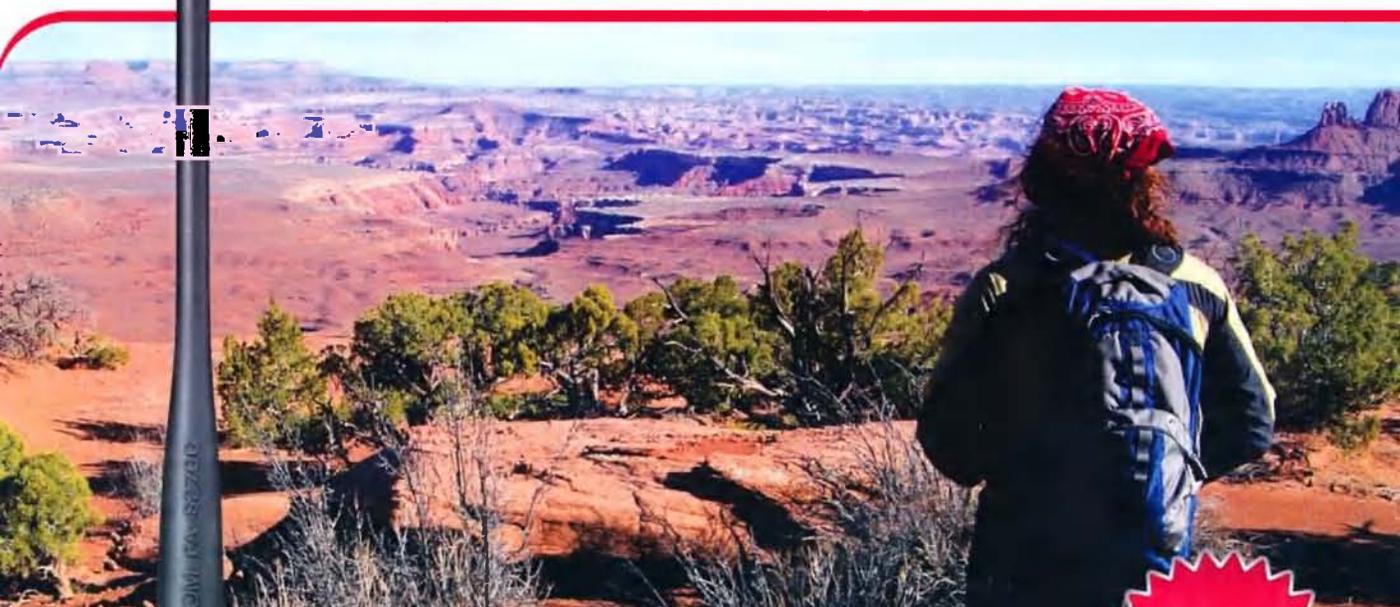
WIA Annual Conference
Mildura 2012

Further Information

On-line registration is available now on the WIA website, or you can register by phone to the WIA office.

Visit our website <https://www.wia.org.au/joinwia/wia/2012agm/> for further information.

The Evolution of D-STAR Continues



**FREE
SD CARD**

ID-31A

- Slim, Compact and Lightweight
- IPX7 Waterproof (1m Depth for 30 Minutes)
- GPS Built-In
- GPS Logging
- Micro SD Card Slot
- Pre-programmed with main worldwide repeater frequencies
- 1252 Memory Channels (500 Regular, 700 D-STAR Repeater Memories, 50 Scan Edges, 2 Call Channels)
- CS-31 Cloning Software Included (Update available from Icom Inc. website)
- D-STAR DV Mode and Analogue FM Mode
- Directional Keypad and Quick Menu Button
- Large Dot-Matrix Display

* Free 2GB SD Card available for a limited time only.


ICOM

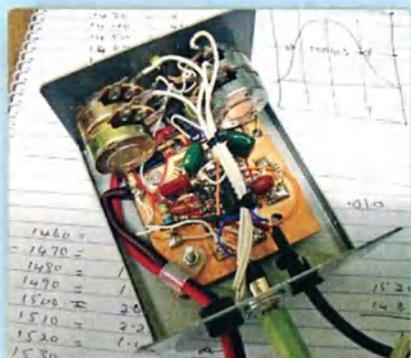
ICOM 609

To find out more about our latest products,
call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

Volume 80
Number 5
May 2012
Price: \$8 incl GST

www.wia.org.au



An audio bandpass filter for BPSK
Build a valve receiver with 12 V supply
A little known pioneer of Australian wireless



Portable operations

Reports from Field Days & National Parks



ISSN 0002-6859

05



9 770002 685055



A TECHNOLOGY BREAKTHROUGH

THE NEW PRESTIGIOUS COMPACT RADIO WITH APRS



VX-8DR/E



VX-8GR/E



AR

Volume 80
Number 5
May 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor

Peter Freeman VK3PF
editor@wia.org.au

Technical Editor

Peter Gibson VK3AZL

Publications committee

Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters
nationaloffice@wia.org.au

How to submit material Secretary

AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor

Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising

All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office

Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines

All articles, columns, hamads and
advertising booking by first day of
previous month.

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

The effects of a metal mast or
a (very) stupid mistake! 11

Felix Scerri VK4FUQ

Microwave dishes, a confluence and
two bottles of red wine 12

Dan Joyce VK2GG

A little known pioneer of
Australian wireless 24

Brian Kirkby

Review: Wireless - from Marconi's
Black-Box to the Audion 31

Blair Bowler VK4BBX

CENTENARY 1912 ~ 2012
celebrating VK100WIIQ 60

Michael J. Charteris VK4QS

WIA Inwards QSL Bureau 61

Geoff Atkinson VK3TL

Wonnangatta Mayday 62

Tony Lathouras VK7VKT &
Peter Freeman VK3PF



This month's cover
Our cover this month
shows Dave Park
VK3JDA examining
some of the portable
kit belonging to
Tony Hambling
VK3VTH. Several
amateurs gathered.

at Churchill National Park in early March to discuss
portable operations relating to activating National
Parks. In the background, Peter Fraser VK3ZPF
is busy working on 40 m, activating the Park for
award hunters. See a brief report in the Amateur
Radio Victoria news for the month. Photo by Tony
Hambling VK3VTH. We also have reports from club
activities for the John Moyle Field Day. The inset
images are from the article on an audio bandpass
filter designed for BPSK operations by John
Sutcliffe VK3TCT, on page 44 (images by VK3TCT).

Technical

A look at frequency synthesizers 6

Elmo Jansz VK7CJ

Test Patterns for ATV 14

Ross Pittard VK3CE

A valve receiver that runs from
12 volts 28

Peter Parker VK3YE

A BPSK bandpass filter 44

John Sutcliffe VK3TCT

On sporadic E VHF propagation and
solving a mystery about maximum
usable frequencies - Part 2 52

Roger Harrison VK2ZRH

Columns

ALARA 32

AMSAT 39

Contests 18, 21, 36

DX - News & Views 42

Editorial 2, 5

Hamads 62

Silent Key 23

Spotlight On SWLing 34

VHF/UHF - An Expanding World 48

WIA Comment 3

WIA News 4

News from:

VK2 41

VK3 5, 10

VK5 17, 35

VK6 47

VK7 8

Contributions to Amateur Radio



Amateur Radio is a forum for
WIA members' amateur radio
experiments, experiences,
opinions and news. Manuscripts
with drawings and/or photos are
welcome and will be considered
for publication. Articles attached to
email are especially welcome. The

WIA cannot be responsible for loss or damage to any material.
Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage
within Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are
available to members at \$2.50 each (plus an additional \$2 for
each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily
reflect the official view of the WIA and the WIA cannot be held
responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road

Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

Manager	Mal Brooks	VK3FDSL
Administration Officer	Margaret Williams	
Examination Officer	Dianne Ashton	VK3FDIZ

Board of Directors

President	Michael Owen	VK3KI
Vice-President	Phil Wait	VK2ASD
Directors	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Piatt	VK5CP
	Trent Sampson	VK4TI
Secretary	Sarah Thompson	VK3AUD
Treasurer	John Longayroux	VK3PZ

Coordinators

AMSAT	Paul Paradigm	VK2TXT
ARDF	Jack Bramham	VK3WWW
Australian ARISS	Tony Hutchison	VK5ZAI
Awards	Chris Piatt	VK5CP
Clubs	Ted Thrift	VK2ARA
Contests	Craig Edwards	VK8PDX
John Moyle Field Day	Denis Johnstone	VK4AE
Editor 'AR'	Peter Freeman	VK3PF
EMC/EMR	Gilbert Hughes	VK1GH
Standards	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
NTAC	John Martin	VK3KM
Historian	Peter Wolfenden	VK3RV
IARU Region 3 Liaison	Chris Piatt	VK5CP
Monitoring Service	Peter Young	VK3MV
International Travel Host	John Miller	VK3DJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
QSL Curator	National Office	
Repeater	Peter Mill	VK3ZPP
Webpage	Robert Broomhead	VK3DN

Emergency Communications Group

Coordinator	Phil Wait	VK2ASD
Members	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

AR – slightly smaller but thicker

At about the time that the April issue of *Amateur Radio* was being delivered to readers, the WIA was approached by the printer with an offer to increase the size of the magazine at no additional printing cost to us. The reason was simple – their plant mechanics meant that it is easier for the printer to produce a 64 page issue than a 56 page issue. After some consideration, the WIA accepted the offer, but the decision was made that we needed to slightly reduce the magazine page size. If this decision had not been made, we were very likely to fall over the line into the next postage mass category, which would have increased the postage costs, an important budget consideration.

The net result of the changes implemented this year is that we now have a 64-page issue with colour available on all pages. We have been working with the printer on fine tuning the entire production process so that the appearance of the magazine is as good as can possibly be achieved with the processes used in printing. The Publications Committee was largely pleased with the improvements that have occurred in colour management – overall, the colour reproduction was better in the April issue than in the two earlier issues this year. Yes, there is room for further improvement, and discussions are on-going to achieve additional gains.

In the short term, there is little impact on the overall processes of production. However, it does mean that we will be publishing eight more pages of content each month.

The logical result of this change is that authors can expect to see their article printed sooner than would have otherwise occurred. The downside for the Publications Committee is that the size of our stock articles that are ready to publish will diminish. This may ultimately mean that I, as Editor, will have reduced choices as to the articles that can be published in a particular issue.

I therefore ask again that all readers consider placing their fingers on the computer keyboard and camera shutter button to prepare articles for submission. Remember that we also need well composed high quality images for possible use on the cover. Guidelines for preparing articles can be found on the WIA website at: <http://www.wia.org.au/members/armag/contributing/>

Advertising in AR

Do you work for a company that may be interested in reaching amateur radio operators through this magazine? Perhaps it is worth approaching the appropriate manager and mention *AR* as a publication worthy of consideration for the placement of an advertisement. Anyone interested in exploring such options should contact the WIA office to discuss our modest page charges.

Perhaps you work in or have retired from the advertising industry? The WIA would be interested in having a member willing to volunteer some time to find new advertisers for *AR* – not necessarily directly involved in

Continued on page 5

WIA comment

Michael Owen VK3KI

The WIA Annual Conference



This issue of *Amateur Radio* will appear at the beginning of May, the start of the month that ends with the WIA Annual Conference.

I have been thinking about our Open Forum.

Should we try and widen the issues that can be addressed?

Should it be the chance for members to raise any issues they want to raise?

Would this improve our weekend?

Or, do we spend enough time now on "business"?

We receive reports from all those who undertake or manage particular activities on behalf of the WIA, from ARISS to QSLs to awards to publications to contests. In the last couple of years we have asked those submitting reports to identify in their report any issues they would like discussed. And those issues are the issues we can focus on, since we send to each registrant a book of the reports some weeks before the Conference.

The only problem with that is that it only encourages discussion on matters raised by the writers of the various reports.

Already we have identified matters we would like discussed this year. Have a look at the "Comment" published in last December's *Amateur Radio*, under the heading "Has the Club Grant Scheme run its course?"

After discussing the sort of club projects that could be supported and some of the options for the Club Grant Scheme, I said:

We invite all clubs to make written submissions on the matters I have raised, and to send them to us. In order to ensure balance, we encourage positive as well as negative reactions to the Scheme as it now is.

We will circulate all submissions we

receive with the Open Forum reports that we will send to everyone who has registered for the Annual Conference so all views can be taken into account when it is discussed at the Open Forum.

Well, so far, we have received one submission from one club.

Does that answer the question that was the heading for that Comment?

But, during the year I receive many letters and emails, making many suggestions for the WIA. And, there are many issues of substance that could be discussed. The power limit for Foundation licensees is a hot topic in a number of places. On air behaviour probably attracts more frustrated letters and emails than any other topic.

Of course, we also receive criticism, sometimes justified, sometimes not necessarily fair when addressed to volunteers.

Would opening up discussion on these topics make our Open Forum better?

How important is the Open Forum, anyway? So far, we just allocate about two hours to the Open Forum, after our formal statutory meeting, morning tea and the presentation of merit awards. I know, with the number of Reports that we deal with, and with any serious discussion on a particular issue, how hard it is to chair a meeting with such great time constraints. I also know that most of us just do not want to listen to interminable discussion on one issue or another. But I also know that this is the opportunity for the Board to get a feeling about what members think.

How much time should we allocate to the Open Forum during our Annual Conference weekend?

Clearly, there are only so many hours in a weekend, perhaps even less if some need to leave by the middle of the day on Sunday if there is a long drive home. So, what do those who attend want? Less time allocated to a technical symposium? Or, should time on Sunday be allocated to Open Forum/Technical Symposium activities rather than activities such as the visit to Litchfield National Park near Darwin or Dick Smith's property near Canberra?

I believe that the WIA must be able to make quick and effective decisions, and must appoint Directors who together have the skills and experience to make those decisions.

But equally, I believe those Directors cannot work in a vacuum. They need to know what the members think.

That is why I have been so keen to attend meetings of clubs in the various states.

But should it also be more of a function of the Open Forum?

Perhaps we could invite any member who wishes to have a matter discussed at the Open Forum to submit a paper raising the issue to be included in the Open Forum reports distributed to people who have registered for the Conference.

Or is it just an idea like asking the clubs to tell us whether or not we should have a club grant scheme and if so, for what purposes should grants be made?

I will raise this question by including this *Comment* in the Open Forum papers that will be distributed before the Annual Conference.



Illawarra Amateur Radio Society IARS receives WIA Grant

WIA Vice President Phil Wait VK2ASD presented a cheque from the WIA to the Illawarra Amateur Radio Society (IARS) at their new meeting venue at the Figtree RSL Bowling Club. The WIA Club Grant was awarded to the IARS for the development of a portable audio visual pack, which the club intends to take to high schools in their region to promote amateur radio as part of the general science curriculum. The WIA strongly supports this type of activity and congratulates the IARS on its successful application.

Phil was also invited to give a presentation to the club on the current status of Broadband Power Line technology (BPL). It is fair to say that many club members were concerned about the potential of interference from BPL devices being sold by various retailers and also now used by pay TV operators to supply Video on Demand services,

and were keen to hear what the WIA was doing in that area. Phil discussed the activities of the ARRL and the RSGB and what lessons can be learnt by us from their dealings with their respective regulators (FCC & Ofcomm).

Ham radio operator needed in Canberra

Bob Bruninga WB4APR, the inventor of the APRS system, has inquired if an Australian amateur astronomer and amateur operator in Canberra would be available on 4-6 June 2012.

Assistance is needed to support a science team of students from the USA to observe the last transit of Venus this century in Canberra.

Bob said "We want a local Australian Ham to be there to see if we can use ham radio and the speed of light to share observations with our sister team in Japan (and any other observation sites)."

Interested individuals for this historic event, contact Bob directly at WB4APR@amsat.org

Amateur spectrum used for Australian Formula One Grand Prix

Consistent with past major sporting events, such as the Sydney Olympic Games, the Melbourne Commonwealth Games and previous Formula One Grand Prix, the ACMA licensed some organisations coming from overseas to use, on a temporary basis, a small number of channels within the 70 cm band.

The Amateur Service is a secondary user in this band and has no to claims for protection from interference.

Also one frequency in the 2 metre band was being used. The period of temporary use was from Wednesday 14th March to Monday 19th of March.

The WIA has a flexible attitude to use of amateur spectrum to support these major events that show cases the operational ability of Australian organisers.



Editorial Continued from page 2

amateur radio, but who might have products that could be of interest to our readers. If you think that you can assist, please contact the WIA office at: nationaloffice@wia.org.au

WIA Annual Conference

Time is running out for you to register for the Annual Conference, being held in Mildura late in May. Full details can be found by following the link from the WIA

home page: <https://www.wia.org.au/joinwia/wia/2012agm/> As of early April, almost 130 people had registered. The program is looking very interesting for those participating in the formal AGM and Conference program, and for the Partners' Tour. I am sure that all will have a very good weekend. I have registered and arranged leave, so look forward to meeting up with many friends during the weekend.

I may even have some time to play radio during the trip home, perhaps activating some National Parks to add to my tally towards the Keith Roget Memorial National Parks Award.

Cheers,

Peter VK3PF



Participate

May 5 **Harry Angel Sprint**

May 12 **VK/Trans-Tasman 80 m Phone Contest**

VK3 news Amateur Radio Victoria

Jim Linton VK3PC

www.amateurradio.com.au



Looking at some of the portable gear is David VK3JDA, whilst in the background is Peter VK3ZPF operating from Churchill National Park.

The AGM held this month

As previously advised, the Annual General Meeting will be held at the office, 40g Victory Boulevard, Ashburton on Wednesday May 16 at 8 pm.

Financial members have already been sent a copy of the annual report details including the profit and loss statement, either to their registered email address or hardcopy to those not part of the e-membership system. Please do read this information.

The AGM is a chance to ask questions arising out of the annual reports and enjoy a great social occasion.

First KRMNPA gathering

A well-attended gathering of keen Keith Roget Memorial National Parks Award 'activators' arrived at the Churchill National Park at Lysterfield for a 'Show & Tell' and BBQ day.

Participating were Peter Fraser VK3ZPF, David Parks VK3JDA, Peter Freeman VK3PF, Johnno Karr VK3FMPB and Tony Hambling VK3VTH with XYL Sheryl.

All enjoyed the magnificent weather and the opportunity to have a look at the gear each used when working 'portable' in search of KRMNPA contacts. They displayed various items of specialised portable equipment, with much interest being shown in Peter's VK3ZPF newest home brew switched dipole...the ZPF Special!

This is a five band 'pluggable' dipole which can be deployed as an inverted vee from a single squid pole mount ensuring fast, easy and reliable set up. It takes up minimal space and weight for travel or onsite installation. The ZPF Special has been built by several other attendees also, so it was a great time to check out and compare their antennas with the available analysers on display.

Johnno VK3FMPB now also has a perfectly tuned 40 metre dipole added to his portable kit courtesy of the 'Show and Tell' day. The BBQ lunch was enjoyed by all, along with the continuation of the exchange of ideas and stories from the National Parks. So successful was the inaugural day on Sunday March 11, 2012, that another will be held in Churchill National Park in 2013.

Full information on the KRMNPA is available from <http://www.amateurradio.com.au/awards>

Membership inquiries

To join and support the statewide organisation Amateur Radio Victoria costs \$30 for Full or Associate membership and \$25 Concession, for two years. New members are most welcome and an application form can be found on our website or posted out on request.



A look at frequency synthesizers

Elmo Jansz VK7CJ

Frequency synthesizers are used in communications equipment such as amateur transceivers, citizens band transceivers and aircraft communications equipment, to name a few well known applications. They are used to generate extremely accurate frequencies for the exciter in the transmitter and the local oscillator in the receiver. They also find wide application in accurate signal generators and modulation analysers.

The idea of a frequency synthesizer has been around since the early 1930s. Unfortunately the circuitry involved was expensive to produce and this held back its applications. The advent of the integrated circuit package has now overcome this problem. Frequency synthesizers consist essentially of a phase locked loop and a divide by N counter that can be adjusted to set the required output frequency. We shall first discuss the basic function of the phase locked loop and then look at the frequency synthesizer.

Phase Locked Loop

The basic phase locked loop (from now on referred to as the PLL) consists of a phase detector, a low-pass filter and a voltage controlled oscillator. See Figure 1. The VCO is a free running oscillator whose frequency can be set by an external LC or RC combination. The output of the PLL is fed back to the input of the circuit where it is compared with that of the input signal. The output of the phase detector is called the 'error' voltage and is proportional to the phase and frequency difference between the VCO and input signals. This voltage is filtered by the low pass filter, to remove any unwanted frequencies such as noise and is applied to the VCO to close the loop. The 'error' voltage forces the frequency of the VCO to change in a direction that reduces the frequency

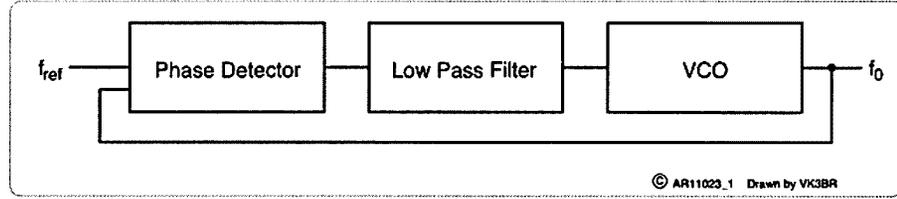


Figure 1: Block diagram of a basic phase locked loop.

difference between that of the VCO and the input signal.

When the VCO starts to change frequency it is said to be in the capture state. This process continues until the VCO and input frequencies become identical, when the loop is said to be phase locked. During phase lock the input frequency is identical to that of the VCO, except for a finite phase difference, which is necessary to generate a small voltage to keep the loop operating. After this state is reached the loop follows changes in the input frequency. That is, if the input frequency changes, the loop follows these changes. We now have a system that can follow changes in a given frequency precisely. A basic frequency synthesizer is shown in Figure 2. Observe that the output frequency is an integral multiple of the input frequency.

The connection between the VCO and the phase detector is broken by the divide by N counter. The phase detector produces an output that is proportional to the phase difference between the input reference frequency f_{ref} and the output frequency of the divide by N counter, f_0/N . The counter

generates a single pulse for every N pulses received. A stable oscillator produces a square-wave reference frequency f_{ref} . The reference frequency may be any convenient value, but is generally chosen so that a crystal oscillator may be employed. The counter is a programmable binary counter and N is a number programmed into it. The output of the counter is a square wave at the reference frequency and provides the second input to the phase comparator.

The output frequency is given a new value by changing the count value of the counter. This can be done either by thumb wheel switches or by a register into which the new value of N is entered, to control the set point of the counter. The counter recycles after it reaches the value N, which is coded in binary.

Practical synthesizers used in communications systems operate in the ranges outside that of TTL and CMOS counters. We shall look at two techniques used to overcome the problem. These are called prescaling and heterodyne-down conversion. A frequency synthesizer using prescaling is shown in Figure 3.

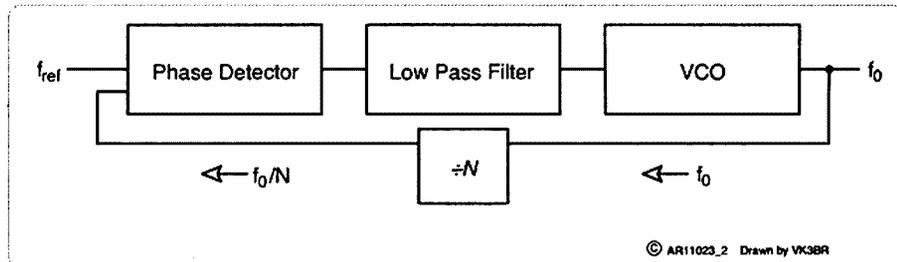


Figure 2: Block diagram of a basic frequency synthesizer.

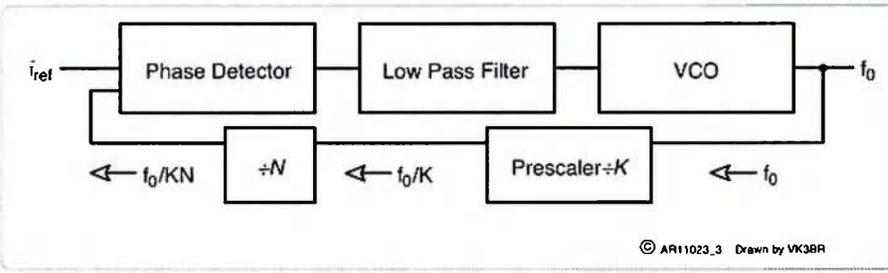


Figure 3: Block diagram of a frequency synthesizer using prescaling.

A fixed counter prescales the VCO frequency by a fixed factor K, to the highest value that can be handled by the circuits, used for the programmable counter. The prescaler only needs to operate at high frequencies, while the rest of the circuit can be made out of low frequency components. The circuit introduces some noise, and requires a low reference frequency or wide channel spacing.

A heterodyne-down conversion circuit is shown in Figure 4.

Observe the presence of the offset or local oscillator feeding

into a mixer. The mixer receives two inputs, the VCO and the offset. The difference frequency is fed to

the counter and then to the phase detector. The mixer output is fed to the phase detector. This method has fairly wide applications, as it permits narrower channel spacing, and consequently faster lock times. It has the problem that the crystal oscillator and the mixer are within the loop, and noise generated in the crystal oscillator or the mixer, appears in the output. In spite of these minor shortcomings, the circuit is quite popular.

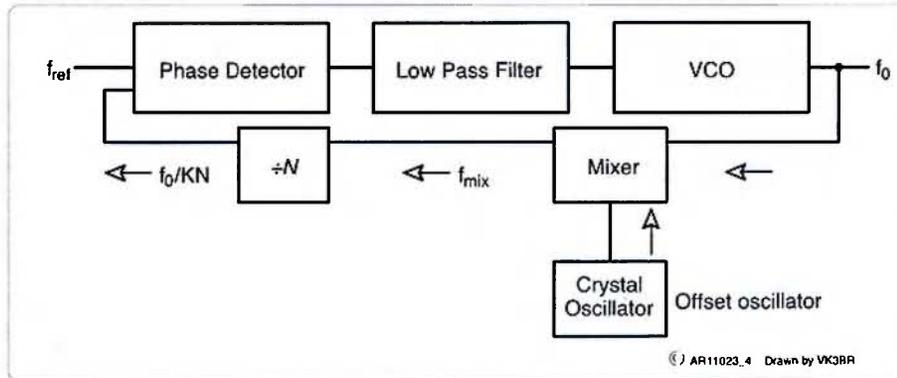


Figure 4: Block diagram of a heterodyne-down conversion circuit.

info@rfsolutions.com.au 07 3264 6443 www.rfsolutions.com.au

RF SOLUTIONS

your supplier of choice in excellent radio products

RF SOLUTIONS is your authorised distributor of outstanding amateur radio products.

RF SOLUTIONS offers:

- superior and leading edge amateur radio products
- products for the casual operator as well as the most serious DX-ing and contesting operator
- personalised customer service and support
- in-depth technical knowledge





VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/

Meet the Voice BBQ 2012

The weather was perfect on 18 March 2012 with a warm autumnal day in the very picturesque historic township of Ross. 70 amateurs signed the registration book and total attendance was estimated at 135. The Sewing Circle Net – Sewing Machine award was awarded to Alex VK7FALX for being the most loquacious amateur on the net for the last year....HIHI. The net takes place every day on 3.59 MHz from 1700 local time.

Outstanding Service Awards to amateur radio in VK7 were given to David VK7DM and Winston VK7EM who both have contributed so much to amateur radio especially in the areas of repeaters and technical assistance. Thanks go to Don VK7AY and Vince VK7VH for organisation and running the popular auction, also Brian VK7KBE and Rod VK7TRF for help during the day.

Many people made a weekend of the gathering and camped at the location next to the historic Ross Bridge. This year saw 25 people sitting down to dinner at the local pub on Saturday night, and this was a highlight of the weekend. There is now a website for the Sewing Circle Net which can be found at <http://www.sewingcircle.org/>



Photo 2: Alex VK7FALX with the Sewing Machine Award.

VK7 Regional News

We welcome Idris VK7ZIR to our merry band of VK7 broadcast readers. Idris has bravely agreed to become a reader once a month which lightens the load on all involved. The VK7 Regional News can be heard every Sunday at 0930 local time following the WIA National News at 0900. Details can be found at the website in the heading of this column.

VK7 Records News

Congratulations to Rex VK7MO, David VK7HZ and Joe VK7JG who crossed Bass Strait on 24 GHz digital aircraft scatter in March. This is a remarkable achievement considering all the variables that this microwave frequency presents including alignment with aircraft paths, water absorption, Doppler shift and

accurate beaming. I have no doubt this will make a very interesting talk at this year's GippsTech conference.

Cradle Coast Amateur Radio Club

Thanks to David VK7DC for this information. CCARC recently provided communications for the Burnie Equine Endurance Riders event which was the Sheikh Mohammed bin Rashid Al Maktoum Cup – an 80 km qualifier course. The request came through with very short notice, and with limited resources, four CCARC members attended and did a superb job. Thanks go to Ross VK7RW, Dick VK7FORF, Bill VK7ZWK and Keith VK7KW for their efforts and support.

Northern Tasmania Amateur Radio Club

Al VK7AN and Joe VK7JG recently trekked up Ben Lomond in NE VK7 to find VK7RBH on 438.050 MHz with an antenna SWR of 10:1! This proved to be a coaxial feedline problem and fortunately a spare working run was available which was changed over and VK7RBH was back on the air. Please note that the VK7RAE two metre beacon timing has been changed to ID every minute and thanks to Dave VK7DC for reprogramming the controller. Next month I am hoping to be able to report on a restored VK7RNE at Snow Hill on the East Coast with Joe VK7JG currently working on this project.

Photo 1: Group photo of attendees at the Ross MTV BBQ.



March 14 saw NTARC's meeting take place at the picturesque Lilydale Falls and thanks to Yvonne VK7FYMX for this info. There were 13 members, three guests and five dogs in attendance for a very enjoyable evening with some staying on and camping.

Radio and Electronics Association of Southern Tasmania

Sunday 11 March was the 2012 REAST AGM with the following elected: President - Tony VK7VKT, Vice President - Frank VK7FINE, Treasurer - Alan VK7KAJ, Secretary - Justin VK7TW, Committee Members Ian VK7QF and Barry VK7TBM. REAST's March presentation night saw Richard VK7RO give a fascinating presentation on RF impedance measurement for the amateur radio operator. Richard took a packed house from simple measurement techniques through to his latest toy, a digital vector network analyser. Thanks Richard.

On April 1, 2012 Coast Radio Hobart and REAST celebrated the Centenary of the Queen's Domain Marine Wireless Station which was constructed by the Commonwealth Government in 1912 as one of a chain of coastal wireless stations to communicate with shipping. The station originally had a 180 foot high Oregon mast that towered over Hobart with the initial communication by Morse code on 500 kHz. In 1912 the station callsign was POH, later to become VIH, and communicated with the Mawson Expedition via Macquarie Island.

The day was very well attended with displays of marine radios throughout the 100 years, video and historic presentations and tours through the Coast Radio Station.

WICEN Tasmania (Sth)

WICEN will be providing communications for the National Tom Quilty Equine Endurance Event in St Helens on the east coast of VK7 early in June 2012. Roger VK7ARN is still looking for volunteers to assist with radio checkpoints so if you are available on the weekend of 9-10 June, 2012 please contact Roger. All details can be found on the WICEN website at <http://tas.wicen.org.au> If you are interested in undertaking a nationally recognised PUAOPE002A - Operate Communications Systems and Equipment course with the Tasmania Fire Service then please also let Roger know.

All photos are by the author, Justin VK7TW.



Photo 3: Barry McCann OAM VK7TBM, co-founder of the Tasmanian Small Marine Radio Group who now run Coast Radio Hobart, standing next to an AWA ATS-1 marine transmitter.



Electronics Enthusiasts

Jaycar Electronics - Better, More Technical



1MHz Handheld Function Generator

A signal generator with the features of a bench top generator and a portable size! It's pocket sized and will produce sine, square, and triangle waveform signals yet it is only a little bigger than a Smartphone. Output frequency adjustment is from 1Hz to 1MHz with maximum amplitude of 8Vpp. It also has a function to shift between two frequencies over an adjustable period. With a backlit LCD, inbuilt rechargeable battery, and durable rubber surround it is an ideal instrument for testing on the go or in your workshop



- Weight: 200g
- Size: 114(H) x 74(W) x 29(D)mm

\$199⁰⁰

Retractable Alligator Test Lead Set

Set of 3 heavy duty red, black, and green leads on a retractable 3m reel, terminated with insulated alligator clips.



- Reel Size: 152(Dia.) x 20(W)mm
- WT-5334

\$24⁹⁵

Wire Stripper

A great way to strip all sorts of cable without damaging the conductors. It automatically adjusts to insulation dia.



- One hand operation
- Spring return
- TH 1824

\$16⁹⁵

Telescopic LED Torch

A sleek, pen-sized torch with super bright LEDs and magnetic head for picking up metallic objects out of reach. Extendable to 546mm and gooseneck at the end allows light to be shone around corners, into cracks and crevices.



\$14⁹⁵



- Size: 165mm long to 546mm Extended
- Includes 4 x LR44 batteries
- ST-3463

600VA 375W LINE INTERACTIVE UPS

Compact and completely self-contained, this is the ideal backup solution for your data or other important equipment. In the event of a power failure the UPS (Uninterruptible Power Supply) will switch to battery power enabling the computer to be shut down without power loss. It has 3 surge-protected outlets as well as 3 outlets backed up by the UPS. It also has RJ11 ports for protecting phone or fax lines. Software included



- 3 minute back up time
- Rating: 375W, 600VA
- Supply voltage: 220 to 280VAC
- Size: 268(L) x 180(W) x 80(H)mm
- MP-5222

\$109⁰⁰



FREE 2012 Jaycar Catalogue

Exclusive offer to Amateur Radio readers. Simply present this voucher with any purchase over \$30.00 at your nearest Jaycar retailer & receive a FREE 2012 Jaycar catalogue!

7,020 Products
625 NEW Products
516 Pages



Present this voucher in-store to redeem offer. Limit one per customer

Offer valid till 31/05/2012

To order call 1800 022 888
www.jaycar.com.au





VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC

'Crystal Sets' go viral

The GARC has a well established reputation in the design and build of UHF and microwave equipment and their competitive operation, so when Lou VK3ALB suggested a *Crystal Set* competition for the reception of medium wave commercial stations, with certificates offered for categories such as performance and novelty, this application of the most basic of technology somewhat surprisingly caught the imagination of the membership and the uptake has been quite remarkable.

The judging will take place at the clubhouse, Storrer Street, Geelong starting at 2000 on the 27 April. Inputs from other clubs are welcomed.

Please see www.vk3atl.org for location and syllabus information.

In order to get a level playing field for the competition, the club has made available, free, germanium diodes and wire for coils and has also sourced a number of high impedance headphones, although with the aid

Photo 1: Shows the motor cycle theme by Dallas VK3DJ.

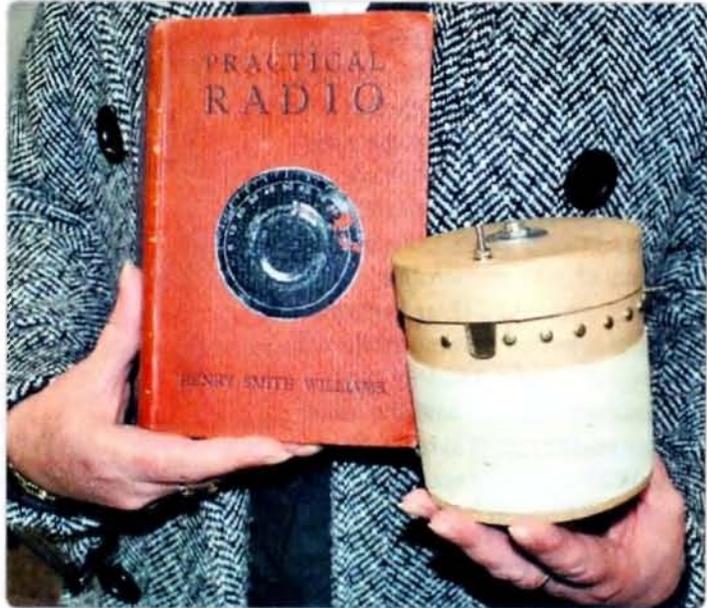
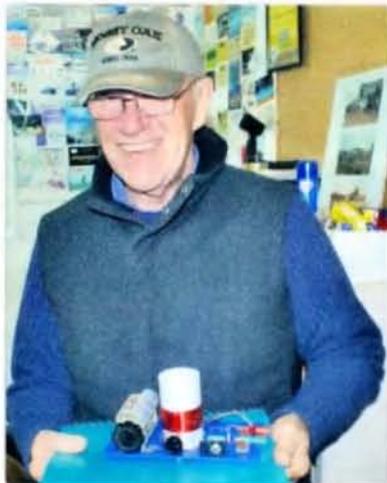


Photo 2: Secretary Jenni VK3FJEN with a multi tap coil coupled to studs which are selected by a rotating lid. This design was sourced from the historical Practical Radio book shown.

of transformers the use of eight ohm earphones are also being used. No battery powered elements are permitted.

Ken VK3DQW has set up a dedicated earth and antenna system for the members to test their

Photo 3: Ken VK3NW, who is the principle support for our VHF and UHF repeaters and beacons, with a conventional breadboard design.



creations and Calvin VK3ZPK has provided an audio amplifier to couple to the audio outputs so that all the contenders result can be heard by those present.

New Foundation licensee

Our congratulations to Courtney VK3FGIR who recently received her Foundation licence, and also to Carlo VK3BCL for the dedicated tutorials provided each Friday for Foundation licence students.

Photo 4: Courtney VK3FGIR.



The effects of a metal mast or a (very) stupid mistake!

Felix Scerri VK4FUQ

Although I considered myself quite okay with HF antennas, very recently I realised a basic long term error I had made that prevented optimum operation from my favoured HF antenna type, one wavelength wire loops. In recent years they just never seemed to perform as well as they should have and despite many, many investigations the mystery was never actually solved.

Very recently though, a simple half wave 'sloping' dipole was erected for 20 metres and this simple antenna performed much better than any of my various loop antennas. I simply had to work out why and slowly but surely, and with a little guesswork, the true reason was finally revealed! My 10 metre metal pipe mast! All of my loops were symmetrically 'hung off' this mast and although over the years I had often wondered if this arrangement might not be a good idea especially given that the length of the metal mast was very close to the resonant half wave on 20 metres and ran right through the active radiating area of the loop. I had considered the possibility of undesirable interaction, but then discounted it!

In any case, the loops seemed to work well enough, but my 'gut feeling' was that they should have been better. The experience with my sloping dipole now made me sure that something very basic

was seriously wrong. On a hunch, and using the 'Sherlock Holmes' approach to fault finding, the metal mast was considered the most likely suspect, so after my 40 metre WIA news broadcast one Sunday morning recently I was inspired to shift things around to take the pipe mast out of the radiating area of the loop as much as I could and see if that improved things.

Space was restricted, but I managed to put up my pre-existing one wavelength Delta Loop mounted 'on its side' as it were, strung up between my 10 metre metal pipe mast and a shorter 4.6 metre metal pipe mast and fed at the bottom of the side mounted two sloping sides giving, I think, vertical polarisation. A general immediate improvement was noted, and signals reports, both transmitted and on receive, were much better than previously.

Several other distinct changes were noted and it seemed to me that the mast was interacting very adversely with the loop in several ways. Firstly, by direct absorption of transmitted RF. Secondly, pattern distortion, and thirdly increased noise pick up. In the time following since the repositioning of my Delta Loop, power line noise pick up (always a long term problem on my loops at this QTH, in whatever 'shape' they were), is now markedly reduced. The pattern distortion aspect is interesting as in the

past I had noted that loop vertical polarisation was best for DX and loop horizontal polarisation was best 'locally'. Now the Delta Loop performs equally well on both DX and local signals, despite being nominally vertically polarised. I have to think about that one! In the past, a friend presented me with some IPS data that suggested that low angle radiation was best for 'all' paths. As the loop is now working so well vertically polarised, perhaps this is another indication that the Delta Loop is now working as it should, as vertically polarised loops inherently produce excellent low angle radiation!

Needless to say, I am quite delighted at this turn of events! Perhaps I should have realised my error years ago, however a recent internet search found only one article, out of many found, suggesting that metal within the radiating area of a loop antenna was a bad idea! Well, I have certainly learned my lesson! I suspect that the self resonant length of my mast was also a big factor. However the lesson is, whenever erecting a one wavelength loop antenna, keep any or appreciable lengths of metal out of the area of the loop. Then you really will see how good is a one wavelength loop antenna!



Special event station W6G

San Francisco Amateur Radio Club will be holding a Special Event Station - **W6G** -

to celebrate the 75th Anniversary of the Golden Gate Bridge on May 26, 2012 at 2000Z to May 27, 2012 at 2200Z. Details can be found at <http://www.sfarc.org/timeline05262712.htm>

Microwave dishes, a confluence and two bottles of red wine

Dan Joyce VK2GG



Photo 1: Six transverters on a mounting frame with 2.4 GHz on the left, through to 47 GHz.

GPS confluences are known to many of us, especially if we participate in VHF/UHF field days. A confluence is the spot where, for example, latitude 32 degrees meets longitude 152 degrees. At that spot four maidenhead grids meet (*A grid square corner is indeed a confluence, but not every confluence is a grid square corner, as grid squares are 2 degrees longitude by one degree latitude. A confluence occurs when the latitude and longitude integer degree intersect— there are therefore more confluences than grid square corners. Ed.*). If we activate and work all four grids, especially on the microwave bands, the resulting points are many. To put it mathematically, there would be 16 possible contacts per band for each of two rover operating stations. For three operators there are 48 different contacts possible, etc.

Two operators is fairly simple, so a rotation schedule (or roster) was drawn up by the author, who has had some past life experiences in rostering nurses to wards of a public hospital. Quite simply, rover one activates grid A, then works rover two in A, B, C and D, then activates grid B and so on. Sixteen contacts between rover one and rover two in under three hours would result in maximum points per band. If the

schedule were to be repeated in the next three hours, double points would not be possible, because the grids have already been activated. However another 16 contacts per band would augment the total score somewhat.

It just so happens that a number of us in the Sydney/Newcastle area of VK2 were idly speculating on how it could be done in practice. Following the drawing up of a rotation schedule, Jack VK2TRF and I then did a site visit to Gloucester, NSW, with GPSs and radios. We actually conducted two such visits, as there appeared to be a discrepancy between the Google Earth/Google Maps version of where the confluence occurred, and where it occurred utilising topographical maps. This turned out to be a Datum problem. Unless one sets one's GPS according to AMG66, there can be some confusion. (*Ahh.... But which datum to use? According to Wikipedia, since 1999 the Maidenhead grid system has explicitly used the WGS84 geodetic datum, but does not give a reference to this usage. However, the ARRL VHF/UHF Century Club Award Rules explicitly state that the WGS84 datum should be used. A quick search of the IARU website found no obvious document relating to this question. However,*

the ARRL acts as the International Secretariat for the IARU, so one would expect that the ARRL rules match the definitions decided by the IARU. Therefore, grid square hunters and rover operators should use the WGS84 datum in their GPS receivers to be sure that they are in the correct grid square. The Confluence Project also uses the WGS84 datum as their reference system. The Australian GDA94 datum is compatible with WGS84. Ed.)

This is easily settled if one sets the GPS to the correct Datum, and sets the display to Maidenhead. As Matt VK2DAG later found out, if using a smart phone, there is no such provision!

OK, so far so good. Now how can one make 160 contacts (16 x 10 bands) in a respectable time with the setting up of dishes, warming up the transverters, filling in the logs and so on? How would five minutes per contact be? Hmmm, that's 13 hours 20 minutes. What about one minute per contact? That's 2 hours and 40 minutes, much better! We settled on a presumed average of 1.5 minutes per contact, which would result in a four hour stint, followed by a much deserved beer or two!

Then came the cunning bit. We mounted the transverters, a mixture of VK5EME, DEMI and

Kuhne devices within the vehicles, which would mean we could work in hail, rain or shine. All power and IF cables were connected to a central control box in the driver's cabin. A six position switch would select one of six microwave transverters to be routed to the IF rig, and multiple power switches would control the 12 V power also.

The result was spectacular, as readers might have seen in the contest results! On the first contest, 13 cm did not work because of a receiver failure. Also much time was used up in aligning dishes for 24 and 47 GHz. In the end we utilised a system of beaconing from one station, before roughly pointing the dish, and having the other station hand-hold the receiving dish on the driver's door window sill until good reception of the beacon was achieved! The two-way contact was then quickly made, before moving to the next band! Phew! That was a little difficult. On the second occasion, Jack VK2TRF drove the car and aimed the dish, whilst Dave VK2CQ conducted the contacts and filled in the logs. Dan VK2GG was solo in the other car, which had to be parked facing the direction of the other rover station!

On the first VHF/UHF field day, the 144 (16 x 9) contacts were made in a little over three hours! We were sitting in the Gloucester Pub receiving SMSs from amateur participants in Sydney who were still out there slaving away! On the second try, we achieved many sets



Photo 2: The six position IF switch with the FT-817 in operating position.

of five minutes per 10 bands, and even a staggering four minutes on one occasion.

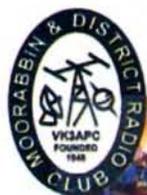
As an aside, some have suggested that the 'deed' could be done with three or even four operators. Think again – good luck writing a roster for 48 or higher different contacts per operator per band!

On the second field day we arrived at Gloucester the evening prior to the contest, as usual, and did some preliminary field investigations and testing of paths and transverters. Satisfied, we adjourned to the pub for tea and a couple of beers. This is where the two bottles of red wine come in – not

a good preparation for a gruelling field day contest. Luckily, 0100 UTC allows for a little sleep-in time, and many cups of coffee. As another aside, the 'reds' were from Victoria.

Another interesting side issue was the use of microwave band mobile. How is chatting on 10 GHz or 5.6 GHz whilst travelling the F3 towards Gloucester, some 100 metres apart? Some interesting flutter is the result when cars overtake one.

Thanks to Jack VK2TRF and Dave VK2CQ for a great week end. By the way, Dave VK2CQ selected the wine, but did not drink it!



Moorabbin and District Radio Club

PO Box 58 Highett 3190

New & Improved Venue

SATURDAY 26 MAY 2012

HAMFEST 2012

Southern Community Centre - Rupert Drive, Mulgrave
Melways Reference 80 F4 (Enter via Huxley Ave off Police Rd.)

Please contact:

Lee Moyle, VK3GK (03) 9705 1051 Email: vk3gk@aonet.com.au

Graeme Lewis, VK3GL AH: (03) 9702 1199 or Mobile 0418 171 601 Email: vk3gl@bigpond.com.au

Webpage - www.mdrcl.org.au

Great Venue • Plenty Of Space • Melbourne's Biggest • Major And Minor Door Prizes

Test Patterns for ATV

Ross Pittard VK3CE

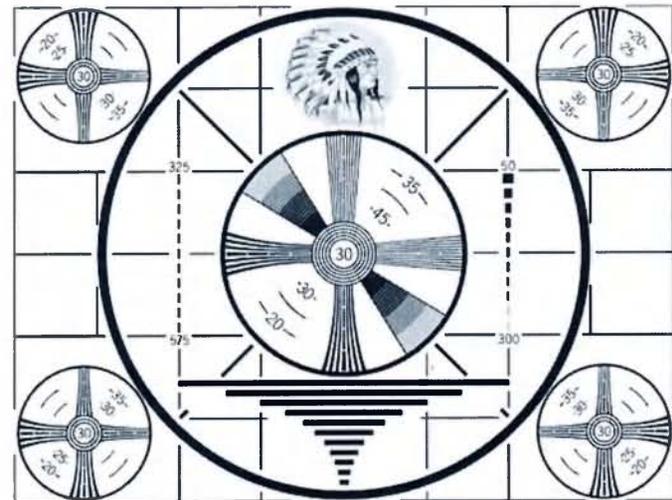


Photo 1: The well known RCA test pattern known as Indian Head card, more often used in the USA.

The general resurgence in ATV activity in Victoria with the 'digitising' of VK3RTV and the restoring of VK3RBO by Amateur Radio Victoria has seen many new operators trying out television for the first time. Usually one of the first questions asked by newcomers is what can I transmit? The answer to that is basically anything that does not infringe copyright; your home movies are a good example, as people get sick of looking at the same shot of you sitting in the shack.

With the advent of computers it is easy to create a simple video file using Windows Movie Maker which



Photo 2: Test Card Maker (TCM) version of early ABC TV card.

is included in the standard XP/Vista/Windows7 package. I find that even a simple scrolling slide show can be a useful diversion to play on ATV. Several of the slide shows I have created use some test cards interspersed with locally produced photos, these can be played

directly from a video player which accepts AVI or MPEG files or alternatively try burning a continuous play DVD. On VK3RBO one of these files is played as the WIA News is broadcast on Sunday mornings.

The test card was a handy device used by TV installers and repair technicians to correctly tune in televisions, check convergence on colour TV's and picture geometry. It is also a useful tool for measuring reflections or ghosts on an analogue signal. Most repair techs now

have to supply their own portable signal generators as with the advent of 24 hour television the humble test card is not often seen on your screen, but is still used for station internal testing and as an ident on news interchange links. For those with an interest in satellite TV many cards and station idents from around the world can be observed particularly on the AsiaSat series of satellites.

Originally test cards were actual cards, which were then photographed by a camera and were used by the studio to check the geometry of both the camera being used and the monitors in the studio. A common card used was the EIA Resolution chart – refer Photo 6. The BBC have for years produced a series of test cards beginning with Test Card A which made its entrance in 1940. Test Card D was the first card to be produced to an engineering specification, in 1964. The current and probably most well-known of the BBC series of test cards is Test Card F – refer Photo 9, which made its debut in 1967 around the time of the introduction of colour television in the UK.

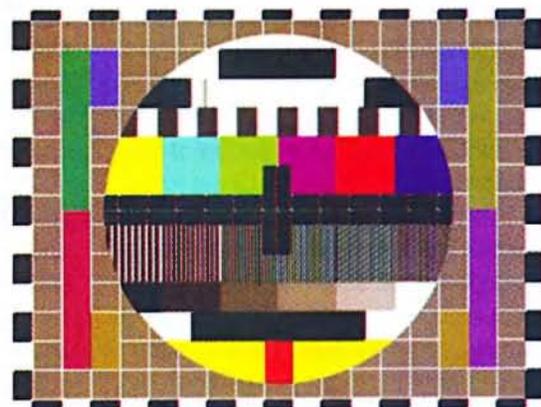


Photo 3: TCM version of Philips PM5544.

It was decided that the best way of testing the colour transmission at the time was to use a picture of a person as the skin tones are the hardest colouring to get right in television. The girl in test card F is Carole Hersee, daughter of George Hersee, who led the design team who came up with the card. It was originally a card but electronic versions of Test Card F have been in use for some years.



Photo 4: Philips PM5544 electronic test card.

Most modern test cards or patterns are electronically generated, using a special box of tricks that produces the correct video signal without the need for a camera. This is typically done by storing the desired image in graphics file either in non-volatile memory or on a CD ROM. This method ensures that the resulting signal is identical all the time.

Test Card F and the Philips PM5544 – refer Photo 4, are two of the most common test cards seen in our part of the world.

Over the years I have managed to collect a number of old pieces of broadcast test equipment including an Astor Pulse and Bar generator, surprisingly made in Australia, when we still had an electronic manufacturing industry. I also am fortunate to own a Philips PM5544 generator with Colour encoder, a Tektronix 148 test generator and a home built BATC electronic circle card. All of these are in full working

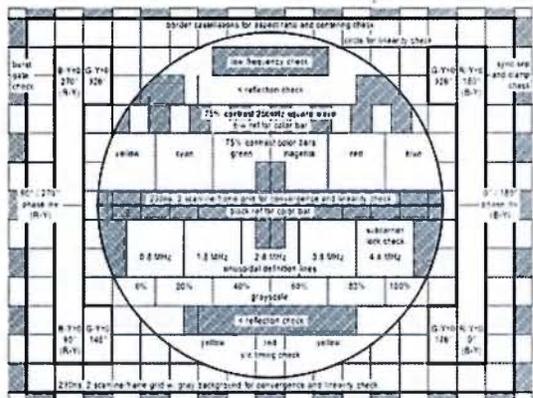


Photo 5: Description of PM5544 test card.

order and are still useful in checking the performance of any TV link circuit whether in house or via an amateur TV repeater. This gear appears regularly at hamfests, for those interested in collecting equipment from the 'golden age' of television or as others sometimes call it, scrap metal.

For those who don't want to buy or build a test pattern generator a useful tool is a free software download off the internet called, surprisingly, Test Card Maker – refer (1).

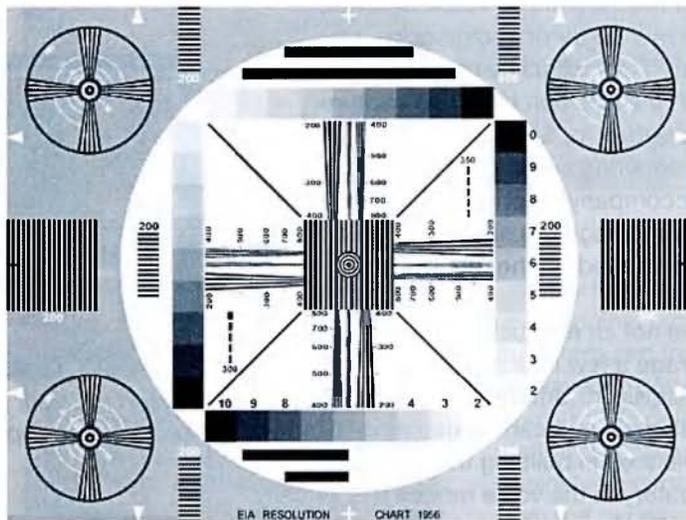


Photo 6: Standard EIA (Electronic Industry Association) resolution chart.

This handy utility makes generating a test pattern a very simple exercise and the results can be saved in either BMP or JPG format. It comes with a number of ready-made look a likes of the common Philips, BBC and Grundig electronic patterns. The user has the option of adding call sign details into the pattern to make a professional appearance. One must remember that while these patterns look the same as the broadcast generators they do not have the correct sinusoidal generators to produce the multiburst and pulse waveforms necessary for absolute testing of link performance.

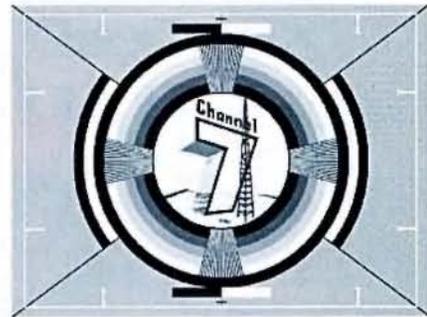


Photo 7: TCM version of early Channel 7 card.

Other useful tools for checking TV links are both the waveform monitor and vectorscope. Many CRO manufacturers make both

these instruments but Tektronix is possibly the most common brand found on the second hand market.

A waveform monitor is essentially a CRO set up for specific monitoring of the video waveform either as a line display or field display. They usually have

the ability to select and look at one line of a video signal, useful when monitoring a full test pattern but wanting to check, say, the Pulse and Bar waveform only. A vectorscope has the ability to monitor the phase changes in the colour information being transmitted; in any colour TV system the phase relationship between the burst reference and the rest of the colour information results in a change of colour. This phase relationship must be kept as exact as possible, if not, people end up with different colour faces, not a desirable situation!

Increasingly in the digital age both these instruments are available as PC based instruments, both for the professional and hobby market.



Photo 8: My effort using TCM in 16:9 mode.

Many video editing packages for the home market include some form of both instruments. A plugin for Adobe Photoshop is available from (2).

There is no need to purchase software to utilise the PC as a waveform monitor or vectorscope. I have successfully tried a small utility package called Videoscope (3). With the addition of a USB capture device purchased on eBay for \$15 this combination provides a useful monitoring setup for the ATV enthusiast. In the accompanying photos the line through the middle of the video image is a slider and indicates which line is being displayed on the monitor scope/vectorscope.

This article, while not an exhaustive look at television may, I hope, encourage a few new amateurs into the interesting field of television. Unfortunately the uptake of interest in ATV is rather slow; it can be daunting to many amateurs not experienced in building their own gear. While it is not mandatory in the voice modes it is virtually compulsory in most ATV bands. There is a very good selection of kit modules to enable amateurs to get on the air with a minimum of fuss available from MiniKits (4) in South Australia. I am sure if contact is made with the many ATV groups around Australia there would be plenty of advice available with regards to kit construction.

If there is sufficient interest shown in kit construction I may be able to describe the assembly of some of the MiniKit modules.



Photo 9: BBC test card F updated for wide screen TV.

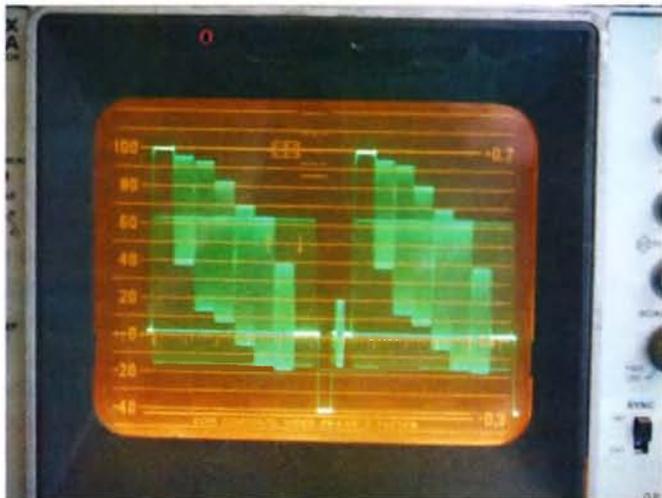


Photo 10: Colour bars on my Tektronix wave form monitor. (Chroma and luminance).

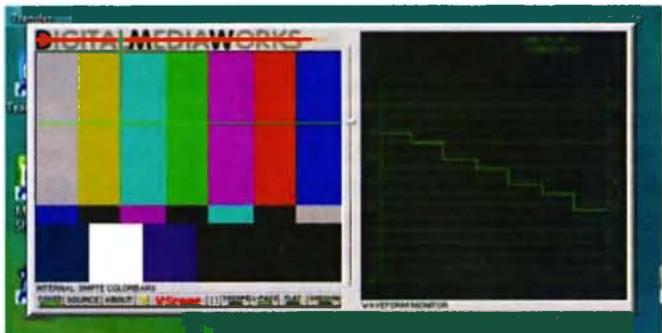


Photo 11: Colour bars on the Videoscope program. (Luminance component only).

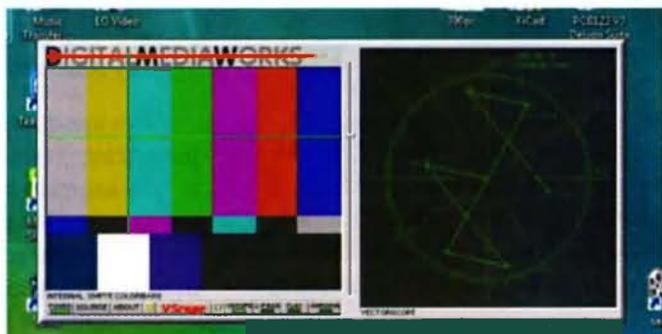


Photo 12: Colour bars in the Vectorscope display mode.

References

- (1) <http://www.oodletuz.fsnet.co.uk/soft/tcmaker.htm>
- (2) <http://www.filecluster.com/Photo-Graphic/Miscellaneous/Download-Scopo-Gigio-CS5-AE.html>
- (3) http://www.softpile.com/Multimedia/Video/Download_04998_1.html
- (4) <http://www.minikits.com.au/>

VK5news Adelaide Hills Amateur Radio Society (AHARS)

Rob Gurr VK5RG
Publicity Officer

At the March 2012 meeting of AHARS Dean Probert VK5LB provided details and a display of the high power linear amplifier he had recently constructed. Dean discussed his motives for using the Super Cathode mode with his pair of 4CX250 valves, the sourcing of components, his research of articles by various authors, and its operating parameters as part of his amateur station. He displayed his well-kept records of progress with the success and failures highlighted.

An auction of donated equipment, and some from deceased estates was also held, providing much pleasure and entertainment to all attending. Some WW2 disposal items and 'boat anchors' provoked intense bidding.

Earlier in the month, some members of AHARS, the Historical Radio Society of Australia and the Australian National Antarctic Research Expeditions Club, were guests at the South Australian Museum where John Gillies presented his reconstruction of the Telefunken transmitter used by Sir Douglas Mawson in his 1911/12 expedition to Commonwealth Bay. The event was part of the Centenary celebrations of the first Australian Expedition to Antarctica.

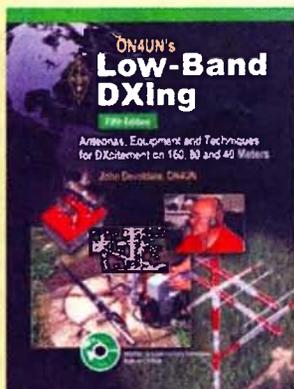
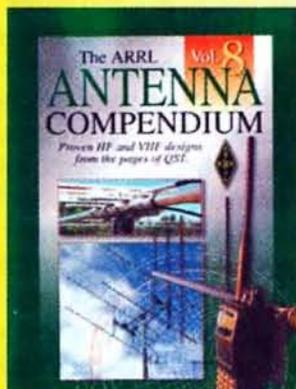


Photo 1: The VK5LB linear amplifier.



Photo 2: 'AHARS members view the reconstructed 1911 transmitter used by the Sir Douglas Mawson Antarctic Expedition.

Very little of this rebuild used original parts, most being manufactured from photographs displayed in 1910 catalogues. Rob Gurr VK5RG delighted the museum staff and John by donating an original insulator he had salvaged from the remains of Mawson's relay station at the top of Wireless Hill, at Macquarie Island, when he was there in 1952.



From the WIA Bookshop!

The ARRL Antenna Compendium - Volume 8

Proven HF and VHF designs from the pages of QST

ON4UN's Low-Band DXing

Fifth edition

View and order online at www.wia.org.au/bookshop

Contests

Phil Smeaton VK4BAA
e vk4baa@wia.org.au

Contest Calendar for May 2012 – July 2012

May	5	Harry Angel Sprint	CW/SSB
	12	VK/Trans-Tasman 80 metres Phone Contest	SSB
	12/13	CQ-M International DX Contest	CW/SSB
	26/27	CQ WW WPX Contest	CW
June	2/3	IARU Region 1 Field Day	CW
	9	Asia / Pacific Sprint	SSB
	16/17	All Asia DX	CW
	23/24	ARRL Field Day	All
July	14/15	IARU HF World Championship	CW/SSB
	21/22	CQ Worldwide VHF Contest	All
	21	VK/Trans-Tasman 80 and 160 metres Contest	CW/SSB/Digital
	28/29	RSGB IOTA Contest	CW/SSB

Note: Always check contest dates prior to the contest as they are often subject to change.

Welcome to this month's Contest column.

Did you support the VK Team in BERU?

If you did, then it's more than I managed to do. Again. However, I *do* have a reasonable excuse. Pneumonia. Nothing to do with radio as such – no problems with antenna preparation for example – merely a failing of the human frailty. It was just as effective though, as I didn't get on the air at all.

After a few iterations, the 2012 VK BERU team finally emerged as VK6LW, VK4EMM, VK3TDX, VK2PN and Captain VK2BJ with VK4OQ as a standby substitute. Alan VK6BN was due to be part of the team, but as he had been trying to sell his house in a slow housing market, when an offer was made he jumped at it. Wishing to move to VK7, BERU weekend became a dash in a south easterly direction to find a new home. Hopefully, Alan found a place to call home and operate as VK7BO in the future.

The Kiwis paid tribute to Ron ZL1AMO, utilising Ron's callsign as the HQ station (instead of ZL6HQ) as an opportunity to remember him.

The Commonwealth BERU is an interesting contest. Since we don't work USA, JA or mainland EU

there is a lot of QRX time waiting for openings to England, Canada and so on. Probably a good contest for us guys who like to sleep occasionally. Despite the solar storms experienced prior to the contest start, when things do open up to the British Isles it's a real flurry of activity and many are difficult copy. Quite a number of stations are low power with simple back yard dipoles only running a small number of contacts. One of the hassles is all the endless non-commonwealth DX that just want to keep calling in causing QRM. On CW it wastes time to explain what the contest is to non-contesters on the band so many operators just worked them and later removed the non-qualifying QSOs from their log.

Steve VK3TDX almost fell off his chair when he logged Laurie VK7ZE who was in there on CW as it is not Laurie's usual mode of choice. Nice going, Laurie! Steve logged 575 stations during his 11 hours on the bands for a claimed score of 5,260.

Patrick VK2PN spent some time getting his station into shape for the contest, with some work on his amplifier and some much needed antenna work. Murphy paid a call however, as Patrick's PC crashed

during the first QSO, caused by a dodgy USB hub which had been in use for the last two years without incident. There's nothing like a contest to stretch the station and tease out any gremlins. With half an hour wasted walloping the hub with a hammer, Patrick was back on air and populating the log. Patrick made good use of 15 m, 20 m and 40 m using the openings to bolster his log. As well as other VK stations, Patrick found 10 m to be a bit of a loss during the contest, as it had raised expectations during previous weeks with spectacular openings to all around the globe. The contest produced 319 QSOs for Patrick, for a claimed score of 4,115 points.

Kevin VK6LW braved the scorching heat in Perth to tweak his antenna system prior to the contest. Kev found 10 m to be favourable to the UK and 15 m in similar shape. LF was also reasonable for Kev, as 80 m produced some good results. Kev reported that 10 m provided the best rate in the last hour of the contest with a decent opening to the UK again but signals were down compared to recent conditions. 702 QSOs got into the VK6LW log, for a claimed score of 6,970 points.

In VK4, John VK4EMM experienced some slow conditions but made good use of 40 m for some excellent SP and LP openings. HF seemed to be a challenge for John, with a 'run' being a struggle on 10, 15 and 20. 386 QSOs got John's log for a claimed score of 4,850 points.

Returning to BERU after a hiatus in 2011 due to relocating to VK, Brian VK3MI also participated in the contest. Usually operating from his native ZL, Brian used his Flex3000 SDR system in the midst of power line noise in suburban Melbourne with limited antennas by netting 108 QSOs for a claimed score of 1,525 points. Swapping knobs and buttons on the front of a rig, to a mouse and keyboard was quite a challenge!



Photo 1: Shows the general setup that the Lockyer Valley RC team used.

Ah well – maybe I'll play in BERU in 2013 if all goes well...

John Moyle Contest

As I write this section, it is the week following the John Moyle Contest. I spent the Moyle weekend trying to get ready for the WPX SSB contest the coming weekend. It would have been time better spent if I had taken the weekend to build an Ark instead. From the Friday evening until the Sunday afternoon, the station was either being festooned with rain, or Mother Nature was thinking about festooning with rain and sent low cloud instead until the rain clouds turned up. As a consequence of this blatant sexism, I got seriously soaked doing the preparation work. However, at least I could scamper away to the shack and seek solace in the relative sanctuary thereof. Not so the hardy souls who had set-up a portable station out in the sticks. I worked a few such souls during the contest – but only VK4 seemed to be affected by damp weather! Stations in VK2 and VK3 reported sitting in open tents, enjoying beautiful sunny weather! It rained so hard in VK4 that I had reports from EU on 20 m saying that my signal had a strange noise being transmitted with it. The rain was so loud on the roof of the shack that I gave up in the end and went to see how Mr Boag was doing instead. I hope that the John Moyle contest weekend went better for you than it did for me!

The aim of the contest is to encourage and provide familiarisation

with portable operation, and provide training for emergency situations. The rules are therefore specifically designed to encourage field operation. The Lockyer Valley Radio Club suffered from rain, rain and more rain on the Saturday. A portable station was set up on Eagle Ridge, approximately 60 km from Brisbane and just outside the town

of Laidley; they utilised a camper trailer, a large tarp and operated from a couple of two by one metre tables back to back (under large tarp) and one smaller one metre by 60 cm table (under the camper trailer annex).

Antennas were erected on the Friday afternoon by VK4QH, VK4SN, VK4MN and VK4FAKE and although they were only initially intending to set up some of them, a decision was made later in the day to get them all up. This would allow everyone a sleep in prior to the start of the contest or to spend the time refining the operation of the various antennas. With the 2 m antenna playing up, this was a wise move. Some tinkering from VK4BYX (bystanders always seemingly wiser!) saw a stub constructed which at least allowed its use the next day. All other antennas were assembled, erected and proved usable without

Photo 2: Peter VK4MN (foreground) and Ken VK4QH sitting back enjoying the sun. Or, given the weather, possibly not!



a hitch. Antennas erected were an inverted V, an all (HF) band trapped vertical, a three element triband Yagi (20, 15 and 10 m), a six metre half wave vertical, a dual band vertical for 2 m/70 cm, a 12 element 2 m Yagi, and a 16 element 70 cm Yagi. Bands and modes operated included CW/Digital/SSB 80 m, 40 m and 20 m on one side of table 1; SSB/FM on 40 m, 20 m, 15 m, 10 m, 6 m, SSB/FM 2 m and 70 cm adjacent on table 2; SSB 80 m and 40 m on table 3. Band conditions were reportedly generally good except on VHF/UHF.

Unfortunately, initially heavy and then constant rain settled in from around 2-3 pm and stayed with little respite until well after midnight. The lighting arrangements we employed were a beacon for a multitude of insect life from what seemed like miles around. Not, amazingly, around the flood light set up to provide a constant load for the generator; too yellow, which is a point to be noted for the next similar operation.

Sleeping arrangements were crowded on the Saturday night as most (three out of four) decided to camp in the camper trailer annex due to wet and very muddy conditions. At some point in the night 4QH left the building citing 'intolerable noise'. The remaining occupants were unsure as to his meaning but appreciated his gesture none the less.

Early Sunday morning, the decision was made to pack up and make their exit before any additional rain trapped the contesters on the hill until the weather broke. Because of the early pack up time, the section entered was revised to six hour Multi-Multi which was probably only contested by a limited number of groups so the club may do OK even allowing for the reduced time. The team managed 335 contacts with the best bands 80, 40 and 20. Fifteen was dead making only one contact and four contacts were made on 10 m.

Patrick VK2PN was out with the VK2MB group.

They camped on a bush retreat of Jonathan VK2TAS near Mittagong in QF55ep. Since they had only batteries and solar panels available they ran out of power by the evening. Maybe they should have disconnected the fridge? Rain was not their biggest problem, but the lack of sun, being heavily overcast the whole Saturday, brought about an early demise no doubt. The team operated mainly 40 m with a few contacts on 80 m and 20 m, with three operators, while the rest of the crowd did the usual 'fun while camping' and lots of socializing, camp fire and one or two glasses of something splendid no doubt. There was not much 'fierce' contesting done but as a club they had a great time.

CQWPX SSB 2012

Did you get onto the bands for this one? As I write this part of this column, the sound of the contest is still ringing in my ears as it finished some four hours ago at the VK4KW station. Murphy paid a call with all manner of hardware calling it a day during the contest. It's a shame, as we had hoped to better the score from 2011 but it wasn't to be. We had our EU 40 m antenna die, so we lost a myriad of multipliers from EU as we could not work the band and had a logging PC lock up a few times. As always, it tends to find the most inconvenient moment to do this. We had an amplifier go bang. It took circuit breakers with it – so the lights went out. Such fun, seeing as it was in the night time! The team headcount was 'lean' this year, making life hard for operators as tiredness crept in from time to time. We had some fun anyway and tried a few new ideas in the heat of battle – many of which will be incorporated into the final station format. The bands were a bit weird. 10 m was sporadic, as was 15m, but 20 m wins the prize. We can usually run well on 20 m and we did so a few times at the weekend, but there were periods where I felt that I might have been on 40 m

as EU stations were huge signals but seemingly couldn't hear OC stations calling them. We also got told that our SP and LP signals were the same strength! LP openings to EU/NA didn't seem to come to fruition as usual and seemed to be later in the day and then a little strange/annoying when they appeared as NA seemed to open to EU simultaneously so EU turned their beams elsewhere! The LP on 10 m was bizarre, as stations were worked over two poles whilst on the SP they were inaudible! Due to the points and multipliers structure we didn't bother with 160 m but 80 m was in good shape – but nobody there to work. The few that we got told us that we were a huge signal, which is gratifying given the antenna work, but if nobody is on the band then you're on a hiding to nothing.

Some of the EU prefixes were bizarrely long – one or two even had three numbers separating prefix letters from suffix letters. As, basically, we're all multipliers in this contest, it seems strange to intentionally go into the contest with an extremely long callsign. All in all, we're a much lower score than 2011. Still, there's always 2013!

Andy VK4NM had a ball however, as he and Peter VK4LAT doubled their score from 2011, with some help from newcomer Vlad VK2IM. The only hiccup was the little kink at the start with their modulation as it was reported that they sounded a bit like R2D2!

Steve VK3TDX had a frustrating weekend, as an intermittent in a Yagi trap caused a lot of down time trying to fix it without success. Steve found that propagation seemed quite good but didn't seem to follow recent trends.

Laurie VK7ZX/VK7ZE also had a frustrating time but for other reasons - it was hard to find somewhere to perch. At one stage when the US was open along with EU on the long path Laurie sat quite close to the US band edge. After a while he decided to find a clearer frequency up in the NA section

of the band above 7.200. Laurie listened, sat for a brief period, no sounds, asked if the frequency was in use and there was no reply. He then trotted back down to the other frequency and let everyone know that he was QSYing and up he went. In the few brief seconds that it took, another VK station had found the frequency and was calling CQ! Laurie had the last laugh however, as he listened to all the stations calling him - I bet the other operator wondered what the heck was going on! Laurie ended up with 1,262 Qs on 40 m for a claimed score of just over 4.4 M points.

Craig VK2KDP teamed up with VK2FAJA, VK2FWRX and VK2MCI for the contest, but they had more than their fair share of problems with all manner of hardware and electrical supplies to the shack itself. With the log finally starting to be filled, a PC decided that logging was not a task it wished to participate in any further and the QSOs got swallowed into contesting oblivion, never to be found again. Overall with all the hiccups and problems, the guys finished with over 1.5 million more points than last year's score, so they ended up all happy. Biggest highlight came from new VK2FFG club member Peter VK2FWRX who, before this contest had never made a contest QSO or even made a HF contact. A baptism of fire indeed! 1,500 Qs in the log (finally!) for a claimed score of just over 3.5 M points.

Due to a lack of available operators, Steve VK6IR put the NCRG station to good use as a single operator entry, managing to keep his backside in the operating chair for 30 out of the 36 hours. Steve reported that 10 m and 15 m were very patchy and 20 m was fairly good. He had a great opening at 3 am on Sunday morning when, with not a sound on the band, he called CQ anyway and one hour later had 120 in the log! 40 m was its usual self with signals so strong but so much QRM and nowhere to call CQ.

ARRL CW 2012

Steve VK3TDX bagged 110 QSOs into the log for a claimed score of 21,780. 10 m seemed to have been the band of choice for Steve, but a great effort for two hours of operation. Vlad VK2IM was also active, but suffered from antenna issues on the LF bands. Vlad managed to snare 1,817 QSOs for a claimed score of just over 1 M points.

ARRL SSB 2012

Laurie VK7ZE reported 'below par' band conditions for the contest. 40 m was the exception however, so Laurie decided to concentrate there and see how it goes. 1,000 QSOs later, Laurie claimed a score of 441,000 for his efforts.

Steve VK3TDX was also active, capitalising on his 'Yank' accent on

LP to NA on 20 m and producing some goodies for two hours on the Monday morning, allowing a total of 485 QSOs and a claimed score of 146,955 points.

Ken VK4QH snared just over 1,200 QSOs for a claimed score of 725,409 points. Ken's best tally was on 10 m but 80 m also produced the goods.

Chris VK3FY was mobile for the contest and worked the pile-ups on 40 m while in his car, whilst Catherine VK4GH logged 101 stations, but suffered from a dodgy antenna on Sunday evening which brought the fun to a halt.

The difference in propagation up and down the VK east side was interesting to observe. Steve VK3TDX never heard a peep on 10 metres except a few JAs calling and apparently neither did Laurie in VK7

while Ken's top QSO count was on ten. On the other hand southerly locations to VK3 seem to favour the long path route to the US. Also, on 80 Steve listened hard and really struggled to make only a couple QSO's with the superstations K3LR, W3LPL. Ken's success appears to show a propagation preference depending on latitude.

If you have any contest related material for inclusion within the column, topics that you'd like covered or even some experiences and pictures you'd like to share, then please feel free to get in touch via vk4baa@wia.org.au See you on the bands.

73 de VK4BAA Phil Smeaton



Winter VHF-UHF Field Day 2012

John Martin VK3KM - Contest Manager

"F" Call Challenge

The rules for this Field Day are unchanged from last time. But there is one extra feature: there will be an "F Call Challenge", with special certificates for Foundation licensees who participate in any of the single operator sections of the Field Day.

Dates: Saturday and Sunday 23 and 24 June 2012

Duration in all call areas other than VK6: 0200 UTC Saturday to 0200 UTC Sunday.

Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

- A: Portable station, single operator, 24 hours.
- B: Portable station, single operator, 8 hours.
- C: Portable station, multiple operator, 24 hours.
- D: Portable station, multiple operator, 8 hours.
- E: Home station, 24 hours.
- F: Rover station, 24 hours.

Operating periods: Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

Entering more than one section: If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section

has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station, he may also enter the home station section.

Two operators: If two operators set up a joint station with shared

equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other.

Multi-operator stations: Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

Rover stations: The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during

the Field Day provided the station is dismantled and reassembled each time it moves. You may work stations within your own locator square. Repeater, satellite and crossband contacts are not permitted

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange.

Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table. In this example on the table below, the operator has operated from one locator and worked four locators on each band.

A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, PO Box 2042, Bayswater Vic 3153. Please email electronic logs to vhfuhf@wia.org.au. Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. Logs must be received by **Monday, 9 July 2012**. Early logs would be appreciated.

FIELD DAY WEB SITE – <http://www.wia.org.au/members/contests/vhfuhf/>

This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.

SPRING FIELD DAY UPDATE

An addition to the results for the 2011 Spring Field Day, John Elliott VK5EMI entered Section E with a score of 526 points, but his log vanished in cyberspace. His score has been added to the 2011 Field Days file on the WIA web site.



Band	Locators Activated (10 points each)	+	Locators Worked (10 points each)	+	QSOs (1 point each)	x	Multiplier	=	Band Total
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
etc.									
Overall Total								=	680

WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

www.wia.org.au/members/contests/about

Silent Key

Brian Govier VK6ZD



At 15 Brian left the education system then tried numerous places for an apprenticeship but to no avail.

He scored a job delivering groceries around local villages and this is where his love of cycling arose and he later toured most of the UK on his bike.

The village is where he first became interested in radio as an old couple gave him a battery powered AM radio; there was no electricity at home in these days. The antenna was placed in a large oak tree in the backyard and an SWL was born.

After the war he gathered surplus second hand radio gear which was also set up for receiving.

Brian also spent 13 years working in the coal mines at Monkton No 5, his Dad also working there. Brian then headed to Australia with a mate, arriving in Darwin in 1962-1963. He initially worked on the wharf then with Qantas in the transport section.

Brian met his wife to be Lynda there.

They then moved to Kwinana WA and when CB radio was introduced to Australia, this was a natural progression from a SWL. A chance meeting with another local CBer Phil (now VK6ADF) resulted in them becoming great mates until the end. Brian obtained his Novice licence VK6NCB, then VK6ZCU and finally VK6ZD in 1978-79. Brian recently recalled how his first ever contact over amateur radio was with Glen VK6IQ. A contact he always remembered.

Brian excelled in CW and ventured into ATV and SSTV with the home made components he created, with encouragement from Pat VK6PH. He also had many long distance ATV contacts on 70 cm with Peter VK6ZPG, which he was very pleased with.

RTTY was very big around then with the big Siemens Type 15 teleprinter clattering away while he built various items in his shack.

Brian's computers in the shack were often monitoring for earthquakes with homebrew devices he made. Amongst his other passions were VLF beacon reception and monitoring planes via an ADS -B virtual radar receiver which was often running in the background.



In latter days and up until he passed away, Brian was interested in SDR technology and spent many hours listening on his beloved SDR-IQ. He later received a fun cube dongle from Phil who had a spare, surplus to needs. This later ended up with his friend Joe OE6GG, whom Brian befriended and exchanged many emails.

Right up to being confined to his bed he would run WSPR on 30 m and 10 m for hours.

Brian and Lynda would travel to Queensland to visit their daughter and much loved grandkids a couple of times a year, a place he loved to visit.

Brian was a wealth of information and always willing to help anybody. Both Phil and I knew the family since the early 70s.

Brian wrote his memoirs with help from Phil prior to being confined to his bed after a very short illness, some of which were read out during the funeral service.

Brian is survived by his wife Lynda, son Nick and daughter Larissa.

Prepared by Gavin VK6VKS with the assistance of Phil VK6ADF.

Silent Key

Ken Seymour VK6YFE

Ken Seymour VK6YFE passed away recently at 85 years of age. A quiet man who joined NCRG in the nineties after a long association with the CB fraternity, he passed away at his home in Ocean Reef.

Contributed by Wayne Johnson VK6EH.

A little known pioneer of Australian wireless

Brian Kirkby e bdkirkby@bigpond.com

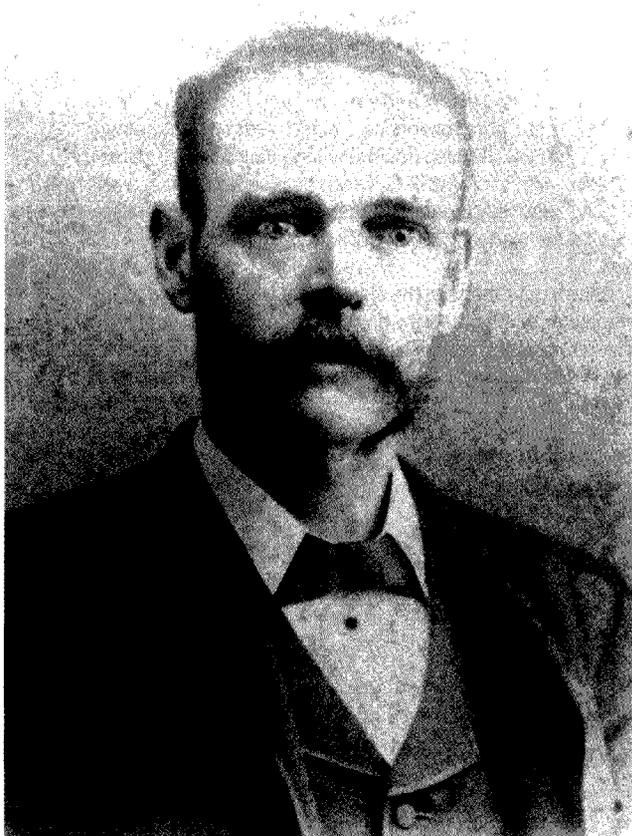


Photo 1: Edward Hope Kirkby.

At the one hundredth anniversary of the establishment of the WIA it is timely to reflect on the history in the field of wireless telegraphy with the story of one little known pioneer and his contribution. I speak of Edward Hope Kirkby (1853-1915), pioneer of Australian wireless, X-ray and systems of fire protection – inventor and philanthropist.

Edward was one of the first exponents and practitioners in Australia of the use of wireless telegraphy. He was a leading operator and inventor, advisor to George Taylor and mentor to Archibald Shaw. He was experimenting with wireless telegraphy from before 1901 back to its very first appearance in

Australia in 1896 when he began experimenting with X-ray. What follows is the story of his life and his involvement with Taylor and Shaw.

Edward Hope Kirkby was born on the ship Hope off Cape Leeuwin, WA. His family settled in Bendigo, Victoria. It was here he was educated and became a jeweller watchmaker. He married and moved to Williamstown where he set up his business. While there he branched out into the field of electrical engineering, inventing and building systems of fire protection, and

started experimenting with X-ray and wireless.

He was described in the Williamstown Chronicle of September 1901 as: *'this gentleman, as is well known, is a scientific enthusiast, chiefly devoting his leisure to electrical experiment, and is noted in Melbournian circles of that particular cult as a first front exponent in electrical engineering. Like the majority of deep-thinking scientists he is of a most unassuming disposition, but his repertoire of scientific knowledge has been proven to be of a highly extensive character. Nothing appears to come amiss to him in this line, whether it be displaying the X-rays, manipulating*

a gramophone or the limelight apparatus, or even in the higher flights of wireless telegraphy.' This is the first reference to his interest in wireless telegraphy.

In November, 1896 the Chronicle wrote of his X-ray experiments at Williamstown Hospital. Remarkable when you consider in the same year news of Roentgen's discovery had only reached the colony in February, the first Crookes tube evacuated and first X-ray taken in March. Marconi patented his wireless discoveries in 1896. In 1905 the government took control of wireless and Kirkby was interviewed by the Age newspaper as an expert on wireless telegraphy; the paper did not believe the Post Master General's Department representatives could enlighten them.

Kirkby's business was the invention, design and construction of systems of fire protection. He is recognised by the Fire Protection Association of Australia (FPAA) in the book *'Fire – A Century of Automatic Sprinkler Protection in Australia and New Zealand'* by Harry Marryatt for his contribution, having in 1909 invented the sprinkler alarm that extended an alarm to Brigade Headquarters when a sprinkler was activated in the event of a fire. In fact he made the full system of alarms as we know them today. These systems of street fire alarms included the full telephony and switchboards required for communication between brigades and premises. His hobby and interest was in the field of wireless telegraphy.

In 1907 he moved to Sydney to further his business, leaving his wife behind in Melbourne caring for her ill mother. Kirkby had an interest in horse racing and became the honorary timekeeper for the AJC

at Randwick racecourse where he designed and constructed the automatic clock for timing the races. It was here that he met and became friends with Father Archibald Shaw, the catholic priest of the Order of the Missionaries of the Sacred Heart. Shaw was the assistant procure at the Order's house 'Ascot' in Dutruc Street, Randwick. The procure provided logistical support to the Order's missions in the Pacific and a place of rest for missionaries returning from service. Kirkby had had a falling out with Wormald Bros, his agents, who manufactured and installed his equipment in conjunction with Grinnell Sprinklers to give Australia one of the world's most advanced system of fire protection. Kirkby needed premises to manufacture his systems. Father Guis, who was Shaw's superior at the procure, in a letter to his superiors described how the works came about:

Kirkby approached Shaw to build a factory on the procure's land. Shaw and Guis refused and said they would build the factory and let it to Kirkby for £2.0.0 a week. Once the workshop was built, Kirkby established himself with all his own tools and machinery for production, together with his two sons and some other workers, and he set about making his inventions: instruments of electric fire alarms. Kirkby was still interested in dabbling in his hobbies of wireless telegraphy and X-ray. Kirkby moved into the procure where in the evenings he taught Shaw

all about wireless telegraphy and they experimented together, as Guis describes it, as for the love of science. The Order of the Missionaries of the Sacred Heart at Randwick were always in debt and Shaw saw an opportunity to make money manufacturing wireless apparatus. He approached Kirkby as he had no knowledge or experience. Kirkby agreed to do this and gave all the profit from wireless to Shaw. The business became very successful and they formed a company, the 'Maritime Wireless Telegraph Company of Australasia Ltd.'

In 1910 George Taylor was a frequent visitor to the wireless works and was rallying support to ready for the coming war. He was a lieutenant in the militia and organised a demonstration of wireless at the Easter camp at Heathcote, NSW for his superior officers. For the experiments he enlisted the aid of three civilians, Messer's Hannam, Wilkinson and Kirkby. Taylor describes it as thus: 'The military were not provided with any wireless apparatus and just as in the frenzied rush of war preparations on the day the troops went forth, a collection of sundry

apparatus and the services of three experts were rapidly requisitioned into a train going southwards, and reached the camp at Heathcote on the day the troops arrived. It was a sorry looking collection that I had dumped on Heathcote platform. Two great railway baskets loaded with glass jars, insulators, wires, coils, and other paraphernalia, some new, mostly old. 'Looks like a raid on a second hand shop,' an officer facetiously remarked. 'So you're going to try and get wireless messages through with those toys,' said another with a sly wink. 'Ah, well, keep it going till my little girl comes up; she'll be amused' – a comment which provoked a roar at the mess table. The movement was not taken very seriously; the chances of success were not many. Not only were the instruments of one operator unknown to the others, but the operators themselves met for the first time, and though they were optimistic, yet they thought there was just a chance. They were good fellows, they buckled into the work, although one was a sick man, only coming out at my most earnest solicitation'. The sick man was Kirkby who had to leave before the demonstration was successfully

concluded and according to Taylor's account: 'We had succeeded in establishing the first military wireless stations in Australasia, and the first officially recorded stations on the continent to receive intelligible wireless signals, and for that success every credit must be given to the ardent enthusiasm of Messrs. Kirkby, Wilkinson, and Hannam'.

Photo 2: Making street fire alarms.



Taylor continued: *'It proved in a marked degree, however, the ease with which wireless communication could be established between stations once the definite spacing of the spark gap and tuning is understood. It also demonstrated the difficulty that an outsider would experience in endeavouring to tap wireless messages. He would not only have to continually change his tuning to try to key with the wave lengths, and that is a matter of patience and good luck, but when he could receive indications he would probably find the messages in cypher. His piracy would be made a still more difficult task, and he would be driven to the darkest depths of despair, if he found that regular alterations of tuning were understood between the operators. Till today wireless telegraphy has been expensive on account of the cost of patent rights attached to available apparatus. Today the track is blazed by which experimenters can improve on earlier methods, so that tomorrow wireless will be a matter of economical utility.'*

Later in 1910 Taylor gave a lecture 'The Air age and its military significance'; this lecture also included the use, and a demonstration of, wireless telegraphy. The wireless apparatus was made, and operated, by Kirkby who had demonstrated it earlier that day to Alexander Graham Bell on his visit to Australia. Taylor always used Kirkby for his demonstrations, he never used Shaw. Taylor knew who the expert was.

At the works Shaw saw an opportunity to promote the use of wireless, offering the government portable wireless sets with motor generators all built at the factory by Kirkby to search for Staniforth Smith, the administrator lost in New Guinea. Newspaper photos of the day show Kirkby with Shaw and others who were volunteering to go to New Guinea to join the search, at the foot of the tower built for their antennas. Kirkby is described in the photo as the well-known radio inventor and operator.

In 1911 Kirkby moved out of the procure and sold the business to Shaw and his backers who formed a new company The Maritime Wireless Company (Shaw System) Limited in September, 1911. The memorandum and articles of Association state: *'To acquire and take over as a going concern the laboratory workshops wireless apparatus plant fixtures machinery tools materials and effects at present on certain land at Avoca Street, Randwick and the benefit of certain applications for Australia provisional Protection for improvements in Wireless Telegraph apparatus'*.

On 3rd July, 1911 Shaw applied for the following patents:

- IP Australia – Australian Official Journal of Patents
- 1911 No 1683 Improvements in spark gap apparatus for high frequency radio-telegraph transmitters
- 1911 No 1684 Improvements in radio-telegraph apparatus
- 1911 No 1685 Improvements in radio-telegraph receivers

If we consider the results of the demonstrations at Heathcote, Taylor said *'once the definite spacing of the spark gap and tuning is understood.'* And we consider that the new company took over *'the benefit of certain applications for Australia provisional Protection for improvements in Wireless Telegraph apparatus'* and Shaw's patent applications. Given the evidence of Kirkby setting up the company, building all the wireless sets and always helping Taylor with wireless demonstrations we could well ask the question, what did Shaw do? Guis describes Shaw as the front man for the company, required for his brain and name. Taylor never used him for his brain. This leads me to the conclusion that in fact Kirkby was the inventor and experimenter with wireless. He gave his wireless to Shaw. Philanthropy was not new to Kirkby. The Williamstown Chronicle in 1901 wrote of Kirkby when the

townspeople presented him with an illuminated address and purse of sovereigns: *'He had spent the best portion of his life in Williamstown, and during that period had on many occasions given his talented services in the cause of charity and benevolent objects. Williamstown in losing Mr. Kirkby was losing a good man - one of the best. It was a pity to let him go without presenting him with some slight memento of their appreciation of his valuable services, which were ever at the disposal of the community. As a scientist his name had come prominently before his fellow townsmen, while no one could hold up their little finger in contradiction of Mr. Kirkby's unswerving business integrity. A gentleman of their friend's ability, had he so chosen, could possibly have left the town a wealthier man. Instead, however, he has left a name behind him, the memory of which would last to the end with those who knew him best.'*

Kirkby moved to the city in 1912 to continue his design of fire protection systems and X-ray apparatus manufactured by the Shaw wireless works. He dropped dead of a heart attack on 28th August, 1915 at his place of business in George Street, Sydney the day after he buried his wife. They are buried together at Waverley Cemetery in Sydney.

Later the works were contracted by the government to build the coastal wireless service stations around Australia by John Graeme Balsillie of the Postmaster Generals Department after the failure of German interests to perform to the satisfaction of the Government. Telefunken was built in Sydney and Perth. The works proved a valuable acquisition as a manufacturing facility for armaments during the war as importing goods from England was very difficult in the circumstances.

Later controversy surrounded the works. Controversy over litigation for patent infringement – what was the true story? What about the Attorney General who

acted for Marconi? The controversy of the Royal Commission - if it was not about the Shaw Wireless Works, what was it really about? Perhaps it was about the pay clerk who embezzled £70,000. They always say follow the money trail. How was Sir Hugh Denison involved? No criminal charges were ever laid and Father Shaw had been dead for two years with no one to defend him. The site of the works remained in Defence hands for another 90 odd years.

On Edward Hope Kirkby's death in 1915 he had no riches; he never even owned his own house. He had books and tools and a small amount of cash. So after all he had achieved in life there was nothing to show, nought. No recognition of his inventive genius as Australia's first fire protection engineer, a pioneer of X-ray experiments and the introduction of wireless: A philanthropist who sought no reward other than the lure of invention.

'The lure of invention is one that influences all people and spares no class or condition of men. From the clergyman in his study to the convict in his lonely cell (says the 'Scientific American'), it exerts its attraction, and both are found enrolled among the list of patentees, although not so precisely identified. The stimulus is not always the hope of fee or reward, for we find the millionaire as strongly interested as the very poor. There is something in the attraction that cannot be resisted. Someone has said that writing is like flirting. If you cannot do it, no one can teach you to do it, and if you can do it no one can keep you from doing it. So it is with invention; no one can teach you to do it, and if

you have the divine afflatus no one can prevent you from exercising it. This is fortunate, for the inventor is subjected many times to discouraging influences in the first instance. Have you ever noticed, however, the pride with which anyone will display an invention even of the simplest character. Surely this is commendable for we all admire originality, and invention is originality, often of the highest order. While the lure may be regarded apart from the results, we cannot help realising what a poor world this would be except for the beneficent works of the inventors of all times.'

From a newspaper cutting (origin unknown) in the Kirkby scrapbook.

Some References

1. 'By Wireless' How we got the signals through - George A Taylor Lieut Army Intelligence Corps.
2. The Air Age and its Military Significance - George A Taylor Lieut Army Intelligence Corps.
3. Some Chapters in the Life of George Augustine Taylor - A Biography. J M Giles - supplement to Building Lighting Engineering 24/11/57 SLNSW - N920 T241.9.
4. Fire - A Century of Automatic Sprinkler Protection in Australia and New Zealand 1896-1986 Harry W Marryatt.
5. Articles in the Williamstown Chronicle 1896-1901.
6. Article in The Age 1905.
7. A letter from Father Guis to Father Field - Some notes on the 'Wireless' at Ascot - 7/5/1911.
8. Archives of the Missionaries of the Sacred Heart, Roma Ave, Kensington NSW.



COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$255
6 m vertical 5/8 with radials	\$169
20 m confined space beam 2 el.	\$367
20 m 5 el. Yagi 12.2 m 1 boom	\$995
15 m 3 el. 3.6 m boom	\$314
M b vert auto switch 10-80 m	\$360
40 m lin load 2 el. cap hats	\$670
6 m 5 el 3.6 m 1 boom	\$314
6 m 7 el. 6.8 boom bal feed	\$456
23 cm 36 el. 2 m l boom n-con	\$249
70 cm hi/gain Yagi 3 mtr boom	\$170
2 m 10 el. hi/gain Yagi	\$190
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$319
Log-periodic 9 el. 8.4 m boom	\$1194
Tri band 10/15/20 - 5 el.	\$860
2 & 70 combined beam 1 feed	\$285

Guyed masts 13 or 21 metres

Winch up, tilt-over, aluminium and stainless steel three sided construction. Auto brake winches.

115 John Street
Glenroy VIC 3046

Phone
0419 542 437

Plan ahead

23 - 25 June

Winter VHF-UHF Field Day

The Winter VHF-UHF Field Day will be held over the weekend of June 23/24. For full details please refer to the contest web page:

<http://www.wia.org.au/members/contests/vhfuhf/>

A valve receiver that runs from 12 volts

Peter Parker VK3YE



Photo 1: The front of the receiver.

Introduction

Described is a receiver that shows that valves do not always need high voltages to operate. It should appeal to the builder who always wanted to build a valve project but did not have the high voltage components or power supplies normally required.

The set tunes from 500 kHz to 1.9 MHz, or wavelengths between 600 and 160 metres. This covers not only the AM broadcast band but VK3XU's AX2VKW test beacon on 507 kHz and 160 metre amateur SSB/AM/CW activity above 1.8 MHz. HF bands can also be added, though performance seems to fall off.

The prototype was built after reading a review of a low voltage valve receiver sold as a kit (Reference 1). The reviewer was critical of the circuit's design but made modifications which greatly improved reception. This article describes my version of it, which performs as well as any conventional high-voltage regenerative set.

Low voltage operation

Unlike transistorised appliances, virtually all valve radio equipment required multiple power supplies. At a minimum this involves a six or twelve volt AC or DC supply for the valve filaments (low tension) and a 200 to 400 volt DC supply for the valve's plate (high tension).

There was normally a mains power transformer with low and high voltage windings to supply these voltages. Most valve receivers were intended for home use. Portable valve equipment often used specialised battery valves, but by about 1965 lighter transistorised equipment had become more popular.

Valves still perform well today, but the need for a suitable dual-voltage power supply and specialised often salvaged high-voltage components make construction harder. The shock risks of poorly built equipment might also deter some.

This receiver is unusual because it avoids these problems. Instead of being several hundred volts, the high tension is just twelve volts. The filament is also twelve volts, allowing use of a single supply (which could be a battery) for both. Only low voltage parts are needed. Hence it is simpler and safer to build than conventional valve equipment.

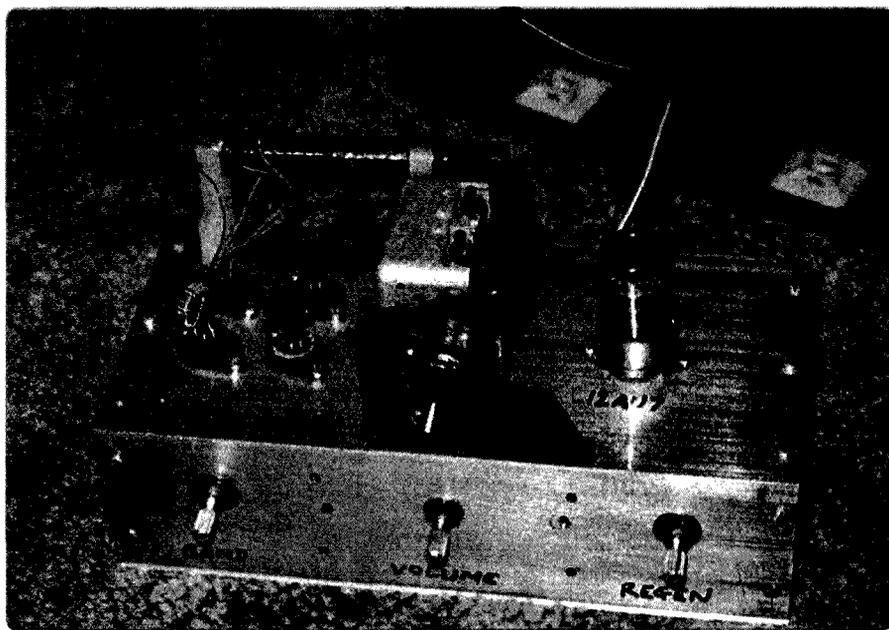


Photo 2: The chassis front.

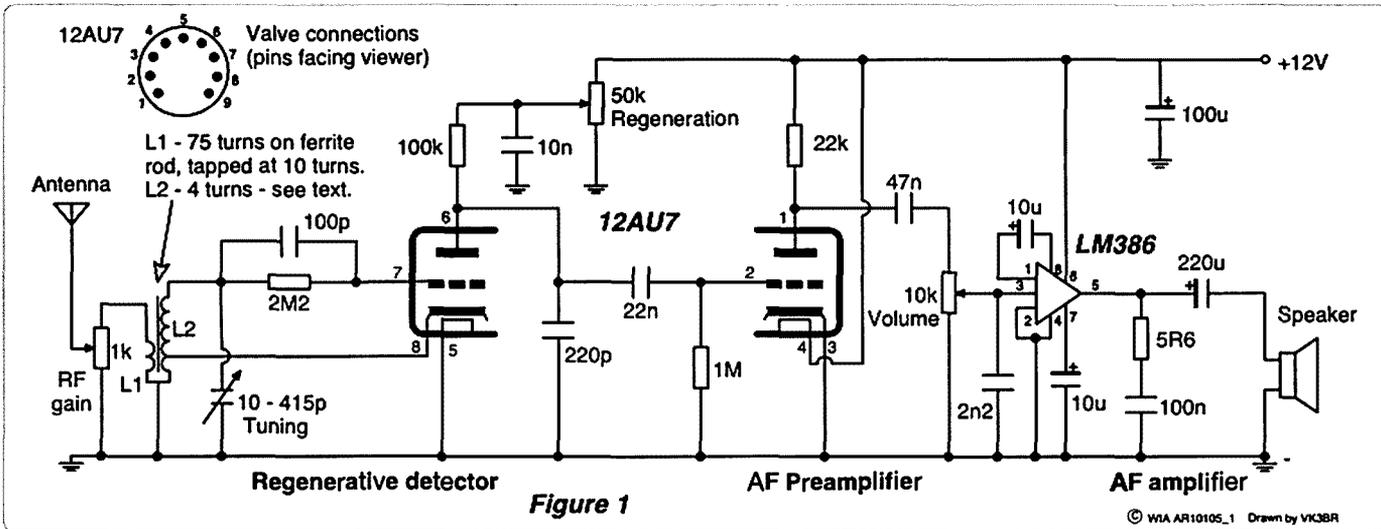


Figure 1: The circuit diagram

Circuit description and obtaining parts

The circuit is conventional apart from its low voltage operation. It uses a 12AU7 dual triode, which was common in 1960s TV sets and audio equipment. One half of the valve is the regenerative detector while the other half is the audio preamplifier. The use of adjustable positive feedback (regeneration) provides extra gain and is the key to the receiver hearing weak signals. The regeneration control is a bit like a radio's volume control except the volume increases suddenly and peaks near a certain point of its rotation. Beyond that point the receiver oscillates (useful for amateur SSB and Morse reception) but the volume does not increase further.

The 12AT7 and 12AX7 valves have similar pinouts but slightly different characteristics to the 12AU7. The 12AT7 worked almost as well as the 12AU7 but had slightly weaker regeneration. In the prototype a 12AX7 could not reliably be brought into oscillation across all parts of the broadcast band so is less preferred. However experimenting with the coil tap's position should make it usable.

The output from the valve will directly drive high-impedance headphones, or if you do not have any, a speaker transformer and

low impedance phones. To drive a speaker, even on weak signals, a small IC amplifier was added.

Like the later small valve receivers, this set uses a ferrite rod as salvaged, or from Jaycar. This allows use without an external antenna if the cabinet is non-metal. The variable capacitor in the prototype was a 10-415 pF unit from an old valve receiver. A more modern plastic 10-160 pF unit, also from Jaycar, will also work but you may need to wind a few more turns on the coil and accept slightly less tuning range.

The inclusion of a vernier reduction drive is what makes

the receiver a pleasure to use, especially at night when tuning interstate broadcast stations or SSB activity on 160 metres. These are hard to obtain locally, but Jackson Bros (an AR advertiser) may be able to help. Alternatively use a salvaged radio dial drum and cord to achieve finer tuning. If neither appeals, just use the biggest knob you can find and glue an old CD or DVD to its skirt to form a large, easily calibrated 'handspan' dial.

The chassis can be either a bought case or bent from aluminium sheet. The latter is expensive from electronic suppliers but metal suppliers may have it for less.

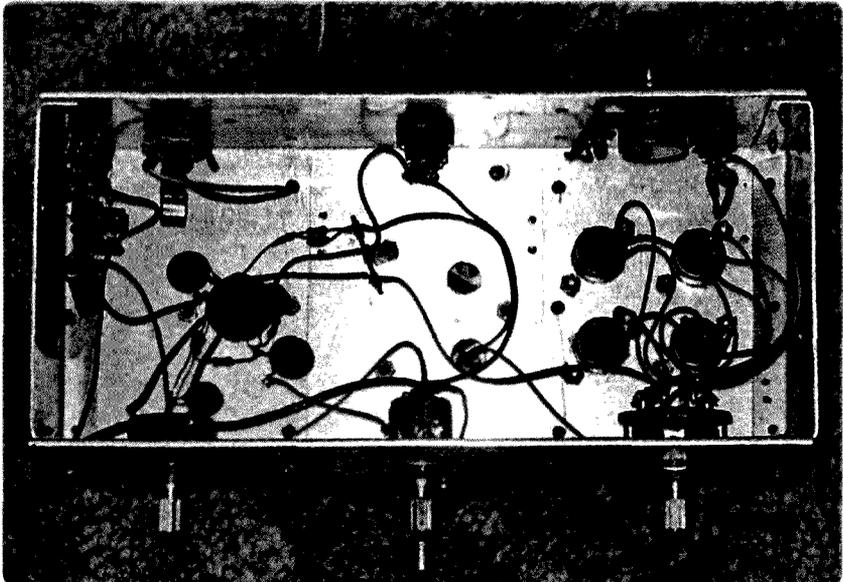


Photo 3: Under the chassis.

A loaf tin or baking tray (preferably obtained second-hand) is a good substitute for those wishing to economise further.

All other components are standard low voltage parts obtainable from the regular suppliers or from old electronic equipment.

Construction

This receiver was built using conventional valve techniques including a metal chassis and cabinet. Larger components such as the valve and socket, tuning capacitor and ferrite coil are mounted above the chassis while the other parts are wired point to point underneath. Screw-mounted tag strips support components under the chassis where needed. The IC audio amplifier was built on a small piece of matrix board approximately three by four cm. The widely available 'Champ' kit is a good substitute for those not wishing to build from scratch.

The coil is wound with enamelled copper wire, such as can be found inside transformers. The gauge is not that critical but if purchasing select a thickness of around 0.7 mm. Hold the wire firmly and wind each turn next to the previous one. To make the tap, pull the wire about 10 mm above the rod, form into a hairpin shape, twist with a pair of pliers and resume winding. Scrape away the enamel insulation at both ends and the tap. Anchor the wires at either end with insulation tape, noting there may be a need to add or remove turns later for best frequency coverage. Stations near 900 kHz should be near the dial's half way point. The main coil in the prototype has 75 close-wound turns, with the tap 10 turns up from the earth. The antenna winding, which is further up the ferrite rod, has four turns.

Construction is not critical provided leads are kept fairly short. You could even make a printed circuit board but for the few components involved it hardly

seems worth it. Always use a socket and do not solder directly to valve pins.

Double-check connections before applying power – in particular 12 volts applied to Pin 9 (which should be left unconnected) will blow the filament. Use a metal front panel and build the set solidly for good frequency stability. If desired allow room for a band switch (at least three pole, two position) to experiment with coils for HF or LF bands.

Testing and use

The IC audio amplifier can be tested by placing a finger on its input. A click or buzz should be heard from the speaker.

The best way to test the receiver portion is whether it goes into oscillation when the regeneration control is advanced. You can tell that this is happening by a gentle hiss coming from the receiver and maybe a squeal at full regeneration. Oscillation starts at lesser settings of the control at the higher frequency end of the band and higher settings at lower frequencies.

Try to tune in stations, with an external antenna connected if in a weak signal area. Tuning needs two hands. The regeneration control should be kept just before the point of oscillation as the tuning knob is adjusted. SSB and CW signals, as found near 1.8 MHz, is done with the set lightly oscillating.

A calibrated dial is a nice finishing touch once satisfied with the receiver's coverage. Calibration can be done with the help of stations on known frequencies or by monitoring the lightly oscillating receiver on nearby calibrated equipment, for example, an HF transceiver set to SSB. For this to work a wire from the latter's antenna socket needs to be brought close as the receiver's oscillator is quite weak.

Set the calibrated receiver to various frequency points, for example, to 500, 550, 600 kHz and so on, and tune the

regenerative set, which will need to be oscillating, until its oscillator is picked up on the calibrated receiver. Write each frequency on the rim of the tuning knob on the front panel near the tuning mechanism's pointer. Repeat for the rest of the band, every 50 or 100 kHz as space permits. Frequencies can be written on small paper labels affixed to either the front panel or tuning dial.

When used with a large speaker the set provides quality reception of local stations. Interstate broadcasters and 160 metre amateur activity are audible at night. When on air, the 507 kHz AX2VKW experimental beacon, about 50 km away, comes in at excellent strength.

Because it has only one tuned circuit, the greatest reception challenge is when receiving weak signals near strong local stations that can spread across part of the dial. Careful juggling of the RF gain, regeneration and tuning controls can sometimes allow signals to be heard. Alternatively some extra front-end selectivity, such as a preselector, bandpass antenna coupling unit or tuned receiving loop can greatly improve reception.

Conclusion

A receiver that delivers excellent performance on the AM broadcast band and adjacent frequencies has been described. By using 12 volts exclusively it avoids shock hazards, the need for large power supplies and the use of specialised high voltage components. As a result it is an excellent project for both the beginner and curious experienced builder.

References

1. Cool386 website: www.cool386.tripod.com
2. Demonstration of this receiver: www.youtube.com/vk3ye



Review: Wireless - from Marconi's Black-Box to the Audion

Reviewed by: Blair Bowler VK4BBX e vk4bbx@wia.org.au

A new look at the early history of wireless communication

While looking through the new release books at my University, I came upon the book titled: *Wireless*. Such an excellent research book on the history of technology needs to be shared. How best to do this, I believe, is to review the publication for *Amateur Radio* magazine. Those who read this magazine would appreciate and enjoy *Wireless*.

Fifteen years after Guglielmo Marconi's invention, wireless became the essential means of communication, and a hobby for many. The author of *Wireless*, Sungook Hong, offers a new perspective on the very early days of wireless communication. Drawing on previously untapped archival evidence, and historical investigation, he examines the substance of experimental and theoretical aspects of engineering and scientific practices during the early first years of this technology.

The author describes new insights into the relationship between Marconi and his scientific adviser, the physicist John Ambrose Fleming. He reveals a rare case-study of how the credibility of an engineer can be created, consumed, and suddenly destroyed. The book concludes with a discussion about the transitional shift from wireless telegraphy to radio.

This appropriately titled 250 page book will satisfy the technical and historical appetite of any amateur radio enthusiast or professional. It is a truly exciting publication packed with schematic circuits, drawings and pictures, many of which are clearly signed and witnessed by the original inventors. This academic work is well researched, and presented. The final notes, wonderful bibliography and useful index, alone, contains a wealth of data. *Wireless* has the distinctive qualities necessary for it to become a benchmark textbook for the historical studies of telegraphy and radio.

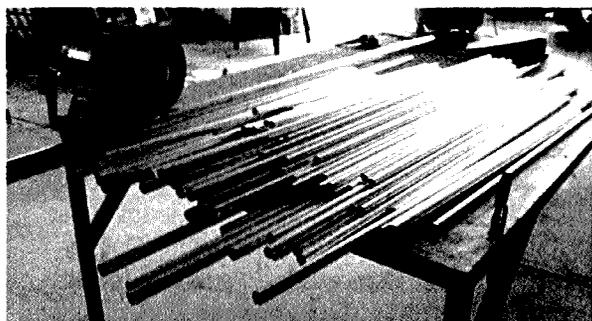
Contents

Chapter: (1) Hertzian Optics and Wireless Telegraphy. (2) Inventing the Invention of Wireless Telegraphy: Marconi versus Lodge. (3) Grafting Power Technology onto Wireless Telegraphy: Marconi and Fleming on Transatlantic Signalling. (4) Tuning, Jamming, and the Maskelyne Affair. (5) Transforming an Effect into an Artifact: The Thermionic Valve. (6) The Audion and the Continuous Wave. Epilogue: The Making of the Radio Age. Appendix: Electron Theory and the 'Good Earth' in Wireless Telegraphy.

Wireless - from Marconi's Black-Box to the Audion. PB, March 2010. ISBN: 978-0-262-51419-4 - The MIT Press, Massachusetts Institute of Technology, Cambridge, Massachusetts. 02142. USA.

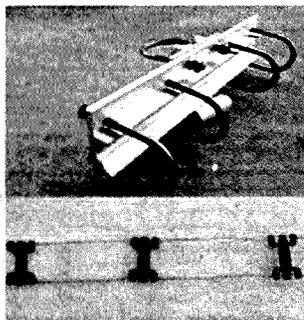
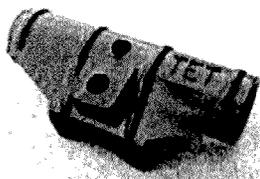
The author Sungook Hong is Associate Professor at the Institute for the History and Philosophy of Science and Technology at the University of Toronto.

TET-EMTRON



Large range of aluminium sizes now available cut to size, including Drawn Tube, Rectangular Hollow Section, Box and Flat. Look at the Home brew section for more details and to download the calculator and pricing.

Various other parts available in our new Home Brew section.



Coming Soon!
Antenna Kits.



As seen at Kyneton and Wyong Field Days. **TET-Emtron's own mobile auto tune.**

160 through to 6 metres. Compatible with any radio – needs DC and RF only. True L/C tuner can have a long wire added when portable. Large range of whip sizes and accessories.

www.tet-emtron.com
TET-Emtron

80 Stock Road, HERNE HILL, WA 6056
Phone: 08 9296 3224

ALARA

Margaret Blight VK3FMAB – Publicity Officer

The year is moving along at a rapid pace and memories of summer are fading fast. Various radio clubs have been busy organizing their annual ham sale days. The EMDRC held their White Elephant Sale on Sunday 25 March and it was very well attended. ALARA was represented both in the kitchen and at the ALARA table.



Photo 1: Micheline VK3FMEG, Dianne VK3FDIZ, Margaret VK3FMAB and Jean VK3VIP.

Also in March representatives from ALARA travelled to New Zealand to take part in the 50th anniversary celebrations of WARO. As votes for women first occurred in New Zealand, so too did the first YL organization in the southern hemisphere originate in that country.

Tina Clogg VK5TMC, President of ALARA and YL International 2012 Organizer attended the celebration in company with several other YLs from South Australia. They were joined by Jean VK3VIP and her OM from Victoria and Catherine VK4GM and her OM from Queensland.



Photo 2: ALARA representatives at WARO.

WARO – the beginning

In June 1961, Thelma Souper ZL2JO attended her first NZART conference in Hamilton, NZ. She heard there were some newly licensed YLs also present and was keen to meet them. Subsequently this became the first YL meeting when Thelma and four other YLs met up. They decided it was time to encourage other women to participate in what was then an overwhelmingly male-dominated hobby and to form a YL club for mutual support.

Setting up the 80 metre YL net

It was further decided at that meeting to establish a monthly 80 metre net. The first net took place on Tuesday 11 July, 1961. Eight YL operators checked in, including the five who had met up in Hamilton. A letter had been sent to all known YL amateurs inviting them to join in the net. Thus began the regular YL nets that have continued to this day.

The inaugural meeting of WARO

The next step was to form a club and a meeting was held in Brent's Hotel in Rotorua on 10 March, 1962. Seven YLs were present and interest and support was expressed by others unable to attend. After much discussion the name of the group became **NZ Women Amateur Radio Operators**.

A set of rules was drawn up with the object of the group being 'To promote and encourage interest in radio amongst women radio operators.'

WARO – the 50th anniversary visit

Our New Zealand trip notes were contributed by Christine VK5CTY and Tina VK5TMC.

On 9th March five VK5s arrived in Auckland at the start of a couple of weeks in New Zealand. The main purpose of the visit was to help WARO celebrate its 50th anniversary. Tina VK5TMC, Jenny VK5FJAY and Christine VK5CTY and two OMs Robert VK5ZHW and Kevin VK5AKZ were joined by Jean VK3VIP and her OM John VK3DQ, from VK3, and Catherine VK4GM and her OM John VK4IO, on Saturday when we met the WARO YLs and their OMs at the Millennium Hotel in Rotorua.

This hotel is the actual place where WARO was formed exactly 50 years to the date of the celebration this year. The only YL present this year who was also present in 1962 was Celia ZL1ALK, but two others had been members of WARO for 40 years and two for 30 years, all of whom were presented with certificates and flowers. Biny ZL2AZY was also presented with a certificate acknowledging her success in the Thelma Souper Contest in this auspicious 50th year.

The formalities were managed very efficiently by Margaret ZL1MB, President of WARO. The smorgasbord put on by the hotel was magnificent and the whole setting was beautiful. The Australian visitors were welcomed with open arms and there were many happy people meeting friends they had made over the years, particularly with the WARO girls and their OMs who had come across the sea to join us at our ALARAMEETS over



As part of the museum tour the group had been booked into the cinema. This featured a story of some of the history of Rotorua in the early days, including the sights they saw which no

Photo 3: YLs at the WARO anniversary celebrations.

the years. We were delighted to be able to return the compliment.

The celebrations continued into the evening when we met at the RSA for a meal and next day when we met at the Rotorua Museum. This was of special interest as it had started life as a mineral spring health offshoot of the hospital. Many of the baths and the plumbing for the movement of the natural mineral spring waters have been preserved. The many photographs

on display showed us the original arrangements. The facade of the museum is magnificent. It is typical half-timbered Elizabethan style and although the original building has been added to over the years the style has been maintained. There is actually a spa and mineral bath complex nearby but it is built in a typical Spanish Mission style in a warm pinkish stone which does not look out of place in the lovely gardens surrounding the Museum.

longer exist. In particular they saw the pink and white terraces that surrounded a series of hot pools and geysers which were flooded over as a result of earthquakes in the early 1900s. As cinema watchers we were treated to the sensation of the earthquake when our benches suddenly started to shake and move up and down and back and forth. Very unexpected and effective!

It was with some sadness when we said goodbye to our ZL friends.



Oxley Region Amateur Radio Club Inc Port Macquarie NSW

**Presents the 37th Annual Field Days
June Long Weekend
Saturday & Sunday
9-10th June 2012**



Contact Field Day Co-ordinator: Henry Lundell VK2ZHE. Email: lundell@tpg.com.au
Location: Tacking Point Surf Lifesaving Club Matthew Flinders Drive Port Macquarie.

**General interest displays.
Trash & Treasure Sunday only
Trade displays Sunday only
Fox hunts Saturday & Sunday**

Entry only \$5

www.orurc.org for more details

**Field Day dinner Saturday night
Food Available
Free coffee, tea & biscuits
Soft drinks for sale.**

Oxley Region Amateur Radio Club Inc
PO Box 712 Port Macquarie NSW 2444

Station Callsign VK2BOR

Talk-in frequency 146.700 Mhz (91.5 Hz CTCSS)



Spotlight on SWLing

Robin L Harwood VK7RH.
e vk7rh@icqmail.com

Winter has arrived and I am spending more time listening to the bands. I was surprised to find a master list of international stations currently broadcasting on HF. It is only a guide as broadcasters often have to alter their frequencies due to the presence of other stations also on or adjacent to the channel. Many broadcasters list frequencies in advance but never utilise their chosen application. These registrations are simply classified as wooden, hence one should be careful relying on master lists, which are only a guide.

I have written previously of the station in Myanmar that is easily heard in our local evening hours on 7110. This is an Intruder in the 40 metre amateur DX segment. It has been widely heard throughout the world as there are no other broadcasters to cause QRM. Instead hams are the ones experiencing interference. I don't think Myanmar, formerly known as Burma, is a member of the ITU and does not co-ordinate with other broadcasters in the HFCC process. Cuba and Taiwan are among other nations that refuse to participate in the HFCC although Cuba is a member of the ITU. Taiwan was excluded from the ITU at the insistence of China when the latter was admitted to the UN in 1971.

There has been speculation as to the location of this Myanmar

broadcaster and there are two known sites, one in Yangon, the former capital and the other at Napydaw, which is in the centre of the country. The Yangon site seems to have been phased out; they were using older transmitters which were drifting about. Many listeners have become confused after hearing different identification announcements but these appear to be radio stations not too far from Napydaw and being relayed from the same shortwave sender. Programming seems to be educational interspersed with popular Burmese cover versions of western hits. Some have reported that they are hearing English lectures at around 1420 and until sign off around 1500.

I am hearing a broadcaster on 11300 at 1130 in Chinese. This is within the exclusive aero allocation and this channel is specifically used for communications in Africa and the Middle East. The offending station is a clandestine believed to be located somewhere in Taiwan and supports the Falun Gong Movement, which is banned in the PRC. An epic battle has been going on between this small station and the Chinese authorities for many years. The latter quickly jams the station, which is known as the Sound of Hope and as a result, SOH shifts about to find a clear channel before it is drowned out by a continual traditional Chinese music program which mainly uses percussion instruments. 11300 has been spared this QRM but it probably will appear and SOH will pop up elsewhere.

The official Radio Taiwan International in Taipei has been heard on 9465 in English. It is beamed to Australia and South-East Asia and is also on 7445. It has been many years since I have heard it and it was one of the first stations that I logged when I started out listening to shortwave. It was on 7130 in English with the Dragon Show and was then known as the Voice of Free China.

Relations between Taiwan and the PRC have improved although unofficially. It is worth noting that the SOH has been operating illegally in Taiwan using converted amateur rigs. No wonder they are very rarely heard, being drowned out by the clashing cymbals. I do note that the jammers seem to take a break at the top of the hour revealing the low-powered SOH signals for a few minutes.

There is a very strong noise centred on 7285 at 1000 and I initially presumed it was Radio Australia testing DRM. However it happens to be Radio New Zealand International from near Lake Taupo. I believe there is a companion AM signal but it is not as strong as 7285. Must Google up for DRM software! Incidentally Radio Australia commenced testing DRM as from April 1st. The schedule is as follows:

It is interesting that they are using 19000 between 0100 and 0300. There are very few broadcasters using that allocation and I surmise that it could be an experimental feeder frequency. Also I have noted that there are existing broadcasters on both 7410 and 9475, the latter being RA itself. Most of the tests are in the slower level 1 mode and it will be interesting to see how the quicker B Mode will go on 7410 and 9475. Incidentally the transmissions will come from Shepparton using a sender at 40 kW.

Well that is all for now.

Time (UTC)	Frequency (kHz)	Target	DRM mode
0100-0300	19000	central Pacific	mode C 10 kHz 16QAM level 1 11 kb/s
0700-0900	7410	south-west Pacific	mode B 10 kHz 64QAM level 2 24 kb/s
0900-1100	9475	south-west Pacific	mode B 10 kHz 64QAM level 2 24 kb/s
1100-1300	6080	west Pacific & PNG	mode C 10 kHz 16QAM level 1 11 kb/s
1300-1500	9890	central Pacific	mode C 10 kHz 16QAM level 1 11 kb/s
1500-1700	5940	SE-Asia	mode C 10 kHz 16QAM level 1 11 kb/s
1700-1900	9475	SE-Asia	mode C 10 kHz 16QAM level 1 11 kb/s



Charles Prime VK5HD



The fox hunting group at the SERG convention in 2011.

Due to an overwhelming response from traders and the attending public, the South East Radio Group (SERG) Convention on the Queen's Birthday long weekend in June this year will be returning to its traditional two-day format.

The first SERG Convention was held over the June long weekend in 1963 and, since then, has become a very popular event on the amateur's calendar. In 2011, the SERG held its 48th Convention and it was the 23rd year that the National Fox Hunting Championship has been an integral part of the weekend's activities. The group is already looking toward its half century celebrations to be held in 2013 and they would like to see as many people as possible who have attended over the years to be there.

Over the years the SERG has attempted to foster an interest in the noble and ancient art of 'home brewing' by conducting its very popular home brew competition at the Convention. With some positive and most welcome financial support from an individual (who wishes to remain anonymous) the competition has been expanded with the introduction of various categories from the novice to the very experienced builder. There are various categories of construction to suit everyone and they attract great interest from those attending with the rewards for those displaying their 'home brew' items being very attractive.

The venue this year will again be at the Scout Hall in Margaret Street, Mount Gambier. This has proven to be very popular in the past due to the space available, the excellent catering and the open fires which create a great opportunity for people to stand around and discuss this wonderful hobby.

Entry fee this year will remain only \$5.00 and the club was pleased that the chef from last year has agreed to return to the event so catering will once again be available at the venue. This year's program will continue with the excellent post-convention BBQ and a discussion on the weekend's activities at the clubrooms at the Reidy Park Centre on O'Halloran Terrace, Mount Gambier on the Sunday night.

For the fox hunters, the Australian Fox Hunting Championships will remain a two day event with the first event, the Sniffer Hunt, starting at 1100 on the Saturday as usual. For traders, the Hall will be open from 1100 on the Saturday with the general public being admitted from 1200. On the Sunday, the Hall will open from 0900 and will be closing at 1600. For all table and general enquiries, please send your requests to vk5sr@wia.org.au and for all other information, please refer to the Club's website at <http://serg.mountgambier.org/convention.html>



Remembrance Day Contest

Alan Shannon VK4SN - Contest Manager • vk4sn@wia.org.au

Hi, I'm Alan, your newly elected Remembrance Day contest manager.

I was nominated to the WIA board by our outgoing contest manager, Peter Harding, and had several supporters who were aware of my background. I grew up with amateur radio around me as my Grandfather was a keen ham from the halcyon days. I am ex RAAF signals and have been licenced since 1984. Contesting is one of my passions of the hobby, gaining over 45 placings in the last ten years and I always participate in VK contests when I can.

The new rules have been a combination of suggestions from me, other clubs, full time and part time contesters - and you. It has been this feed back over the last month that has shaped the rules as they now exist.

The rules are simplified and will make it easier for the casual contester to enjoy the weekend.

In brief, the changes to the rules were as follows.

1. Bring forward the start and finish times
2. Move the repeat contacts time from 2 to 3 hours
3. Working your own state is now allowed
4. Amalgamate all the phone modes into one
5. Amalgamate all bands
6. Allow only ONE callsign per operator for the contest period.
7. Introduce Teams
8. A new exchange is introduced
9. QRP section introduced.
10. Andrew VK1DA put forward a more even scoring formula which is now included for working out the state scores.

The proposed changes saw many emails change hands, but in general it was agreed that the RD Contest needed an overhaul and most of the changes were good. Hottest topics were the number exchange, how the teams work, and combining all phone modes into a singular phone category.

The number exchange method had several very strong supporters for either a non-sequential or serial number, but neither side had more supporters than the other.

Almost everyone was in favour of bringing forward the start and finish times to allow those who went portable to get home by night. Only two responses against this were received as ones wife wanted to go shopping and the other couldn't get out of bed in time.

The amalgamation of the bands and the phone modes will most certainly have a significant impact on the final score. Ones approach to the contest will need careful consideration if you plan to be amongst winners. HF diehards will have to visit VHF/UHF and vice-versa. It will be good strategy to change bands as the 3 hours repeat contact time is an hour more than previous years. The 3 hour repeat time now falls in line with other VK contests.

A proposal to change to a non-sequential exchange numbering system was accepted as it was noted that operators who joined in later in the contest felt at a disadvantage and sometimes embarrassment when giving out small numbers and receiving huge ones in return. This is by no means a new idea, as some of the world's number one contests use a non-sequential number exchange.

Teams are not a new concept, but are a hot topic on whether it should have been included in the new rules or not. I like to think of the 'teams' as your platoon or similar, working alongside your mates. It is intended to enhance camaraderie and, as no one likes letting the team down, performance is better and longer time is spent on air. Please read the Team scenarios' in the rules for a full expansion. Team scores do not affect the state score.

I am sure that we have reached the happy medium with the majority of people being happy with the new changes. My sincere thanks to everyone who submitted feedback to assist in the overhaul and simplification of the Remembrance Day Contest.

Alan VK4SN

The new rules are as follows:

1. Contest Introduction

This contest commemorates the Amateurs who died during World War II and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the weekend closest to the 15th August, the date on which hostilities ceased in the southwest Pacific area.

It is preceded by a short opening address by a Guest Speaker transmitted on various WIA frequencies during the few minutes prior to the contest. During this ceremony, a roll call of amateurs who paid the supreme sacrifice during WWII is read.

The perpetual trophy is ordinarily held by the WIA at its national office and is inscribed annually with the name of the winning State or Territory.

2. Objective

Amateurs in VK, ZL and P2 will endeavour to contact other amateurs in VK, ZL and P2.

* VK, ZL, and P2 mean any station operating within Australia, New Zealand or Papua New Guinea and their external territories.

* Points are only awarded for valid contacts between VK, ZL and P2 stations.

3. Contest Date & Time

Sat 11th August 2012, 0300 UTC to 0259 UTC Sun 12th August 2012.

As a mark of respect, stations are asked to observe 15 minutes silence prior to the start of the contest, during which the opening ceremony will be broadcast.

4. Categories

1. Single Operator
2. Single Operator - QRP
3. Multi-Operator – Single Transmitter (Multi-One)
4. Multi-Operator – Unlimited (Multi-Multi)

5. Sub-Category Modes for Single Operators

1. Phone (AM, FM & SSB)
2. CW (CW & RTTY)
3. Mixed

6. Permitted Bands

1. Contacts may be made on MF (160M), HF and VHF & above bands *except* for WARC bands (10, 18 & 24MHZ) which are excluded by IARU agreement from all contest operations.

7. Multi-operator Stations

1. Multi-operator *single transmitter* stations
 - a. Are only allowed one transmitted signal on air at any time.
2. Multi-operator *Unlimited* stations
 - a. Are only allowed two transmitted signals on any band, one per Phone and one per CW as per rule 5.1 and 5.2.
 - b. Simultaneous transmissions on different bands are permitted.
3. Multi-operator stations are mixed mode only.

8. Teams

Team scenario 1

A station and two of their friends operate in the contest from their respective home QTH and participate in the contest and submit their logs in the normal manner. They are eligible for any awards in the category they entered as single operators. The contest manager was notified that these 3 stations want to form a team. Their scores are tallied together and that is the team score.

Team scenario 2

A multi-single club has 2 operators who wish to work from their home QTH. The 2 single operators and the multi-single club contest and submit logs in the normal manner. They are eligible for any awards in the category they entered. The contest manager was notified that these 3 stations want to form a team. The 2 single operators and the club multi-single stations scores are tallied together and that is the team score.

1. A team can consist of only one of the following two options.
 - a) Three single operator stations
 - b) Two single operator stations and one multi-single station
2. A team can consist of stations located anywhere in VK, ZL, or P2.
3. An operator can only be included in one team.
4. Clubs may enter multiple teams of 3 call-signs.
5. The 'Team Leader' MUST nominate his team to the Contest Manager

before the start of the contest. Email to vk4sn@wia.org.au with the subject "RD Team Submission".

- a) Nominations must include the Callsigns and Operators Name. Where multiple teams from one club are submitted, it is suggested to use Team Names, example: Tazzie Devils
 - b) The Team leader must supply postal details for receipt of any awards.
 - c) Once the contest has started, team members cannot be changed.
6. The winner of the team initiative will be the highest combined score from any one team.
 7. Team scores are not included in the determination of the winning state.

9. Contacts

1. Suggested Call: "CQ RD", "CQ Contest", or "CQ Test"
2. Exchange: A valid exchange consists of RS(T) followed by a three figure number as follows:
 - a) For a single operator, the number of years you have been a licenced Ham. For example, if this is your 1st year as a ham then you will sign RS(T) 001. Round off to the nearest whole number. All zeros are not accepted.
 - b) For a multi-op or club station, the number of years of the longest licenced Amateur.
3. On all bands, stations may be contacted at intervals of not less than THREE hours since the previous contact on that band and mode.
 - a) FM & SSB count as one mode, as does CW & RTTY count for the CW mode. Therefore one cannot QSO with a station in FM and work them on SSB on the same band before the three hours is up.
4. No cross band contacts are allowed.
5. Exchange of contact information via satellites, telephones, repeaters, Echolink, IRLP, or the internet is not in the spirit of the contest and is banned.
6. Contacts via satellites are not allowed for scoring purposes.
7. Contacts within the same call area are permitted.

10. Scoring

1. On 160 metres two points per completed valid contact.
2. On 23 cm or higher bands two points per completed valid contact.
3. On all other bands one point. (no WARC bands allowed)
4. On CW and RTTY, irrespective of band, double points.
5. All scores obtained by the *transmitting station* between 0100 and 0600 LOCAL time, are tripled.

11. General Rules

1. W.I.A. General Rules for All Contests apply unless otherwise specified.
2. All operators of single operator stations must perform all operating and logging without assistance.
 - a) Use of public clusters only, is allowed on 50 MHz and above.
 - b) Use of skimmer like technology with a bandwidth greater than three kHz is not allowed.
3. Holders of more than one licence or callsign MUST use only ONE callsign for the contest duration.
4. Automated operation is not permitted.
5. Computers can be used for logging and CW or RTTY reception and/or keying.
6. All operations must be in accordance with the band plan for the band in use, as published in the current edition of the WIA Callbook.
7. Any station observed as departing from the generally accepted codes of operating ethics or licence conditions may be disqualified.

12. WW2 ex Military equipment

1. Operators using Ex WW2 equipment will be awarded with a special certificate acknowledging their participation and use of such.
2. A declaration with the heading of WW2 Equipment will operate said units within the "ORIGINAL manufactures specified operating conditions", e.g. no mods to boost the output power etc. A copy of the preferred Certificate is available on the WIA website at <http://www.wia.org.au/members/contests/rdcontest/documents/WWII%20Declaration%202012.pdf>
3. Please include the declaration with your log submission.

13. Log Submission

1. Electronic Logging
 - a) Use of logging software is preferred as the output file will be in Cabrillo format which suits our log checking software. See below for logger links.
 - b) Logging software will automatically print a summary in the Cabrillo header.
 - c) Email Logs to rdlogs@wia.org.au with your callsign in the subject.
 - d) On receipt of your log, the robot will send an acknowledgement email to you. Just to be sure, it is advised that you flag your email for "confirmation of receipt", in which case you will receive two emails acknowledging receipt of the log.
2. Paper Logs
 - a. Hand written logs are not preferred, however if sent must be legible and contain no more than 100 contacts.
 - b. Entrants are encouraged to enter the paper logs into a logger after the contest and email the Cabrillo log as indicated above.
 - c. Paper logs should be accompanied by a Summary Sheet showing all the details as per the log example below and nominated team name if used.
 - d. Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest; signed & dated. Please supply a contact telephone number and email address.
 - e. Send paper logs and summary sheets to: RD Contest Manager, 43 Jahn Drive, Glenore Grove, QLD 4342.
3. If you genuinely have problems with the above, then acceptance of .xls, .csv, .mdb, or similar files will be considered for processing. A PDF or .doc(x) word file will be considered a paper log.
4. Emailed Logs are to be received by the contest manager no later than 30 days after the contest ends.
5. Paper logs are to be postmarked no later than 30 days after the contest.
6. All logs will be receipted by email or phone if no email exists for the operator.
7. Logs received after the closing date will not be eligible for processing.

8. Paper logs will not be returned unless a SASE is forwarded requesting return of the log.
9. VK entrants temporarily operating outside their allocated call area, including those outside continental Australia as defined for DXCC, can elect to have their points credited to their home State by making a statement to that effect on their summary sheet or in the 'soapbox' field in the Cabrillo file.

14. Contest Results

1. **Determination of Winning State or Territory.**
 State score = (Total points from logs submitted) divided by (number of licences in the state or Territory), excluding beacons and repeaters as published in the WIA Callbook for that year.
2. Unless otherwise elected by the entrant concerned, the scores of VK0 stations will be credited to VK7, and the scores of VK9 to the mainland call area which is geographically closest. Scores of P2, or ZL will not be included in these calculations, although entrants in those areas are eligible for all certificate awards.
3. Results will be published 90 days after the close of the contest on the W.I.A. website and winners announced in AR magazine as soon as practical.

15. Contest Awards

1. Entrants must make at least 25 contacts to be eligible for awards.
2. Overall 1st, 2nd and 3rd place certificates will be posted to recipients.
 - a) Single Operator Phone
 - b) Single Operator CW
 - c) Single Operator Mixed
 - d) Single Operator QRP Phone
 - e) Single Operator QRP CW
 - f) Single Operator QRP Mixed
 - g) Multi-operator – Single Transmitter
 - h) Multi-operator – Multi Transmitter

- i) Team
 - j) The top three foundation scorers regardless of category.
3. Certificates will be awarded to 1st, 2nd, and 3rd placegetters for each VK call area, and ZL & P2.
 - a) Categories "a" through "i" as above.
4. Participants using WW2 ex military equipment will receive a special acknowledgement certificate as well as any certificates gained in winning any section.

16. Logging Software

1. Downloads
 - a) VK Contest Log (VKCL) by Mike Subocz VK3AVV, <http://web.aanet.com.au/mnds>
 - b) John Drew VK5DJ RD logging program http://vk5dj.mountgambier.org/Amateur_radio.html
 - c) WinRD+ logging program by James McBride VK6FJA <http://www.rjmb.net/rd/index.htm>
 - d) SD logging program by Paul EI5DI <http://www.ei5di>
2. Remember to check for updates immediately prior to contests to make sure you have the latest software that will contain up to date scoring and rule changes.

17. Example Log

1. Paper logs should be written to resemble the format for Cabrillo, as indicated below.
2. Every effort to retype paper logs into logging programs, or Excel is encouraged.

CALLSIGN: VK4SN
 CLUB: Lockyer Valley Radio & Electronics Club Inc
 CONTEST: Remembrance Day
 CATEGORY: SINGLE-OP ALL MIXED
 CLAIMED-SCORE: 10
 OPERATORS: VK4SN
 ADDRESS: NR STREET
 ADDRESS: SUBURB
 ADDRESS: STATE, POST CODE

Freq (MHz)	Mode	Date	Time (UTC)	Call	RST Sent	NR	RST Rcvd	Nr	Pts
7087	PH	2012-8-11	0200	VK1ABC	59	038	59	002	1
7087	PH	2012-8-11	0201	VK1DEF	59	038	59	012	1
7005	CW	2012-8-11	0205	VK4ABC	599	038	599	020	2
1825	CW	2012-8-11	0210	VK2ABC	599	038	599	003	4
1855	PH	2012-8-11	0215	VK3ABC	59	038	59	040	2
END-OF-LOG									





AMSAT

David Giles VK5DG
e vk5dg@amsat.org

VO-52 is back

There is more news this month about successes with VO-52, MO-72 and RAX-2 and the end of Compass-1.

VO-52 recovery

Good news for a change. VO-52 (HAMSAT or VUSAT) has been turned on again and is using the Dutch transponder. This mode U/V transponder was designed and built by William Leijenaar PE1RAH. It was tested soon after VO-52's launch but has not been used for the past six years. It uses similar passbands to the Indian transponder but the beacon sends a CW message on 145.86 MHz instead of a continuous carrier. The beacon is about 100 mW and the transmitter has an output of one watt over the 50 kHz passband. The beacon message reads 'HI HI HI THIS IS VU SAT WITH THE DUTCH MODE UV TRANSPONDER MADE BY WILLIAM LEIJENAAR 73 DE PE1RAH'.

The Dutch transponder uses a diode limiter instead of AGC control so it will react to strong stations differently. A very strong uplink will cause it to distort the passband so please keep your power levels down. You can tell if someone is using too much uplink as the beacon will FM. Also there have been reports that the Dutch transponder frequency is not as stable as the one on the Indian transponder. Differences of +/- 500 Hz between passes have been noted.

As for the satellite itself, the ISRO (Indian Space Research Organisation) reports that VO-52 is in good health. It is difficult for us to judge as it does not send any

telemetry down on either beacon. The ISRO uses frequencies around 137 and 149 MHz for telemetry and control. VO-52 is owned and operated by the ISRO, and as such must abide by government regulations which include telemetry information in this case.

RAX-2 success

Radio Aurora eXplorer (or RAX-2) is a cubesat designed and built by the University of Michigan. Its mission is to measure ground based radar signals in the northern hemisphere to determine the formation of magnetic field- aligned plasma irregularities (FAI). These FAI disrupt communications with satellites and at HF. On the 8th of March RAX-2 recorded an irregularity at an altitude of 100 km in the ionosphere. This coincided with the solar storm that affected HF communications. It was the first time such an anomaly had been recorded. RAX-2 has shown again that cubesats can be used to perform useful scientific experiments and help our understanding of the ionosphere. More information at RAX-2's website [1] and the press release [2]. RAX-2 has a 9k6 GMSK downlink on 437.345 MHz. Beacon details are found under the Operations menu on their website.

MaSat-1 (MO-72) pictures

MaSat-1 goes from strength to strength. The website has thirteen photos received from the satellite of southern Africa, Australia and Antarctica. The Australian ones feature a cloud free view of south east VK5/western VK3 (an achievement in itself) and the south west section of VK6. Due to the passive stabilisation (that is, just using magnets) only the southern

hemisphere can be photographed. The press release linked to the home page has the first six photos and a link to the full 640 x 480 resolution versions [3].

Another article on their website goes into detail about how they determined which of the nine satellites launched is MaSat-1. When multiple satellites are launched they tend to stay relatively close by for some time. Even after a month they may only be a couple of minutes apart. Four objects (known as C to F) have yet to be identified. The MaSat-1 controllers have calculated that theirs is most likely to be object E. This was made with careful measurements of the CW beacon's Doppler shift. Comparisons were made with measurements taken from the cubesat Xi-V (CO-58) to confirm their results.

Compass-1 mission ends

Unlike VO-52, Compass-1's mission has ended. Compass-1 was designed and built by the students at Aachen University in Germany. It was launched in 2008 with the aim of taking pictures, using a GPS receiver and 3-axis attitude control. It was partially successful. The camera did take pictures and send them to Earth but they were over exposed because the automatic brightness adjustment was not working. The GPS receiver could not lock onto at least four GPS satellites to obtain a valid position due to a bad connection with the patch antenna. The 3-axis attitude control has a software bug that stops it getting the right information from its sun sensors. This stops it from calculating its current attitude. However the de-tumbling

controller worked. From my point of view, Compass-1 had two notable features. Its CW beacon was distinctively chirpy with its whoop-whoop sound. Also Compass-1 was successfully rescued by amateurs. The control codes to various telemetry functions (using DTMF on the two metre uplink) were published. Amateur stations were able to request for more commands to set control parameters to adjust battery charging and transmitter timers. The option is still open to anyone who wants to try 'waking it from the dead'.

In an email to the AMSAT-BB Professor Bernd Dachwald thanked the amateurs for their efforts in extending Compass-1's life from the projected six months to nearly four years. He hoped that a successor would soon be built and launched [4].

Final Pass

Some you win, some you lose which sums up the satellite recovery results of late. My first concern when I heard VO-52 went silent was that the battery had failed. Since it is a commercial off the shelf lithium ion battery instead of a more exotic

space rated type, it is impressive that it is still going after seven years in space's harsh environment. Thankfully this isn't the case and we can get some more years out of VO-52.

References

- [1] <http://rax.engin.umich.edu/>
- [2] <http://sri.com/news/releases/032212.html>
- [3] <http://cubesat.bme.hu/en/hirek/>
- [4] <http://www.raumfahrt.fh-aachen.de/compass-1/home.htm>



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU
email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz
VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

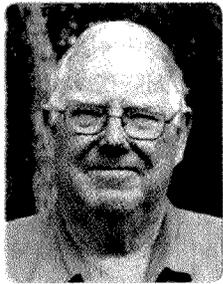
Don't forget

3 - 17 May | YL International Meeting in Adelaide

YL International Meeting Starting in Adelaide and finishing in Darwin.

YL meet from around the world with their OMs. The Meet is open to YLs and their OMs. You don't have to be a member of any organization or even licensed but should be interested in amateur radio. Most participants are active on air but that is not a requirement for attendance.

Check our website www.ylinternational2012.com for more details.



VK2news

Tim Mills VK2ZTM
e vk2ztm@wia.org.au

This month ARNSW will conduct the bi-monthly Trash & Treasure on Sunday 27 May at the VK2WI site. Included in activities will be assessments for all licence grades. In the early afternoon the Radio Home Brew and Experimenters Group hold their meeting. The previous Sunday, 20 May, will be a one day Foundation course with an 8.30 am start. Inquiries by phone 02 9651 1490 or email education@arnsw.org.au Check out Training and Exams on the web site www.arnsw.org.au If you are aware of anyone wishing to undertake a Foundation course or other assessments please advise them that these are available at ARNSW, Dural. For those in the eastern suburbs of Sydney the Waverley ARS has a Foundation weekend on the 12th and 13th May.

At the close of nominations for the 2012/2013 committee of ARNSW there were less than required for an election. The AGM was held last month. The Sunday evening news bulletins in both VK2 and VK4 on 160 metres have at times clashed in the time slot. Both transmitters in use are crystal locked with VK2 on 1845 and VK4 on 1843 kHz. VK4 have tried the evening transmission as the morning coverage has been very poor. Now that standard time and winter conditions have returned, staggered time slots may resolve the clash or now that winter is coming their morning coverage may improve. The VK2WI news is automatically relayed through several repeaters around Sydney. One of these is the St. George Mt. Bindo 660 in the western Blue Mountains. A fault has developed in the linking transfer which will

have to wait until they next pay a maintenance visit. The repeater itself is still OK.

The Fishers Ghost ARC recently held their AGM where Life Membership was bestowed on Ted Powell VK2AU and Luis Cifuentes VK2TAR. The FGARC has just celebrated their 30th birthday. They mounted a display in three glass cabinets at the Campbelltown library of a wide range of radio equipment and associated amateur radio material for the last two weeks of March. More information can be found at www.fgarc.net

Syd Griffith VK2AHF last March was appointed as Chief Technology Officer for the New South Wales Police. He had previously been awarded the Australian Police Medal in the Queen's Birthday Honours list.

The ARNSW Radio Homebrew and Experimenters Group meet on the first Tuesday evening of the month. Have a net on the third Tuesday evening on 2 metres followed by 80 metres and gather at VK2WI Dural on the afternoon of the bi-monthly T&T Sunday. Last year they ran a successful challenge to make a receiver capable of picking up the VK2WI broadcasts on 80 metres. This year Peter VK2TPM has suggested another challenge – to make an AM transmitter for 40 metres for the frequency of 7.125 MHz.

The Illawarra ARS for the past six years have met at the Visitors Centre Industry World in the suburb of Coniston. From April they have a new venue on the second Tuesday evening of the month. The Society thanks the generosity of BHP, Blue Scope Steel and Industry World for the old venue. Next month will see the annual Oxley Region ARC

field day at Tacking Point, Port Macquarie over the June holiday weekend.

The Central Coast ARC commissioned their six metre repeater located at the Somersby site at the end of March. Identified as VK2RAG, it is on 53.725 MHz and needs a 91.5 Hz CTCSS tone. Linked access to one of their 70 cm repeaters will follow – most likely 439.725. There are plans to provide a relay of VK2WI News through it. The hard work of Don VK2ZCZ, Bob VK2ZAR and many others got the project up and running. A photo display is to be found at www.ccarc.org.au

WICEN NSW have some major activities in the next few months. BWRS Navshield July 7th and 8th; Shahzada week commencing August 27th; Trek for Timor September 15th. www.nsw.wicen.org.au

From late January in NSW, and in some other States, all police officers have become radio inspectors. In other States this appointment is at Sergeant or higher ranks. You will find the announcement in the Commonwealth Gazette on 25th January. The Planning System Review undertaken by the NSW Government last year where many VK2 amateurs made submissions on antenna mast structures was considered at the end of the review period to be outside the 'guidelines'. In later advice from the Review panel this may now be addressed in a Green Paper due for release about now.

73 – Tim VK2ZTM



DX-News & Views

John Bazley VK4OQ
e john.bazley@bigpond.com



Well in spite of poor conditions there is still plenty happening on the HF bands and we start with operations by VKs.

YJ0VK: Six operators from Australia will be on Vanuatu April 21-May 5. Flights and lodging are booked and the team is now doing their detailed planning. They will focus on 30, 17 and 12 metres and train their less experienced team members. They will be at the Nirvan Resort, Port Vila on Efate Island. They will have three stations operational. Operators are VK3QB, VK3HJ, VK3GK, VK3GHM, VK3CBV and VK2CA, who will also handle QSLs and the website. The gear comprises three Kenwood TS-480X rigs, 200 watts, verticals, dipoles, an inverted L for 160, and a Fritzel FD4 80-10 m multiband wire antenna. An emphasis will be put on 30, 17 and 12 metres and they will be operating on all bands from 1.8 through 28 MHz, SSB, CW and RTTY/PSK31. They have a website at <http://yj0vk.odxg.org/yj0vk2012/default.html>. QSL via LoTW, direct or to the VK QSL bureau, to VK2CA.

Chris VK3FY will be 'part of (a) scientific climate program' working on Lord Howe Island (LHI) in late May. He will be there and QRV as VK9LHI between May 27th and June 2nd. Pat VK2PN and Miro OK1NG will be on LHI from May 23rd to 30th, including participation in the CQ WPX CW contest as VK9PN. It is possible Pat and Miro will prolong their stay until June 2nd. Since Chris will be working during the day on Monday-Friday his activities will be 'curtailed to evenings'. His station will include a rig, amplifier, tuner and long wire and he will be operating on CW, SSB and RTTY.

Pierre ZS1HF (ZS8M) tells The Daily DX he is 'in the planning stage

to lead a DXpedition to Marion Island, hopefully in April 2014'. It is dependent on 'permission granted for a DXpedition team by the Department of Environmental Affairs'. The size of the potential DXpedition team is contingent upon how many beds are available on the new SA Agulhas II. The team selection will 'depend on a number of factors, but most importantly trying to accommodate as many modes and bands as possible' says Pierre. Team members will need six weeks as it takes five to six days sailing each way and the plan would be to stay for four weeks. Another hurdle will be the negotiation of installing antennas to avoid the hurting or killing of any birds. A DXpedition to Marion Island, which is # 10 on 'The DX Magazine's Most Wanted List' will be of most interest and more details will be forthcoming.

Rob N3HU says he is headed back to Afghanistan, where he has the T6RH callsign. He says he should get there about March 30th. He will be at T6RH until mid-May. His next stint will be about July 1-November 1. He says the operation will be the same as last time, which will include the PSK modes, SSB and 'search and pounce' on CW. Rob figures he is not good enough on Morse to handle a pileup. QSL via NI5DX.

Alan VE1AWW confirms he is going back to CY0, Sable Island, for another three months, April-June. He says there are no firm plans yet; he will have to see what the workload on the island is like. QSL to his home call.

KH3 Johnson Island. There



Susan W7KFI and her boat 'Dharma'.

is still some uncertainty whether Susan W7KFI will manage to activate this spot. If she is unable to get permission to land there then she intends to operate from various islands in the Pacific.

7U50ND celebrates the 50 years of Algerian independence and the 20 years of the 7X2VFK Djelfa Radio Club. Activity will be May 20-26 from Djelfa. The '4th International Ham Meeting' is being held there with transportation available for the 300 km from the Algiers airport to the site. Also noted is there is salt rock, rock carvings and oases to visit while there. All are welcome. Requests to visit can be sent to bodil17000@yahoo.fr or Skype contact [bodil17000](https://www.skype.com/user/bodil17000)

Starting May 23rd through May 29th KU5B will be in Belize and QRV as V31UB, including the WPX CW DX Contest. Look for him on 1.8 through 50 MHz on CW, RTTY and SSB. QSL via KU5B.

EA4DKJ is currently active from Zimbabwe as Z21DKJ. He is on the HF bands. QSL to his home call.

Japanese operators Shoji JA7HMZ and Akio JA7ZP plan to be on Pohnpei (OC-010), Federal States of Micronesia from May 25th to 29th, including the CQ WPX

CW DX contest. They will be QRV as V63DX and V63ZP respectively on 7 through 50 MHz. During the CQ WPX Shoji will be a single-op all band effort as V6A. QSL V63DX and V6A via JA7HMZ and V63ZP via JA7ZP.

OPDX reports that MJ0CFW on Jersey will be in the CQWW WPX CW contest May 26-27, single operator all band, low power. Operating will be Kazu JK3GAD (M0CFW). QSL via M0CFW or through LoTW.

Colin WA2YUN is currently working on Wake Island and expects to remain there for 'another year or more'. His KH9/WA2YUN 'ham schedule' is 'somewhat limited' as work takes up much of his time. He has an Elecraft K3, IC-7000 and Flex 1500 and uses the SPE 1K-FA amplifier running about 1,200 watts. For antennas he is using a Carolina Windom on 160 and 80 metres, a dipole for 40 metres, a vertical dipole on 30 metres, an A3S tribander at 17 metres and a five element six metre beam at 20 metres. In the near future he plans to have a six metre beacon QRV on 50.014 MHz using dual horizontal loops. Colin says he 'will try and provide contacts during contests'. QSL via K2PF.

In celebration of the Diamond Jubilee of Queen Elizabeth II Edward ZB2ER (ex ZB3E) will be QRV with special event call ZQ2ER from Gibraltar from May 5th to June 10th. QSL direct only to ZB2ER.

Mike ZB3M will also be celebrating the Diamond Jubilee of Queen Elizabeth II by signing ZQ3M. QSL direct only to ZB3M.

Montserrat is the destination again for John KB4CRT in early June. He will be QRV as VP2MRT on HF and six metres from June 6-13. This year he will also try PSK. QSL via KB4CRT direct with SASE or SAE and US\$2. Once home he will upload to LoTW.

Now through the end of the year Florent F4CYZ will be QRV as CN2YZ from Tangier, Morocco especially during weekends. The Mediterraneo DX Club is hosting a website including a log search at

<http://www.mdx.org/cn2yz/>

Sergiy Shpak UV5EVJ has been QRV as 9Q0HQ/7 from Lubumbashi in the Katanga province of the Democratic Republic of Congo since January 22nd and will remain there until May 22nd. He is QRV on CW and SSB on HF. Sergiy is a pilot for the United Nations mission MONUSCO. QSL via UV5EVJ either direct or via the Ukraine QSL bureau.

Larry W6NWS is in the Cai Be of Vietnam and QRV as XV2W until June 12th. He will be QRV on 3.5 through 28 MHz, except 60 metres. Listen for him on CW and RTTY, and SSB 'if noise in the house permits'. He may also be on PSK. QSL via W6NWS.

PY0S. Amateur radio activities have been banned from St Peter & St Paul Archipelago. The Brazilian Interministerial Commission for the Resources of the Sea's programme aimed at 'the exploration, use, conservation and management of natural resources in the archipelago and its surroundings' specifically excludes amateur radio expeditions as they 'do not meet the objectives' of the programme itself (www.mar.mil.br/secirm/i-proarq.htm). LABRE and Brazilian DX groups are mobilizing the support of government representatives to try and reverse the decision.

Two OMs and two XYLS from Japan will be on Aruba May 8-14, operating 160-6 m SSB, CW and RTTY. JA3AVO has the callsign P40X. That is OM Masumi Nakade. XYL Hiroko is JH3PBL at home and P40U on Aruba. OM Yoshinori JA3DFM has asked for the P40FM callsign, while his XYL Hideko, JA3OPB, has asked for P40PB.

EE8X, Tenerife Island, Canary Islands, will be Luis EA8AY's callsign in the CQWW WPX CW May 26-27, single operator all band. QSL via W2GR. <http://www.ea8ay.com/ef8x>

Dutch operators PA0VHA, PA3BAG, PA2A and PA2AM plan to operate from Guernsey (EU-114) from May 12th to 19th. They will be signing MU/home calls on 80

through 6 metres with an emphasis on 30, 17 and 12 metres. Listen for them on CW, SSB, RTTY and PSK modes. QSL via their home calls.

JD1BMH on Chichijima Island, Ogasawara, AS-031, will be on from April 22-May 4 by Harry JG7PSJ. He plans 160-10 metre operation, on CW, SSB and RTTY. QSL to JD1BMH via the bureau, or direct to JF7PSJ. <http://sapphire.es.tohoku.ac.jp/jd1bmh>

Another Ogasawara operation is JD1BLY by Makoto JI5RPT. His operation is April 29-May 5, with 80-6 metre activity and satellites, on CW, SSB and digital, but no six metre EME. QSL to JI5RPT. <http://www.ji5rpt.com/jd1> and Twitter real-time updates on <http://twitter.com/jd1bly>

And a third one! JD1BLC and JD1YBT will be on Ogasawara April 29-May 5, on 160-6 metres CW, SSB and RTTY. QSL both to JP1IOF.

SV5/N6GQ, Dodecanese, will be on the beach for the CQWW WPX CW Contest May 26-27, single operator all band QRP, with a wire antenna. QSL via N6GQ.

Gabriele I2VGW plans to be operating as C6AGW starting April 26th through May 6th from New Providence main island (NA 001) as well as Bimini islands (NA048) and Berry islands (NA054), two quite rare and claimed IOTA references. And, what's more, before going back to Italy, from Long island (NA-001). So listen carefully to catch the right reference and location! For further information and updates during his trip, please have look at his DXpedition web site <http://www.mdx.org/c6agw>

Good luck in the pile-ups until next month.

Special thanks to the authors of *The Daily DX (W3UR)* and *425 DX News (I1JQJ)-QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from www.dailydx.com/trial.htm



A BPSK bandpass filter

John Sutcliffe VK3TCT

Why a filter

Some time back when working Dr Robert Suding WOLMD using BPSK31, a well known digital mode, Robert informed me he was copying me perfectly using a filter where as my copy was about seventy percent; conditions were quite average. There is an advantage using a filter when DXing to attenuate strong adjacent stations, particularly when operating long path to Europe of a late afternoon through the South Island of NZ, where some station signals in NZ, China, New Caledonia and Australia can be very strong.

This filter works well and attenuates adjacent signals up to 50 dB; the filter is tuneable across most of the BPSK band and very easy to use. Speed is the essence while operating BPSK. Dr Suding was a very interesting contact, as he is a contributor to the ARRL Antenna Book, and his projects at the moment are designing alternative energy systems and electric vehicles.

The Design

The base design for my filter came from an article by Tony Mann and Todd Emslie, '20 Hz audio bandpass filter for filtering and amplification of weak DXTV video carriers' (1).

I built their base design; the bandwidth was too narrow for BPSK use and needed to be modified to around 100 Hz.

As I was working in the dark and was not sure of the results, or even if the filter would work I used second hand parts for most of the initial construction; however the filter did work well but did need to be modified.

The completed filter has a useable range from 500 Hz to 26 kHz, basically most of the BPSK band; any very strong stations outside of this region can be attenuated with my Kenwood TS-2000 receiver DSP. The overall gain of the filter increases with frequency. Be aware the filter is only around 100 Hertz wide so any signal greater than this will not be decoded correctly; also be aware with the filter in use you may be able to decode operators/signals

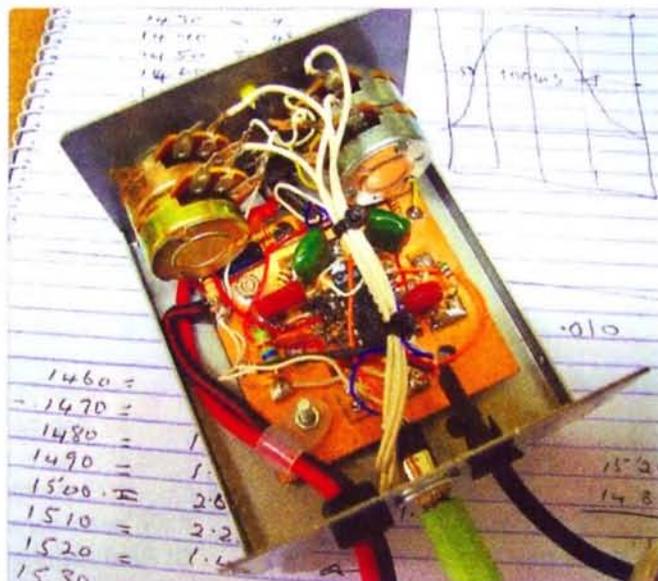


Photo 1: The completed bandpass filter.

that will not hear you when you attempt to make contact.

Modification

The key components that were altered were C2, C4, C5, C6, R2, R5 and R8. The gain of U4 is controlled by R8 and the original resistor was far too big for this application, alternatively a 50 k pot could be used to replace R8 and be used as a gain control. The frequency shift controls use 25 k and 10 k pots; the two pots are for coarse control and fine control.

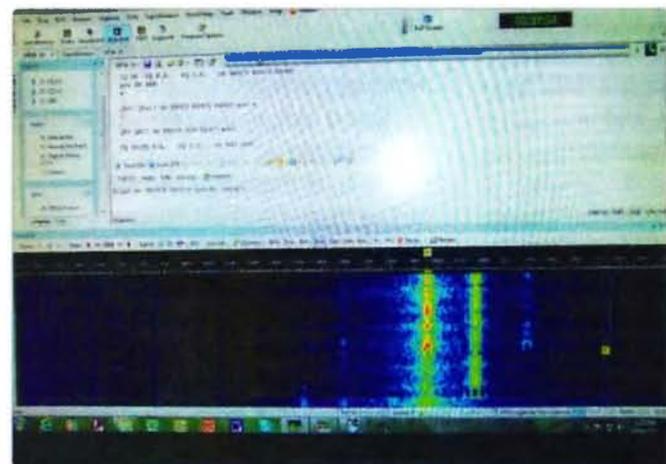


Photo 2a: Working RA9CU.

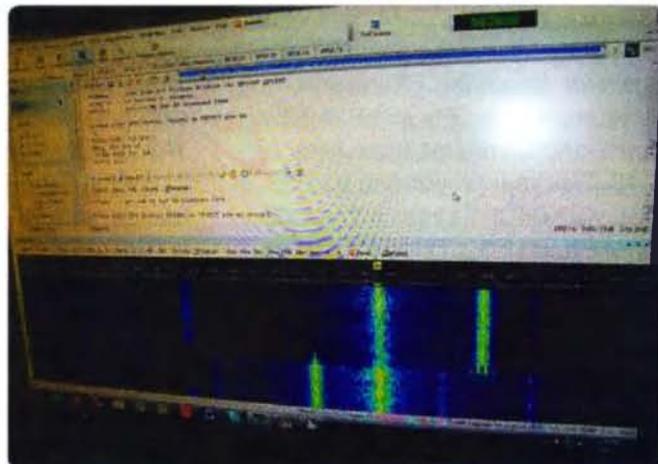


Photo 2b: Working YA3YAQ with strong stations either side.

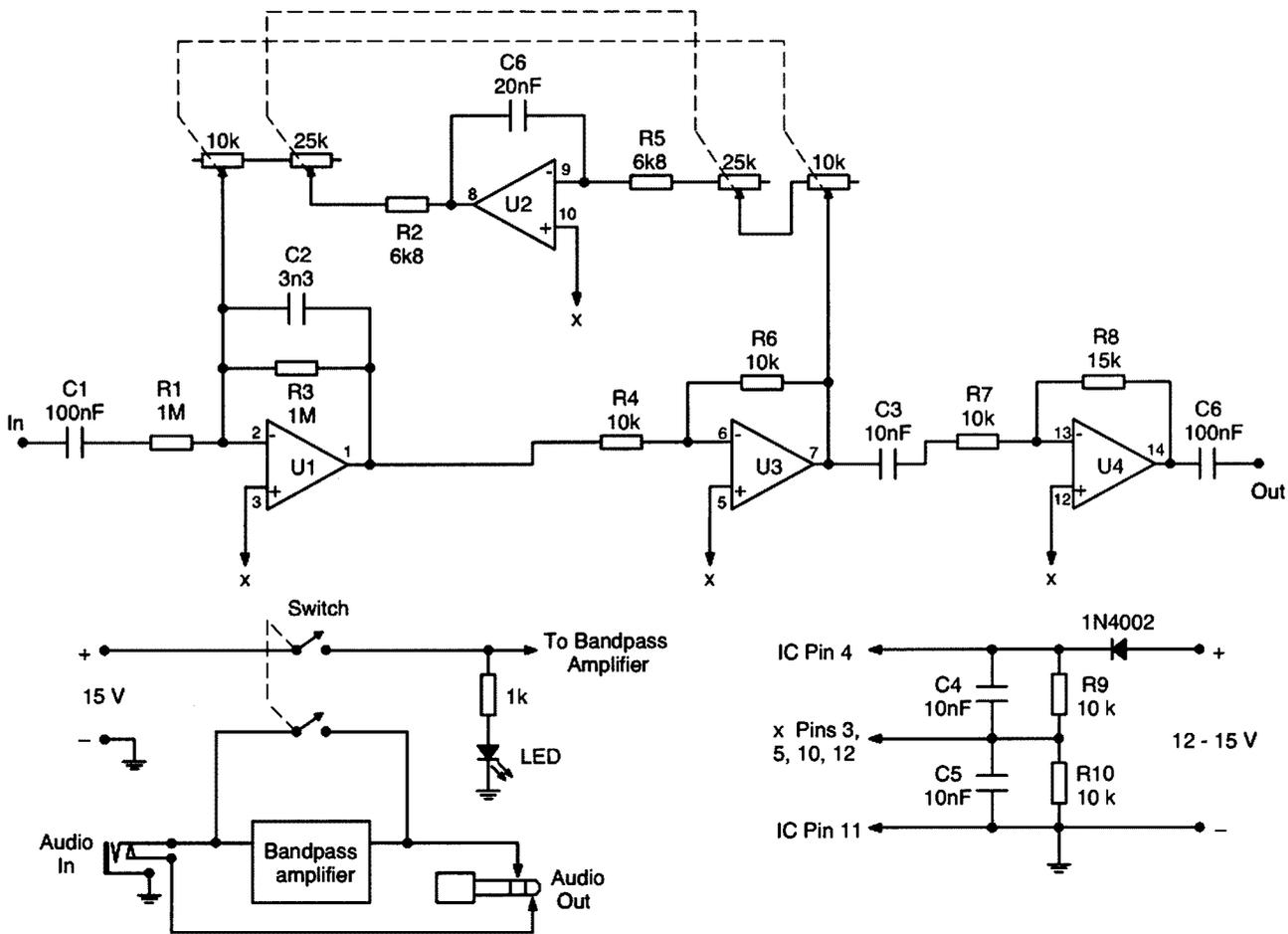


Figure 1

© WIA AR11022_1 Drawn by VK3BR

Figure 1: The bandpass filter circuitry.

Construction and Parts

The paddy board method of construction was used and this worked well. Bear in mind the operational amplifiers used in this circuit have a lot of internal gain so keep leads and components as short as possible; use shielded cable to the frequency shift pots as these are quite long and run above the IC. For connection to my equipment I used a three mm jack from the computer sound card and a three mm phone plug to my interface; this works well in principle as the filter can be tested by just plugging the filter into a laptop and using suitable software.

On the power into the device use a diode, which is optional; the only purpose here is to prevent destruction of the IC if the polarity is accidentally reversed. The LED is just fed by a 1 k resistor from

the switched power, simple but works well. The power switch is the miniature type and a double pole double throw (DPDT) switch has six connections. You will note when the bandpass amplifier is turned off the audio signal is bypassed around the filter by the other half of the power switch, bypassing the filter with the power off is necessary so normal BPSK operations can occur without plugging and unplugging devices.

Pins 3, 5, 10 and 12 on the IC can just be daisy chained and one connection made to the voltage divider, R9 and R10. The main PCB can be made from a piece of blank printed circuit board 60 mm by 60 mm in size. Glue a piece of Vero PCB printed circuit suitably cut down to fit the IC and glue 'etch up' to the main PCB, taking care the IC pins do not protrude from the bottom of the IC PCB and short to the main PCB

board. Assemble the parts on the circuit board first, double check the connections, and check again, then assemble the board and controls in a suitable instrument box.

Parts List

- 1 LM348N IC quad op amp
- 1 10 k dual ganged linear potentiometer
- 1 25 k dual ganged linear potentiometer
- 1 1 k resistor
- 2 1 meg ohm resistors
- 5 10 k resistors
- 1 15 k resistor
- 2 6.8 k resistors
- 2 0.1 uF capacitors
- 3 0.01 uF capacitors
- 1 0.033 uF capacitor
- 1 0.02 uF capacitor
- 1 1N4002 diode (any rectifier diode with a peak inverse voltage > 50 volts)

- 1 LED lamp (3 mm general purpose, suitable colour)
 - 1 Switch, miniature, double pole, double throw (DPDT) Jaycar ST0310 or similar
 - 1 Circuit board, blank 60 mm x 60 mm, or to suit own case
 - 1 Vero board, cut down for IC mount
 - 1 Case, 90 mm x 80 mm, or to choice
- Hardware – grommet, ties, knobs, plugs and sockets for I/O (3 mm jack etc), power cable.

Testing

First check the BPSK signal is getting to your sound card with the power off, that is, the power switch is bypassing the receiver signal to your sound card, this will prove your basic audio connections. Then if all connections and the PCB are assembled correctly the unit should work.

Signals from the different amplifiers in the bandpass system are very low, you will have difficulty seeing these with an oscilloscope. I found an audio signal generator very helpful and there are plenty of these on the internet for free; choose one that you can sweep the audio over a range of, say, 900 to 1100 Hertz; white noise was also helpful. Useful tools to check the operation of the filter are your PSK waterfall and an audio visual analyser available free on the internet. When the filter is working correctly you should see a generally dark waterfall with a vertical lighter band, depending where the filter is tuned.

BPSK Bandpass Filter

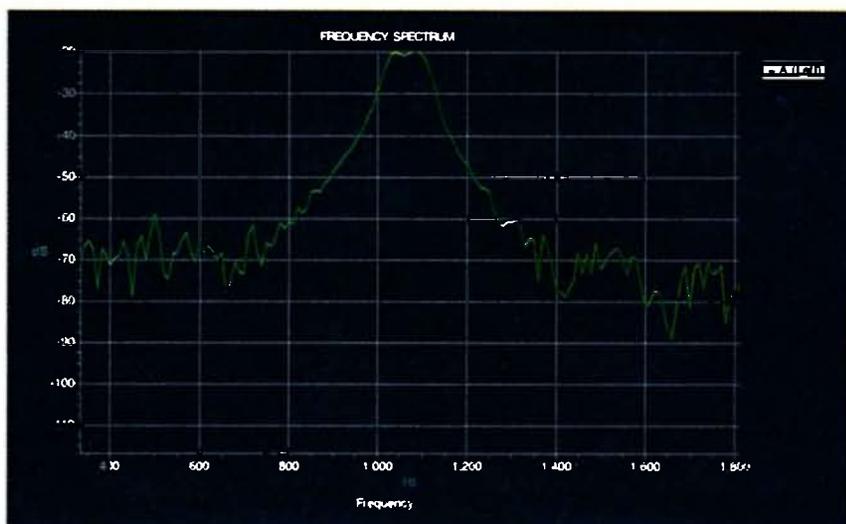


Figure 2: The bandpass filter frequency response curve.

Operation

Once the filter operation is verified tune your radio to a BPSK band with signals, place the decoding cursor onto the desired station and verify some decoding with the filter power off. Switch the filter power on and tune the highlighted vertical area on the waterfall over your signal using the course and fine tuning controls on the filter; the decoding should be improved on a weak station especially if there are strong adjacent stations around. As was said earlier you may be able to copy a very low station but probably will not be able to communicate, he just will not hear you.

Conclusion

- This filter is suitable for home construction with a minimum of tools and should be quite cheap to construct.
- With the filter working a definite improvement should be achieved copying weak stations with strong adjacent stations within the BPSK band.
- The filter will not decode signals with a carrier greater than 100 Hertz.

The filter would make an ideal kit for distribution by a radio group or club.

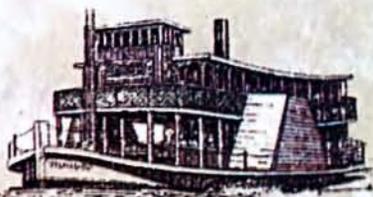
Reference

http://projects.mestcs.com/audio_bandpass_filter.htm



WIA Annual Conference

Mildura, 25 – 27 May, 2012



Register online at <http://www.wia.org.au/>

Bill Rose VK6WJ
Publicity Manager



The HARG John Moyle Field Day HF station, set up at Alan Anderson Park, Bickley. Steve VK6IR is on the microphone, with Allan VK6AN and Jeff VK6JKR looking on.

The Hills Amateur Radio Group (HARG) participated in the John Moyle Field Day by setting up a 16 metre telemast in the middle of Alan Anderson Park in Walliston (OF87ax) and operated from 0900 to 2300 and from 0500 to 0900 (local). We made contacts up and down the bands and had a ball. Thanks to Steve VK6IR we had a ute-tray to use as the broadcast platform which handily supported his radio equipment and amplifier connected to several dipoles. We also operated a separate set on 2 m and 70 cm connected to a collinear on the top of the mast.

Camping was optional, but several members arrived on Friday afternoon and did not leave until the whole lot was packed up and back at the clubhouse. We had visits from more than a third of our members who provided moral and sustenance support and the Walliston Deli was

around the corner supplying food and beverages for all and sundry.

We had visits from many locals, including Trish who is a local blogger taking notes and photos. She later brought along her grandson, who was dragged away from his Wii, and supplied us with some cold beverages as thanks for putting up with her. The local dog-obedience class dropped in as well as some drive-by amateurs who saw the commotion and wondered what was happening.

A special mention for John VK6FJON who provided catering - yummy kebabs, Alan VK6PWD who provided breakfast, Steve VK6IR who provided the mast, ute, and the contents of his shack, Meg VK6LUX who provided ice cream and figs and finally Richard VK6BMW who provided invaluable expertise, training and good cheer, not to mention charging and chairs - hi.

No doubt this event has taught us about some of the things we need to learn, both technical and logistical, when we have the opportunity to do this all again.

As I said, we had lots of visitors from around Kalamunda and we also had the following club members attend: Alan VK6PWD, Allan VK6AN, Jeff VK6JKR, John VK6FJON,

John VK6JAT, Marty VK6RC, Meg VK6LUX, Jon VK6MAD, Onno VK6FLAB, Richard VK6BMW, Steve VK6CS and Steve VK6IR.

Our next foray onto the airwaves was for the CQ WW WPX contest on the weekend of March 24 and 25. For this contest we opened the club rooms for all of Saturday 24th and operated the club station, VK6AHR, from 8.00 am to 4.00 pm local time. I believe over 150 contacts were made. Club members in attendance were Allan VK6AN, Alan VK6PWD, John VK6FJON, Marty VK6RC, Richard VK6BMW, Onno VK6FLAB and Graham VK6RO.

By the time you read this we will have held our annual HARGFEST - Buy and Sell Day - at the clubrooms on Saturday 28th April. More on that next month.

Cheers.



VHF/UHF - An Expanding World

David Smith VK3HZ

e vk3hz@wia.org.au



Weak Signal

Things are slowing down in March but there are still times of good propagation driven mostly by the presence of a well-located high-pressure cell.

One such time was the morning of March 10th when a high was located to the southwest of Victoria, producing strong conditions between northern Tasmania and the Adelaide area. Bill VK5ACY worked Joe VK7JG (5x9 barefoot) and John VK7XX (5x9). Peter VK5PJ reports that the VK7 WIA broadcast on the VK7RAA repeater was competing with their local repeater, wiping it out at times. Peter was also hearing the VK7RAE 70 cm beacon peaking at 5x5 with strong QSB, although no 70 cm contacts were reported.

Another year-round technique for long distance contacts on VHF/UHF is via aircraft enhancement. The regular AE net of a morning from about 0830 to 0900 AEST is still bubbling along. From Melbourne, contacts are regularly had into Sydney on 2 m and into Canberra on 2 m, 70 cm and 23 cm. Steve VK2ZT regularly works Jim VK3II on 2 m along the Sydney to Melbourne flight path. Barry VK3BJM has a good alignment with the Melbourne to Sydney flights with Ian VK1BG and they regularly make contact on 23 cm, albeit for a short period before the aircraft passes the hotspot. Activity is also high to the north of Sydney up along the coast. If you want to know where aircraft are located in real-time and how AE might work for a given path, a good first stop is www.flightradar24.com Peak AE will occur when the aircraft crosses the path between the two stations. The aircraft must be 'visible' (in an RF sense) to both ends.

Wally Green VK6WG SK

As reported in the previous issue of AR, on March 7th Wally Green VK6WG passed away at the age of 100. Wally was a pioneer of VHF/UHF in this country and has a long list of records and 'firsts' to his name. Regularly when the band was open across to VK6, Wally would be at the other end. After I worked him for the first time in 2003, I was surprised when told his age as he sounded like someone half that age. He will be sorely missed.

Analysis of two metre Es opening, 3 January, 2012

Roger VK2ZRH confesses to a mea culpa for an error in the April column under this heading.

On p.49, middle column, the paragraph beginning 'The IPS ionosonde at Canberra ...' needs to be replaced with the following:

The IPS ionosonde at Canberra is relatively close to the likely ionospheric reflection points at the western end of the paths. As Es clouds drift in westerly to north westerly directions at speeds ranging from about 70 metres/sec to 120 m/s in this region, the ionograms relating to the reflection points grouped over Victoria are earlier than the times of the contacts. The geographic spread of contacts indicated an extensive Es cloud (or cloud cluster). Such an extensive Es cloud drifting generally west at 75 m/s will pass the meridian of the Canberra 'sonde' and take about another 90 minutes to pass the meridian through the westerly reflection point on the VK5BC-ZL2OK path. The contact occurred at about 0107 UT. The ionogram for 2338 UT (2 Jan), 89

minutes earlier, shows intense, spread Es traces, the base height at 94 km, and a top frequency (ftEs) of 15 MHz. The ionospheric 'split' at Canberra is 0.8 MHz, so the penetration frequency, foEs, is 14.2 MHz. As the contact was confirmed, it can be safely assumed that similar or sufficient conditions prevailed further east along the path, over the Tasman Sea.

The first two sentences of the paragraph that followed need to be replaced with this:

The Es layer at the time was 'crinkled' or 'rippled', providing the conditions for petit chordal hop, which dramatically raises the MUF [1, 2]. With foEs at 14.2 MHz, the electron density of the rippled Es layer was sufficient to support propagation with an MUF of about 162.8 MHz for the western hop on this occasion.

Attendees at GippsTech this year may question the blushing author.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au



Digital DX Modes

Rex Moncur
VK7MO

FSK441

Welcome to Kirk VK2MER who is operational on FSK441 during the activity sessions.

PSK2k

PSK2k is a new mode for meteor scatter that has been developed by Klaus DJ5HG. Klaus has an article in DUBUS 1/2012 that explains the mode and how it works and gives references to URLs where it can be downloaded: <http://www.DJ5HG.de/PSK2k> Klaus puts forward advantages compared to FSK441 as higher speed, better sensitivity and forward error correction. To date few in VK has been able to get it to work effectively on meteor scatter although Arie VK3AMZ and Kevin VK4UH have noted that when it does decode, the error correction is very effective and produces fully accurate decodes. In updates as reported below, the first VK PSK2k QSOs have now been completed. Kevin describes his use of the mode as follows:

Once running it is VERY different to FSK441. First impression is that PSK2k needs 'more' to give a decode - either louder or longer than FSK441.

The other major difference is that you don't get the audible 'Bzzzzt' of a ping from the speaker. The sound you hear is little more than a 'hiss' and is very subtle and easy to miss.

I have found also that even my laptop can run PSK2k and WSJT in parallel, both decoding from the same Signalink interface so I can watch for either type of signal on the same frequency in separate windows. This may be useful in the future.

I have completed my first QSO on PSK2k over the weekend with VK4MIL although on tropo/AE not MS but at least I could see how the automated system works.

In an update Kevin reports:

After a number of successful QSOs with Colin VK4MIL using PSK2k via tropo, to get the feel of the program, a successful contact was made with Arie VK3AMZ in QF22FE via meteor scatter on 31 March 2012 at 1856 UTC - a path done many times before on FSK441. Several strong pings were heard although the usual

characteristic bzzzzt sounds were absent. The program certainly works and the auto advance of the reports is interesting (this is a feature that automatically advances the reports from R to RRR and then 73 as the QSO progresses). Is this the future of MS activity in VK - time will tell!

PSK2k requires one to first load MatLab as set out on DJ5HG's web site and many stations have found it is very difficult to get operational. The problem seems to be that one must ensure that all relevant programs are in the same folder.

Arie VK3AMZ has commented:

Yes a very frustrating and clunky program to get going. I'm spurred on by the fact that it is new and may be superior to FSK441 (I doubt it) but I won't know unless I've reviewed it.

I've now upgraded to version 5.4 (from 5.1) maybe that is my issue? I can't (but I think I can?) understand why I decoded Kevin first time I fired it up for a session and then nothing since. I believe I was decoding in receive mode.... which is an open gate as such. As soon as I selected his callsign for replying, that's when it went pear shape?

Congrats on at least confirming that it's possible for two stations to talk to one another but I don't think it has much of a future (I could be wrong?), simply because you can't run multiple QSOs simultaneously.

Unless it is an order of magnitude better than FSK441, I'd give it a thumbs down.

Update: on the 30th March 2012, I completed PSK2k QSOs with VK4UH and VK2XN. Reports sent to both stations and reciprocated were 0 dB. I found there is no ambiguity with regard to decoding PSK2k signals as can be the case with FSK441. I see this as this mode's prime advantage. I do miss the partial or corrupted decode presentation that is typical of FSK441, this at least gives an indication of the flow of a QSO. PSK2k is far more 'digital' in that respect, it's either there or not at all.

My only other observation is that it doesn't afford multiple QSOs at the same time. This is a disadvantage when the bulk of VK meteor scatter activity is for an hour or so on a Saturday and Sunday morning. I think the social flavour of these activity sessions would suffer if we confined our QSOs to 'one at a time'.

As a final note, PSK2k is incredibly CPU intensive, my old P4, 2.4 GHz processor struggles when 8k input sampling rate is selected, and at 16k the program begins to misbehave. So all those old PCs that worked without issues running FSK441 will struggle with PSK2k (a sign of the times!).

It is probably early days for PSK2k but as can be seen from the above comments it does not seem to work nearly as well as FSK441. If others have more success, please send reports.

New 24 GHz Digital record

On 13 March 2012, David VK3HZ at Mt Liptrap in Victoria worked Rex VK7MO, assisted by Joe VK7JG, near Georgetown in Tasmania using JT65c via aircraft scatter over a 255 km non-line-of-sight path on 24 GHz. The idea behind this work was that by using aircraft scatter the majority of the path is at high altitude where the levels of water vapour are lower and thus absorption is decreased. The absorption loss was calculated for this path at the surface at 65 dB compared to 9 dB for the aircraft scatter path. There was no evidence of direct signals but weak aircraft scatter was present on most aircraft crossings with a best signal of -21 dB. A full report of this work as at: http://www.vk3hz.net/microwave/Aircraft_Scatter_Contact_24_GHz.pdf

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

The Magic Band – 6 m DX

Brian Cleland
VK5BC



areas except JA4 and South Korean stations DS2KGJ and 6K2FBA with a huge pileup on 50.140.

Most days the northern TEP openings missed VK5, the exception being the 19th and 31st when JAs were worked in the afternoon TEP. Willem DU7/PA0HIP was also worked from VK5 the evening of the 13th. Most days though the northern openings did move from VK4 to VK6 with JAs being worked on many afternoons as far south as Perth.

Some good 'E' openings occurred during the month and they were interesting as very short skip was experienced. Colin VK5DK reports on a very rare short

skip opening from Mt Gambier to Melbourne:

Since the beginning of March, there have been a few openings on 50 MHz to the southeast of South Australia with a brief opening to VK4 with a contact to Errol VK4KR on the 5th of March with marginal SSB signals sent and received 5 x 3 both ways.

There were no openings observed at this QTH until Sunday 11th of March when at 0120 UTC VK3AKC was contacted with S9 SSB signals both ways. Working VK3 stations from Mt Gambier on Sporadic E is very rare, particularly with such strong signals. Over the next two and a half hours I was able

March was highlighted by great contacts by Bob ZL1RS and Brian VK4DDC long path into EA8 Canary Islands. On the morning of 11th March Bob ZL1RS worked EA8CK on CW over a distance of over 18,800 km. Then on 18th March Bob reported hearing the XE1RCS beacon and working EA8CK and EA8AK both CW 559. This time though Brian VK4DDC in the Gold Coast also worked EA8AK long path on CW 559 over a distance of approx. 21,000 km. Well done Bob and Brian.

Phil TI7/N5BEK in Costa Rica was also worked on several occasions during March:

8th by Wade VK4WM in Hervey Bay, CW.
12th by Brian VK4DDC, CW.
16th by Scott VK4CZ in Brisbane, CW and SSB and
19th by Frank VK7DX in northern VK7, CW.

JAs were worked on most afternoons in March from all areas of VK4. Wayne VK4WDM in Townsville reported the band has been open to JA, BA, BV and HL most days starting about 0300Z and continuing well into the night. Most openings were characterised by unstable signals and marked QSB. Weak American and probably Mexican or central American voices were heard around 2330Z on the 5th but no QSOs resulted. The biggest JA opening occurred from mid-afternoon on the 31st with most areas represented with very strong signals and KH7Y was heard on CW. The northern openings extended south down the east coast on some days and John VK7XX reporting that on March 11th, between 0345 and 0422 UTC working 44 Japan stations in all call

Photo 1: The assembled antennas on their mast and ready for some six metre action.

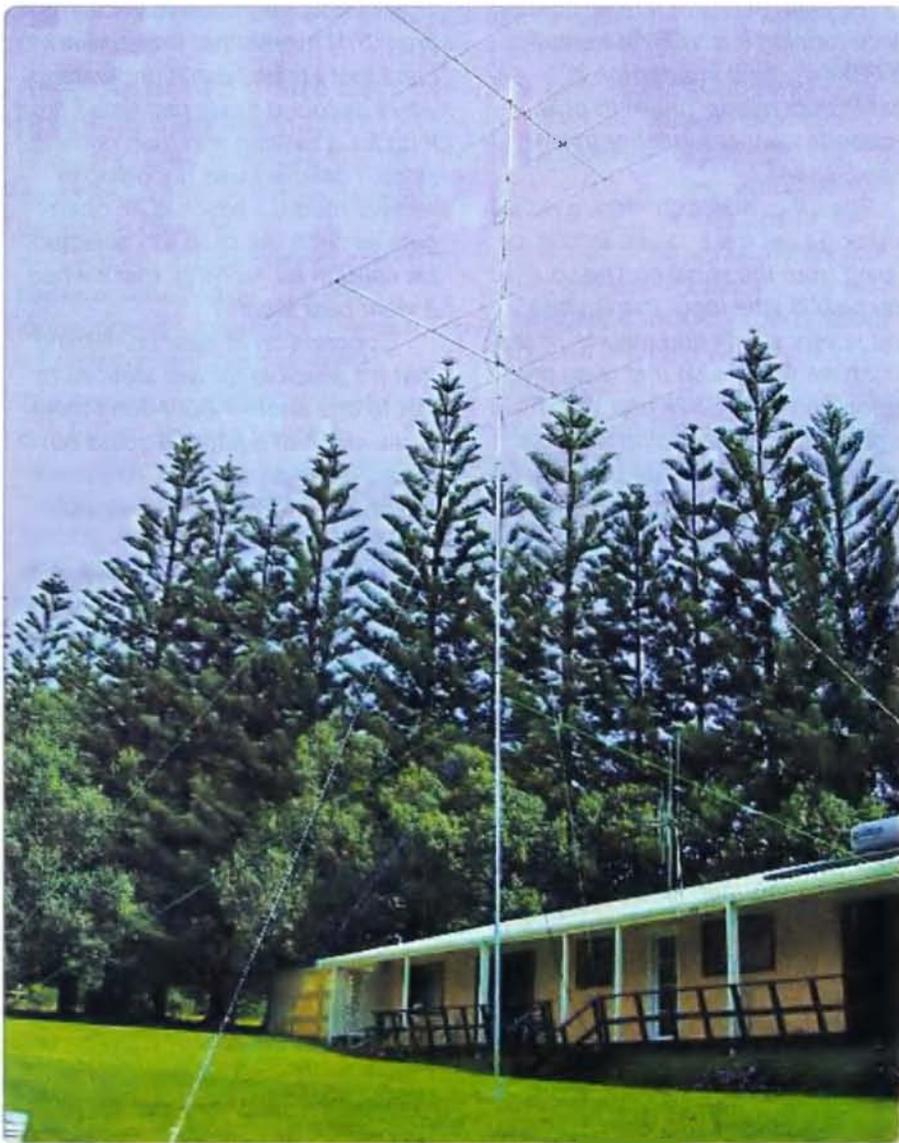




Photo 2: Bob ZL1RS, on Norfolk, busy assembling his six metre antennas.

to work a total of twelve stations - in order of contact were VK3AKC, VK2BX, VK3AKK, VK3HY, VK1DJA, VK3MY, VK3AUQ/P, VK3DUT, VK2BHO, VK3ADR, VK5PO and finishing with VK6NS; also heard but no contact was VK5BC/P. Later that evening at 1030 UTC I had my first contacts into China with contacts with BG6CJR followed by BA4SI at 1123 UTC and two contacts into Japan, with JA3KVT at 1128 UTC and JA6UOU at 1140 UTC; Gary VK5JR also worked BG6CJR, JA3KVT and JA6UOU during the opening to the north.

A report from Garry VK5ZK stated that when I was working the Chinese and Japanese stations there was no sign of their signals in Goolwa, although Garry was able to hear my signal.

Since then there has not been any contacts on Sporadic E or F2 contacts from this QTH although I have been keeping a close watch on the band and the VK Logger.

This was a good test for my newly constructed 50 MHz PA unit which has passed the operating test with good results and reports to date are very favourable regarding audio quality.

The opening experienced by Colin on the 11th extended from VK6 to ZL over a few hours with contacts being completed between VK6, VK5, VK3 and ZL. Again on the morning of the 18th another good short skip opening from VK3 to VK5.

Bob ZL1RS has been operating portable from Norfolk Island using the callsign VK9N/ZL1RS since 28th March and will be operational there until 8th April. Bob's portable antenna setup comprises five over five Yagis on a 13.5 metre portable mast. See photos 1 and 2.

Once set up, Bob had immediate success on the 28/29th March with over 70 stations worked in VE7 and the NW USA. There was nothing further south except one or two W6 stations and W5UN. TI7/ N5BEK also heard.

The KH6 beacons were S9 at around 0730 UTC on the 29th and Fred KH7Y was very loud and Bob worked a few JAs and one DU. A few stations from NA have looked for Bob's JT65A CQs on 50.190 at moon rise and N6KK and K7CW have managed 'direct' digital QSOs when six metres appeared 'closed'. Bob reports that, obviously, the band has been marginally open with the sensitivity of JT65A making the difference. Bob has also been completing many EME contacts.

Please send any six metre information to Brian VK5BC at briancleland@bigpond.com

GippsTech 2012

It is almost that time again: GippsTech 2012 will be happening on the weekend of 7 and 8 July, at Monash University Gippsland Campus in Churchill, Victoria, about 170 km east of Melbourne.

Those wishing to present at this year's conference should contact the Chair as soon as possible:

vk3pf@wia.org.au
Peter VK3PF
Conference Chair

GippsTech has a well-recognised reputation as a premier amateur radio technical conference, with its focus primarily on techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts. Even if you are new to these areas of amateur radio, you will learn a great deal of information during the weekend.

A Partner's Tour will be conducted, together with an informal social gathering for dinner on Friday and a Conference Dinner on Saturday.

Details of the conference are available from the Eastern Zone Amateur Radio Club website: <http://www.vk3bez.org/>

Registration forms will be available in the near future.

On sporadic E VHF propagation and solving a mystery about maximum usable frequencies – Part 2

Roger Harrison VK2ZRH

Petit chordal hop VHF propagation via spread Es

As outlined earlier, the spreading of Es traces on ionograms likely arises from crinkles, ripples or other structures in the Es layer, which reflect the 'sonde transmitter pulses from varying ranges at oblique angles, as well as from directly overhead, perhaps at different heights. The structure of Es layers has been the subject of considerable scientific research and discussion over decades, [e.g. 11, 12, 13, 14, 15, 16]. It seems that wind shear turbulence in the neutral atmosphere modulates the ionisation in complex ways. While 'structured' Es is likely to take a number of forms, From and Whitehead [12] and Bernhardt [15, 16] describe layers having "crinkles" or being "rippled", or having "clumps" of greater electron density within the cloud. Likely models of Es structures are illustrated in Figure 10. It appears that Es ripples, as in example (1) and A, are of small scale, perhaps 1-5 km crest-to-crest, with vertical amplitudes very

Erratum: Part 1 April 2012, page 43:

Equation 1.1 was incorrect. The correct equation is:

$$(i)_{MAX} = \arcsin \left[\frac{R}{(R + h)} \right] \quad (1.1)$$

Also, in the first line of the right hand column on page 43, there is a typographical error. The paragraph should read:

When (e) is 0°, this sets the maximum (theoretical) one-hop range or path distance, expressed as:

$$D_{MAX} = \sqrt{8Rh} \quad (1.2)$$

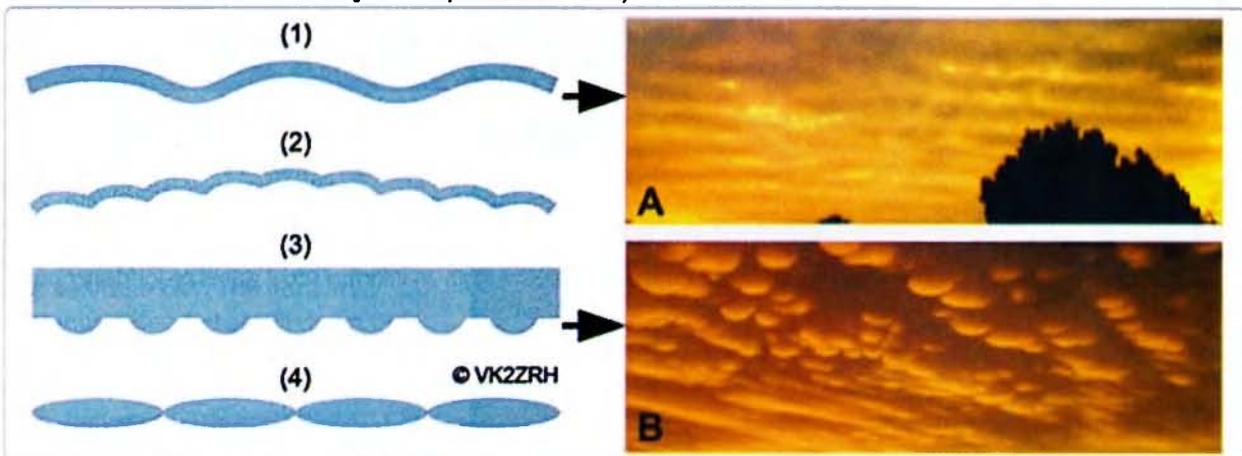
A corrected version of Part 1 has been posted to the April 2012 page of the WIA web site: <http://www.wia.org.au/members/armag/2012/april/>

much less than that. Other likely periodic structures include lobes on the underside of Es clouds (as in example (3) and B) of up to 10 km lobe-to-lobe and around 1 km deep, or elliptical structures some 5-10 km long by about 1 km deep.

The proposed principle of petit chordal hop Es VHF propagation is illustrated in Figure 11. A raypath from a transmitter at A, at elevation angle (e), meets a ripple in the Es layer at a small angle (c) to a

tangent with an upward tilt of the ripple at P1. If the electron density is sufficient to refract the raypath such that it emerges horizontally, it will then travel to meet the next crest of the ripple at P2, where it will be deflected in a reciprocal manner. The upward tilt of the ripple improves the raypath's obliquity to the Es layer and thus the path MUF. The question is, by how much? Would you believe – nearly double!

Figure 10: At left: some likely models for Es structures (seen in profile), based on [12], [15] and [16]. Turbulent wind shear structures are the cause of spread Es on ionograms. (1) Rippled layer. (2) Ripples on a long wave. (3) Lobes on the underside of a layer. (4) Clumping produced by Kelvin-Helmholtz turbulence. At right: images of atmospheric clouds produced by wind shear turbulence. A – rippled wave cloud formation (pic: author). B – mammatus cloud formation (pic: Wikipedia commons).



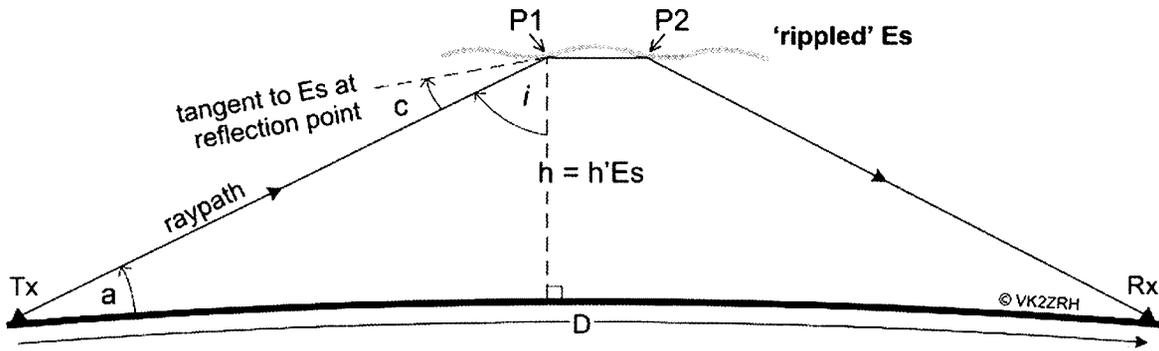


Figure 11: The general geometry of **petit chordal hop** propagation via a rippled (or structured) Es layer. The raypath is refracted to the horizontal at P1 via a suitable tilt in the Es layer, then refracted back to ground at P2 via a reciprocal tilt. Path MUF rises significantly. The distance from P1 to P2 may range from 1 km to perhaps 10 km.

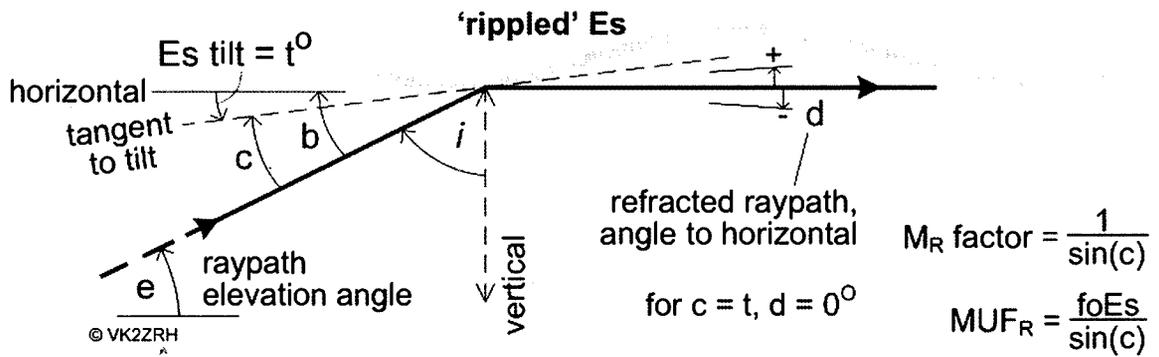


Figure 12: Close up of the geometry for propagation via rippled Es. The refracted raypath will be horizontal when angle (c) equals the tilt angle (t), yielding angle (d) of zero degrees. The ripples do not need to be orthogonal to the propagation path. On an ionogram, h'Es will be the lower height of the crests and the Es trace will be spread, as in Figure 4. The impact is to almost double the MUF.

Figure 12 shows a close up of the refraction geometry. The incident signal will reach the Es layer over a range of raypath elevation angles. If one raypath strikes a ripple at a tangent such that the tilt angle (t) equals the raypath-to-tangent angle (c), the refracted raypath will be horizontal (ie. angle (d) = 0°).

The M factor, which I have called the “M_R factor”, is determined by angle (c) as is the MUF, now called MUF_R. Angle (c) will be half that of angle (b), which determined the M factor and MUF in the plane Es case. **The impact of this is that the M factor and thus the MUF are very nearly doubled for the range of small angles involved.** For example, if angle (b) is 10° for the plane Es case, then angle (c) for the spread Es case is 5°. Sin(10) divided by sin (5) is 1.9924.

The equations for the M factor and MUF now become:

$$M_R \text{ factor} = \frac{1}{\sin(c)} \quad (2.7)$$

$$MUF_R = \frac{foEs}{\sin(c)} \quad (2.8)$$

The geometry establishes a critical angle for the Es tilt angle (t) related to the raypath elevation angle (e). For a raypath elevation angle very slightly greater, it will meet a slightly smaller tilt angle (closer to the nose of the crest) and the reflected raypath will emerge at an angle below the horizontal. A raypath with (e) very slightly smaller will meet a slightly greater tilt angle (further to the right of the crest's nose) and the reflected raypath will emerge above the horizontal.

For a raypath that strikes the right hand crest just past the nose, the elevation angle will be lower and it will need a slightly smaller Es tilt angle to be reflected horizontally. Likewise, a raypath that strikes a crest to the left will be at a higher elevation angle and will find a slightly greater Es tilt angle to be reflected horizontally.

The array of wave-like ripples or other periodic structures in the Es will act on an incident wavefront in a similar way to how an optical diffraction grating affects monochromatic light. The emergent wavefront breaks into alternate areas of *constructive* and *destructive* wave interference, yielding footprints on the ground of high signal strength in some places and low strength or no signal in others. This is sometimes called the “flashlight effect”.

It torments operators who can hear nearby stations working DX that they can't hear! There can be a number of reasons for this effect with Es, the foregoing is just one.

For petit chordal hop via spread Es, the variation of the M_R factor with elevation angle and $h'Es$ is illustrated in Figure 13. Compare this to Figure 6.

One last question arises: if the ripples are shallow, will they produce the tilt angles in the Es required to support petit chordal hop? Yes! If the ripples are sinusoidal in shape (or roughly so), with a depth of at least 5% of the crest-crest distance, the tilt angle will range from 0° at the lower crest to 5.7° maximum at half depth, which is sufficient for paths having elevation angles up to 6° , 5° , 4° , and 3° when $h'Es$ is, respectively, at 90, 100, 110 and 120 km. Ripples with a crest-to-crest scale of 1 km may be less than 100 m deep; at 3 km crest-to-crest, only 150 m deep. Greater depth/crest-crest ratios provide a greater range of angles. The range of tilt angles required for petit chordal hop extend from about 4.8° up to about 7.4° for $h'Es$ ranging from 90 km to 120 km.

If the spread Es consists of structures as in Figure 10 (3) and (4), their cross-sections may range from roughly circular to elliptical and thus present a suitable range of tilts facing the ground. Figure 14 illustrates a plan view of raypaths supported by such structures. Propagation by petit chordal hop from wave-like ripples in Es would not be supported where raypaths were parallel, or nearly so, to the waves. Lobular Es structures will support petit chordal hop in any direction.

Table 3 (like Table 2) illustrates the MUFs achievable for a variety of ionospheric and path parameters under spread Es conditions. Values of $h'Es$ and path lengths (D) are generally typical. A column listing foEs values for a 98 MHz MUF is included as for Table 2. For Es propagation at 144.5 MHz, note that the required foEs ranges between only 12.2 MHz and 16.7 MHz! It is

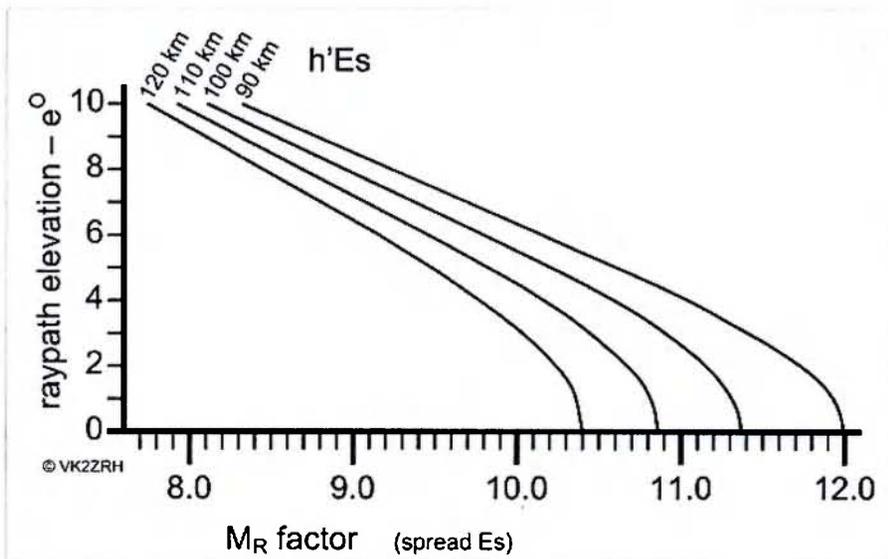


Figure 13: Under the right spread Es conditions, leading to petit chordal hop propagation, the M factor (M_R factor here) increases dramatically, almost doubling. Compare this to Figure 6.

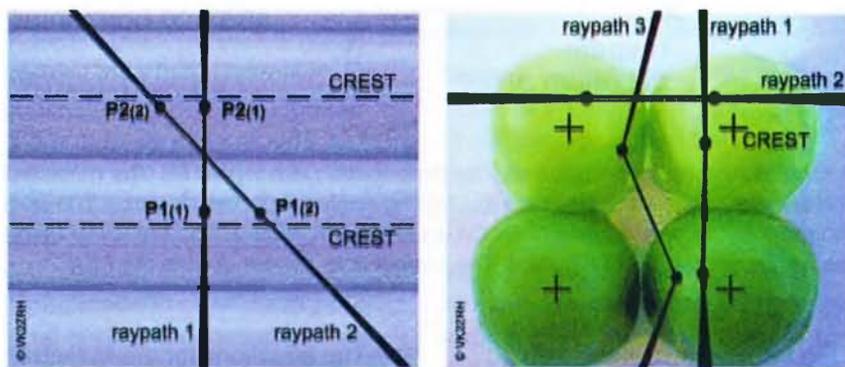


Figure 14: I have used shaped plastic to model these plan views of petit chordal hop propagation raypaths as if seen from the ground. At left is the rippled Es case, as in Figure 10(1). At right, lobe ('mammatus') structures as in Figure 10 (3). Rippled Es will not support petit chordal hop where raypaths are parallel to the crests and, as raypaths approach paralleling the crests, the less certain it becomes that petit chordal hop will be supported. Lobe structures in the Es layer will support raypaths in any direction and likely account for non-great circle path propagation.

clear from the foregoing that the MUF can potentially reach ~350 MHz when foEs reaches 30 MHz, but we already know that such occasions are rare.

Two case studies of petit chordal hop Es propagation

50 MHz: To demonstrate the validity of the petit chordal hop model, I examined VK Logger 6 m spots for the VK7RAE-VK4CZ path (Figure 8) and looked for instances where the ionogram closest in time to a spot had an foEs value well below that

required for classical (or plane) Es propagation. It was not difficult to find one. Indeed, there were many over the past few years. VK4CZ spotted the VK7RAE beacon at 0255 UTC on 29/12/10, giving a 569 report. Figure 15 is the Canberra ionogram for 0253 UTC on that day. With $h'Es$ of 101 km, the raypath elevation angle (e) is 3.2° , (i) is 79.38° and (b) 10.62° . The classical M factor would be 5.42 (eq. 2.6) and, with an foEs of 4.7 MHz, the MUF (eq. 2.5) would be about 25.4 MHz.

h'Es	(e)	(t)	D (km) approx.	M _R factor	MUF _R for foEs of		foEs for MUF ≥ (MHz)		
					5 MHz	20 MHz	50.5	98.0	144.5
90 km	1	4.815	1920	11.91	59.55	238.2	4.3	8.3	12.2
	2	4.89	1731	11.73	58.65	234.6	4.4	8.4	12.3
	4	5.185	1417	11.07	55.35	221.4	4.6	8.9	13.1
	6	5.64	1175	10.18	50.9	203.6	5.0	9.7	14.2
	8	6.225	991	9.22	46.1	184.4	5.5	10.7	15.7
100 km	1	5.065	2031	11.33	56.65	226.6	4.5	8.7	12.8
	2	5.14	1842	11.16	55.8	223.2	4.6	8.8	13.0
	4	5.42	1522	10.59	52.95	211.8	4.8	9.3	13.7
	6	5.86	1273	9.8	49	196.0	5.2	10.0	14.8
	8	6.425	1080	8.94	44.7	178.8	5.7	11.0	16.2
110 km	1	5.31	2140	10.8	54	216	4.7	9.1	13.4
	2	5.38	1949	10.67	53.35	213.4	4.8	9.2	13.6
	4	5.645	1622	10.17	50.85	203.4	5.0	9.7	14.3
	6	6.07	1366	9.46	47.3	189.2	5.4	10.4	15.3
	8	6.615	1164	8.68	43.4	173.6	5.9	11.3	16.7

Table 3: MUFs achievable for petit chordal hop Es for common path geometry parameters and two indicative values of foEs, plus foEs values required for propagation on 6 m, the FM BC band and 2 m. Note the values of foEs required to support 2 m Es propagation compared with those in Table 2.

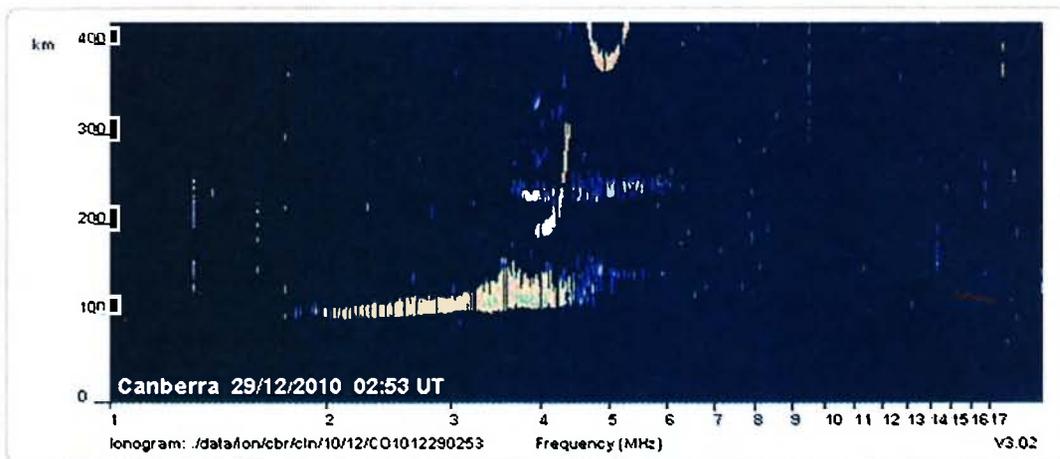


Figure 15: Ionogram relating to VK7RAE-VK4CZ spot of 29/12/2010 at 0255. Note the distinct Es spreading; ftEs = 5.5 MHz (foEs = 4.7 MHz) and h'Es = 101 km. Path length is 1648.7 km. The path MUF was calculated to be 50.8 MHz!

With spread Es, the VK7RAE raypath would need to find an Es tilt angle (t) of half $10.62^\circ = 5.31^\circ$. Now, the M_R factor is 10.81 (eq. 2.7) and thus the MUF (eq. 2.8) is 50.8 MHz!

144 MHz: As before, I trawled VK Logger 2 m spots for the VK4-VK7 path, seeking instances where the ionogram closest in time to a spot had an foEs value well below that required for classical Es propagation. Doug VK4OE, in Brisbane, spotted a contact with Karl VK7HDX in Launceston on 10/01/2008 at 0533 UTC, on 144.13 MHz SSB, giving a 52 report.

Figure 16 shows the path, which reveals the mid-point (PoR) within the Sydney ionosonde's view.

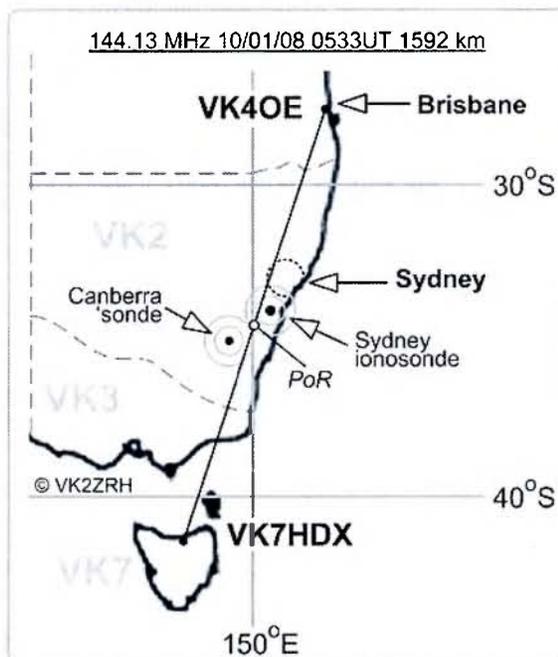


Figure 16: Path for the VK4OE-VK7HDX 2 m SSB contact of 10/01/2008, showing the relationship to the Canberra and Sydney ionosonde views. Path length is 1592 km. The PoR is within the Sydney 'sonde's view.

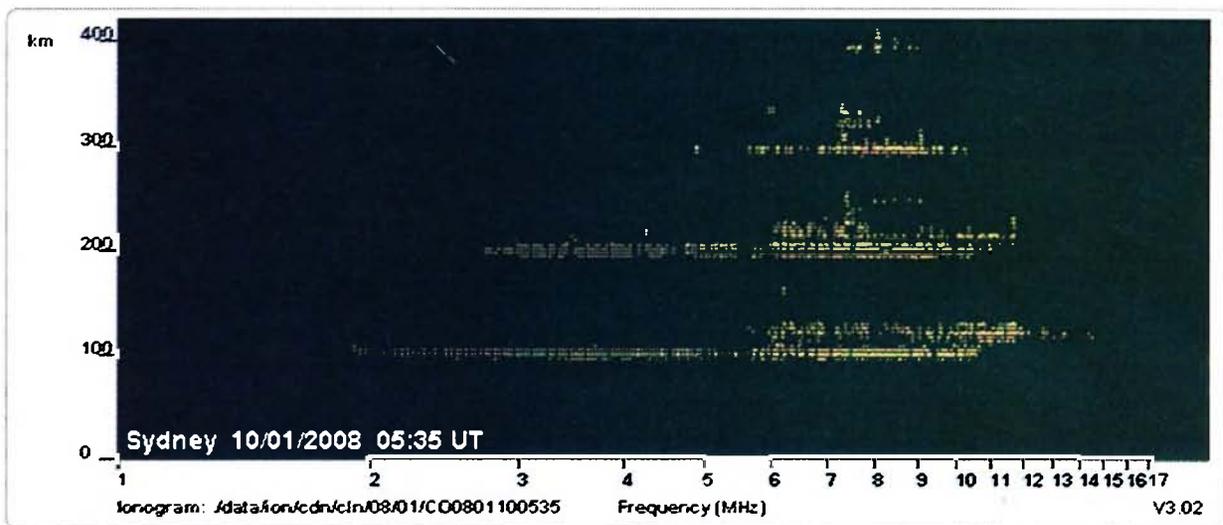


Figure 17: Ionogram relating to the VK4OE-VK7HDX contact at 0533 UTC on 10/01/2008. $h'Es$ is 98 km. $ftEs$ is 14.5 MHz, so $foEs$ is $14.5 - 0.8 = 13.7$ MHz. The E, F1 and F2 layers are fully blanketed and the Es shows spreading. This ionogram could be interpreted in several different ways, but the fact that it shows spread Es is sufficient for the purpose in this case.

Figure 17 is the Sydney ionogram for 0535 UTC on the day. With $h'Es$ of 98 km, the raypath elevation angle (e) is 3.4° , (i) is 79.46° and (b) is 10.54° . In this case, the classical M factor would be 5.47 and the related MUF almost 75 MHz. With spread Es, the raypath would need to find an Es tilt angle (t) of half $10.54^\circ = 5.27^\circ$. **Now, the M_r factor is 10.89 and thus the MUF is 149.16 MHz!**

In relating reported contacts to ionograms at or near paths' mid-points, I have found that spread Es is more the norm than the exception. **I can conclude that, for a given path, the sporadic E MUF depends on three things:**

- (a) the height of the Es layer ($h'Es$),
- (b) the peak electron density ($foEs$) and
- (c) the presence or absence of spread Es at the path mid-point.

However, as spread Es can arise from a variety of structural morphologies in an Es layer, for petit chordal hop VHF propagation, spread Es is a necessary but not sufficient condition of itself. The spread Es needs to arise from ripples or other favourable periodic structures that present a series of small tilts in the vicinity of the propagation path mid-point.

A 2003 paper by Grassman and Langenohl [17], on long distance propagation paths at 144 MHz, provides ionograms relating to the paths of many reported single-hop and two-hop Es contacts involving the Canary Isles, the Iberian Peninsula and Central Europe. The ionograms are from 'sondes at Roquetes (north-east Spain) and Huelva (south-west Spain). Both ionograms show intense, spread Es with $ftEs$ at 13.6 MHz in each case. This implies an $foEs$ of 12.9 MHz, which the auto-scaling correctly scales in one case (Roquetes), but the other incorrectly scales $foEs$ at 9.9 MHz. The authors reject the simple (classical) ionospheric model and other suggested models, such as cloud-to-cloud skip or Pederson ray propagation, but do not advance a model for the ionospheric refraction geometry. It seems to me that petit chordal hop available via the spread Es at each general area of reflection would adequately explain the propagation model for the great 144 MHz DX opening of 20 May, 2003.

The Heide Model of Es reflection geometry

In the German VHF-microwave journal DUBUS No.4 2010 [18], Klaus von der Heide DJ5HG proposed an explanation for 144

MHz Es propagation in which the wave is 'captured' within the Es layer if it is bent (or curved) such that the quotient of bending divided by the layer thickness (b/d) lies between 1.5 and 4.0, and that the value of $foEs$ is between 12 MHz and 16 MHz.

This model improves the raypath's obliquity to the Es layer and thus the path MUF and depends on the electron density rising linearly from the base of the layer to the top. However, I think that the conditions Dr Heide proposes for capturing a wave at 144 MHz are difficult to achieve in nature, if not impossible. Firstly, the electron density gradient in a plane Es layer does not appear to vary linearly, as Dr Heide assumed. The electron density reaches a sharp peak, sometimes at half the layer thickness, and sometimes closer to the base [19, 20]. In ionospheric science, the profile of electron density in an Es layer, from base to peak, is taken to be quasi-parabolic [21], for which modelling and real world results agree.

Secondly, Dr Heide calculates that a value for $foEs$ of only 2.5 MHz is necessary for 144 MHz waves to be captured inside the layer. For the VK4-VK7 paths, which pass through the circles of view of the

Sydney and Canberra ionosondes, I have trawled many, many VK Logger 144 MHz spots since January, 2008, but cannot find a single instance of such a low foEs coincident with 2 m propagation.

Layer trapping VHF Es propagation

A 2 m opening between VK3 and southern VK4, in January, 2006, showed some peculiar characteristics. Path lengths ranged from 1750 to 1950 km. No short-skip 6 m propagation was reported at the time. Short-skip 6 m signals are often a tell-tale indicator for 2 m openings [6]. However, reception of the 28 MHz VK2RSY beacon located NW of Sydney

was reported in Melbourne (VK3) at the time (path of ~880 km).

With tropospheric refraction ruled out on the basis of signal characteristics and a negative Hepburn (tropospheric refraction) indication, I examined the sequence of IPS ionograms for the period spanning the signal reports, from 2330 to 2350 UTC. The terminals of the N-S paths indicated that the mid-points were close to the latitude of the Sydney ionosonde. The ionograms showed that a multi-layer structure had developed, with two closely spaced layers at 108 km and 113 km; see Figure 18.

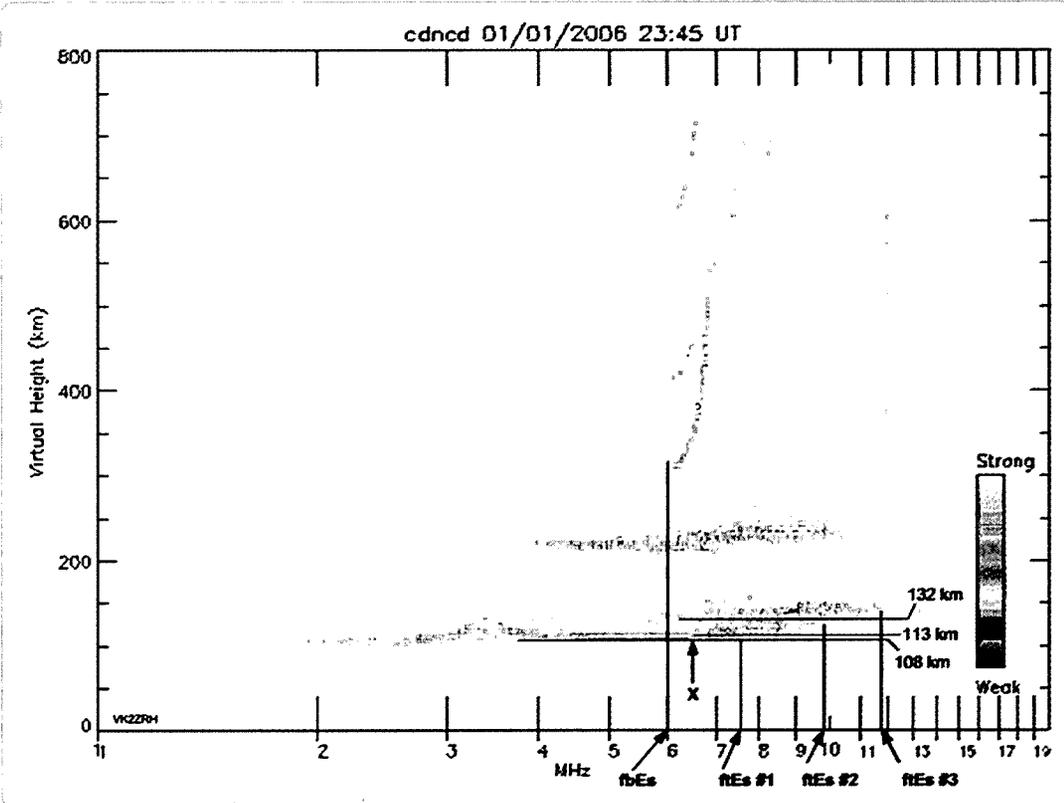


Figure 18: Sydney ionogram for 2345 UTC on 1/01/2006, showing multi-layer Es that may have 'trapped' 2 m signals between them, supporting contacts over 1750-1950 km at the time. Short-skip propagation at 6 m was not evident at the time, but it was for 10 m. An foEs of 6.7 MHz for the lowest layer (108 km) meant that the classical MUF only reached about 40 MHz.

Analysis of the ionogram for 2345 UTC shows the F-layer is blanketed at 6 MHz, while the Es layer at 108 km blankets the 113 km layer up to about 6.5 MHz (point X), after which some spreading of the 113 km layer is evident. Another Es return is seen at 132 km. From the sequence of ionograms, this turns out to be an echo from another Es patch at an oblique angle, moving horizontally. Three values for ftEs are identified, of 7.5, 9.9 and 11.8 MHz. For the 108 and 113 km layers, foEs values are 6.7 MHz and 9.1 MHz, respectively, which means the

electron density of the layer at 113 km was greater than the one below.

The path lengths of 1950 km and 1750 km mean raypath elevation angles to the 108 km layer ranged between 1.9° and 3°. The plane Es MUF for a 1950 km path would be 40.6 MHz, while for a 1750 km path, it would be 39.7 MHz.

My proposition is this: an incident signal at 144 MHz would be partly refracted by the lowest (108 km) Es layer and then continue to the Es layer above (113 km), meeting it at a grazing angle, to be refracted back towards the 108 km layer, in turn reaching it at a grazing angle, to then be refracted back toward the upper layer and so on, the signal being 'trapped' or 'guided' between the layers for a distance before exiting the pair of Es layers some distance later or upon meeting some discontinuity that directs a raypath towards the ground.

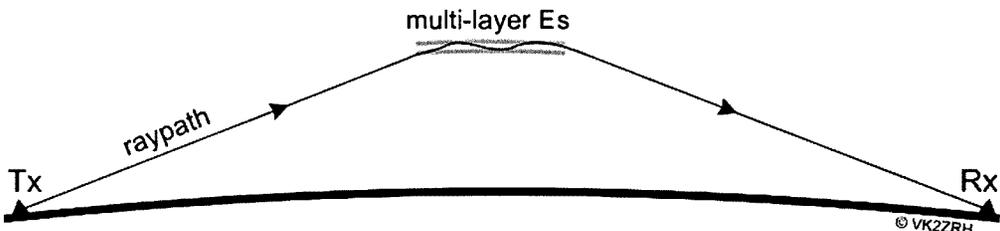


Figure 19: The principle of 'layer trapping' VHF propagation. The grazing angles of the raypath trapped between the layers provides a higher MUF than the lower layer could support.

Figure 19 illustrates the principle. Once the incident signal penetrates the lower layer, and with a grazing angle of just less than 3° between the raypath and each Es layer, the calculated MUF in this instance would have been above 148 MHz. Multi-layer Es is not uncommon, being reported many times over decades in rocket observations of Es [19, 20, 22]. Figure 20 shows a relatively recent rocket sounding (2005), where two thin layers 2 km apart were observed over Japan [22].

As layer trapping propagation excludes short-skip 6 m propagation while at the same time supporting 2 m propagation, this may act as a tell-tale for observant operators (provided 6 m stations are on the air). If multi-layer Es extends over a large geographical extent, path lengths would be extended well beyond the classical maximum single-hop skip range.

Epilogue

The case studies presented are not “singular” examples. I trawled the VK Logger History database from January, 2008 to January, 2011, extracting 6 m and 2 m spots where path midpoints are within the view of the Sydney or Canberra ionosondes. There are many, many spots that are clearly supported by this propagation model as the ionograms show spread Es, but foEs values lower than the classical propagation model requires. I limited my search to the January, 2008 – January, 2011 period as there is currently online access to the Sydney and Canberra ionograms for these years. Anyone can repeat my observations for themselves.

Under some circumstances, spread Es may support petit chordal hop propagation over considerable distances, further than the maximum single-hop skip range. Small-scale ripples on a long wave of, say, 300+ km extent, as illustrated in Figure 10 (2), could create a kind of “whispering gallery”. An incident signal meeting

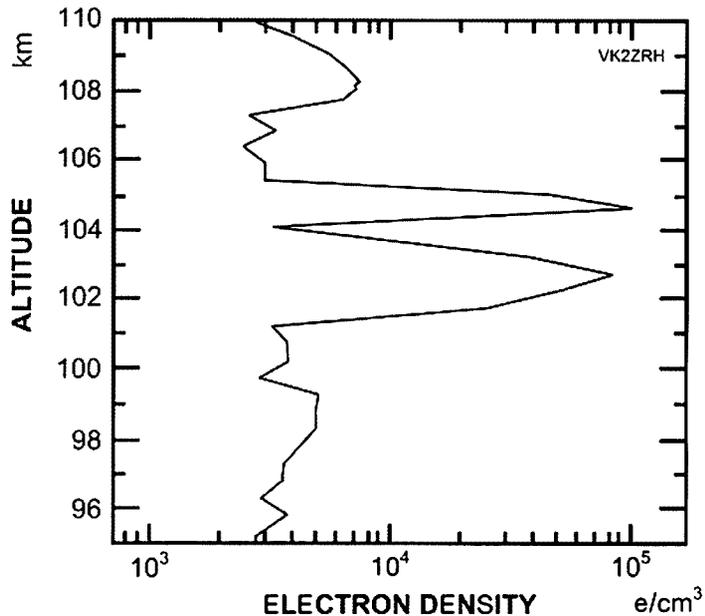


Figure 20: Multi-layer Es from a rocket sounding [22]. The layer peaks here are separated by 2 km, the lower layer being 2.5 km thick, the upper one being 1.5 km thick with slightly higher electron density.

the crest of a ripple at the base of a long wave will be deflected with some raypaths emerging above the horizon, which are then able to reach the next crest of a ripple at a slightly higher altitude, and so on, following the curve of the long wave, eventually returning towards ground when the long wave curves downward.

Layer trapping has the potential to extend MUFs beyond 350 MHz. It may have been involved in the few reports of 220 MHz Es propagation in North America. Anecdotal evidence from VK operators (reported at GippsTech 2007[6]) suggests one-way signals have been observed on 432 MHz during an intense 144 MHz opening. Remember that, in the past, 2 m Es propagation was not thought possible.

I am indebted to Terry Bullet [23] for help with the Figure 18 ionogram analysis and beneficial comments on the propagation models.

References

[1] Kraft, J. DL8HCZ/CT1HZE 2008, “Midlatitude Sporadic E on VHF in Correlation to the 22-year Magnetic Cycle of the Sun”, DUBUS Technik 8.

[2] Pocock, E. and Dyer, P.J. 1992, “Eleven Years of Sporadic E”, QST, March, pp23-28.
 [3] www.ips.gov.au/HF_Systems/1/3
 [4] Whitehead, J.D. 1997, “Sporadic E – A Mystery Solved?”, QST, October and November.
 [5] Whitehead, J.D. 1989, “Recent work on mid-latitude and equatorial sporadic-E”, Journal of Atmospheric and Terrestrial Physics, Vol. 51, No. 5, pp 401-424.
 [6] Harrison, R. VK2ZRH 2007, “Sporadic E: turmoil, turbulence and torment”, Proceedings from the Gippsland Technical Conference, 7/8 July 2007. www.vk3bez.org/gippstech.htm
 [7] www.ips.gov.au/World_Data_Centre/2/1/28.
 [8] Davies, K. 1990, “Ionospheric Radio (IEE Electromagnetic Waves Series, Vol. 31)”, P. Peregrinus, London, ISBN 10 086341186X; chapter 6, Oblique propagation.
 [9] http://en.wikipedia.org/wiki/Radius_of_earth.
 [10] www.vklogger.com/beacon.php

- [11] Smith, L.G. and K.L. Miller 1980, "Sporadic-E layers and unstable wind shears", *Journal of Atmospheric and Terrestrial Physics*, Vol. 42, January, pp 45-50.
- [12] From, W.R., and J.D. Whitehead 1986, "Es structure using an HF radar", *Radio Science*, Vol. 21, No. 3, pp 309-312.
- [13] Barnes, R.I. 1992, "An investigation into the horizontal structure of spread-Es", *Journal of Atmospheric and Terrestrial Physics*, Vol. 54, Issues 3-4, pp 391-399.
- [14] Barnes, R.I. 1993, "HF observations of the vertical structure of mid-latitude spread-Es", *Journal of Atmospheric and Terrestrial Physics*, Vol. 55, Issue 6, pp 863-871.
- [15] Bernhardt, RA. 2002, "The modulation of sporadic-E layers by Kelvin-Helmholtz billows in the neutral atmosphere", *Journal of Atmospheric and Solar-Terrestrial Physics*, Vol. 64, August-September, pp 1487-1504.
- [16] Bernhardt, P.A., Werne, J. and M.F. Larsen 2006, "Modeling of Sporadic-E Structures from Wind-Driven Kelvin-Helmholtz Turbulence", *Characterising the Ionosphere*, Meeting Proceedings RTO-MP-IST, Paper 34, pp 34-1 – 34-14.
- [17] Grassman, V. DF5AI and U. Langenohl DK5YA 2003, "Very Long Distance Propagation on the 144 MHz Band: Discussion of the May 20, 2003 dx opening", at www.qsl.net/iw2nor/vldp_ea8.pdf
- [18] von der Heide, K. 2010, "On the Geometry of Sporadic-E Reflection", *DUBUS*, No.4, pp 8-12.
- [19] Seddon, J.C. 1961, "Sporadic-E as observed with rockets", Technical Note D-1043, NASA Goddard Space Flight Center, Greenbelt, Maryland, July.
- [20] Smith, L.G. 1965, "Rocket observations of sporadic E and related features of the E region", GCA Technical Note 65-22-N, GCA Corporation, Bedford, Massachusetts, August.
- [21] Norman, R.J., Dyson, P.L and J.A. Bennett 1999, "Modelling and mapping Sporadic E using Backscatter Radar", IPS Radio & Space Services, at www.ips.gov.au/IPSHosted/STSP/meetings/aip/robert/paper.htm
- [22] Wakabayashi, M. and T. Ono 2005, "Multi-layer structure of mid-latitude sporadic-E observed during the SEEK-2 campaign", *Annales Geophysicae*, Vol.23, pp 2347-2355.
- [23] Personal communication, Terry Bullett, USA World Data Center A, University of Boulder, Colorado USA.

BRISBANE AMATEUR RADIO CLUB BARCFEST 2012

Saturday 26th May 2012

This year's BARCFEST will be at Mt Gravatt Showgrounds, Logan Road, Mt Gravatt.

Doors open 9.30 am. Admission \$7.00.

Food and drinks available at reasonable prices.

Hope to see you there on **26th May**.

**Contact Les VK4SO ph 0411 729 642 or
email: parkerlf@optusnet.com.au**

Please note the change of date for this year only.

CENTENARY 1912 ~ 2012 celebrating VK100WIQ - The formation of the Wireless Institute in Queensland

Michael J. Charteris VK4QS, Chairman, Queensland Centenary Committee, WIA

Two years ago, in the year 2010, we as Australian amateur radio operators celebrated a world first, by way of the fact that our national body, the Wireless Institute of Australia, turned 100 years of age. Such a milestone predated the formation of both the ARRL in the US and the RSGB in the UK. Thus, Australia was the vanguard of organised amateur radio in the entire world. During 2010, from what I heard on air, Australian amateurs embraced the Centenary of the WIA with gusto. Each night the bands were abuzz with all and sundry striving to contact the special Centenary station VK100WIA.

This year 2012 sees the Centenary of the formation of the Wireless Institute in the State of Queensland, the WIQ. As such, we in Queensland plan to celebrate over the course of the rest of the year with various club-based special events and activities. Our Centenary call sign VK100WIQ will be operational from June 1st 2012 through to July 31st 2012, by way of a roster system for all the Queensland radio clubs to apply for a three day block.

Our Centenary Committee is well founded with the following amateurs at its helm: Ewan McLeod VK4ERM, WIA Director Trent Sampson VK4TS, WIA Director Al Shannon VK4SN, QAC Don Wilschefski VK4BY, QAC Kevin Johnson VK4UH and myself QAC Mike Charteris VK4QS. Between us, we hope to encourage and participate in as many of the Centenary events being hosted by various Radio clubs throughout this great State of ours.

The origins of the celebration stem from a meeting organised by one Mr Sydney Victor Colville, in the year 1912, with the view to form the Wireless Institute in Queensland.

To quote the WIA Book, Volume 1, 'Wireless Institute of Queensland formed by S.V. Colville (XQF), who later became the Secretary and organizer'.

For those unfamiliar with the history of the QWI, or WIQ, and what later became the WIAQ, a new website has been developed to give an overview of the men, the names and the places that saw the Wireless Institute develop in Queensland. You can find our Website at the following address: www.wiaq.org.au

Please take the time to read the brief histories that have been written, and largely drawn from the wonderful work by Alan Shawsmith VK4SS SK, a George Taylor Medallist, in his book 'Halcyon Days'. To seek out and obtain the book 'Halcyon Days' is perhaps one of the best ways to understand the pioneering spirit of amateur radio pathfinders and experimenters in Queensland from the earliest days.

One of the many highlights will be the Centenary Presidents' Luncheon on Saturday July 21st, which will be held in the Board Room at the Hervey Bay RSL in Pialba. Special guests will include National WIA President Michael Owen VK3KI, plus the previously mentioned members of the Queensland Centenary Committee. We are looking forward to all the Presidents of Queensland Radio Clubs to strongly consider venturing to beautiful Hervey Bay for this once in a lifetime event. Executives and club members are also invited, though numbers are limited. Please contact myself, Mike Charteris VK4QS by email at mikevk4qs@gmail.com to let me know if you would like to attend.

On Sunday July 22nd, following the Presidents' Centenary Luncheon

on the Saturday, the Hervey Bay Amateur Radio Club will be hosting a free BBQ for all attending Presidents, members and guests. This will be held at the Hervey Bay SES Building on Old Maryborough Road, Hervey Bay. On this day Hervey Bay will host the Centenary call sign VK100WIQ, on HF from the SES Building. It is hoped that many will take the opportunity to work President Michael Owen, and others, on air with the Centenary call VK100WIQ. It is hoped that those travelling from afar to attend the Presidents' Luncheon, will perhaps make a weekend of it and experience beautiful Hervey Bay and the surrounding area.

Throughout the duration of the Centenary call sign period, from June 1st through to July 31st 2012, I trust that all radio amateurs in Australia and throughout the rest of the world will avail themselves of the opportunity to work VK100WIQ. There will also be Centenary QSL cards as well as a special Centenary Certificate for ten different club contacts with VK100WIQ. The cost structure for the Certificate will be similar to that of the VK100WIA certificate, but at this stage it has not been finalized.

So come one, come all, my fellow amateur radio operators, as we here in Queensland invite you to our Centenary, be you a WIA member or not. Come and share in some Queensland hospitality and radio fellowship throughout the Year 2012.

We, the Queensland Centenary Committee, look forward to us all celebrating our special one hundred year event.



WIA Inwards QSL Bureau

Geoff Atkinson VK3TL - WIA QSL Bureau



Seven boxes of cards, with a combined mass of 36 kg, awaiting postage labels prior to despatch to the State QSL Bureaux.

The boxes on the right of the table, waiting by the franking machine for postage labels, represent 36 kg of

the 44 kg of cards shipped from the WIA office today (3 April 2012) to the State Bureaux. All the cards arrived within the space of one week, although four boxes had a total of 30 kg, arriving in two days. The cards were then sorted and despatched within a week of arrival.

Cards were primarily from France, Sweden, Germany, Japan, Bosnia and Spain. State Bureau managers will be busy sorting to ensure cards reach

their destinations as quickly as possible. Queensland received 12 kg of cards in this round of despatch.

WIA members can ensure prompt receipt of cards by making sure collection details are kept current at the pick-up point.

It is worth reporting that some cards are in fact quite old with QSOs dating back into the 1980s, and often for a known Silent Key. Please be assured cards are despatched as quickly as possible from WIA HQ. We have no explanation as to why some cards have been so long arriving.

Thank you to the volunteers in each State who sort and distribute the QSL cards. Your efforts are appreciated.



SOUTH-EAST RADIO GROUP

Affiliated with WIA

PO BOX 1103

MOUNT GAMBIER SA 5290

email: vk5sr@wia.org.au

VK5SR

VK5RMG/6

We're back! Yes, the SERG Convention and Australian Fox Hunting Championship will be held on the Queen's Birthday weekend – 9th and 10th June 2012.

The Convention will be at its usual home, the Margaret Street Scout Hall. Doors open at 12:00 noon on Saturday with the first fox hunt to start at 11:00 am from the Lakes area.

On Sunday, doors open at 9:00 am. Entry fee is \$5 for the weekend.

We will have the fires going at the hall to keep warm. With our Master Chef back on duty again this year, there will be plenty of fine food available to fill the spot.

Ross from Strictly Ham will be there. Stalls with second hand equipment and our Home Brew Contest will be bigger than ever.

Trophy Presentations will be 17:00 at the SERG clubrooms. Following the Presentations we will have a BBQ to catch up on the weekend's activities. All are invited.

Keep up to date at <http://serg.mountgambier.org/> or email vk5sr@wia.org.au

Hamads

WANTED – NATIONAL

Copies of Radio Weekly magazine.

The WIA Archive is seeking copies of Radio Weekly for copying and/or adding to the

WIA Archive's shelves.

Little is known about this magazine.

The WIA holds two copies only. Volume 1, Number 1 and Volume 2, Number 2.



They contain about 36 pages and issues included articles of general radio interest in addition to the odd experimental article. The magazine was published in Melbourne commencing in February 1925 and claimed a circulation of 25000! For those who have responded to previous requests for copies of early magazines, thank you. We are gradually building up our collection of important Australian magazines which will be available to future researchers. Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National

Office in Bayswater if you can help us locate copies of this magazine.

WANTED – ACT

Telereader CWR685E.

Contact Fred VK1RY, QTHR, Phone 02 6247 9886 or email fwryan@tpg.com.au

FOR SALE – NSW

Any old military receivers, and the book 'Wireless today, 1936'.

Contact Nick L20106, on 02 9477 2134.

Wonnangatta Mayday

Tony Lathouras VK7VKT and Peter Freeman VK3PF

At around 0930 on 9 April 2012, a mayday call was made on 7090 kHz by VK3MOC who was in the Wonnangatta River valley region in the highlands of Victoria.

A forty year old male in a camping party had some seizures and was in a serious medical condition. The group was camped near the Wonnangatta Station Campsite. The location is extremely remote; with four-wheel drive only access. It is on the floor of the valley, with high mountain ridges on all sides. Adam VK3MOC made his way up to a hill in a 4WD with HF fitted and made the Mayday call.

Jack VK3AJK was the first to respond and took control of the frequency and the situation. He ascertained the location, situation etc. and contacted emergency services via telephone. Jack and others have a regular net on this frequency every morning. The other net members stood by, monitoring the traffic.

VK3AJK then became the relay person between the emergency services and the camping party as the precise GPS coordinates were transferred to the emergency

operator as well as details of the specific medical condition. During critical phases, Jack simply held the telephone microphone up to the radio speaker as the details were passed, and then confirmed with the emergency operator that the information had been received. At times, Jack was struggling to make notes, handling the microphone and the telephone handset, all at the same time.

The decision was made that a medical evacuation would occur via a rescue helicopter.

Both parties were being received by Tony Lathouras VK7VKT 5-9.

VK3MOC then indicated that he was going to return to the valley floor where the rest of the camping party, including the patient. The final instruction passed by Jack VK3AJK was that the rescue helicopter asked that all vehicles in the camping party form a 50 metre diameter circle in a clearing with hazard lights flashing.

The weather had started to close in by this time.

Upon reaching the valley floor, Adam VK3MOC put out another

call. Signals had dropped to 5-7 but perfectly readable into VK7 and VK3AJK had a perfect copy.

Several calls were made to establish that contact was still available between the two and indicating that the patient was stable. Adam VK3MOC then indicated that all vehicles were in position.

A short time later, Adam called back to say that the helicopter with medical team had landed, and thanked Jack for his assistance.

It was asked several times, with the same reply, that there was no mobile phone service in that area.

All involved remained on frequency until the helicopter had left the scene.

Later in the afternoon, Steve from Ambulance Victoria called Jack on the telephone to once again extend thanks to Jack and the amateurs for their assistance during the emergency situation.

All hope that the patient has a speedy recovery and full points to Jack and Adam who worked calmly during this event.





Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

About Hamads

- Submit by email (MUCH PREFERRED) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

AMIDON FERROMAGNETIC CORES



tts systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystems.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links related to Amateur Radio and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products

Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**

JACKSON BROS

www.jacksonbrothers.com.au

Highest quality products made by UK craftsmen

Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES

HAMMOND MANUFACTURING - Large range of quality electronic enclosures for the discerning Radio Amateur. Diecast, extruded aluminum and plastic enclosures and instrument cases. As seen in many APRIL projects.

Cookson Controls CHARLES I COOKSON PTY LTD

11-13 Port Rd Queenstown SA 5014

Tel: (08) 8240 3200 Fax: (08) 8240 3233

sales@jacksonbrothers.com.au

ccookson@hammfg.com

ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND



Tecsun PL 600 HF Receiver

Easy to use 600 memories

Large LCD display, direct frequency entry, LW, MW and continuous SW coverage to 29,999KHz, SSB, supplied with approved charger and NiMH batteries.



Easy to use
600 memories
Product Showcase 2008
23rd October 2008

**ONLY \$139 +
shipping**

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100

Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au
www.avcomm.com.au

ADVERTISERS INDEX

Av-com	63
Com-an-tena	27
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	9
RF Solutions	7
TET-Emtron	31
TTS	63
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Directory

National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>



The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au

- * John Bishop VK2BK
- Dominic Dahl VK2YDD
- * Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- * Bob Tait VK3XP
- Luke Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- * Michael Charteris VK4QS
- Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- * David Clegg VK5KC
- * Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- * Martin Stretton VK6ZMS
- * Heath Walder VK6TWO
- Craig Lamb VK6FLAM

Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- * Justin Giles-Clark VK7TW
- Peter Rumble VK7IY

Northern Territory Advisory Committee

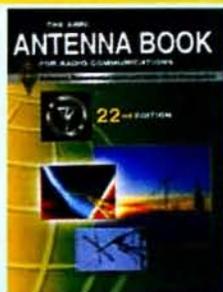
Email: vk8advisory@wia.org.au

- * Peter Blackadder VK8HPB
- Garry Woods VK8GW
- * Alan Baker VK8AB
- Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board
(*Nominated Member*)

Visit our Bookshop

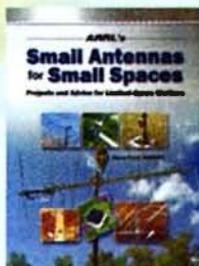


ARRL Antenna Book

(22nd Edition - Softcover)
Antennas, Transmission Lines and Radio Wave Propagation
Build one

antenna, and you'll quickly find yourself planning the next. **The ARRL Antenna Book for Radio Communications** is devoted entirely to that pioneering spirit. In this one book, you will find all of the information you need to design complete antenna systems—from planning, to design and construction. **The Antenna Book** includes treatments for nearly any radio band and operating application: low-band, HF, VHF, UHF and microwave; fixed station, portable, mobile, maritime, satellite and more!

MEMBER PRICE: \$85.00* RETAIL: \$95.00*

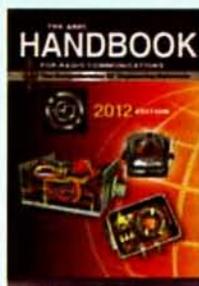


ARRL's Small Antennas for Small Spaces

Amateur Radio operators love antennas – the bigger the better

-- but if you don't have acres of property to erect the antenna of your dreams, does it mean you're effectively off the air? **Not at all!** This fascinating hobby is still yours to enjoy. With the right antenna design you'll be on the air today! **ARRL's Small Antennas for Small Spaces** is a valuable resource for amateurs who live in apartments, condominiums, or houses on small lots. Filled with practical advice, this book guides you to finding the right antenna design to fit whatever space you have available. In **Small Antennas for Small Spaces** you'll find ideas and projects that will get you on the air regardless of where you live!

MEMBER PRICE: \$42.00* RETAIL: \$48.00*



ARRL Handbook

(2012 - Hardcover or Softcover)
The ARRL Handbook for Radio Communications has kept technologists—

amateur, professional and students—immersed in the radio art for generations. As innovations in wireless communication march (and race!) ahead, **The ARRL Handbook** has maintained its place at the forefront—a single resource covering electronic fundamentals, radio design, and loads of practical treatments and projects. You'll read it, study it, and turn to it...again and again.

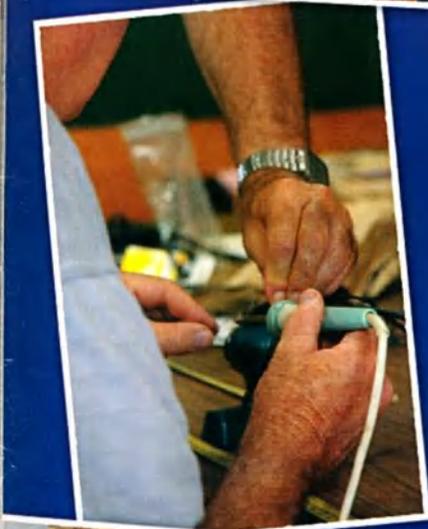
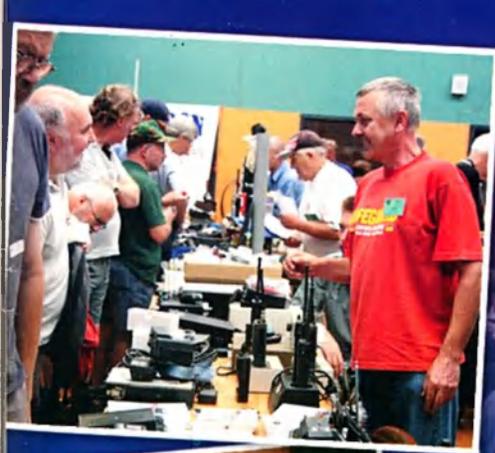
Updated and Revised! This eighty-ninth edition of **The Handbook** includes something for every radio amateur and experimenter.

MEMBER PRICE: \$85.00* RETAIL: \$100.00*
Hardcover

MEMBER PRICE: \$80.00* RETAIL: \$95.00*
Softcover

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details. www.wia.org.au/bookshop



Join your local radio club today!

Radio Clubs:

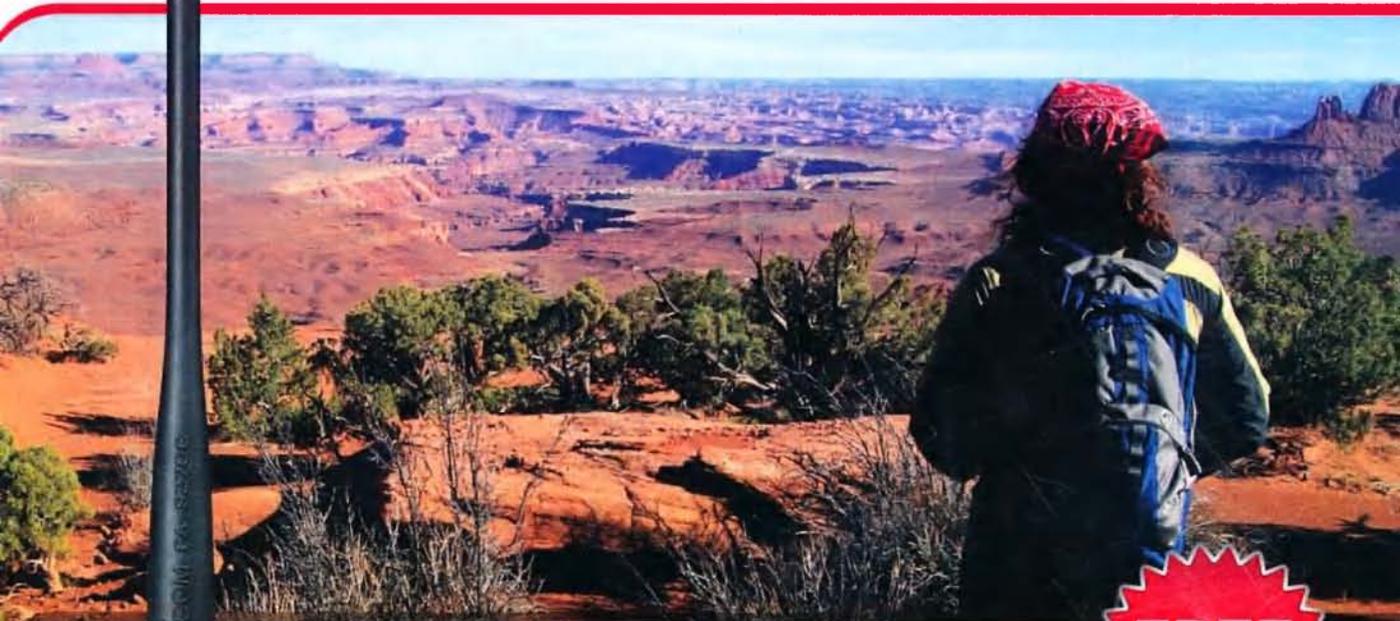
- Are Australia-wide
- Will introduce newcomers to amateur radio
- Run regular meetings and functions
- Provide short training & accreditation courses for people wishing to obtain an amateur radio licence

Further information on clubs can be found on the WIA website

www.wia.org.au



The Evolution of D-STAR Continues



ID-31A

- Slim, Compact and Lightweight
- IPX7 Waterproof (1m Depth for 30 Minutes)
- GPS Built-in
- GPS Logging
- Micro SD Card Slot
- Pre-programmed with main worldwide repeater frequencies
- 1252 Memory Channels (500 Regular, 700 D-STAR Repeater Memories, 50 Scan Edges, 2 Call Channels)
- CS-31 Cloning Software Included (Update available from Icom Inc. website)
- D-STAR DV Mode and Analogue FM Mode
- Directional Keypad and Quick Menu Button
- Large Dot-Matrix Display

**FREE
SD CARD***

* Free 2GB SD Card available for a limited time only.

**ICOM**

ICOM 608

To find out more about our latest products,
call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

Volume 80
Number 6
June 2012
Price: \$8 incl GST

www.wia.org.au



John Moyle Field Day Results + JMFD high in the Alps

An isolated USB interface
Promoting amateur radio
Computer powered Tx/Rx

ISSN 0002-6859



9 770002 685062

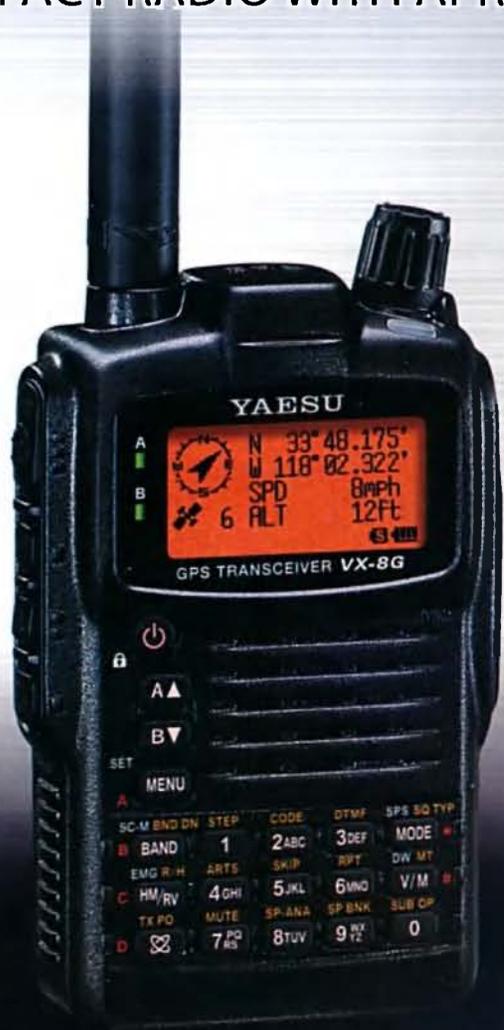


A TECHNOLOGY BREAKTHROUGH

THE NEW PRESTIGIOUS COMPACT RADIO WITH APRS



VX-8DR/E



VX-8GR/E



AMATEUR RADIO

Volume 80
Number 6
June 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor

Peter Freeman VK3PF
editor@wia.org.au

Technical Editor

Peter Gibson VK3AZL

Publications committee

Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters

nationaloffice@wia.org.au

How to submit material

Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor

Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising

All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office

Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines

All articles, columns, hamads and
advertising booking by **first day of
previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

- Experiencing the JMFD 10
Stephen Warrillow VK3SN
- Putting it across - Talking about
amateur radio 16
Geoff Emery VK4ZPP
- Over to you - Three pin plugs 5
Steve Mahony VK5AIM
- Special Event stations for the
London 2012 Olympic and
Paralympic Games 37
John Warburton G4IRN
- Confessions of a pirate 40
Eric Jamieson VK5LP
- A telephone conversation with
Ai Shawsmith, ex-VK4SS 59
Peter Hadgraft VK4APD



This month's cover

The VK3JNH solar powered John Moyle Field Day (JMFD) station at 1700m ASL in the Victorian Alps. The Results of the 2012 JMFD are published in this issue, as is a story from Stephen VK3SN of his expeditions over the last two years into the Victorian Alps for the event. See page 10. Photo by Stephen Warrillow VK3SN/VK3JNH.

Technical

- Foundation Corner 20 - A buzzer
with a difference 6
Ross Pittard VK3CE
- PRM80 six metre conversion -
an unexpected fruit 27
Matt Bilston VK3VS/VK3SMB
- An unlikely source of QRM 30
for your HF or VHF station
Gerald Molenkamp VK3GJM
- A computer powered multimode
transmitter - QRP from your
computer's USB port 33
Peter Parker VK3YE
- An isolated USB interface for
controlling radio equipment 60
Dale Hughes VK1DSH

Columns

- ALARA 38
- AMSAT 44
- Contests 17, 21
- DX - News & Views 48
- Editorial 2, 4
- Hamads 62, 63
- Silent Key 9, 58
- Spotlight On SWLing 43
- VHF/UHF - An Expanding World 52
- WIA Comment 3, 5
- WIA News 4
- News from:
- VK2 29, 46
- VK3 13, 15
- VK5 14
- VK6 50
- VK7 8

Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

Photostat copies

All back issues are unavailable, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road
Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mai Brooks	VK3FDSL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDIZ

Board of Directors

<i>President</i>	Michael Owen	VK3KI
<i>Vice-President</i>	Phil Wait	VK2ASD
<i>Directors</i>	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Piatt	VK5CP
	Trent Sampson	VK4TS
<i>Secretary</i>	Sarah Thompson	VK3AUD
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Platt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
<i>NTAC</i>	John Martin	VK3KM
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Platt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV
<i>International Travel Host</i>	John Miller	VK3DJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH

QSL Curator

<i>Repeater</i>	Peter Mill	VK3ZPP
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Wait	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

AR in electronic format

The Publications Committee has received very little feedback regarding the demand for an annual collation CD or DVD of a year's issues of *Amateur Radio*. Does this mean that there is little demand? We can only therefore assume then that demand is low for such a product.

The committee has decided to include electronic copies of *AR* on the CD version of the *Callbook*, with an entire year's issues included. This means that a bonus on the 2013 *Callbook* will be all issues of *AR* from 2011. We recognise that this is a delay of approximately one year, but it gives us a way of adding value to the *Callbook*, whilst also making *AR* available in electronic format.

We trust that this move will be welcomed by members and readers.

As this Editorial is being prepared, I have just received my copy of the June issue of the ARRL's *QST* magazine, which is promoting that the Digital Edition of *QST* will be available for ARRL members from late May (for the June issue). In the coverage of the steps undertaken in the lead up to this milestone, a large number of issues are noted. Many of these issues have also been raised at Publications Committee meetings when we have discussed this topic. The committee is still considering the question of publishing *AR* electronically at about the same time as the paper-based issue is published. However, we still have many questions to answer and possible methods of publication

need further exploration before we make any final decision.

WIA Annual Conference

The WIA Annual Conference is almost upon us. This issue of *AR* is due in post boxes in the days immediately prior to the event. It is now too late to register to join the event. I am sure that we will have news from the event in our July issue. I am certainly looking forward to all the activities on offer, except for chasing the *Horus* balloon. Why – the balloon chase conflicts with the paddleboat cruise and I chose the latter option. I hope that someone will have equipment on the *Mundoo* to monitor the progress of the flight and the chasers.

Microwave activity

The *VHF/UHF – An Expanding World* column reports on some of the recent activity on the microwave bands in Victoria and Tasmania. I had the pleasure of setting up a portable 10 GHz station on two separate days and successfully worked Rex VK7MO from two new gridsquares. Other commitments meant that I missed out on one of the squares activated, but such is life. Rex can be very proud of his efforts over recent months. He has extended distances worked by aircraft enhancement/scatter, given several operators new squares and continues to write analytical reports of the activities which are available for all interested to read via the web. I look forward to hearing more about his activities at GippsTech in July.

Continued on page 4



WIA comment

Michael Owen VK3KI

Thoughts from an Audit

I am sorry Mr Editor, I know I am sending you this "Comment" for the June issue of the magazine a bit late.

My excuse is that the ACMA has been conducting a formal audit of the WIA in relation to our management of the examinations, issuing Certificates of Proficiency and making callsign recommendations on its behalf.

Two very nice people have been in the WIA office for four full days, seeing what we do and talking to our staff and to various volunteers.

How well do we keep to our various obligations under the Deed between the WIA and ACMA? Do we do what we have to do within the time that we are meant to? What about what we charge? Is there full cost recovery? Do we calculate the fees that we charge (and must charge) correctly? Do we keep financial records properly?

Make no bones about it; we welcome the opportunity for someone from outside looking at what we do, because they may see better ways to do some things.

I asked for a meeting before the audit started, when we could talk with them and our colleagues from the ACMA responsible for managing the WIA Deed, about two things that I thought would probably be something different from the subject of the usual audit. One was amateur radio. The other was a voluntary organisation undertaking responsibility for work for a Commonwealth agency.

We had the meeting and we talked about those matters.

At the end of their visit to Melbourne, we had another talk about the voluntary work of many contributors.

The voluntary factor had emerged in a number of contexts.

Fred Swainston, our Registered Training Organisation (RTO), had taken the auditors through the way we train, qualify, accredit and register our Assessors. He showed how they are audited annually, and re-registered every three years. He showed how, using the Assessor Information Site, a site he established and maintains, the work of our Assessors is tracked.

Fred stressed that our Assessors were unpaid, and the only costs incurred were the very occasional reimbursement of exceptional charges for very long travel or the cost of long phone calls for a remote assessment.

But Fred stressed one thing; the commitment and enthusiasm of our volunteer Assessors.

Of course, what the audit is all about is the obligations accepted by the WIA under the Deed.

But, it was pointed out today, we do more things than we are obliged to under the Deed.

The Assessors will collect Callsign Recommendation forms from candidates, help them to fill in the application for an apparatus licence, collect the fees for the licence, and send it all with the Assessment results to the WIA, where the office checks it all, issues the certificate of proficiency, adds the certificate details to the application for an apparatus licence, sends the certificate of proficiency to the candidate and the application for an apparatus licence, the callsign recommendation and the licence fee to the ACMA in Canberra.

All of that we do because we are the WIA and not because of the Deed.

We believe that it is most important for people who have qualified for an amateur licence to get their callsign and be able to operate as soon as possible, and this certainly does speed up the process.

There is another consequential benefit from this. It means that the ACMA receives the majority of new applications for an amateur licence pre-checked, in bundles and with one cheque covering the licence fees of a number of applications. Surely this must help the ACMA?

All of that is outside the Deed, but because our role is to encourage amateur radio, this is a service we can offer.

How we handle the licence fee money is our responsibility, but in fact, what we do is follow the advice we were given by the WIA's auditors.

Robert Broomhead took the auditors through the creation of an exam pack, and all the information that has been recorded in respect of every pack since the very first pack went out in October 2005.

John Longayroux led the auditors around the systems the WIA has in place to track expenses and income, and provide the information required to satisfy the annual cost recovery information we must provide to the ACMA.

Of course, some of the audit was pretty detailed. Under the Deed we are obliged to provide the ACMA with quite a lot of information within 30 days of the 30th June each year - "Please, can you show us an email providing that information to the ACMA with a date on it to show when it was sent?"

Continued on page 5

ACMA undertakes major regulatory action in Adelaide

The ACMA has confirmed that a major compliance action was undertaken in Adelaide recently. Reports in the *Adelaide Advertiser* suggesting that "ham operators" were involved have been rejected by the ACMA.

Monitoring of the radio spectrum from ACMA infrastructure in Adelaide confirmed that a number of users (Pirates) were active on frequencies licensed to other parties. Intelligence gathered through this monitoring indicated that these individuals possessed equipment programmed with numerous frequencies.

Enquiries made by the ACMA found that these users did not hold ACMA licences for these frequencies.

The radios operated by the individuals involved in this matter had been programmed with a number of frequencies which were licensed to various organisations. The ACMA received a report of substantial interference from a licensee although the extent of the disruption to their communications is not known.

The ACMA did not receive any information indicating that there was a danger to public safety. Notices issued were in relation to the radio transceivers in the possession of the individuals and nine of these transceivers were subsequently surrendered to the ACMA. The ACMA is still considering whether to take prosecution action.

Amateur issues at WRC-12 - Debriefing Session

On Monday 23 April 2012 the ACMA conducted a debriefing session in relation to WRC-12 at the National Library of Australia in Canberra, attended by around 60 people.

Dale Hughes VK1DSH was the member of the Australian delegation nominated and supported by the Wireless Institute of Australia and who was responsible for Agenda Item 1.23, the proposal to "consider an allocation of about 15 kHz in parts of the band 415-526.5 kHz to the amateur service on a secondary basis, taking into account the need to protect existing services."

Dale reported in detail on the outcome of this proposal in the April issue of the WIA's *Amateur Radio* magazine.

Dale's presentation to the debriefing session is an interesting description of the processes of the ITU at a World Radiocommunication Conference, and can be downloaded from the WIA website.

Work has already started for the next WRC, WRC-15.

WIA Awards program changes

Shortly after becoming the WIA Director for Awards, Chris Platt VK5CP found that he had very little time for the task because of increasingly intense work pressures. WIA Director Trent Sampson VK4TS has been appointed Acting Director

for Awards until Chris is able to devote the necessary time to the role.

Steve Chamberlain VK6IR was appointed Awards Manager last February but found that he was unable to use the time he had set aside for establishing the role and so felt it better to allow someone else the opportunity to deal with this important area of WIA interest.

Bob Robinson VK3SX has been appointed Awards Manager.

In addition, Allan Meredith VK2CA has re-joined the Awards Committee and Laurie Davison VK7ZE has joined the Committee. Laurie is expected to become the first Australian ARRL card checker in the very near future.

Last March Dale McCarthy VK4DMC retired from the Awards Committee as he felt that he was no longer able to devote the necessary time to that role.

The routine management of the Awards process will continue to be through the WIA office, and WIA Treasurer John Longayroux VK3PZ has reorganised much of the basic current data to provide a basis for the work being undertaken by Trent, Bob and the Awards team.

The Awards pages on the WIA website have been updated, work is continuing to update the DXCC standings and the delay in issuing WIA Award certificates is expected to be largely overcome in the next six weeks.



Editorial

Continued from page 2

There has also been further microwave activity in south eastern Queensland.

It is excellent to see groups forming in different areas and that the established operators are sharing information with all interested amateurs. Such

information sharing and encouragement is surely amongst the most worthwhile aspects of our hobby.

Our local club is currently gearing up for the annual GippsTech event, which is all about sharing information and inspiration. That

means that I have several tasks to complete soon, so it is probably time to get to those tasks.

Until next month,

Cheers,

Peter VK3PF



Our auditors confessed that they had not previously conducted an audit for the Commonwealth involving a voluntary organisation.

But it was their audit procedures that made me appreciate how, on so many levels, the WIA and its volunteers were contributing to the growth and health of amateur radio. I had not really thought about the controls and

protections built into our software, created by volunteers, the controls and protections in the Assessor Information System software created for our RTO. I had not really thought about what the WIA and its people do that is more than we/they are obliged to do under the Deed, because we believe it is good for amateur radio, and that is why we exist.

I had not really thought about how much all this would cost if the WIA was an ordinary commercial entity, without volunteers.

The ACMA's auditors have made me think about these things.

So, Mr. Editor, I hope you can forgive me for being late.



Over to you - Three pin plugs

Steve Mahony VK5AIM

In the late 1940s to the 1950s, Australia changed over to the 240 volt three pin mains plug for all electrical appliances. Prior to this time we only had two pin 240 volt (210 volt in some states) power outlet sockets. Back then they consisted of separate switch and sockets all mounted on a wooden block, not like the 'combinations' of today.

This change to a three pin plug/socket was to allow all appliances to be earthed via another wire from the body or case of the appliance to the third pin and then to an earth connection via the water pipes of the building. This also required the cable flex to have three wires/ conductors, red as active, black as neutral and green as earth. This system was to allow any fault current to pass safely to earth instead of passing through the appliance user. It had been like this for the past sixty years. The only change has been the colour of the conductors to brown, blue, and yellow and green striped for the earth conductor. With the advent of the double earthed appliances the earth pin on the plug has disappeared.

I have an historical question about the three pin plug?



Photo 1: The three pin plug in question!

Recently I obtained an old audio amplifier, which I believe was a school PA unit, all valve, 6V6s, 6SJ7s and a 5Y3 and so on, branded S>S>S, Steins Sound Systems. According to the number on the transformers it was made in 1950.

On the end of the mains cable, a rubber insulated cotton covered cable, well past its use by date, was one of the early three pin plugs. On cutting this flex off the amplifier I noticed the three pin plug was different from the current plugs. This plug, made from dark Bakelite labelled No 421 and made by Ciipsal of South Australia had slightly different blades or pins.

Along the edge of each blade there are half round notches. I cannot understand what these notches are for; we see notches or grooves in the standard phone plug to engage in the spring contact of the socket. This also assists to hold the plug in place. These notches in the flat blade cannot engage in any connections in the socket as the contacts only make contact on the sides of these flat blades as this blade pushes between the two flat springy brass/copper leaves of the socket.

In my fifty plus years in electrical and electronics work, I have never seen any 240 volt sockets with connections made with springy contacts to the edge of the male pins to engage in these notches. It is a long time ago when, as an apprentice, I wired up all those new three pin power sockets and crawled around ceilings connecting up and soldering up bare copper earth wires.

Has the reader any information on the reason for these notches?

Contact Steve VK5AIM, QTHR or phone 08 8255 7397.



Foundation Corner 20 - A buzzer with a difference

Ross Pittard VK3CE

These days popular digital multi-meters come with a buzzer function which is very handy to check for shorts and continuity when setting up antennas and feed lines. The problem with these buzzers is they usually 'buzz' with anything from a dead short through to 100 ohms and sometimes higher resistance. This means when using them you need to constantly look at the display to make sure it is in fact reading zero ohms. The small circuit about to be described overcomes the main limitation of the multi-meter buzzer.

With this we do not have to constantly look at the meter to check that we do not have a varying resistance. The circuit uses three capacitors, two resistors and an old speaker from a discarded radio. The supply voltage can be anything from six to 18 volts without difficulty. A word of caution though, this *is not suitable* for checking for shorts on any electronic circuitry as the battery voltage used may damage sensitive components. It is primarily designed for checking cables, baluns and connectors.

Based on the ubiquitous NE555 timer IC it provides an audible signal

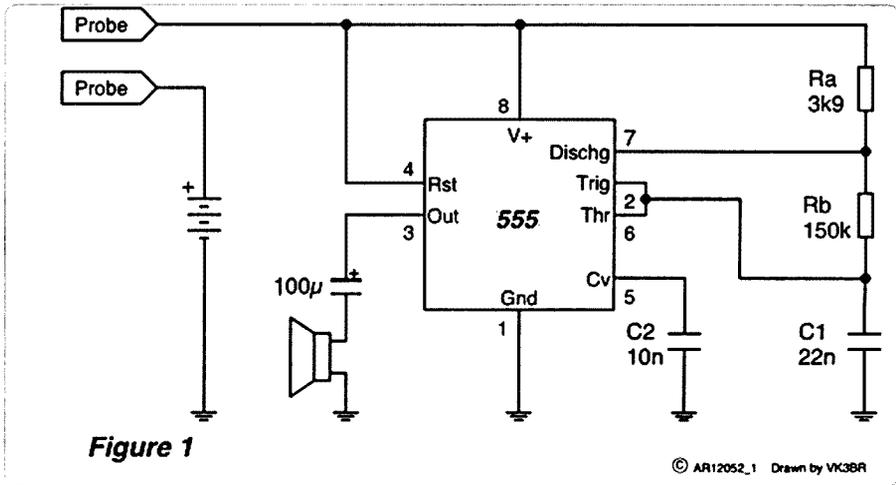


Figure 1

© AR12052_1 Drawn by VK3BR

Figure 1: The 'buzzer with a difference' circuit.

that varies in frequency with different resistances between the probes. The 555 is running in what is called 'astable multivibrator' mode and the frequency of operation can be found by the formula:

$$\text{Frequency} = 1.443 / (Ra + 2Rb)C1$$

Astable just means the oscillator runs continuously. There is a wealth of information on the net regarding literally hundreds of circuits based on the 555 IC from the ever reliable egg timer through to burglar alarms and even voltage regulators.

As can be seen from the circuit there is not much to build.

I used a small piece of 'vero' type board available from Jaycar and assembled the components 'breadboard' style, basically laying them out as on the circuit. If you haven't used vero board before have a look at the photos and see where I have cut the tracks to position the IC, and then all I have done is use the appropriate tracks to connect the rest of the circuit together.

Try laying out the components before soldering anything and try and get the best layout without too many crossovers.

Photo 1: The underside of the veroboard before cutting.

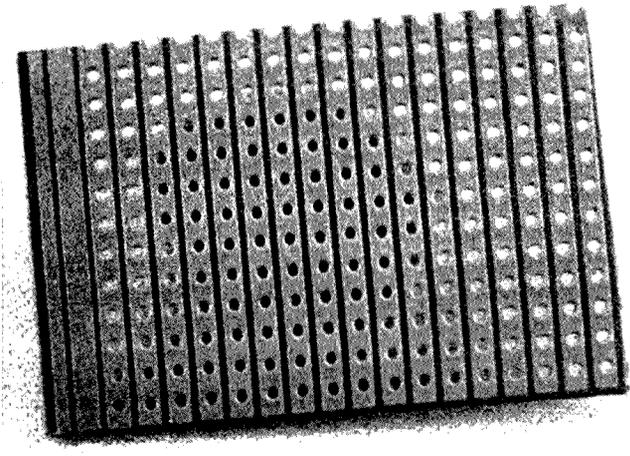
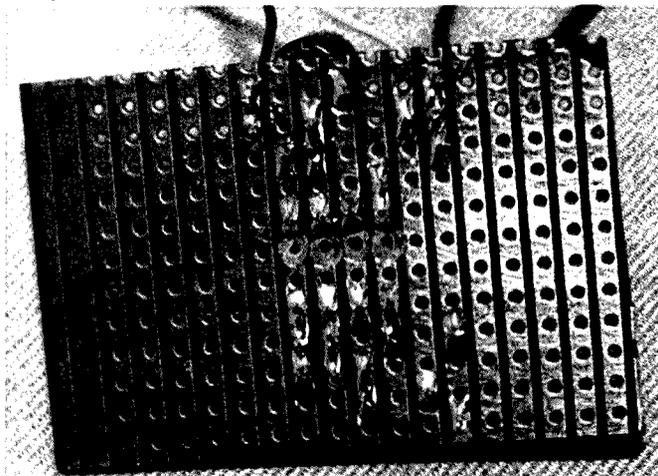


Photo 2: The veroboard after cutting and soldering the components.



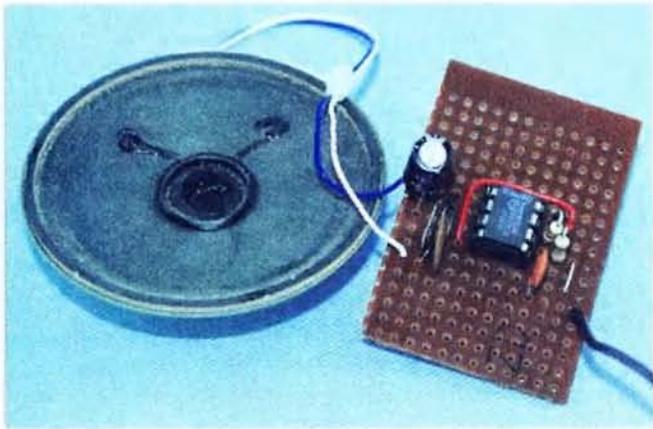


Photo 3: The completed board.

When finished a dead short between the probes will give a tone of around 150 Hz and this will increase up to around five kHz for a 150 ohm resistance between the probes. Of course if you have an intermittent connection the unit will vary in frequency indicating you have a fault. To change the range of frequencies the unit operates over simply change the value of the 22 nF capacitor in the circuit. I powered mine from a nine volt battery, from which no current is drawn unless something is placed across the probes. When completed, the unit can be put in a small plastic box with some holes cut out for the speaker.

I find mine very handy particularly outdoors on a bright day when it is sometimes hard to read a digital meter in direct sunlight. All I have to do is clip the leads onto a connector and give the cable a good wriggle and if the tone varies I know there is a problem.

Get on the Air with HF Digital

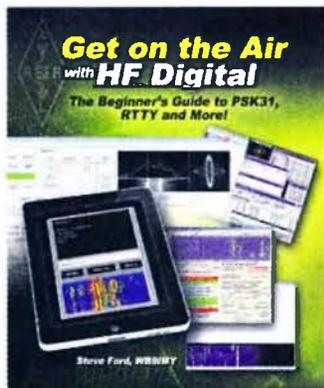
It is a step-by-step guide that'll get you started in the fascinating world of HF digital technology.

Written in an easy to understand, conversational style, this book will show you how to set up and operate your own HF digital station.

The text includes instructions for configuring software programs for popular modes such as RTTY, PSK31 and JT65.

You'll also learn about other digital communication modes such as MFSK, Olivia and PACTOR.

WIA Member Price: \$30.00 Retail: \$35.00



Electronics Enthusiasts

Jaycar Electronics - Better, More Technical



Laboratory Power Supply

A high powered switchmode power supply with variable voltage output from 1 to 16VDC and variable current from 0 to 40A. Features dual action (coarse/fine) microprocessor controlled rotary encoder tuning for smooth, precise and fast settings, 3 user defined voltage and current presets, and intelligent fan cooling control. See website for features and specifications.

- High RFI immunity and excellent EMI
- Overload, short circuit, over temperature and tracking over voltage protected
- Size: 200(W) x 90(H) x 215(L)mm

MP-3094



NEW \$399.00

Advanced 2 Watt 80 Channel UHF Transceiver with CTCSS

A stand-alone transceiver for professional and leisure activities. 2 watt output provides up to 10km range. Save battery power by switching to 500mW for short-range communications. Features CTCSS, 80 channels, plus a rechargeable Li-ion battery with a plug pack charger.

- Hi/Lo power output
- Backlit LCD
- Low battery display
- Li-ion rechargeable battery
- Size: 120(L) x 57(W) x 35(H)mm
- Auto squelch
- Roger tone
- Stop watch

DC 1049

NEW \$99.95



Suitable accessories available separately. See website for more info.

Universal Charger for Cordless Power Tools (4.8-24V)

Have a cordless power tool and can't find the charger? If it has a Ni-Mh or Ni-Cd battery then this charger will solve your problem. Includes magnetic and alligator clip connectors. It automatically detects the polarity and voltage of your battery and charges it accordingly, and suitable for 4 8 24V battery packs.

- Size: 192(L)x74(W)x39(D)mm

MR-3631

NEW \$79.95



Power Automotive Gadgets in the Home

A handy solution for powering 12V equipment such as car coolers and camping fridges from a mains AC power source. Supplied with a 1.5m output lead with cigarette socket output, making connection simple and easy.

- 12VDC 12.5A
- Input voltage: 220 - 240VAC
- Size: 200(L) x 100(W) x 65(H)mm

MP-3573

NEW \$89.00



Car Accessories

Portable Car Safe

Keep your mobile phones, cameras, wallets, keys or GPS's protected with this portable car safe. Simply attached the included 1m alloy cable strap to your seat railing and neatly tuck it under your seat or place in the boot of your car.

- Size: 210(L) x 150(W) x 68(H)mm

HB-5455

NEW \$24.95

*iPhone® and cash not included

12V HD Digital Set Top Box

Great for use on the road, this high definition set top box will pickup all the digital channels on offer in your locale. You can also plug in a USB drive and record TV in MPEG2 format to watch at a later date.

- Output: HDMI, Composite, RF
- USB port for recording and playback
- Cigarette lighter cable included
- Size: 154(W) x 117(D) x 40(H)mm

XC-4921

NEW \$69.95



To order call 1800 022 888
www.jaycar.com.au





VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/

DXpeditioner extraordinaire Rex VK7MO has been at it again! This time on King Island and working amateurs from VK5 and all across VK3 on 10 and 24 GHz. Congratulations to all involved with a special mention of Eric VK7NFI who flew Rex and all the equipment across to King Island. I was told there was so little room in the plane Rex had trouble getting into his seat...HIHI.

Photo 1: The author VK7TW interviewing Rex VK7MO about the King Island DXpedition at a recent DATV night. Photo by VK7FEET.



VK7 Regional News Broadcast

Our merry band of news readers and re-broadcasters has grown substantially over the last month with two new readers making their debut – Rick VK7FRIK and Lyn VK7FLYN. We now have a reading team of six which is providing some great aural variety to our half hour of Regional News each week. We also have some new HF re-broadcasters in Peter VK7TPE, Garry VK7JGD, Alan VK7ZAR and Peter VK7PL. A big thank you is forwarded to all who have volunteered to get the news about this great hobby out to VK7 amateurs and abroad.

Cradle Coast Amateur Radio Club

The March meeting of CCARC took the form of a 'Do your own thing' day at the Gawler Hall in north-west VK7.

The weather was unkind, however a big thank you to Rick VK7FRIK who donated a couple of marquees for the event. Despite the weather there were many members, family and friends who attended. The innovative use of a Steve VK7NZL's 9 metre high plaster board lifter saw the HF antenna raised and many contacts were made on HF throughout the day.

By the time this goes to print CCARC are hoping to have the new battery box, batteries and wiring delivered to the top of Mt Duncan by helicopter to upgrade the VK7RMD (146.625 MHz) repeater. It will certainly be all hands on deck for this exercise! Dave VK7DC and Neil VK7ZNX have also been improving the Table Cape repeater by raising the antenna to the top of the tower and providing improved coverage into Ulverstone and the NW.

Northern Tasmania Amateur Radio Club

Congratulations to Joe VK7JG and Mike VK6WS for completing the first two metre VK6-VK7 EME contact on 4 April, 2012, using the weak signal application WSJT. This contact has been a long time in coming and much work has been put in to finally achieving this. Congratulations.

On 11 April, 2012 NTARC held a Special General Meeting to consider two additions to the NTARC rules. These additions related to automatically

lapsing a person's membership from 30 June if fees still unpaid and the second addition related to readmitting an expelled member using the same process as used for the expulsion.

Radio and Electronics Association of Southern Tasmania

Congratulations to Brian Elliston, Adam VK7FAZZ and Warren VK7FWAZ who all passed their Foundation Licence training and assessments. Congratulations also go to Peter Demoudy who passed his Standard examination on this assessment day.

Richard VK7RO presented a fascinating look at the 100 year history of the Marine Wireless Station on the Queen's Domain, Hobart on April 4. Richard took the attendees from establishment of the station by the Commonwealth Government in 1912 as one of a chain of coastal wireless stations to communicate with shipping, through

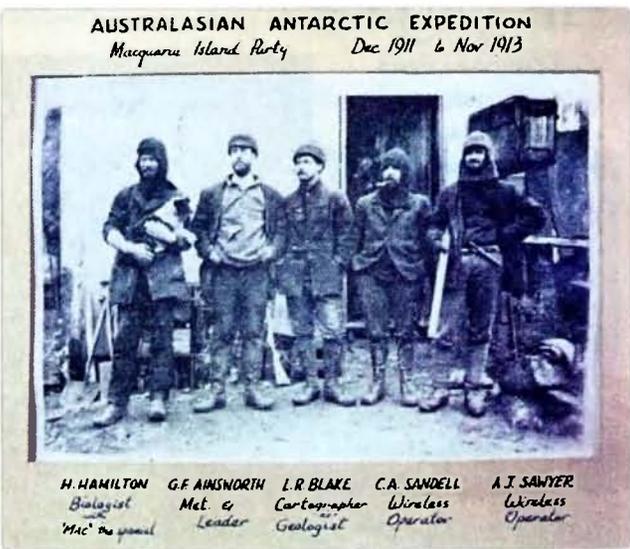


Photo 2: The Macquarie Island Expeditioners 1911-1913, who would have communicated with the Queen's Domain Wireless Station. Photo courtesy of VK7FEET.

Silent Key

Steve Jones VK7ZSJ

It is with deep regret we announce the sudden passing of Steve Jones VK7ZSJ, on Saturday, 28 April, 2012.

Despite Steve's battle with cancer for the last two years he had always maintained a positive outlook and had committed himself to enjoying all aspects of amateur radio. He regularly attended meetings in the north-west, was active with many facets of amateur radio and regularly chatting on the local repeaters.

He will be sorely missed by all amateurs on the north-west coast, and we would like to express our deepest sympathies to all his family.

Rest in peace Steve.

Contributed by Tony Bedelph VK7AX and David Cleland VK7DC on behalf of all amateurs on the north-west coast of VK7.



Photo 3: REAST display at the National Field Day 2012, on location at Jaycar, Derwent Park. Photo courtesy of VK7VKT.

to its closure in 1992 and later reuse as Coast Radio Hobart. The early history included communication with the 1911-1913 Mawson Expedition to Antarctica via the wireless station on Macquarie Island. Thanks to Richard for this excellent presentation.

The WIA National Field Day on 14 April, 2012 saw REAST set up at Jaycar in the Hobart suburb of Derwent Park. Many interested onlookers were treated to a display and demonstration of amateur radio in its many forms and took away information about this great hobby.



New from

YouKits

The ultimate in affordable, portable HF antenna analyzers

- ▶ Frequency range 1 to 60 MHz
- ▶ Displays both Impedance and VSWR plots
- ▶ Variable sweep widths 50, 20, 10, 5, 2, 1, 0.5, 0.2, 0.1, 0.05, 0.02, 0.01 MHz
- ▶ Daylight usable color LCD display
- ▶ 12V external supply or optional internal Lithium-ion battery pack

Australian distribution by



tts systems

Phone 03 59774808

Fax 03 59774801

Email info@ttssystem.com.au

Web www.ttssystem.com.au

Experiencing the JMFD

Stephen Warrillow VK3SN



Photo 1: VK3JNH portable field day station - perched on an alpine summit high above the clouds.

There are few activities more quintessential to amateur radio than John Moyle Field Day. The opportunity to get away from the day-to-day routine and indulge completely in meeting the challenges of portable operation is surely too good to pass up. Australia is arguably one of the best places in the world for such endeavours, with almost limitless opportunities to head out into the beyond. Many amateurs will have fond memories of past field day adventures, either as single operators or with their club. For events such as the JMFD to work, it is imperative that sufficient numbers of amateurs make the effort to actually go out and operate

in the field. I have thoroughly enjoyed heading out with the North-East Radio Group on the JMFD for several years now and learned much from the club's many experienced operators during these occasions. However, the opportunity to set out independently offered the chance to expand the number of stations on air and contribute more fully to the success of the event.

Planning

Setting out for field day is essentially no different to any other expedition, albeit on a more modest scale. One of the key elements to success is planning. This is crucial for a range of reasons, including

the sheer number of different bits of kit that must be assembled and also the fact that once one is away from civilisation, there is limited capacity to address problems that might arise through broken gear or forgotten items. I have long ago developed the habit of using checklists and worked hard at contingency planning. This approach definitely serves well when it comes to organising for field day. Another important factor is teamwork, and I am lucky to have a brother (VK3GT), who is similarly keen to participate in these events and has been available to pitch in. Between us, we have developed a comprehensive list of gear that we have refined over several years

such that it now covers most foreseeable situations. Using the list has ensured that (so far) there has not been one of those 'heart-sink' moments where it is discovered that a small, yet vital piece of gear has been left behind.

Location

Our chosen field day location is in the Victorian Alps, about five hours drive north-east of Melbourne. We know this region well from summer walks and winter cross-country ski trips. The summit we selected is deliberately at about the limit of what we can reach by 4WD. The reasoning behind this is that we want a very high and isolated position with 360-degree views that while accessible to us, is unlikely to be of much interest to the general public. This avoids the risk of curious onlookers wandering into guy-lines and coax runs. After much poring over topographic maps, it was fun doing a few reconnaissance trips prior to the event (under the guise of family bush walks!) to choose the best location. At over 1700 m ASL and with spectacular views across the high country, it must be one of the most picturesque field day locations in the country. It is also no coincidence that this is perfect for VHF and UHF work and is distant enough to provide plenty of distance multipliers.

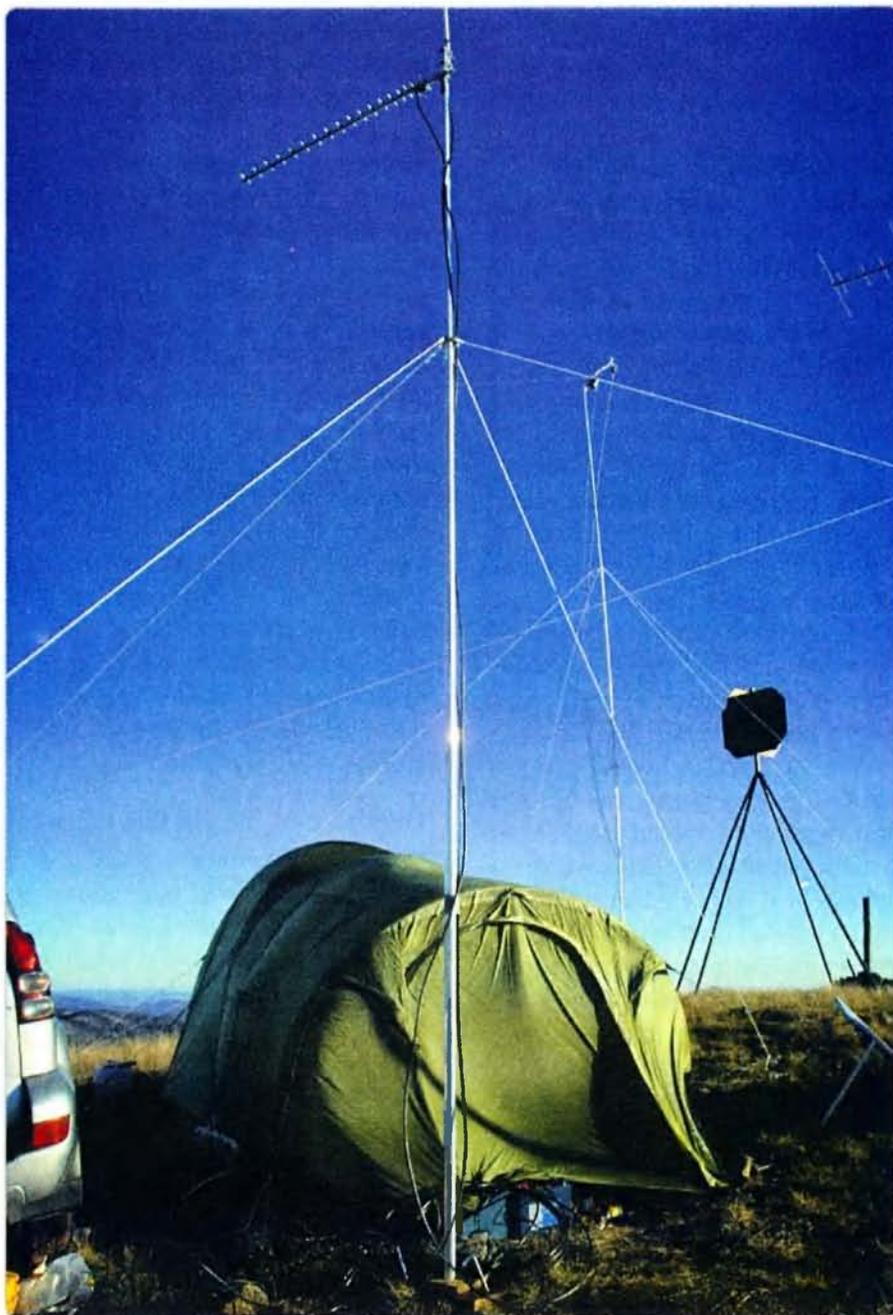
Camping gear and other essentials

Before getting on the air, it helps to have meals, sleeping quarters and other basics sorted. Having done a lot of camping previously meant the essentials were already to hand. Last year, we slept in a small two-person tent and used a tarp attached to the 4WD to shelter the operating position. This worked fine in good weather, but we were left too exposed when wind and mist blew in. This year we decided on a two-room family size dome tent to cover both sleeping quarters and operating room. Tents do work well for this purpose, but is it important

to have cross ventilation, otherwise on even an overcast day it can reach stifling temperatures inside. A floorless tent would be ideal, but these days they are hard to come by. We set one room up with air mattresses and sleeping bags, while the other room held a table and seating for our portable station. A gas stove, a 25 litre water container and cooking implements completed the kitchen arrangements. Food was pre-prepared and frozen at home so that meals were a simple matter of reheating once thawed.

This approach minimises on-site preparation time and made cleaning up easy. Proper clothing is very important when going up on hill-tops; we have experienced sweltering heat and freezing cold in the same day and learned from this to pack accordingly. Sitting at a radio for hours in cold conditions can get pretty uncomfortable if not prepared with appropriate insulating layers. Because it can also snow at any time of year in the alpine regions, we make sure to have GORE-TEX® outer layers to keep out wind and sleet.

Photo 2: Guyed aluminium masts crowd around the wind-blown tent.



Power

Petrol generators are the mainstay of most field stations, but we avoid them for a few reasons. Aside from their bulk, weight and noise, most national parks do not permit their use. There is also the hazard of carrying and dispensing fuel. Solar power has none of these issues and we have successfully employed this technology for fieldwork on many occasions. Using a combination of folding and ultra-light roll-up panels, plenty of output can be obtained to charge a couple of 88 Ah deep cycle batteries via home-brew regulators. This gives sufficient power such that both radios can run full throttle for the whole event in addition to supporting the laptops and a 12 V LED lighting system for night work.

Radio gear and antennas

With only two operators, we only run a couple of rigs. For 160-10 m, we used an FT-100D and a multiband dipole, which covers 80-10 m. To cover 160 m, a full size dipole was hastily constructed from hook-up wire just prior to leaving home. The HF antennas were arranged as inverted-Vs from a nine metre mast. The bands from 6 m to 23 cm were covered by a TS-2000X into beams and verticals. Mounting these antennas was tricky as only two masts remain to accommodate the necessary antennas. Sandpiper is a UK antenna manufacturer and they have a multiband beam that fits Yagis for 6 m, 2 m and 70 cm onto a single boom. They also make some nice high gain Yagis for 23 cm and using these in combination, we could cover all the relevant VHF and UHF bands for SSB. With a few diplexers for mixing, we then routed FM into some multiband verticals mounted on the masts above the Yagis. This arrangement allowed all bands from 160 m to 23 cm (inclusive of FM where relevant) to be set up on our three portable masts. Connecting all the gear is quite an undertaking and we have a range of coax runs and plenty of adaptors.

For HF, RG-58 is easy to work with, but losses become problematic



Photo 3: VK3GT working HF within the shelter of the tent on Sunday morning. Apparent temperature -2°C.

on the higher bands necessitating use of RG-213 or LMR400. Once all has been connected up there is always a moment of anxious anticipation as the SWR is checked on every antenna. Despite a few minor glitches, everything worked just about perfectly. It would be great to have a rotator for the beams, but this would add significantly to the equipment load, expense and power requirements. We therefore stuck with the manual 'arm-strong' method for turning them, with the cardinal points of the compass marked on the base of the mast for reference. After using paper logs in the past, we are avid converts to the free VKCL logging software; it is fantastic. In addition to being simple and intuitive to use, it keeps track of distance multipliers and three-hour block times to make the whole process of scoring a breeze.

On the air - worth the effort

Our first independent effort at field day in 2011 was an amazing experience. We were lucky that all the necessary elements came together at the time. From our location up high on an isolated alpine summit, we were very fortunate to have decent weather and no equipment failures (see 'Field Day First Timers-Australian Style' in RadCom March 2012, Vol 88, Number 3, pages 64-66 for a full description). In 2012, we refined our approach further, based on lessons learned from the previous

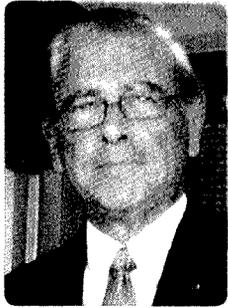
year. Using heavy-duty plastic storage tubs for organising all the equipment made packing and set up easier. With only two operators, we were kept busy for most of the time

and managed to work all bands and all blocks. It is a lot of fun to work from such a remote and beautiful place, being entirely self-reliant for everything. This year, the weather was far more challenging, with torrential rain on the trip up the mountain and freezing gale-force winds overnight. Amazingly, the antennas and masts stayed upright and no damage occurred, despite the tent almost being blown completely sideways. There seemed to be more stations around this year and from the numbers exchanged, many have scored extremely well.

The future

JMFD is firmly fixed on our calendar. The planning, organisation and challenge of portable field work is a lot of fun and every time we learn something new from our endeavours. What would enhance the experience even more would be the opportunity to work more portable stations. Consider heading out solo or getting a small group of friends together and organise your own field day effort. Whether it is solo for just a few hours on 2 m FM from a local park, or a team covering all bands from a distant hilltop, you're guaranteed to have a great time and you'll be an important contributor to an amazing event. Start planning for next year!





VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC

AGM and Review of 2011 – 2012

As with most amateur radio clubs it was time for the AGM. Subsequently, it was determined that for the year 2012 – 2013 the Management Committee remain unchanged with Tony VK3JGC as President, Jenni VK3FJEN as Secretary and Public Officer (the latter role following Consumer Affairs Victoria recommendations) and Lou VK3ALB as Treasurer. Committee members include Calvin VK3ZPK, Carlo VK3BCL, Greg VK3VOX and a new addition, Vanessa VK3FUNY.

On the domestic front this year has been particularly eventful for

the GARC with substantial building work to the club house with the re-roofing exercise, the implementation of a high tech alarm system, the availability of internet and WiFi at the club house (courtesy of Greg VK3JIY) and the substantial replacement of lounge furniture.

In the competitive field the rise of Team VK3ALB along with the well-established interest group of LUMEG under the banner of VK3UHF have, as groups and individuals, been prominent at the top of the listings in all the WIA VHF, UHF and microwave field days this last year. Interestingly a similar enthusiasm occurred at the other end of the spectrum with the crystal set night!

During the AGM two members, Calvin VK3ZPK and Ken VK3NW, were awarded life membership status with certificates and pins for their contribution to the club over many years.



Photo 1: Calvin VK3ZPK – awarded GARC Life Membership.



Photo 3: The last order of business at the AGM is, as always, a ballot for the Ray Cowling Award which is given to the member deemed to have contributed the most to amateur radio and the GARC during the year. This year there was a landslide vote in favour of Lou VK3ALB, shown being presented with the award by (on the left) President Tony VK3JGC.



Photo 2: Ken VK3NW – awarded GARC Life Membership.

Amateur Radio Specialist

Look forward to hearing from you



AMATEUR TRANSCIVER RADIO CENTRE

Australia's largest stockist
of Amateur Equipment

We supply these
famous brands

- ALINCO • ICOM* • KENWOOD* • LDG*
- YAESU* • DIAMOND* • BUTTERNUT*
- DAIWA* • PALSTAR* • ALPHA DELTA*
- VERTEX STANDARD* • TARHEEL*
- CUSHCRAFT* • GAP*



- RADIOWAVZ* • HUSTLER*
- SUPER ANTENNAS*
- MOSLEY* • HEIL SOUND
- SGC • STARTEK*
- COMMANDER AMPLIFIERS*
- M2 ANTENNA SYSTEMS
- HI-Q-ANTENNAS* • TGM*
- COMET* • UNIDEN*
- SPIDERBEAM* • AVAIR*
- MALDOL* • AUTOTENA*
- PALOMAR AMPLIFIERS*
- BUCKMASTER*
- BUXCOMM* • ZCG SCALAR*
- SYNCRO* • MOBILE ONE*
- OUTBACKER* • BENELEC*
- RF INDUSTRIES* • CRE-ATE* • HEAR IT* • RF PARTS*
- N2VZ ENTERPRISES*
- RM ELECTRONICS*
- CHAMELEON ANTENNAS*

*Only equipment purchased from an authorised dealer carries the full manufacturer's warranty.

We have DJ-X11
(02) 9896 2545
www.atrc.com.au

Check out our Hot Specials

Level 2, 141 Gilba Road
Girraween NSW 2145

inquiries@atrc.com.au

Ask what we can do for you,

Les VK2MPZ

We Ship Anywhere

VK5news Adelaide Hills Amateur Radio Society (AHARS)

Christine Taylor VK5CTY

At the end of March, because there were five Sundays in the month, AHARS had the regular breakfast at the Shack. The attendance was good and friendships were renewed.

The Shack was used for the AHARS National Field Day in April as well. A sausage sizzle, mostly attended by members, did see a family call in to see what we were doing. Later in the afternoon a few more people came to see radio in action. The slow scan TV was especially interesting and we did make some contacts. Altogether 24 visitors shared the day.

Unfortunately AHARS could not use the Shack for the John Moyle Memorial Field Day as was planned as the Shack was booked for an exam that day; however, quite a number of members participated from their home stations. Next year we hope to be able to return to our usual venue near Swan Reach.

The April meeting was a member's Buy and Sell, always a good opportunity to exchange your junk for someone else's junk and a chance to have a chat with some of the people you miss out on at a normal meeting.

The new committee is now functioning well since the new Treasurer returned from his trip across the Tasman. The kits for the spectrum analysers are going like hot cakes and keeping the sub-committee busy.

The course to teach us all about PIC chips is well attended each week and is keeping members busy doing the 'homework' in preparation for the next session.

Normal meetings with a speaker will resume in May and will be held on the third Thursday of each month in the Blackwood Senior Citizens' building on Young Street, Blackwood. Meetings start at 7.30 pm with the speaker and the General Meeting is held after supper. Visitors are all welcome.

THE INTERNATIONAL MORSE PRESERVATION SOCIETY



*Accuracy Transcends Speed
Courtesy at all Times*

*No CW experience necessary
just an interest in Morse code*

JOIN TODAY!

FOR MEMBERSHIP ENQUIRIES:
Chris Thompson VK2CTN
PO Box 65, Dickson ACT 2602
Email: fists-down-under@ihug.co.nz

For more information, please visit our website - www.fistsdownunder.org

VK3news Amateur Radio Victoria

Jim Linton VK3PC

e arv@amateurradio.com.au

w www.amateurradio.com.au

AGM a great success

On the autumn night of 16 May, members gathered for the Annual General Meeting of the Wireless Institute of Victoria trading as Amateur Radio Victoria, and a good evening was enjoyed.

The President Barry Robinson VK3PV expressed his thanks for the support he had received and expressed appreciation to the office volunteers who work behind the scenes to maintain our records and services. He made mention of the busy year with the Foundation course training and bridging sessions run by Kevin Luxford VK3DAP/ZL2DAP and the assessors who processed many successful candidates.

A feature event was the International Lighthouse and Lightship Weekend in August at the Timeball Tower in Williamstown. The same venue was used in April 2011 for the WIA National Field Day to show off amateur radio to the public.

The celebration of 100 years since the formation of the organisation now known as Amateur Radio Victoria saw a special callsign VK100ARV used by many volunteers during last November, amassing 5,500 contacts and many Centenary Award certificates were issued. During the six months of the anniversary we also held the world's first Digital TV QSO Party and it gave a further boost to the Keith Roget Memorial National Parks Award.

Among other events he mentioned were the running of the Centre Victoria RadioFest at the Kyneton Racecourse, the VK3RAN activation on HMAS Castlemaine and Peter Mill VK3APO and his team of repeater network volunteers.

The Acting Secretary and Treasurer Ross Pittard VK3CE reported that the organisation again finished the year with a small surplus. It was pleasing that the organisation was successful in obtaining grants enabling the restoration of HF broadcasts and also funds to restore the facility at Mt Stanley. He noted we were the only ones in Victoria to be running bi-monthly Foundation licence courses and the well-attended bridging courses.

New Life Member

It was the pleasure of Barry VK3PV to bestow the honour of Life Membership to Peter Cossins VK3BFG, who was most humbled. For four decades he has been involved with the pursuit of amateur television. His recent digitisation of the repeater VK3RTV saw ATV interest locally, interstate and overseas increase, and numerous articles and digital projects eventuated. He has visited many clubs and groups over the years with talks about ATV showing himself as a real ambassador for the mode.

Peter VK3BFG has readily had input on the many changes that faced ATV over the years in terms of frequency allocation and band planning. He also spent time in the 1970s and 80s as an announcer on the WIA broadcast, and was a technical person who kept the public face of amateur radio going at the Science Museum of Victoria. A fuller story on our newest Life Member will be published soon. Congratulations for a very well-earned honour to a deserving individual who keeps on serving us so well.

COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$255
6 m vertical 5/8 with radials	\$169
20 m confined space beam 2 el.	\$367
20 m 5 el. Yagi 12.2 m 1 boom	\$995
15 m 3 el. 3.6 m boom	\$314
M b vert auto switch 10-80 m	\$360
40 m lin load 2 el. cap hats	\$670
6 m 5 el 3.6 m 1 boom	\$314
6 m 7 el. 6.8 boom bal feed	\$456
23 cm 36 el. 2 m1 boom n-con	\$249
70 cm hi/gain Yagi 3 mtr boom	\$170
2 m 10 el. hi/gain Yagi	\$190
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$319
Log-periodic 9 el. 8.4 m boom	\$1194
Tri band 10/15/20 - 5 el.	\$860
2 & 70 combined beam 1 feed	\$285

Guyed masts 13 or 21 metres

Winch up, tilt-over,
aluminium and stainless steel
three sided construction.
Auto brake winches.

115 John Street
Glenroy VIC 3046

Phone
0419 542 437



Putting it across - Talking about amateur radio

Geoff Emery VK4ZPP

The Wireless Institute sponsored National Field Day with the accompanying media packs has provided the opportunity for increasing the awareness of the non-amateur community.

To start at the beginning; it is worth remembering who and what attracted us to this hobby. For me, it was a curiosity about things electrical which was fostered at school. However, it was the contact and discussions with my local amateurs, who shared their pleasure with a gangly schoolboy, that gave me a life time of enjoyment.

As I progressed through high school, it was getting to meet the older brother of two friends that really gave me the impetus to sit another exam. This older brother was an amateur and apart from his adventure of a year on Macquarie Island, he both worked and relaxed in the area of radio. More importantly, as I have learned since, this man fostered an interest in this recreation in many others apart from me.

For me it has been this absolute enthusiasm and the generosity of spirit in sharing knowledge and building the desire that has been the hall mark of the amateur radio operator.

The reason that I mention my experience is that many people seem to struggle to find the reason or at least speak about the reason they joined the amateur ranks. If we can think out the "who, where and why" of how we came to make this journey, it will certainly be easier when we are speaking with interviewers or drafting press releases.

Of course there is a big trap to avoid in our talks. Our hobby abounds with so much jargon that

it is easy to confuse people. If we remember to say things in plain language rather than "Q" Codes or CW abbreviations we can be reasonably assured that people will understand us. Couple this with the enthusiasm that shows in the way we stand, the way our voice comes across and the expressions of our face, then someone seeking a personal interest will sense the honesty of our belief.

The press like to use one or more photos to illustrate an article. This is where we need to think about how we present. Try not to confuse the images. Dress to enhance the message. By all means wear club or WIA clothing but do not take away by sporting a baseball cap which advertises something else. Generally speaking, if we keep our heads uncovered, people looking at the pictures will perceive we are more open with nothing to hide.

A professional photographer or cameraman will try and pose or construct the images to enhance the story. If we are shooting images to accompany a media release, try and use the same techniques.

It is perhaps wise to remember that personal grooming can assist in giving a good image. Tidy hair and clean fingernails are easily achieved. We might have our own idiosyncrasies but when we feel proud to represent our hobby, then a little spit and polish can help.

When it comes to the broadcast media, I think we have all heard the person that tries to be some-one else. *It is important to be ourselves!* The broadcasters have the training and experience to control the interview which allows us to sound and appear natural. Of course, the "backgrounder" information that

was supplied prior to the interview will help contain the range of the interview to areas where we remain comfortable as much as help the broadcaster direct their questions.

If we are manning a public display, the pre-publicity will attract people that are looking to learn about amateur radio. The display will attract the curious. What has been stated about talking with the media should have provided focus for our conversations with members of the public, also. This is the point that we are showing our activities, we are not selling amateur radio. We are sharing our experiences not demonstrating a product.

What all this means is that we are being authentic. Normal responses to people are what are expected. If you feel uncomfortable with some-one, then do not feel obliged to invite them to your shack. If people are interested offer them the opportunity to participate in the day's activities and give them a suitable brochure with club contact details. Be prepared to visit families and introduce yourself (and your club) if the person is of school age. Even the offer of transport, to club meetings and activities, is a good way of sustaining interest.

When we look through the pages of *Amateur Radio*, we can see how many people enjoy this hobby and are getting the word out. This makes us part of a large club. When it comes back to you and me we are just spreading the message of this club. When we respect as well as enjoy that club, we can all do a bit to share the message of amateur radio.



Contests

Phil Smeaton VK4BAA
e vk4baa@wia.org.au

Welcome to this month's Contest column.

CQ WPX 2012 SSB – submitted VK logs

Submitted VK logs for the WPX contest are shown below. The list of logs seems to grow year by year and is a good indication of how VK is represented on the bands. The range of entry categories appears to be widening as well, with several stations targeting the myriad of records available for the contest.

Contest Calendar for June 2012 – August 2012

June	2/3	IARU Region 1 Field Day	CW
	9	Asia / Pacific Sprint	SSB
	16/17	All Asia DX	CW
	23/24	WIA Winter VHF/UHF Field Day	All
	23/24	ARRL Field Day	All
July	14/15	IARU HF World Championship	CW/SSB
	21/22	CQ Worldwide VHF Contest	All
	28/29	RSGB IOTA Contest	CW/SSB
August	4	TARA Grid Dip	PSK/RTTY
	4	Waitakere (NZART) Sprint	CW
	4/5	10-10 International QSO Party	SSB
	11/12	Worked All Europe	CW
	11/12	Remembrance Day Contest	CW/SSB/FM
	25/26	ALARA Contest	CW/SSB

Note: Always check contest dates prior to the contest as they are often subject to change.

VK100	SINGLE-OP	ONE	ALL	LOW	ASSISTED	
VK2BCQ	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK2BO	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	TB-WIRES
VK2ERP	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	
VK2KDP	MULTI-OP	UNLIMITED	ALL	HIGH	ASSISTED	
VK2PN	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK2TTP	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK3AVV	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK3FM	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	
VK3GK	SINGLE-OP	ONE	15M	HIGH	NON-ASSISTED	
VK3NRW	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	TB-WIRES
VK3TDX	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK3TZ	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK3VTH	SINGLE-OP	ONE	40M	LOW	NON-ASSISTED	TB-WIRES
VK4ATH	SINGLE-OP	ONE	ALL	QRP	NON-ASSISTED	
VK4BL	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	TB-WIRES
VK4CT	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK4FATT	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	
VK4GH	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK4IU	SINGLE-OP	ONE	ALL	HIGH	ASSISTED	
VK4KW	MULTI-OP	UNLIMITED	ALL	HIGH	ASSISTED	
VK4NM	MULTI-OP	ONE	ALL	HIGH	ASSISTED	
VK4QH	SINGLE-OP	ONE	40M	HIGH	ASSISTED	
VK5PAS	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	ROOKIE
VK5UE	SINGLE-OP	ONE	20M	LOW	NON-ASSISTED	TB-WIRES
VK6IR	SINGLE-OP	ONE	ALL	HIGH	ASSISTED	
VK6MAB	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	ROOKIE
VK7GM	SINGLE-OP	ONE	ALL	LOW	NON-ASSISTED	
VK7GN	SINGLE-OP	ONE	10M	HIGH	NON-ASSISTED	
VK7XX	CHECKLOG				ASSISTED	
VK7ZX	SINGLE-OP	ONE	40M	HIGH	NON-ASSISTED	
VK8AA	SINGLE-OP	ONE	ALL	HIGH	NON-ASSISTED	
VK8AS	SINGLE-OP	ONE	15M	HIGH	NON-ASSISTED	

Logging Programs - Different strokes for different folks

The choice of contest logging program is very much a personal one. The choice might be driven by such aspects as circumstances, contest particulars, equipment, future aspirations or possibly just the wallet. The choice of available software is mind boggling nowadays, but it can generally be split into two distinctive contest 'camps': domestic and DX.

Some programs try to be all things to all men, whilst others are developed for a focussed selection of contests for a given country or format. This domestic approach is often driven by the reluctance of some software producers to equip their logger with facilities which are utilised by a small group of users. Many of the VK based contests fall into this category with specific software often being produced as a result.

So, if your domestic needs are mainly satisfied by 'local' software producers, but you have desires towards international contesting, which software package is best?

This question is a very personal one. Courting opinion from other testers is often a way to fast-track an answer, but the responses will possibly tend to feature the 'flavour' of the orator so the recipient will need to filter accordingly. Personally, I have no axe to grind either way as regards software selection for personal usage, but I do tend to slope towards familiarity.

Some popular software packages currently in use include N1MM, Win-Test, Writelog, TR4W, CT and SD. CT is an old DOS based program which was originally designed for CW usage but got tweaked over the years to accommodate phone contests also. For a while, CT was the only software which permitted networking – albeit a complex setup to achieve it. I speak from experience! Similarly, SD (originally 'Super Duper') started life using the

DOS system but soon spread its wings to the Windows platform. CT originally required a payment to be made, as did SD, but both are now freeware and only SD continues to enjoy support from the author.

For the sake of simplicity, let's focus on N1MM, Win-Test and WriteLog. Why? Well, they are the most popular packages, they cover the most popular bands, they run on modern PC platforms, they all provide facilities for the most popular contests and they all continue to be supported by their authors.

So, what is needed?

The Basics

The software is not going to be much help if it does not do the following:

- Log the QSO – callsign, report, band, mode, serial number and report sent/received, other exchange data
- Check for dupes
- Indicate multipliers (mults)
- Score the contest
- Easy to use user interface

Other more advanced aspects which may be perceived as desirable might include:

- Assign multi rig/user serial numbers
- DX Cluster linkage
- Data for tactical decisions to be made 'on the hoof'
- SO2R facilities
- Networking
- Multi-op facilities
- Specific mode facilities
- Contest coverage
- Rig inclusion
- Software bug support

Checking for multiplier status is important and the level of importance is determined by the rules of the respective contest. The main time that this data is required is either during S&P operation so that a judgement can be made as to whether or not to hang around during a pile-up, or when running to allow the operator to make a call as to whether or not it is worth moving the station to another band. All of

the software listed performs this task, but WriteLog used to have the limitation of not showing double mults which are needed for CQWW contests. A later version may have cleared this anomaly up of course. N1MM shows mults using colours to denote single and double multipliers as well as duplicates, but also has a window which shows wanted QSO and mults per band based upon data from a DX Cluster or another external source. Win-Test also shows this type of information in a similar manner.

All of the software features a band map, which tracks the frequency of the rig VFO and shows the location of stations within the band along with their 'status' as regards mults etc. Clicking the mouse on the callsign will make the callsign appear in the QSO entry window and the rig will jump to the frequency shown within the window. All of the software also displays a QSO rate meter, which informs the operator as to how many QSOs have been logged within a given period of time. The display will also show what a mult is 'worth' in respect to the points value of QSOs. So, a multiplier might be worth chasing and cracking a pile-up, or if the QSO rate is thundering along then the mult can hopefully be mopped up later when the rate drops. All of the software shows a running total of the score for the contest.

The operator interface is very much a personal choice. I like to keep things as simple as possible on the screen as I have enough to do without lots of information confusing me at three in the morning. I also prefer to see the log being populated on the screen by all stations, in real time. N1MM helps, by displaying if a callsign has been worked on any other band/s during the contest. Some operators like to have an indication of how they are performing in relation to a pre-set range of 'goals' – possibly as a running litmus test in comparison to the previous year's score.

N1MM performs this role very easily and clearly for example, by importing the log from a previous contest.

The cluster interface is important to some and the means of setting it up and then using the data needs to be as simple as possible. This data is usually displayed within a separate window and can be made to populate the band map 'automagically'. Win-Test does this particularly well, with multiple sources able to be configured.

For RTTY use, all of the software can utilise the MMTTY interface software seamlessly.

All of the software caters for multi-operator operation. All feature facilities for inter-station communication utilising Windows networking; Cluster multiplier spot distribution; band change counters and transmit interlocks.

As regards software author support, N1MM is very well supported, as is Win-Test, but WriteLog is not so well supported with a few bug fixes or additional features being made available in recent times but nothing as frequent as N1MM. Maybe WriteLog authors make less software errors! New rigs coming onto the market are well supported by N1MM and Win-Test.

So, a brief look at the basic and some of the not-so-basic features of contest logging software. Do some

research and try some yourself before committing, if you can. It's a very personal thing!

WRTC 2014 – The contenders

The World Radiosport Team Championship (WRTC) is held every four years and consists of approximately 50 two-person teams of amateur radio operators competing in a test of operating skill. Unlike most on-the-air competitions, all stations are required to use identical antennas from the same geographic region, eliminating all variables except operating ability.

Rather like the Olympics, a host country 'runs' the WRTC. Previous WRTCs have been held in Seattle (1990), San Francisco (1996), Slovenia (2000), Finland (2002), Brazil (2006), and Russia (2010).

The WRTC Sanctioning Committee is responsible for choosing the sponsor and location for each event. Hosting rights for the 2014 WRTC have been awarded to the New England WRTC2014 Organizing Committee. This organization is a newly-formed independent group, and not part of any existing organization, national society, or club.

Qualifying Events

Anyone interested in operating in WRTC-2014 can attempt to qualify by operating in a variety of

qualifying events between October 2010 and March 2013. Each qualifying event has a maximum point value that is factored into the qualifying score calculation. Listed below are the eligible contests for WRTC-2014, their point values, and in which years that each contest's results will be considered for VK entrants. See Table 1 below.

Applicants may use up to 12 published scores from the above contests to calculate their qualifying score.

Category Weighting Factor

Weighting factors are applied to compensate for differences in competitiveness and activity level in the various entry categories. See Table 2.

For VK, Oceania is split into north and south. This means that VK entrants would not be competing against Hawaiian stations, for example.

Qualifying Event Score Calculation

The Event Score for each qualifying event is calculated based on the following formula:

$$\text{Event Score} = (\text{Contest value}) \times (\text{Category weighting factor}) \times (\text{Published final score} / \text{Maximum score in applicant's category from Selection Area})$$

Table 1

Contest	Value	Years in which scores can be counted				Number of scores
		2010	2011	2012	2013	
CQ WW CW	1000	X	X	X		3
CQ WW SSB	1000	X	X	X		3
CQ WPX CW	950		X	X		2
CQ WPX SSB	950		X	X		2
IARU	900		X	X		2
Russian DX Contest	900		X	X		2
ARRL DX CW – outside NA	800		X	X	X	3
ARRL DX SSB – outside NA	800		X	X	X	3
WAE CW	800		X	X		2
WAE SSB	800		X	X		2
All Asian DX CW	800		X	X		2
All Asian DX SSB	800		X	X		2
Oceania DX CW	800		X	X		2 – OC only
Oceania DX SSB	800		X	X		2 – OC only

The full explanation of the scoring can be found on the WRTC website. John VK4EMM is currently VKs leading station for WRTC with 4305 points, with Vlad VK2IM snapping closely at John's heels with 3611 points. If you hear these blokes on the bands be sure to give them a shout as they will probably need your support. Good luck chaps!

Let's be careful out there...

With the kW licence variations now being available, many contesters will be taking full advantage of the increase of transmitted power permitted. To achieve the higher output, many will have been raiding the piggy bank and making a commitment in cash towards an amplifier of some sort.

There are a number of solid state amplifiers available on the market which can achieve the VK limit, but most tend to be based upon valve technology. With this comes the risk and temptation to delve into the innards if/when a fault occurs. Several times over past years hams have been hurt, or killed, poking around inside tube-type amps with power on. Some magazines, with total disregard for common sense, have even published articles

Entry Category	Weight
SO HP (Single Operator High Power) (All Band or Single Band)	1.0
SO LP (Single Operator Low Power) (All Band or Single Band)	0.9
SO QRP (All Band)	0.7
SO Assisted (SO Unlimited)	0.8
SO Single Mode (in Mixed-mode contests only)	0.9
MS (Multi-operator Single-transmitter)	1.0
MS LP (ARRL DX, SS only)	0.9
M2 (Multi-operator Two-transmitters)	0.8
MM (Multi-operator Multi-transmitter)	0.8

Table 2

suggesting people defeat safety interlocks to make a measurement with a hand-held meter. A story surfaced recently about an AL1200 amplifier, which has about 3600 volts inside. Apparently someone instructed someone else to measure HV with a small handheld meter. As the story goes, the handheld meter blew up.

I would like to suggest to everyone to remind others, when they see or hear something like this going on, to say something before it happens, if possible. It is *never* necessary to run an amplifier with the cover off and especially with the HV energised, to check things. Anyone advising defeating an interlock, or powering-up a tube-

type amplifier with the cover off and HV exposed, it putting themselves at serious risk of injury or possibly even death.

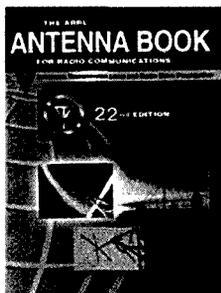
If we do not know anything about electronics or how things work, at least we should know what we should never do. If a problem develops in the amplifier, get someone competent to take a look at it for you.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk4baa@wia.org.au

See you on the bands.

73 de VK4BAA Phil Smeaton

Visit our Bookshop



ARRL Antenna Book

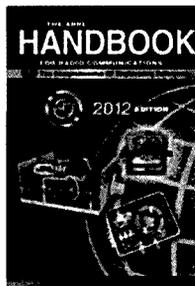
(22nd Edition - Softcover)

Antennas, Transmission Lines and Radio Wave Propagation

Build one antenna, and you'll quickly find yourself planning the next. **The ARRL Antenna Book for Radio Communications** is devoted entirely to that pioneering spirit. In this one book, you will find all of the information you need to design complete antenna systems—from planning,

to design and construction. **The Antenna Book** includes treatments for nearly any radio band and operating application: low-band, HF, VHF, UHF and microwave; fixed station, portable, mobile, maritime, satellite and more!

MEMBER PRICE: \$85.00* RETAIL: \$95.00*



ARRL Handbook

(2012 - Hardcover or Softcover)

The ARRL Handbook for Radio

Communications has kept technologists—amateur, professional and students—immersed in the radio art for generations. As innovations in wireless communication march (and race!) ahead, **The ARRL Handbook** has maintained its place at the forefront—a single resource covering electronic fundamentals, radio design, and loads

of practical treatments and projects. You'll read it, study it, and turn to it... again and again.

Updated and Revised! This eighty-ninth edition of **The Handbook** includes something for every radio amateur and experimenter.

MEMBER PRICE: \$85.00* RETAIL: \$100.00*

Hardcover

MEMBER PRICE: \$80.00* RETAIL: \$95.00* Softcover

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details. www.wia.org.au/bookshop

John Moyle Memorial Field Day 2012

Denis Johnstone VK4AEN/VK3ZUX

Contest Manager

24 Hour Portable Operation – Multiple Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Place /Award
VK3ER	Multi	All	All	1,050	10,026	1 / ¹ **
VK4WIS	Multi	All	All	411	1,940	2 / ¹ *
VK3YVG	Multi	All	All	337	1,848	3 / ¹ *
VK2SRC	Multi	Phone	All	739	6,663	1 / ¹ *
VK5SR	Multi	Phone	All	368	4,192	2 / ¹ *
VK3CNE	Multi	Phone	All	562	3,846	3 / ¹ *
VK3JNH	Multi	Phone	All	347	3,617	4 / ¹ *
VK3ANR	Multi	Phone	All	511	2,273	5 / ¹ *
VK4WID	Multi	Phone	All	719	2,086	6 / ¹ *
VK2BOZ	Multi	Phone	All	484	2,069	7 / ¹ *
VK3APC	Multi	Phone	All	166	1,457	8 / ¹ *
VK3CMZ	Multi	Phone	All	216	887	9 / ¹ *
VK6AHR	Multi	Phone	All	245	551	10 / ¹ *
VK6ARG	Multi	Phone	All	203	473	11 / ¹ *
VK5GRC	Multi	Phone	All	104	312	12 / ¹ *
VK50M	Multi	Phone	VHF	174	4,616	1 / ¹ *
VK2EH	Multi	Phone	VHF	72	1,052	2 / ¹ *
VK4IZ	Multi	All	HF	679	2,114	1 / ¹ *
VK2A0J	Multi	All	HF	286	676	2 / ¹ *
VK2WG	Multi	All	HF	135	284	3 / ¹ *
VK5LZ	Multi	Phone	HF	1036	2,066	1 / ¹ *
VK3FRC	Multi	Phone	HF	745	1,490	2 / ¹ *
VK2CL	Multi	Phone	HF	571	1,136	3 / ¹ *
VK3AWG	Multi	Phone	HF	266	533	4 / ¹ *
VK2ARO	Multi	Phone	HF	221	442	5 / ¹ *
VK2AZD	Multi	Phone	HF	204	408	6 / ¹ *
VK8DA	Multi	Phone	HF	135	270	7 / ¹ *
VK7WCN	Multi	Phone	HF	132	264	8 / ¹ *
VK8AR	Multi	Phone	HF	110	214	9 / ¹ *
VK1BEK	Multi	Phone	HF	80	160	10 / ¹ *
VK2MB	Multi	Phone	HF	74	156	11 / ¹ *
VK4WIT	Multi	Phone	HF	14	28	12 / ¹ *

Six Hour Portable Operation – Multiple Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Place /Award
VK3AWS	Multi	Phone	All	169	955	1 / ¹ *
VK2XE	Multi	Phone	All	199	400	2 / ¹ *
VK4BAR	Multi	Phone	All	63	181	3 / ¹ *
VK2SF	Multi	Phone	HF	195	390	1 / ¹ *
VH2HZ	Multi	Phone	HF	111	222	2 / ¹ *
VK2BOR	Multi	Phone	HF	53	106	3 / ¹ *
VK4WIL	Multi	All	All	170	470	1 / ¹ *
VK4CHB	Multi	All	HF	40	72	1 / ¹ *

24 Hour Portable Operation – Single Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK40E	Single	Phone	All	155	1,802	1 / ¹ *
VK2JUB	Single	Phone	All	141	1,120	2 / ¹ *
VK2FAAD	Single	Phone	All	135	697	3 / ¹ *
VK5AR	Single	Phone	All	89	328	4 / ¹ *
VK5PX	Single	Phone	All	86	260	5 / ¹ *
VK3KQ	Single	Phone	VHF	82	974	1 / ¹ *
VK4KRX	Single	Phone	HF	266	532	1 / ¹ *
VK6SH	Single	Phone	HF	206	412	2 / ¹ *
VK4MON	Single	Phone	HF	178	356	3 / ¹ *
VK5MH	Single	Phone	HF	137	274	4 / ¹ *
VK2FOWL	Single	Phone	HF	21	42	5 / ¹ *
VK2KGH	Single	Phone	HF	10	20	6 / ¹ *
VK1WJ	Single	All	All	45	171	1 / ¹ *

Six Hour Portable Operation – Single Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK3WAM	Single	All	VHF	78	1,069	1 / ¹ *
VK3PI	Single	Phone	VHF	105	730	1 / ¹ *
VK3VMC	Single	Phone	VHF	27	320	2 / ¹ *
VK3FIX	Single	Phone	VHF	23	270	3 / ¹ *
VK5LD	Single	Phone	VHF	26	131	4 / ¹ *
VK5RX	Single	Phone	All	129	823	1 / ¹ *
VK3LLL	Single	Phone	All	112	709	2 / ¹ *
VK4ADC	Single	Phone	All	159	539	3 / ¹ *
VK5ZT	Single	Phone	All	102	228	4 / ¹ *
VK3AHT	Single	Phone	All	45	100	5 / ¹ *
VK5CZ	Single	All	HF	63	132	1 / ¹ *
VK3YE	Single	All	HF	20	46	2 / ¹ *
VK4JAZ	Single	CW	HF	4	16	1 / ¹ *
VK4GH	Single	Phone	HF	231	462	1 / ¹ *
VK3HJA	Single	Phone	HF	146	292	2 / ¹ *
VK3ZPF	Single	Phone	HF	111	222	3 / ¹ *
VK5DG	Single	Phone	HF	105	210	4 / ¹ *
VK3ZO	Single	Phone	HF	102	204	5 / ¹ *
ZL2AYZ	Single	Phone	HF	101	202	6 / ¹ *
VK4JRO	Single	Phone	HF	20	40	7 / ¹ *
VK2IO	Single	Phone	HF	14	28	8 / ¹ *
VK4IO	Single	Phone	HF	13	26	9 / ¹ *
VK5KPR	Single	Phone	HF	12	24	10 / ¹ *
VK4HSV	Single	Phone	HF	5	10	11 / ¹ *

¹* Certificate Awarded

¹** President's Cup

¹* Participation Certificate

Home Station – 24 Hour

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK4VDX	Home	0	All	384	1,118	1 /*
VK3MY	Home	0	All	176	960	2 /*
VK4KLC	Home	0	All	214	686	3 /*
VK3KIS	Home	0	All	138	394	4
VK3LAC	Home	0	All	158	389	5
VK2TTP	Home	0	All	227	371	6
VK1MAT	Home	0	All	237	364	7
VK4MJF	Home	0	All	64	280	8
VK5FCT	Home	0	All	129	211	9 /\$
VK3PHI	Home	0	All	79	210	10
VK3RU	Home	0	All	48	206	11
VK2WJ	Home	0	All	76	200	12
VK4FATT	Home	0	All	119	193	13/\$
VK4ZW	Home	0	All	118	192	14
VK3AKG	Home	0	All	34	159	15
VK2UVP	Home	0	All	46	111	16
VK3OHM	Home	0	All	18	71	17
VK3EEE	Home	0	All	26	44	18
VK6XS	Home	0	All	19	40	19
VK2LAW	Home	0	HF	718	1,031	1 /*
VK5PAS	Home	0	HF	494	731	2 /*
VK2KDP	Home	0	HF	408	592	3 /*
VK4FAAS	Home	0	HF	191	294	4 /\$
VK4MIT	Home	0	HF	195	293	5
VK4ATH	Home	0	HF	135	230	6
VK5MTM	Home	0	HF	125	188	7
VK3TCX	Home	0	HF	59	101	8
VK4SR	Home	0	HF	61	100	9
VK7GM	Home	0	HF	51	90	10
ZL3AKM	Home	0	HF	44	70	11
VK3LDR	Home	0	HF	35	56	12
VK4NI	Home	0	HF	32	49	13
VK3HSR	Home	0	HF	30	47	14
VK5LOL	Home	0	HF	22	42	15
VK5EMI	Home	0	HF	22	41	16
VK2HGO	Home	0	HF	24	39	17
VK5YX	Home	0	HF	23	35	18
VK1HW	Home	0	HF	14	24	19
VK4KML	Home	0	HF	13	22	20
ZL2COL	Home	0	HF	5	7	21
VK3OIP	Home	0	VHF	66	616	1 /*
VK3JTM	Home	0	VHF	44	518	2 /*
VK3AIC	Home	0	VHF	54	204	3 /*
VK3ZHQ	Home	0	VHF	16	97	4
VK3TPH	Home	0	VHF	24	63	5
VK8ALU	Home	0	VHF	3	6	6

Home Station – 6 Hour

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK2DAG	Home	0	All	167	291	1 /*
VK2AFY	Home	0	All	164	261	2 /*
VK4HBG	Home	0	All	44	91	3 /*
VK2YW	Home	0	All	27	44	4
VK5FPAW	Home	0	All	10	22	5 /\$
VK3BQ	Home	0	VHF	23	102	1 /*
VK2MCI	Home	0	HF	197	291	1 /*
VK2ATZ	Home	0	HF	215	288	2 /*
VK3VTH	Home	0	HF	52	76	3 /*
VK4TDI	Home	0	HF	44	75	4
VK5FJ	Home	0	HF	24	42	5
VK2FHRK	Home	0	HF	27	40	6 /\$
VK2FVRJ	Home	0	HF	22	37	7 /\$
VK4NP	Home	0	HF	15	26	8
VK2JNA	Home	0	HF	10	16	9
VK6FSAP	Home	0	HF	11	11	10 /\$
VK2VJB	Home	0	HF	4	7	11

/* Certificate Awarded
 /* President's Cup
 /* Participation Certificate

It was good to see several ZL stations take part this year, and three stations submitted their log. Well done to all who took part.

I have included in the results all of the logs that I received and if any are missing, they are completely lost. I can only offer my apologies to anyone so affected. I am sorry if your log is missing, but it did not get it to me despite my most careful procedures and cross checking.

Based upon submitted logs, there were some 22,173 contacts, (a 6.3% increase over 2011) accumulating some 88,270 points claimed, (a 23% increase from 2011). This was pretty heavy contesting for an Australian field day contest, but unfortunately it resulted in just 140 logs being received.

Unfortunately, the numbers of stations who went to the considerable trouble of going out and setting up as a portable station and then not bothering to submit a log as an entry, is still a disappointment. Some multiple operator stations got very big scores this year and perhaps that simply reflects the great and varied planning and implementation efforts required to assemble and operate a multi operator station. See Table 1.

Activity was carried out on all bands permitted under the rules. There was not a noticeably increased activity on HF, and the frequencies in use seemed unaffected by the increasing sunspot cycle. This sunspot cycle is ascending off the bottom of the cycle but conditions did not appear to improve substantially this year. There was a slight 6m boost apparent in.

In the higher UHF and Microwave bands there was a decrease in activity; maybe it follows a weather cycle, rather than the solar cycle? Maybe it only takes a couple of club stations to not operate to make the difference?

Comments on John Moyle Memorial National Field Day 2012

This year's entries came from every Australian mainland call areas, as well as from Tasmania and New Zealand. The total number of logs submitted was 140. This was an increase from the 129 logs received last year.

Band	S/UHF		VHF		HF	
	Points	Contacts	Points	Contacts	Points	Contacts
24 GHz	0 (0)	0 (0)				
10 GHz	22 (184)	1 (12)				
5.7 GHz	22 (154)	1 (8)				
3.4 GHz	57 (284)	8 (22)				
2.4 GHz	982 (494)	58 (41)				
23 cm	4,819 (3,193)	333 (319)				
70 cm	14,345 (9,511)	1,201 (962)				
2 m			25,154 (17,902)	2,131 (1,841)		
6 m			9,439 (6,882)	775 (564)		
10 m					119 (202)	66 (97)
15 m					170 (410)	92 (195)
20 m					8,164 (6,719)	3,961 (3,374)
40 m					18,194 (18,652)	10,006 (9,764)
80 m					6,739 (7,028)	3,518 (3,621)
160 m					44(121)	22 (55)
Total	20,247 (13,820)	1,602 (1,364)	34,593 (24,784)	2,906 (2,405)	33,430 (33,132)	17,665 (17,088)

Table should be read – 2012 results in bold (with (2011 results) in brackets)

Table 1.

The scoring in the UHF range was slightly up from last year. The VHF range the number of contacts is slightly higher than for 2011. The absence of many VK2 and VK4 club stations, because of the miserable weather in some parts certainly reduced activity, with many stations making such comments.

The other major change noticed this year was the decrease in Portable Station operation, and an increase in Home Station operation. Clearly as there were some portable station operators who did not bother to submit a log they are strongly encouraged to do so next year. However the change in the Home Station scoring resulted in increased activity.

The participation across the various Call Areas was patchy. There was an increase in Portable stations in only VK2, while the other states all showed a decrease with VK7 activity also down on last year. See Table 2.

All of the portable stations that went to the effort to send in a log will get a certificate. The WIA believes that those who made the effort to set up and operate

a portable station should be acknowledged. In line with last year, the Foundation License logs who did not achieve a placing were instead awarded a Participation Certificate for encouragement.

A pleasing increase to nine Foundation Licensed operators submitted a log. (Four from VK2, none were from VK3, two were from VK4, two from VK5 and one from VK6.) There were many more stations than this logged during the contest. All logs submitted

by Foundation operators were awarded a certificate. Logs from club station showed that quite a number also took part, as part of the club station effort. See Table 3.

This year, the rules again stated that Excel is the preferred submission format. A sample linked Excel logging report was prepared and sent to those who requested this file. (Contact me at vk4ae@wia.org.au if you would like a copy of my linked spreadsheet in Excel for next year.)

Call Area	Portable		Home		Total	
	2012	2011	2012	2011	2012	2011
VK1	2	4	2	0	4	4
VK2	18	15	15	10	33	25
VK3	21	23	18	12	39	34
VK4	16	14	14	9	30	23
VK5	13	14	8	10	21	24
VK6	3	7	3	2	6	9
VK7	1	2	1	2	2	4
VK8	2	3	0	0	2	3
P2	0	0	0	0	0	0
ZL	1	2	2	1	3	3
	77	84	63	46	140	129
	2012	2011	2012	2011	2012	2011

Table 2.

Comparison between 2012 and Earlier Years

Year	Logs	Contacts	Points
2012	140	22,173	88,270
2011	129	20,857	71,736
2010	122	23,573	80,087
2009	124	20,773	71,041
2008	104	17,258	98,940
2007	76	12,535	64,028
2006	78	10,865	61,387
2005	67	8,423	44,080
2004	66	8,602	49,855

Table 3.

Other suitable file submission formats are Word, txt or the ADI output file from VKCL (VK Contest Log). PDF format is not acceptable as are JPG and TIFF.

All logs submitted in an electronic form this year, were fully readable.

The new General rules for WIA contests were issued prior to this year's contest requiring all logs to be submitted in Cabrillo format to fall into line with contests in other countries. There was insufficient time available to prepare a template and revise the contest scoring software. In the event there were no logs submitted in that format. Hence the time spent on creating suitable software by the author was completely wasted. It is viewed that, in Australia, there is negligible interest among most operators to go down this path to follow overseas contests by banning paper logs and only submitting logs in Cabrillo format. Hence it is likely that the rules of this contest will not change to follow this model.

There were still only 91% of logs submitted electronically this year, up from last year. This has been due largely to the excellent work by Mike Subocz VK3AVV and his worthy program VKCL (VK Contest Log). Those that submitted a log in the VKCL export format were as usual very easy to work with. Those that simply forwarded the text output of VKCL were also rather simpler to work with than any form of posted paper log or a log completed by hand.

Paper logs may also be used. A small log from an individual operator is and will remain completely acceptable. Large paper logs require a very considerable manual work on the part the contest manager to input the data into the contest database and are no longer permitted. It is so much better to forward the computer files used to print the paper log as part of an e-mail as the data can then be easily extracted and used for checking purposes.

Next year, club stations will only be eligible to submit an entry, if their log is submitted electronically. (Paper logs from club stations are welcomed as a backup, if required, but the extensive amount of work required to manually check large paper logs is no longer acceptable, especially if the club station log has been prepared on a computer.)

A note for all HF Stations: Any HF contacts are valid HF scoring contacts, whether they are from VK ZL or P2 stations or stations from overseas. Overseas stations cannot submit a log to the contest, but can exchange numbers with stations participating in the Field Day Contest. They are to be scored as a Portable station contact.

The comparative difference in score and scoring between HF and VHF/UHF contacts

In fact within the John Moyle Contest, the rules allow for some 35 possible alternative categories as shown below. Each category is actually completely independent from every

other category and so there are in fact 35 parallel contests. In this way it is completely different from any other contest presently in Australia.

For this reason it is not possible to have overall winner in this contest, as scores from any category, especially between different bands and different modes are not directly comparable. Only scores within the same category are correctly comparable. The award of the Presidents Cup is a parallel contest. It is awarded to the highest score from a Club Station, affiliated with the WIA, in any category.

However, there were two very contentious problems to do with scoring of contacts arose:

1. The comparative difference in score and scoring between Portable and Home Stations HF and VHF/UHF contacts.

A number of Home stations observed last year that with the miserable weather especially in VK2 and VK4 the number of club stations in the field was lower than usual. A number of stations who would normally have ventured into the field suggested that in the event of miserable weather many stations would have operated as Home Stations, but felt that with the 'Abysmal Score' afforded to Home Stations in contact with a Portable Station, irrespective of the distance and effort involved. The JMMFD is not intended as a vhf DX contest, but due to the presence of increased numbers of field stations at good vhf locations it does become at least a QSO

Table of Existing categories

Operators		Modes				Bands		
	Time							
Multi	24	Phone	CW	Digital	All	HF	VHF	All
Multi	6	Phone	CW	Digital	All	HF	VHF	All
Single	24	Phone	CW	Digital	All	HF	VHF	All
Single	6	Phone	CW	Digital	All	HF	VHF	All

Home	24
Home	6

HF	VHF	All
HF	VHF	All

SWL	24
-----	----

party, with portable contacts being made feasible that are usually not available.

As one of the goals of the contest is to actively promote portable capability and as a training exercise for emergencies, thus the rules need to be framed around those objectives. The rules encourage field stations, while providing incentives for the stations they want to work (including home stations) to give them as many contacts as possible.

For the field day contest it is my view that Home Stations are not competing with Portable Stations, so giving them the same points as Portable Stations does not treat either side of the contact fairly. Home Stations are competing only with other Home Stations, and one that can work a far distant VHF field station deserves a reward that the other station who cannot work the DX, has to work hard to make up for.

Another regular request is to include a Multi Operator category for Home Stations. This is not supported, as this change would unnecessarily greatly increase the number of categories.

2. The issue of scoring for CW contacts

The number of All Mode contacts was very significantly higher than in the recent past. A good sign!

While CW is no longer a precondition for obtaining an Amateur licence, it is a skill that is widely distributed among existing operators and a skill that should be nurtured among the newer licence holders.

The rules for 2012 were adjusted to allow doubling the score for a contact on CW. For HF this was simple. However, for VHF contacts where there is a significant score already for the distance involved it is planned to amend the rules for scoring VHF contacts.

3. The number of people who submitted logs claiming 'All Modes' and only logged contacts using SSB or FM

The Modes allowed in the rules are VOICE (SSB or FM), Morse (CW) (Manual) and DIGITAL (Computer) Mode.

The PHONE (Voice) only Modes are SSB, DSB, FM, PM or AM. That is the modulation is an audio signal derived in the first instance from a microphone.

The alternatives are either hand CW Mode, is one the operator simply turns the carrier on and off according to Morse code.

DIGITAL mode is one which uses a computer to control the transmitter and to decode the information to allow the operator to complete the contact.

All mode is any combination of the above modes.

Breakdown of Contacts by Call Area and Band - SHF/UHF/VHF BANDS

	10G		5.7G		3.4G		2.4G		1.2G		70cm		2m		6m	
	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C
VK1	0	0	0	0	0	0	0	0	0	0	39	7	51	10	30	5
	0	0	0	0	0	0	0	0	0	0	123	14	157	18	26	4
VK2	0	0	0	0	0	0	0	0	586	38	2701	167	4989	303	1567	124
	0	0	0	0	0	0	0	0	383	27	3344	205	7518	456	2865	176
VK3	0	0	0	0	35	4	742	48	2472	201	6825	633	12116	1105	6492	495
	60	2	60	2	60	2	350	33	1994	201	3825	408	7077	827	3346	266
VK4	0	0	0	0	0	0	0	0	369	39	1818	225	3417	427	564	107
	0	0	0	0	0	0	0	0	213	47	523	124	933	182	488	90
VK5	22	1	22	1	22	4	240	10	1392	57	2893	144	4307	210	786	44
	110	5	90	4	60	6	70	3	353	50	2166	313	2267	332	273	59
VK6	0	0	0	0	0	0	0	0	0	0	69	25	274	76	0	0
	0	0	0	0	0	0	0	0	0	0	157	31	322	83	30	12
VK7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0
VK8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	6	3	0	0
P2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ZL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	22	1	22	1	57	8	982	58	4819	333	14345	1201	25154	2131	9439	775
2011	184	12	154	8	284	22	474	41	3193	319	9511	962	17902	1841	6882	564

Numbers in Bold are for 2012 and other details are from 2011

Club Stations

Club Stations were generally well operated and made some very big scores as a result of their combined efforts. Well done!! The absence of a number of VK2 club Stations was noted.

The logging issue from last year was largely resolved.

Low Power Contest

A suggestion was made by a few stations that a QRP category could be allowed. The suggestion was that only a station that can be carried in a backpack should be allowed for the operation of the station. There was only two logs entered indicating that all operation was on low power. Both are acknowledged on their certificate.

It is interesting to note, the scores produced by some of

the Foundation licensees who submitted a log, does indicate that plenty of contacts were made on the restricted lower power permitted by their LCD.

The Future

Now it is over to you. There are always ways to improve anything, but scrapping something because it does not suit you is not possible, but if benefits are shown to be available, further changes can also be made to the contest to better serve the amateur community. But changes to force the majority to follow what suits a small minority is definitely not a good idea.

If you have any contribution to these topics, the Rules for this contest are available at the WIA web site at <http://www.wia.org.au/members/contests/johnmoyle/>

which already contains my contact information and please feel free to contact me with your submission for further consideration.

Well done to all of those stations that participated in the contest and well done those who bothered to submit a log. It is hoped that the number of logs to be submitted next year will continue the recent trend of increased log numbers.

I wish to thank those who did send in photographs of their equipment set-up and personnel involved for inclusion in the AR magazine. These have been submitted to AR along with this report so please give Peter Freeman via e-mail at editor@wia.org.au anything else you have for later use for the magazine.



Breakdown of Contacts by Call Area and Band - HF BANDS

	10m	10m	15m	15m	20m	20m	40m	40m	80m	80m	160m	160m
	P	C	P	C	P	C	P	C	P	C	P	C
VK1	0	0	0	0	56	27	501	306	42	21	0	0
	22	11	16	8	42	21	698	349	42	21	0	0
VK2	55	31	71	38	1494	771	6086	3477	1957	1038	24	12
	2	1	78	26	938	456	5905	3080	2563	1308	0	0
VK3	12	8	12	8	1460	738	4099	2098	1904	956	12	6
	37	19	34	18	830	422	4223	2135	1544	787	0	0
VK4	42	22	50	27	2553	1097	3879	2144	1622	864	8	4
	54	22	91	47	2175	1086	3863	2021	1346	688	56	22
VK5	8	4	30	15	1300	665	2996	1653	690	471	0	0
	49	25	66	33	882	453	2228	1183	490	256	65	33
VK6	2	1	2	1	638	321	390	201	118	62	0	0
	2	1	82	41	1214	609	703	352	573	287	0	0
VK7	0	0	3	2	77	39	115	61	159	81	0	0
	0	0	2	1	159	84	787	501	274	175	0	0
VK8			2	462	234	20	10	0	0	0	0	0
	36	18	38	19	402	201	78	39	18	9	0	0
P2	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
ZL	0	0	0	0	124	69	108	56	47	25	0	0
	0	0	3	2	77	42	167	86	158	80	0	0
2012	119	66	170	92	8164	3961	18194	10006	6739	3518	24	22
2011	202	97	410	195	6719	3374	18652	9746	7082	3621	121	55

Numbers in Bold are for 2012 and other details are from 2011

Participate

July 14 **Maryborough Electronics and Radio Group Inc Hamfest**

July 21 **Gippsland Gate Radio & Electronics Club Annual Hamfest Sale**

PRM80 six metre conversion – an unexpected fruit

Matt Bilston VK3VS/VK3SMB

In my previous article, I showed how to convert an E band PRM80 radio to six metres (1), using nothing more than basic RF principals and some ‘outside the box’ thinking to get the PLL down to 50 MHz. This all worked very well apart from a couple of side effects.

If you did not see the other article, these side effects were microprocessor noise on parts of the band and the lack of a repeater defeat option due to the hacked reference stepping.

While converting another E band PRM80 to six metres, I got thinking about the firmware and how the ‘words’ are added to the PLL to not allow it to go below 58 MHz. So silly me started trawling through lines of code and the datasheet for the PLL IC to find a pattern that looked familiar. I found it.

The Changes

I have on my website (2) modified firmware for the PRM8025 and PRM8030 single mode radios and for the PRM8025 and PRM8030 dual mode radios. It may work on the PRM8038 but this has not been tested. This firmware has the following changes:

1. E band has been changed to give a starting point of 48 MHz, originally 68 MHz
2. B band has been changed to give a starting point of 108 MHz, originally 132 MHz.
3. U band has been changed to start at 220 MHz, originally 440 MHz, and
4. W4 band has been changed to start at 24 MHz, originally 494 MHz

To go with the firmware, also on my website (3) is a modified version of the FPP to match the firmware changes. For those who do not know, FPP is the Field Personality Programmer software from Philips. The changes are to match the firmware with some extras thrown in as well. These are:

1. The frequencies can be directly entered as follows:

CHNN	RX Freq	RX CTCSS	TX Freq	TX CTCSS	SC	PWR	CR	Ch Sp	Type	Name
001	52.52500	N	52.52500	N	E	N	H	N	12.5	Scan
002	53.00000	N	53.00000	N	E	N	H	N	12.5	Scan
003	53.02500	N	53.02500	N	E	N	H	N	12.5	Scan
004	53.05000	H	53.05000	N	E	N	H	N	12.5	Scan
005	53.07500	N	53.07500	N	E	N	H	N	12.5	Scan
006	53.10000	N	53.10000	N	E	N	H	N	12.5	Scan
007	53.12500	N	53.12500	N	E	N	H	N	12.5	Scan
008	53.15000	N	53.15000	N	E	N	H	N	12.5	Scan
009	53.17500	N	53.17500	N	E	N	H	N	12.5	Scan
010	53.20000	N	53.20000	N	E	N	H	N	12.5	Scan
011	53.22500	N	53.22500	N	E	N	H	N	12.5	Scan
012	53.25000	N	53.25000	N	E	N	H	N	12.5	Scan
013	53.27500	N	53.27500	N	E	N	H	N	12.5	Scan
014	53.30000	N	53.30000	N	E	N	H	N	12.5	Scan
015	53.32500	N	53.32500	N	E	N	H	N	12.5	Scan
016	53.35000	N	53.35000	N	E	N	H	N	12.5	Scan
017	53.37500	N	53.37500	N	E	N	H	N	12.5	Scan
018	53.40000	N	53.40000	N	E	N	H	N	12.5	Scan
019	53.42500	N	53.42500	N	E	N	H	N	12.5	Scan
1020	53.45000	N	53.45000	N	E	N	H	N	12.5	Scan

Photo 1: A screenshot of part of the FPP software.

- a. E band now allows frequencies between 48 MHz and 78 MHz. (Covers both the four and six metre bands).
 - b. B band now allows frequencies between 108 MHz and 140 MHz. Looking after the aircraft buffs.
 - c. U band now allows | frequencies between 220 MHz and 250 MHz to line up with my understanding of the American 1.25 metre band, and
 - d. W4 now allows the frequencies between 24 MHz and 58 MHz to cover the 10 m and 6 m band.
2. There has been some band edge changes:
 - a. A9 band used to have a lower edge of 146 MHz. Annoying. This has been extended (or dropped) to 140 MHz to line up with the new B band described above.
 - b. TU band used to stop at 470 MHz at the top level of the band. It has been extended to 480 MHz for UHF CB (This gives us a 70 cm and UHF CB radio in one go....). (Ed.: Not recommended – see “Comment” in AR September 2011.)
 - c. All the bands for the portable versions (the PRP80) have been extended to match the mobile. The portables will not cover these bands completely, but it has allowed a 70 cm band to be programmed.
3. There are two hidden bands in the firmware that are not accessible by the FPP. I have enabled these bands. They are K1 (174-210 MHz) and K2 (200-220 MHz), in both a local and remote variant. I do not know what we can use them for but they have been turned on.
 4. The band names in the front screen of the FPP program have been changed to something a little more user friendly. To most, E0 band does not mean much, but ‘6 and 4 m version’ does. Refer Photo 2 on next page.

See the screenshot in Photo 1 for a sample of the software.

How to install the firmware

1. Remove the EPROM from the radio. Note there are 32 holes and only 28 pins, and watch the orientation.
2. Erase the EPROM contents with a UV light.
3. Download and write the modified firmware to the EPROM.
4. Install the EPROM back into the radio.
5. Write a known good configuration to the radio.

It is possible, if your radio had version two or lower of the Phillips firmware in it, that it will make a beep-boop sound indicating that the software is corrupt. In most cases this can be cleared by loading a new job file to the radio, but not always. If this does not work, you will have to have a look on the internet for a program called FP (Factory Programmer) and do a 're-format' of the radio's software.

Using FPP (the modified version)

The amount of options in the FPP software is well beyond the space available in a magazine, so I will just give these pointers:

- After loading FPP, press F10 to go into setup and set the correct drive and COM port you will be using.
- F1 does work and will give very good help depending where the cursor is on the screen.
- Page Up and Down give access to more screens of options.
- If you do something wrong it will tell you.
- In the main menu (accessed by pressing ESC from any option screen), F2 reads the radio or file and F4 writes to it.
- Use it in REAL DOS not a DOS window in Windows.

If you use the Modified FPP program with standard firmware it will read and write to a radio, but if you are using one of the modified bands weird things will happen.

Using FPP with Windows XP

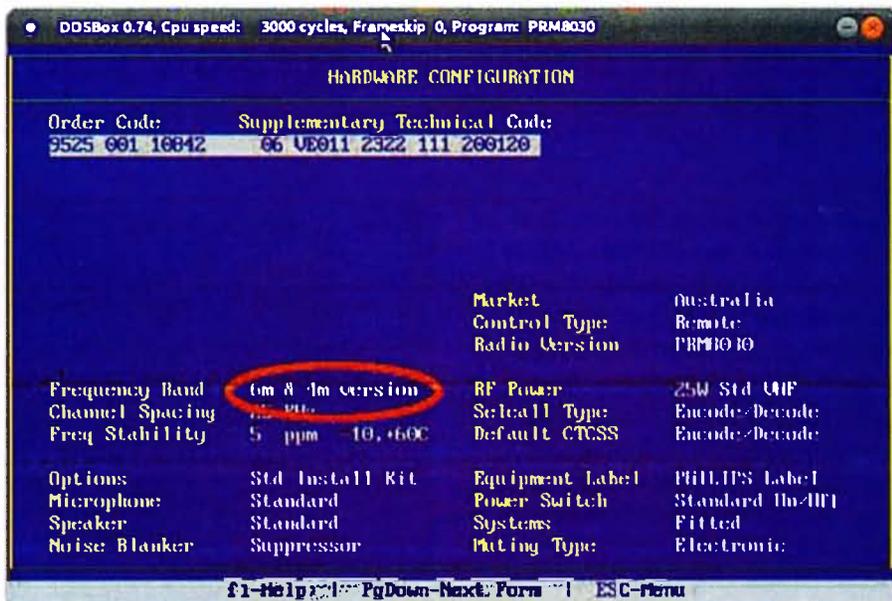


Photo 2: Showing the re-naming of the bands to a human-friendly name.

In the Yahoo PRM80 group (4), there are many posts about getting the FPP software to work under Windows XP. It will not work as it is an old DOS program trying to directly access the serial ports. Windows XP will not allow it. To solve this problem, there is an emulator program I have been using for quite some time that emulates an old DOS computer and runs under Windows XP. Please see my website (5) for download details and installation instructions. This will also work with other old DOS software that needs access to COM or LPT ports. It also works with Linux – that is how I am using it.

The earlier side effects

Both side effects have been fixed by using this firmware. The repeater defeat button now works as the correct codes are loaded into both RX and TX. The microprocessor noise I was getting across the band has disappeared. I can only surmise that using the 8 MHz rock and already having a 12 MHz rock on the control board were mixing and causing all sorts of havoc. (We get 8, 12, 4 and 20 MHz and multiples of them).

Already done the conversion?

If you have already done the conversion from my previous article, all you need to do is remove the 8 MHz

crystal and replace it with the original 10 MHz one and change the firmware. The RF stages are all the same.

Summary

Between the firmware and the FPP, we now have a radio that is capable of controlling the PLL from 24 MHz to 78 MHz, 108 MHz to 250 MHz and 400 MHz to 500 MHz, of course hardware permitting. There is another version of the firmware I have written (again on my website (2)) with the intention of making a 23 cm version of the PRM80. Basically it has been given a step of 8.333 kHz and an IF of 7.133 MHz in the 70 cm band. Triple both of these and you have a 25 kHz step in the 23 cm band with a 21.4 MHz IF. Stay tuned for this one. Have fun.

References

1. Matt Bliston VK3VS/VK3SMB "Philips PRM80 six metre conversion" *Amateur Radio* July 2011 page 43
2. My website www.vk3smb.com/projects/firmware.shtml
3. My website www.vk3smb.com/rss/simoco.shtml
4. Yahoo groups <http://groups.yahoo.com/group/PRM80-Series/>
5. My website www.vk3smb.com/rss

Illawarra Amateur Radio Society crystal set building competition

Rob McKnight VK2MT

For the past several months, the Illawarra Amateur Radio Society (IARS) has been running a competition to build the best crystal set. Rules were basic, with performance, design and originality being the main criteria with their being two sections to enter, one for IARS members and one for non-IARS members.

First prizes for each section was a two metre handheld, with both second and third prizes also available.

At the November club meeting, the many crystal sets were displayed and admired, with judges Max VK2ARZ and Paul VK2FE having the unenviable task of deciding the winners.



Photo 1: VK2ARZ, John VK2AAL and VK2FE with John's winning breadboard set.

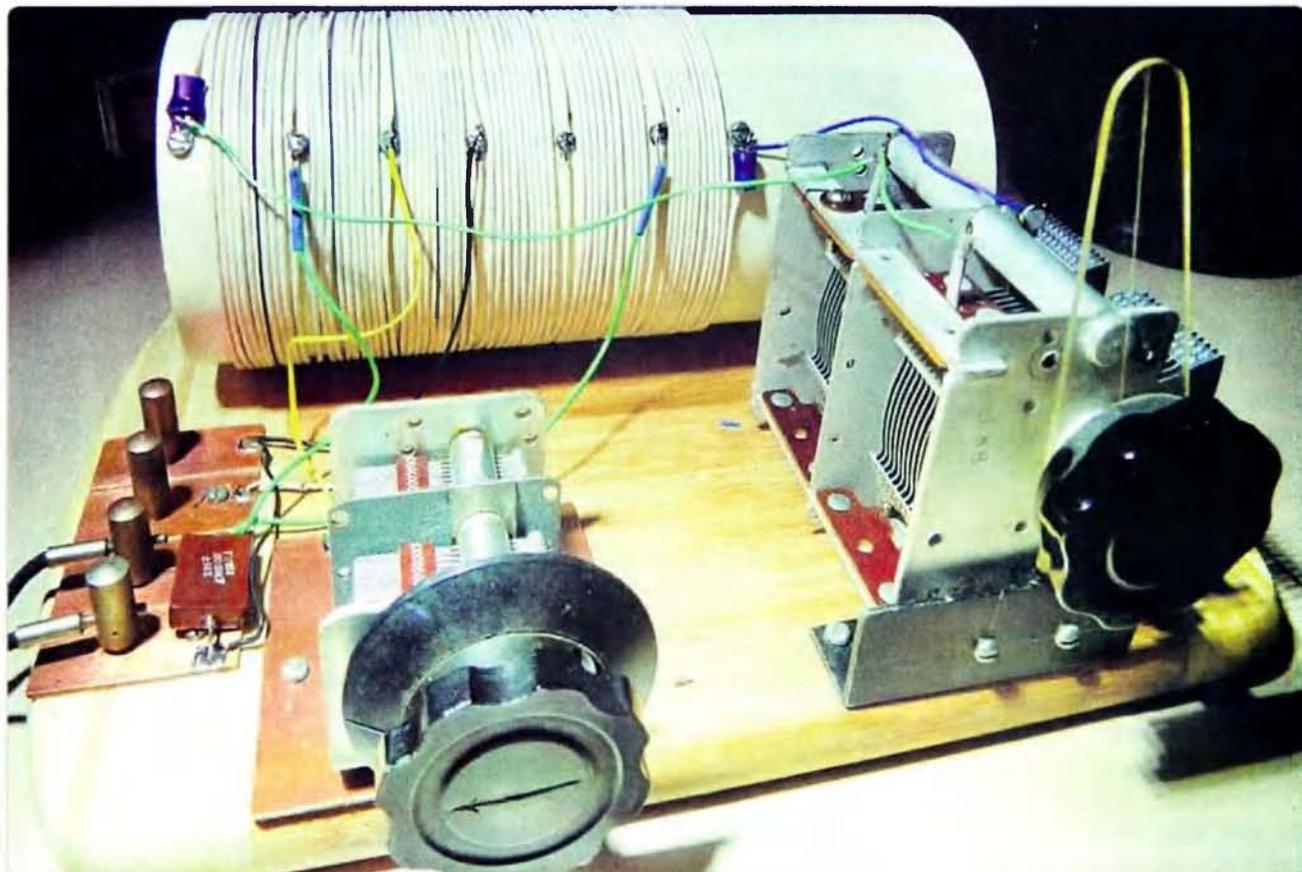
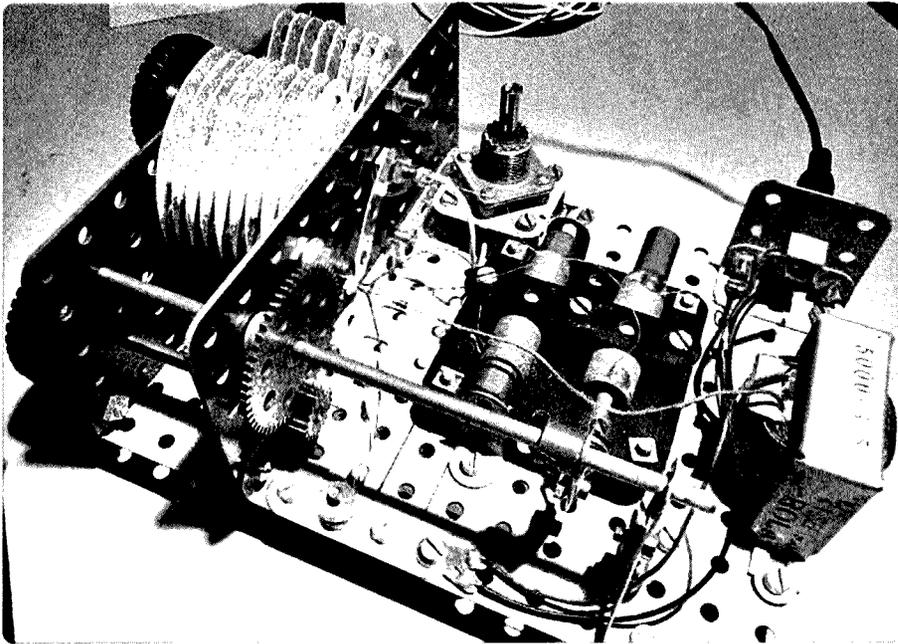


Photo 2: VK2AAL's breadboard crystal set.



One set was built from Meccano parts, including its variable capacitor, another hidden inside a beautifully crafted wooden box and another built on an actual breadboard that his wife hasn't missed, as yet!

The first prize winner for the non-IARS member was Peter VK2BEU, with John VK2AAL being the IARS member winner. Presentation of prizes will occur at the December Christmas meeting.

Congratulations and well done to all entrants for proving how a simple circuit can work so effectively.

Photo 3: VK2BEU's Meccano crystal set.

An unlikely source of QRM for your HF or VHF station

Gerald Molenkamp VK3GJM

Some initial history:

Around 15 years ago, halogen down-lights became popular and the amount of light per lamp suited an extension we built on our existing house. While looking for lighting back then, we came across some industrial fittings that not only looked good, they had several variations of fitting one, two or three lamps each one on a gimbal, so directing light to needed areas optimised our lighting needs.

With the cost increase of electricity per kWh forecast over the next few years, I decided to do my bit to lower my carbon footprint. Did the research and decided to replace 14 x 35 watt halogen lamps with 14 x 6 W (cluster of 2 x 3 watt) LEDs with a warm colour temp of 3000 K.

Although the effective lumens per LED cluster was less than the single 35 watt lamp, the benefit of moving to LEDs is obvious - some facts on next page:

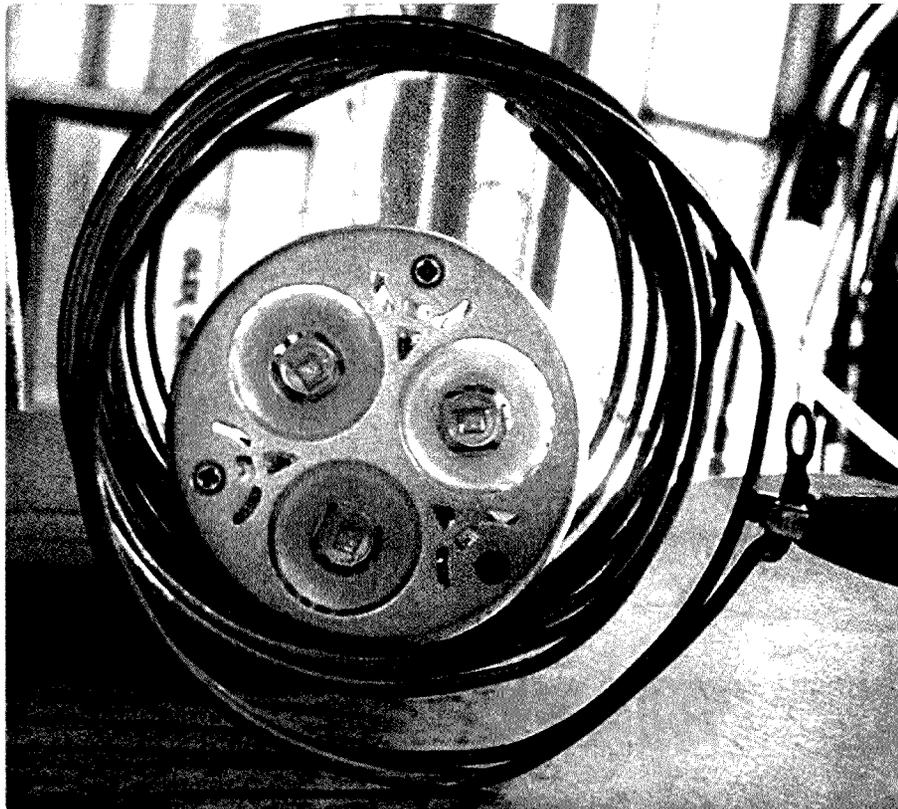


Photo 1: An unlikely source of QRM for your HF or VHF station.

1. 35 watt halogen lamps: 12 V DC, current consumption is 2.98 A/lamp. 161 degrees C

- Old fashioned, every three years you need to replace one.
- Huge power consumption.
- Life is short due to high temp, MTBF typically 8 k hours.
- Inefficient per kWh v Lumens.
- Halogens radiate UVR, this can be harmful over time.
- Zero noise, perfect for HF station.
- Low cost, proven tried, tested.

2. 6 watt LED: 12 V DC, current consumption is 0.305 A/lamp. 32 degrees C

- New Cree and cluster LED technology.
- Huge reduction in power consumption, some as much as 90%.
- Longer life time, MTBF typically 50 k + hours.
- Efficient per watts v Lumens.
- Zero radiation.
- Can create noise via internal circuitry or external electronic transformer.
- High cost per device.
- Although LED technology is proven, proper mechanics and heat dissipation of the LED chip is still instrumental to long service life.

The above value (2) provides almost an order of 10 power consumption reduction. However it needs to be noted, the effective Lumens is also reduced by 12-20%.

By far the biggest shock was the heat generated by each halogen lamp compared to the LED. At room temperature the 35 watt Halogen was switched on, and the following was observed:

- T0, temperature at the base = 19 degrees C
- T1 = T0 + 30 seconds, temperature at the base = 36 degrees C
- T2 = T1 + 30 seconds, temperature at the base = 66 degrees C
- T3 = T2 + 5 minutes, temperature at the base = 149 degrees C
- T4 = T3 + 7 minutes, temperature at the base = 161 degrees C

Wow, so 14 halogen lamps equate to 41.72 amps in total, that is 1677 BTU/hr, compared to 175 BTU/hr for all 14 LED down lights. I have not even looked at the amount of energy wasted as heat. Approximately 90% of the power consumed by an incandescent light bulb is emitted as heat, rather than as visible light.

The choice was obvious, I replaced all halogen lamps, and the total current consumption was reduced from 42 amps to 4.27 amps in total. All values exclude transformer loss.

It took a bit of getting used to, the reduction in lighting, but we felt better for it knowing we are helping the environment in a little way.

Now to the main reason in the first place for this article.

Some weeks later I found some me time to switch the HF radio on. I joined a regular sked on (Mondays) on 3655 kHz. After the sked I

changed band to 40 metres, and realised something seriously wrong.

I had a QRM noise level between 30 to 40+ signal strength, yes huge. I also observed a notable increase in S meter movement (background noise level) on VHF ranging from 5 to 7 signal strength, but not enough to worry about, it didn't break the squelch.

I put it down to changed weather conditions, rain and the effect of power line noise due to good rains and the colder period in Melbourne. HF was mainly switched on at night, and this is when the noise was at its greatest. I decided to start looking for the noise source. It took a late night work activity where I was still working and listening to a local station on HF when, by chance, my son turned off the LED lights in the family room. Wow, the noise is gone! It was all about timing.

My first thought was of those new efficient LED down lights, it is the fault of the current limit switching arrangement within the MR16 fitting, noisy dirty things, cheap foreign junk!

I pulled one apart and did some spectrum and oscilloscope measurements while on the bench connected to a linear DC power supply. Although each could do a bit better with a low ESR capacitor fitted.

With HF running and a loop connected to the antenna socket I could not fault the one LED down light. Maybe I have a rogue LED? I proceeded to test the other 13, and still no luck. I could not recreate the 30+ signal strength noise level on 40 metres on the bench.

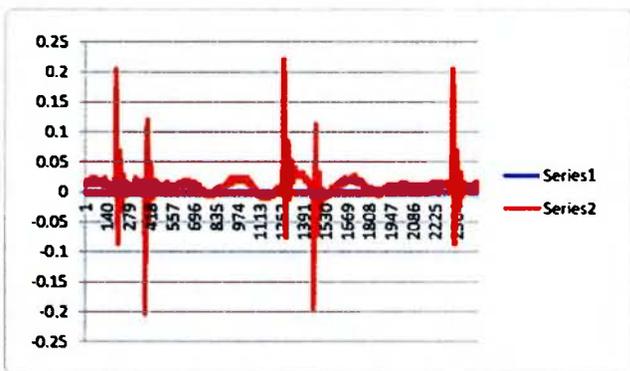


Figure 1: The oscilloscope plot prior to fitting a low ESR Tantalum.

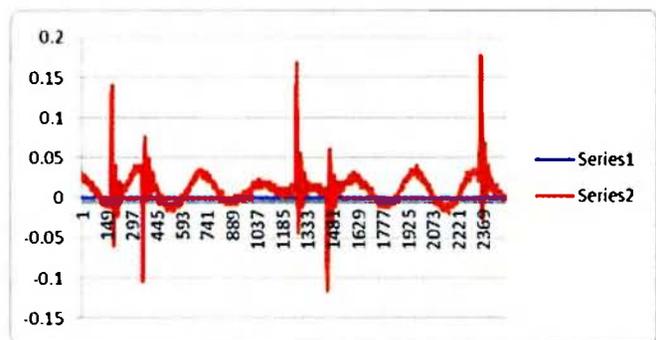


Figure 2: The oscilloscope plot after fitting a 10 µF 16 V capacitor inside LED MR16 housing across the full wave bridge + and - on the DC side.

The vertical axis is peak to peak levels in volts, the horizontal values as sampled points.

The upper and lower spikes have reduced with a good quality low ESR capacitor fitted. This made no discernable difference in terms of the very localised noise generated by the lamp's support circuitry.

A quick spectral test using a loop connected to the spectrum analyser.

A spectrum sweep from 1 to 100 MHz.

The trace above in Figure 1 is not an issue, the noise is so local, these LEDs do not radiate.

A spectrum analyser plot with LED MR16 lamp switched off, inside the loop.

I decided to put the old 35 watt halogen lamps back in the MR16 housing. Again I could not re-create the noise. I removed the halogen lamps again and inserted the LEDs, up it came, 30+ signal strength noise level, definitely man made QRM. These lights are about six metres from the HF radio and some 10 metres from the antenna, which is sitting above a flat clip lock colour bond roof; what is going on?

As it turned out, the original installation of the down lights 15 years ago incorporated what is called an "electronic transformer", the inductive type. After doing a Google search, I managed to download the specifications of the device and, in black and white, it stated not suitable for LEDs. The penny dropped, the LEDs are not an inductive load (filament). Furthermore the device was specified for loads between 35 to 105 watts total. Given that I am only running two LEDs from a single device and it needs an inductive load between 35 to 105 watts, (2 x LED = 19 watts) it is no wonder, the electronic transformer is not efficient and the very low load is the main reason the unit is emitting a wide range spectrum noise nearly blanketing HF all the way to VHF (two metres).

I quickly replaced the newer

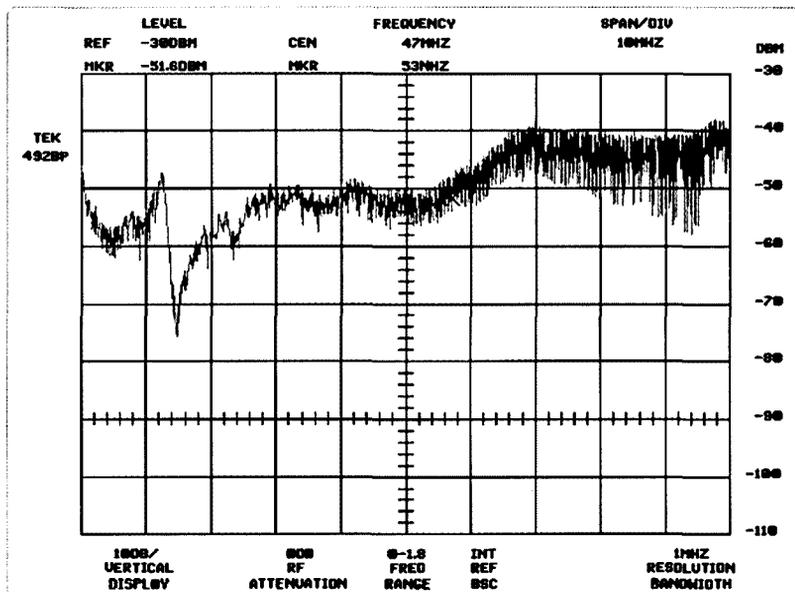


Figure 3: Quick spectral test using a loop connected to the spectrum analyser.

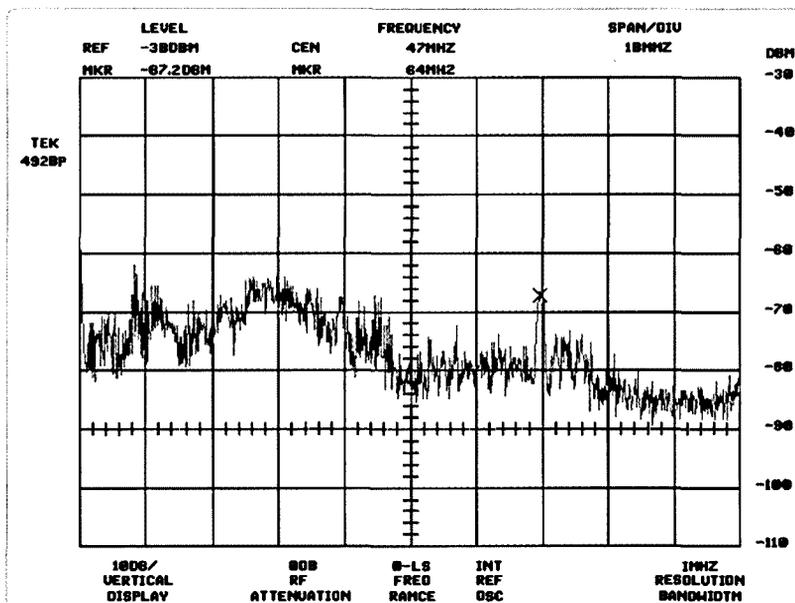


Figure 4: Spectrum analyser plot with LED MR16 lamp switched off, inside the loop.

technology electronic transformers with good old fashioned iron core transformers and the 30+ signal strength of noise on HF and VHF went away.

The point of the exercise is that new LED technology can provide substantial benefit in the longer term, but not to the detriment of completely wiping out a hobby.

Selecting LED lighting and the type of transformer is very important to ensure your QTH noise level is kept to an absolute

minimum. My advice for those who don't have access to test equipment, purchase a LED fitting and transformer first, power it up and place near your HF radio.

The results will be self-evident the moment you switch the lighting assembly on. Make sure you test under a number of load conditions as LED transformers can come in a variety of step down technologies.



A computer powered multimode transmitter - QRP from your computer's USB port

Peter Parker VK3YE

This project may appeal to those who want to learn more about teaming computers up with radios, digital modes or propagation by building a low power beacon.

Presented here is a small fixed-frequency HF transmitter that uses the computer as a power and modulation source. It is suitable for a wide-range of low power SSB, CW and digital mode tests. While the unit shown is double-sideband suppressed carrier, the fixed-frequency design can easily be modified to transmit SSB or a single CW or digital mode signal.

The circuit is also a good teaching project; containing an oscillator, mixer and amplifier it has all the building blocks necessary for much more complex equipment. Output power is approximately 20 milliwatts, sufficient to be heard hundreds of kilometres away at a quiet location.

Circuit description

The transmitter has three stages – a local oscillator, a balanced modulator and an RF power amplifier. Refer Figure 1. Strictly speaking only the first two are necessary but if you omit the amplifier your transmit range is considerably reduced.

The first stage is a crystal oscillator using a 2N2222, PN2222 or similar small-signal transistor. It uses common amateur band crystals available from Rockby Electronics and other suppliers. I chose 40 metres (7.160 MHz) because of the band's daytime propagation characteristics, but an 80 metre version (3.580 MHz) would be feasible with a change to the collector tuned circuit and output filter. Output of this stage is about five milliwatts – sufficient to drive the diode balanced modulator.

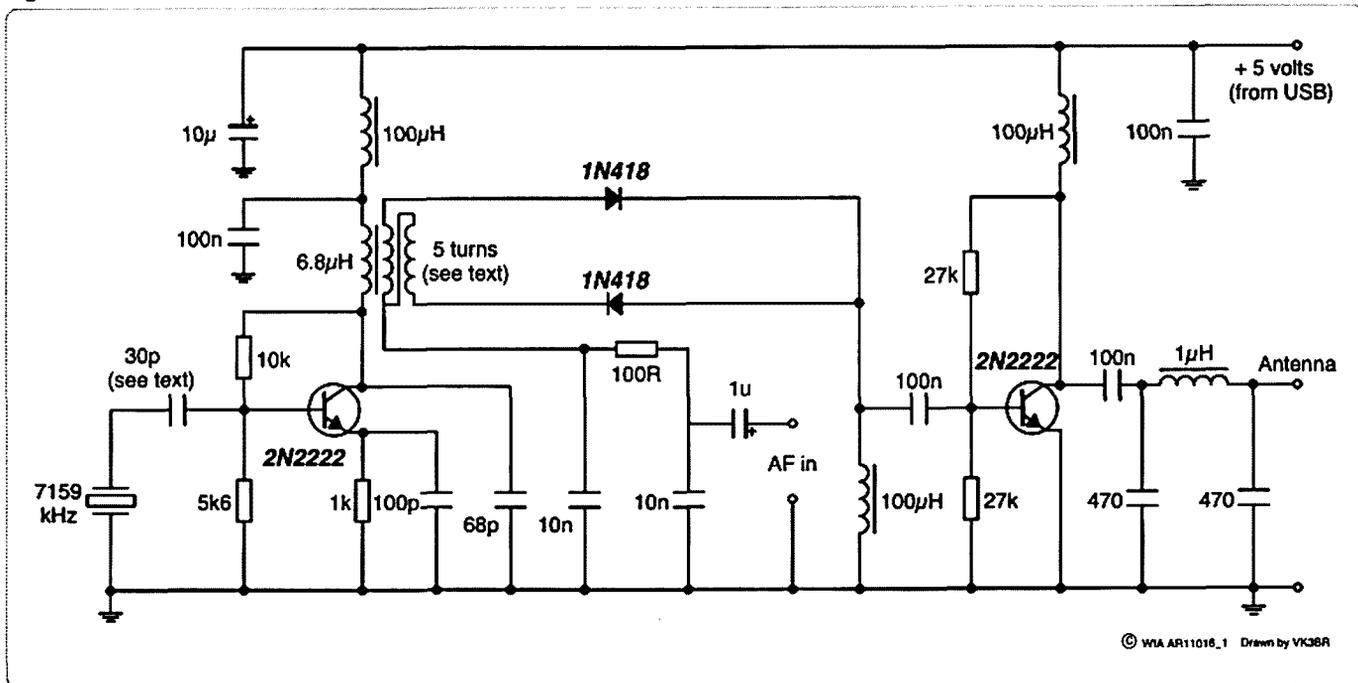
The 30 pF capacitor in series with the crystal was selected to

provide an oscillator output on 7160 kHz. 30 pF is not a common value but can be formed from 2 x 15 pF disc ceramic capacitors in parallel. If the exact frequency is not important this capacitor can be omitted; doing this lowers the frequency to approximately 7158 kHz. Conversely a smaller capacitor increases the frequency to approximately 7162 kHz. This is only critical if you wish to add an SSB filter – more later.

The trickiest part of the circuit is around the collector of the oscillator transistor. The output is tuned to 7 MHz through the 6.8 μ H coil (an RF choke) and the 68 pF capacitor to earth. Because the balanced modulator has a lower impedance than the transistor stage, four or five turns of very thin enamelled wire around the body of the RF choke provide the required step down.

This winding is rather special, comprising two wires not one.

Figure 1: The circuit.



© WIA AR11016_1 Drawn by VK3BR

These are twisted together (like you would make a balun) before being wrapped around the 6.8 μH choke, as shown in Figure 2. The start of one winding is connected to the end of the other to form a tap. A good way to test this is with a continuity indicator or multimeter set to ohms. All wires should indicate a short-circuit – if you do not get continuity between all, you have shorted one of wires and left the other unconnected.

It is through the tap via the 100 ohm resistor that audio is applied from the computer's sound card output. This audio can be anything from live or recorded voice, audio tones (for CW), slow scan television or digital modes like PSK31 or WSPR. I will list suitable software for these modes later on.

The two free ends of the enamelled wire secondary go to two diodes which form the balanced modulator. This is really just a mixer stage; the audio from the computer is combined with the 7 MHz from the crystal oscillator to produce a signal at 7 MHz that is modulated with audio. The other thing about the balanced modulator is that the carrier is nulled out (or nearly so) so all you have are the two sidebands that carry the signal's intelligibility. Using the bandscope on SDRadio about 25-30 dB carrier suppression was achieved with no special effort

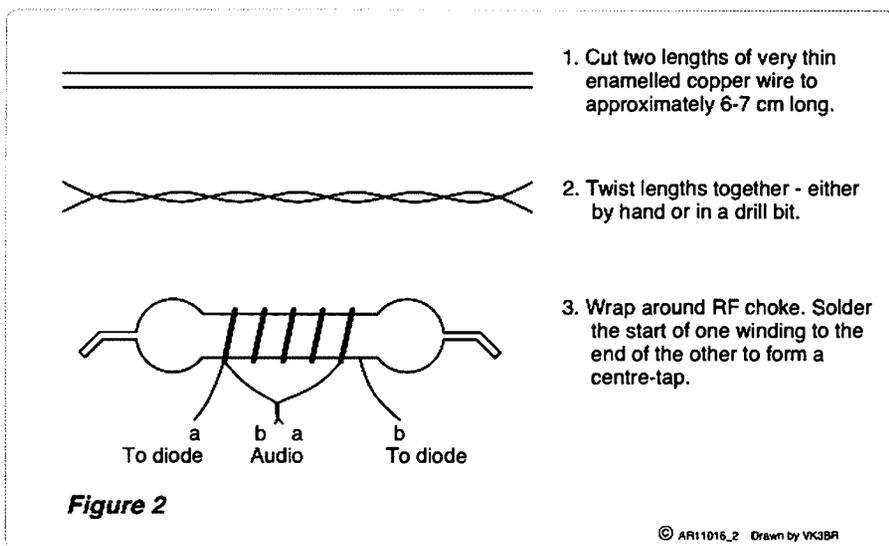


Figure 2: Winding the coil.

at balancing – acceptable for a low power transmitter.

One could connect an antenna straight to the output of the balanced modulator. However, output would be low – one milliwatt or so. Nevertheless if hooked up to a good 7 MHz antenna such as a dipole you will get about a one km voice range on a mobile or portable receiver over open parkland. Water is even better; the author's maximum range with one milliwatt has been 12 kilometres to a quiet receiving site.

Otherwise, the balanced modulator output is fed to an RF amplifier stage, which puts out

about 20 milliwatts. More power from it would be possible, but for beacon or test use it is better to underpower stages so they can operate at 100% duty cycle without overheating.

Finally there is a simple low pass filter, again using an RF choke, to attenuate harmonics. A multi-section filter would result in even lower harmonic emissions but is unnecessary for such a low power transmitter.

Construction and testing

The transmitter was built on the copper side of a piece of printed circuit board material, dead bug style. Construction started with the oscillator and once that was working moved to the balanced modulator and RF amplifier.

For peak RF output you may wish to use a 3 – 30 pF trimmer capacitor in parallel with (say) a 56 pF fixed capacitor (instead of the 68 pF fixed) at the oscillator, but the author did not find this necessary.

A plastic box houses the rig. Flying leads provide connections to the antenna, USB (5 volts power only) and headphone output on the computer. To avoid having to solder a USB plug, a factory-made USB lead was cut up for the USB power connection. Helpfully its leads were correctly colour coded – black for



Photo 1: A photo of the completed USB powered transmitter.

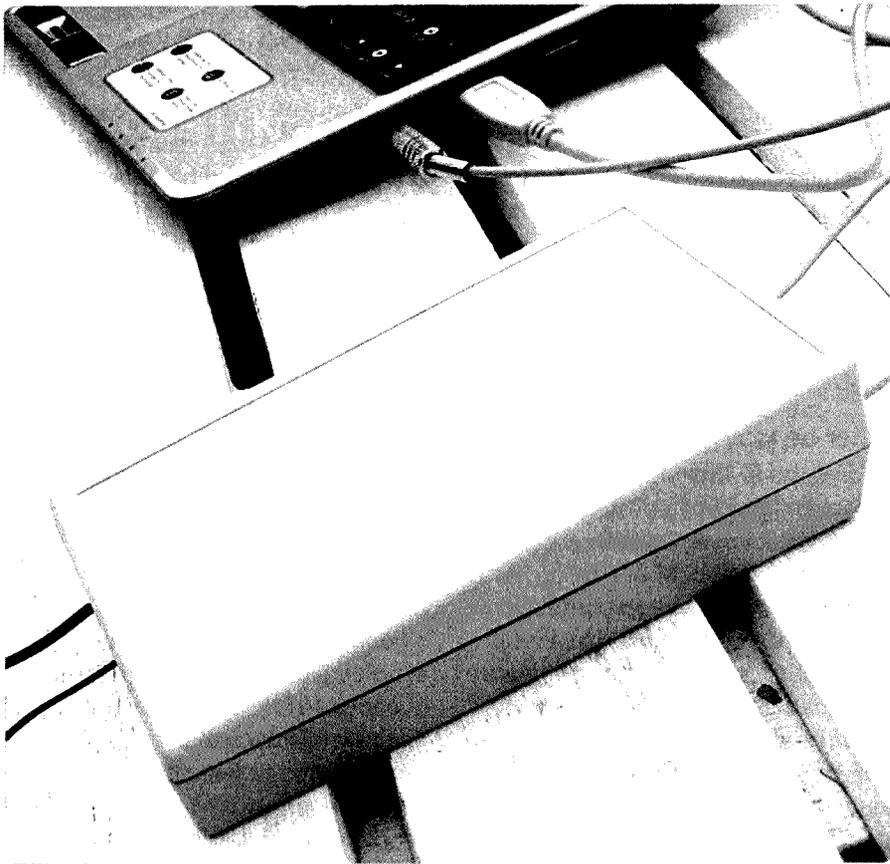


Photo 2: The USB powered transmitter – close up of the housing.

ground and red for positive – but it is worth checking with a multimeter. The other leads were cut short and ignored. Polarity is most important as is avoiding shorts – you do not want this project to endanger your computer – so triple check everything before connecting.

Testing requires an SSB receiver, an audio signal source (either from the computer or an audio amplifier) and some means of measuring or at least indicating RF output. The oscillator's output should be within one or two kHz of 7160 kHz – write this frequency down.

If using the computer as the signal source, record a test beacon message. This could be tones (select 1 kHz sine wave) and some voice. For low power beacon work a CW ident is handy and can easily be produced in your audio editor. Use a tone duration of 0.1 seconds for a dot, 0.3 seconds for a dash and 0.5 seconds for a silence between letters. Add an optional voice ID and a carrier to make the sound file

up to (say) 30 seconds. Plug some headphones into the sound card's audio output socket to demonstrate that it is working.

Playing this through the transmitter should result in a signal on the receiver. Because this is a double sideband rig there will

actually be two signals, forming mirror images about the (nearly) suppressed carrier. Assuming this is on 7160 kHz, there should be strong tones on 7159 and 7161 kHz (when a tone is being transmitted). There will be some carrier audible but it should be much weaker than either of the sidebands (if not there is a problem with the balanced modulator). You know the receiver is on frequency when the tone is the same pitch whether upper or lower sideband is selected. Voice should also be plainly audible on both sidebands without retuning.

Experiment with the soundcard's output level (with volume controls on the computer's audio manager software) and note the effect that varying it has on transmitted signal strength. There will be a point where increasing the level does not make the signal stronger. Note this position and back off a little from there. This was about half setting on my computer, but a lower level seemed better for digital modes.

Because of the transmitter's low power, conventional SWR meters will not indicate. Instead verify that the antenna is matched on 40 metres with a higher power transceiver. If you intend to use this transmitter portable or anywhere there is no permanent antenna, two ten metre lengths of wire (antenna

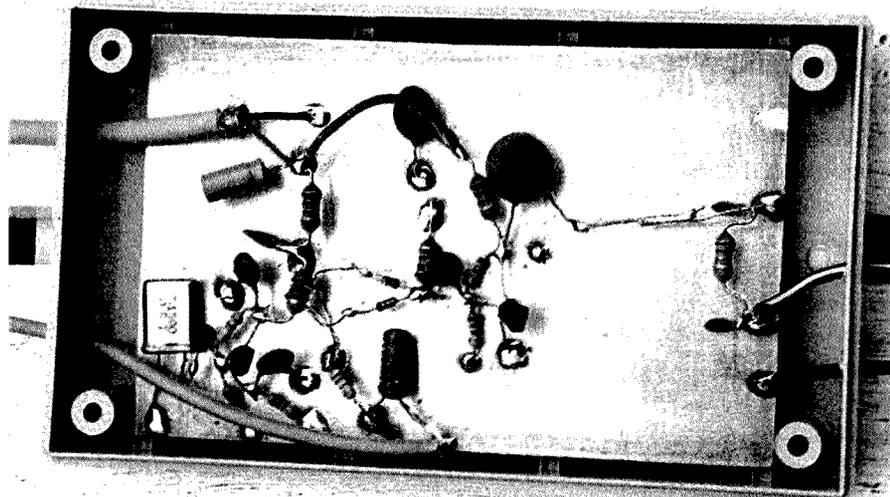


Photo 3: The internals of the USB powered transmitter.

wire and radial) will present a good match without an antenna coupling unit if connected to the rig's antenna and ground.

Software

Depending on desired transmitting modes, the following software is recommended:

- **Audacity:** Sound editing and recording software. With tone generator function. Useful for producing beacon 'scripts' – that is, continuous carrier, Morse ID, voice message. Can save output in wav format.
- **Windows Media Player.** Standard on most computers, this allows you to replay audio recordings. The loop repeat function is particularly useful for beacon use.
- **WSPR 2.0** by K1JT for WSPR.
- **Digipan** for PSK31.
- **MMSSTV** for slow-scan TV.
- **SDRadio.** Useful for experimenting with software defined radios, audio filtering and monitoring transmitter output (especially carrier suppression).

Note that some digital modes, for example, PSK31 and WSPR, use their own frequencies. You will have very little if any success if you do not adhere to them. Crystals for WSPR frequencies are cheaply available from Expanded Spectrum Systems www.expandedspectrumsystems.com

Results

This rig has been used as a CW and voice beacon. On its first day of operation reports were received from near Geelong, Canberra and Sydney. In all cases the signal was weak and only the Morse could be consistently deciphered. One of the longest distances was to Mike VK2IG (500 km away) who recorded the transmission at http://www.youtube.com/watch?v=M_IcQ7PdglU

A local test with PSK31 was also successful, while much longer

distances were spanned with a similar transmitter operated on WSPR. SSTV also worked but there was significant 'ghosting' of the picture for reasons not yet determined. Audio levels are quite important with digital modes and too high a drive will distort the signal.

Further thoughts

Several modifications and additions could improve this project further:

Other bands

If bands other than 40 metres appeal it should be possible to modify this circuit. Crystals for 1.8432, 3.580 and 14.318 MHz are sometimes found on computer boards and could be used in a design such as this with appropriate modifications to the oscillator tuned circuit and output filter. A 3.58 or 7.2 MHz ceramic resonator would provide frequency agility at some expense to stability. Or crystal oscillator modules, also on old computer boards, might allow operation on some higher bands (some are for 14.318 or around 28.6 MHz and the latter in particular would be interesting for propagation testing as sunspot numbers improve.

More power

An extra stage could increase coverage but still not overload the USB's power capabilities. With a similar 10 MHz WSPR rig, the author has used a BD139 to increase output power to the 200 milliwatt level with a five volt supply. Again this is well below the transistor's ratings so a heatsink is not needed.

SSB

Currently the rig is double sideband, for simplicity and ease of adjustment. However if you were to order three or four more crystals than needed you could use them as a ladder filter to produce an SSB signal. This increases efficiency and reduces bandwidth but you will need some more RF amplifier stages due to the filter's introduced loss.

As an experiment the author tried a lashed-up filter on the prototype. The connection between the π network and the 2N2222 amplifier stage was broken and a crystal filter wired between this stage and a short antenna wire. The filter comprised just two 7.159 MHz crystals with a 68 pF capacitor to ground at their junction. The 30 pF crystal series capacitor was lessened to 10 pF to raise the oscillator's frequency to about 7162 kHz (required for a lower sideband signal as the filter's bandpass is around 7160 kHz).

Despite poor impedance matching the upper sideband was appreciably weaker than the lower sideband, proving that even a very simple crystal filter could produce acceptable SSB for this purpose. The crystal filter has a loss and the output from it is less than that fed to it. Hence you will likely need two or three stages to lift power to the desired 20 – 200 mW output range.

Make a transceiver

Wouldn't keyboard chat over several kilometres between two laptops be fun? This project contains the makings of such a communications link. A double sideband transceiver like this contains similar parts to a direct conversion receiver that produces audio that WSPR or PSK31 software will decode. One or two extra stages and some fancy switching will get you on your way.

Conclusion

While not exactly a 'contact getter', a 20 milliwatt rig such as this has many uses for equipment testing, beacons and local links. It is also a useful stepping stone for those wishing to play with digital modes with homebrew equipment or do QRP beacon tests.



Special Event stations for the London 2012 Olympic and Paralympic Games

John Warburton G4IRN - Publicity Officer, Project Echo

Some special event call-signs will be activated to celebrate the London 2012 Olympic and Paralympic Games: 2O12L (Two Oscar One Two Lima) from London, England and 2O12W from Barry, Wales. The Radio Society of Great Britain has been granted the 'Inspire mark' for these stations by the London 2012 Inspire programme.

The London station, 2O12L will be active through the duration of the Games, located at the historic Eltham Palace, south-east London on 160 m to 2 m, all modes. More information on the web site www.2O12L.com or contact the

Press Officer, Mr John Warburton G4IRN at press@2o12l.com

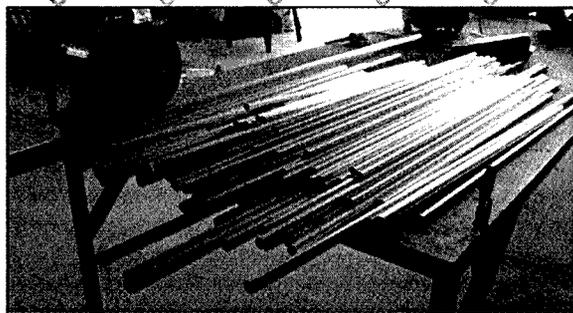
The Welsh station 2O12W will also be active on all bands from 160 m to 23 cm and all modes including SSTV and satellite from Whitmore Bay, Barry Island, Vale of Glamorgan, Wales. More information on web site www.2O12W.com or contact the station manager Glyn Jones GW0ANA, at glyndxis@talktalk.net

Amateur radio operators everywhere will be able to share in the Olympic experience by making contact with the stations and to exchange greetings messages with

visitors and Games participants who visit the station - the team aim to make contact with as many of the Games participating countries as possible. Special QSL cards will be available to stations contacted.

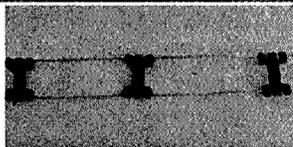
The project aims to leave a lasting legacy by encouraging visitors to learn more about radio communications and the social, career and recreational benefits that it brings. Of course, visiting hams will be made very welcome at the stations. Both 2O12L and 2O12W go on the air on 27th July 2012.

TET-EMTRON



Large range of aluminium sizes now available cut to size, including Drawn Tube, Rectangular Hollow Section, Box and Flat. Look at the Home brew section for more details and to download the calculator and pricing.

Various other parts available in our new Home Brew section.



TET-Emtron's own mobile autotune.

-160 through to 6 metres. Compatible with any radio- needs DC and RF only.

-True L/C tuner can have a longwire added when portable.

-Large range of whip sizes and accessories.

www.tet-emtron.com

TET-Emtron

80 Stock Road, HERNE HILL. WA 6056

Phone: 08 9296 3224

ALARA

Margaret Blight VK3FMAB – Publicity Officer

Earlier this year ALARA learnt of an expedition planned by members of Thane Amateur Radio Association (TARA) and the Amateur Radio Society of India (ARSI). They intended to activate Bet Shankhodhar Island (aka Bet Dwarka) in the Gulf of Kutch between 16th and 23rd March, 2012. This island, IOTA AS-175, had not been activated before.

Bet Dwarka is an important religious destination for followers of the Hindu faith. It has the palace where Shri Krishna lived with his wife Rukmini. Ancient Indian scriptures have described how the ocean rose to cover the city of Dwarka. A whole city had been unearthed underwater a few years ago and is supposedly the ancient Dwarka.

The advance party, comprising Sarla VU2SWS, Mickey VU2IZO and Nandu VU2NKS, left on the afternoon of 13th March from Mumbai to Okha. Their ETA at the port of Okha was at 1600 local on Wednesday, 14th and they were expected to reach the island QTH by 1800. They hoped that three stations would be set up by the 17th by which time the other team members would have arrived. The full team was to operate until 23rd March. There would be six operators and operations were planned on all modes, CW, SSB and RTTY.

Sarla VU2SWS reports on the expedition

It's been a little more than a week since I got back from Bet Dwarka Island in the state of Gujerat. I would definitely say that this YL lead expedition was a major success. We made 10088 QSOs! We bombarded the band during every opening in the bands on 10-80 metres and operated on SSB, digital and CW modes.

For the last three years I had discussed this operation with many amateurs staying close to the island, but I found that not too many shared my enthusiasm to work from a new IOTA. Finally in December of 2011, I decided that I should take the lead and get this operation going. My OM's friends in Mumbai supported the idea and we put together a team of six people. The application was made to the government and we finally got the permission around the end of November.

In the interim period, the group met every week to discuss the various aspects of the expedition. A mock exercise was held near a creek close by and the antennas were tested and a good radial system was made. Five radial plates were manufactured locally. Work was divided amongst the group members from Mumbai. One group planned the technical aspect of the operation. I and another OM tackled the authorities, collected all the equipment in one place, organized the packing and transportation, and the publicity and sponsorship applications. The youngest member of our group, Deepak, designed and handled the business of the website, which was launched a week before the event began. I of course, used to breathe down their necks through the telephone and emails to make sure that every little detail was looked into. I had nightmares imagining how things could go wrong if we forgot even a small thing like connectors, or fuses!

Two members of the group and I reached the island on the 14th as an advance party to set up the



Photo 1: Sarla VU2SWS at one of the operating positions on Bet Dwarka Island.

stations. We travelled by train to the city of Okha. From there it was a boat ride to the island and a ride on colourful rickshaws to the spot. The campsite had bare living facilities, but toilets were provided for. The huts were just sack cloth put over bamboo. There was electricity and a kitchen with staff and who provided the food. The camp was very close to the sea but elevated. It was a site perfectly suited for amateur radio activity.

By the time we unpacked there was no light, so we rested and retired for the evening. Next morning at 6 am we started to work on setting up antennas. First one installed was the Buckmaster seven band OCF antenna at a height of 11 metres on a Spider pole. Wire verticals for 40 metres and 20 metres and a vertical dipole for 10 metres were installed on a spider pole and bamboo. With the help of an antenna analyser, all the antennas were perfectly tuned for their intended band. With a tuner the 40 metre antenna could work on 15 metres, the 10 metre antenna could work on 12 metres and the 20 metre antenna could work on 17 metres. By the evening of the 15th, two stations were on air! Three shacks were set up. Shack 1 had the TS590 with all accessories.

Shack 2 had the K3 with all the accessories. Shack 3 had an Icom IC-718. All the stations had the capability to operate on SSB, CW and RTTY. First to go on air with RTTY was OM Nandu VU2NKS. There was a huge pileup on all modes. I was on SSB mode working the European pandemonium till the wee hours of the morning before going QRT for the first day.

The other members of the group started to arrive and with their help, an 80 metre inverted L, a multiband half square antenna for 20 metres and up, and a 17 metre wire vertical were installed. On the 16th, all three stations were on air covering all the modes and all the bands from 10 to 80, working every opening. I was mostly on SSB mode and sporadically on RTTY. VU2NXM, VU2CDP and VU2LX were primarily on CW and worked as standby operators on SSB. VU2NKS was totally on RTTY. The 20 metre antenna was moved to stand in the water and the Ameritron AL-80B linear amplifier was connected to the SSB station. The result was the west coast of NA coming out strong with a 55 report. The shack was also moved closer to the antenna. I remember working Elizabeth VE7YL, Minnie VE3DBQ and Christa DJ1TE and perhaps Nori 7K3EOP. There were other European YLs that I worked but cannot remember their callsigns.

Though online logging was provided for in the website, it was not possible to upload the logs as the internet connectivity on the island was poor and sporadic.

The weather on the island was perfect with a cool breeze in the evening and night. All the team members worked in perfect harmony with each other. A total of 10,088 QSOs were made. There was the usual onslaught from Europe, but the team members managed it very well and the QSO rate was steadily maintained on all the modes.

On the evening of the 23rd the dismantling of antennas began. The final antenna was dismantled in the early hours of the 24th. By 8 am everything was packed and the team was ready to leave. We reached Okha station by 11 am, departing at 12 noon for Mumbai. We were all very happy to have achieved what we set out to do, namely activate a new island. On reaching home I found an email from the Island Radio Expedition Foundation (IREF) agreeing to a sponsorship of US\$500! That was good news. My inbox was also full of emails of appreciation from amateurs all around the world. I really felt proud of my team. I feel good about myself that all my efforts have borne fruit.

The QSL cards are being printed and soon that will be a massive task to do as we had a great response to the online logging system. Methinks for the next two months I am going to be very, very busy. But it will be a happy kind of busy. I hope all of you have visited the site www.dxcoffee.com/at2dw There are many pictures there.

Congratulations to Sarla and the team. What a great effort! After such

detailed planning and enthusiastic support they certainly deserved the success they achieved. We hope to have further news about our International Women Operators following the YL International Meet in Adelaide.

ALARA VK3 news

On Saturday 31st March, VK3 ALARA members met at Gisborne at the home of Pam VK3NK and her OM Graeme VK3NE for a BBQ lunch. The weather was warm and mild and the twenty or so people who attended relaxed and enjoyed catching up with each other while sampling the amazing range of salads available. We were later invited indoors to enjoy a musical interlude with Peter VK3RV providing a skilful piano accompaniment to Pam on the Harp and Susan VK3UMM contributing the songs.

After the entertainment we all took coffee and sweets on the veranda and time simply passed by. Pam and Graeme are such welcoming hosts it was truly difficult to leave them for the return journey.



Photo 2: ALARA members at the QTH of Pam VK3NK and Graeme VK3NE.

Plan ahead

23 - 24 June

Winter VHF-UHF Field Day

The Winter VHF-UHF Field Day will be held over the weekend of June 23/24. For full details please refer to the contest web page:

<http://www.wia.org.au/members/contests/vhfuhf/>

Confessions of a pirate

Eric Jamieson VK5LP

First, let me go back a bit into history. I was obviously born with a "valve in my hand" because my interest in radio really commenced around the age of eight years! Despite being told to refrain I could not leave the house radio to itself - at every opportunity I fiddled with the three dials that this 1923 battery operated radio boasted, at times finishing with them hopelessly out of tune. Exasperated, my father bought me a book dealing with the fundamentals of radio. It was two inches thick, its appearance was quite intimidating, so it became known as the "tome" and sat on the desk in my bedroom where I did my school homework.

A shortwave listener

At ten years I built a crystal set. Being the Great Depression of the 1930s I didn't receive much pocket money so it was constructed from anything I could find. The case was made from pieces of a kerosene tin box, the coil wound on a jam jar, the coil tapings semicircular slider was made from brass screw heads and my pocket money bought the headphones and the galena crystal detector. It worked quite well for a year or so until it was put aside when Dad bought me a three valve regenerative battery set (we had no power until 1950) for 17/6 (\$1.75).

Information from the tome helped me to convert this to a shortwave radio using plug-in coils covering from 500 kHz to 20 MHz, but I found smooth regeneration very difficult to obtain at the higher frequencies. Anyway, A415 triodes were never intended to operate at such high frequencies. So commenced my shortwave listening days. It was amazing what could be heard on an aerial 100 feet long and 40 feet high in a location with absolutely no noise (no power lines)

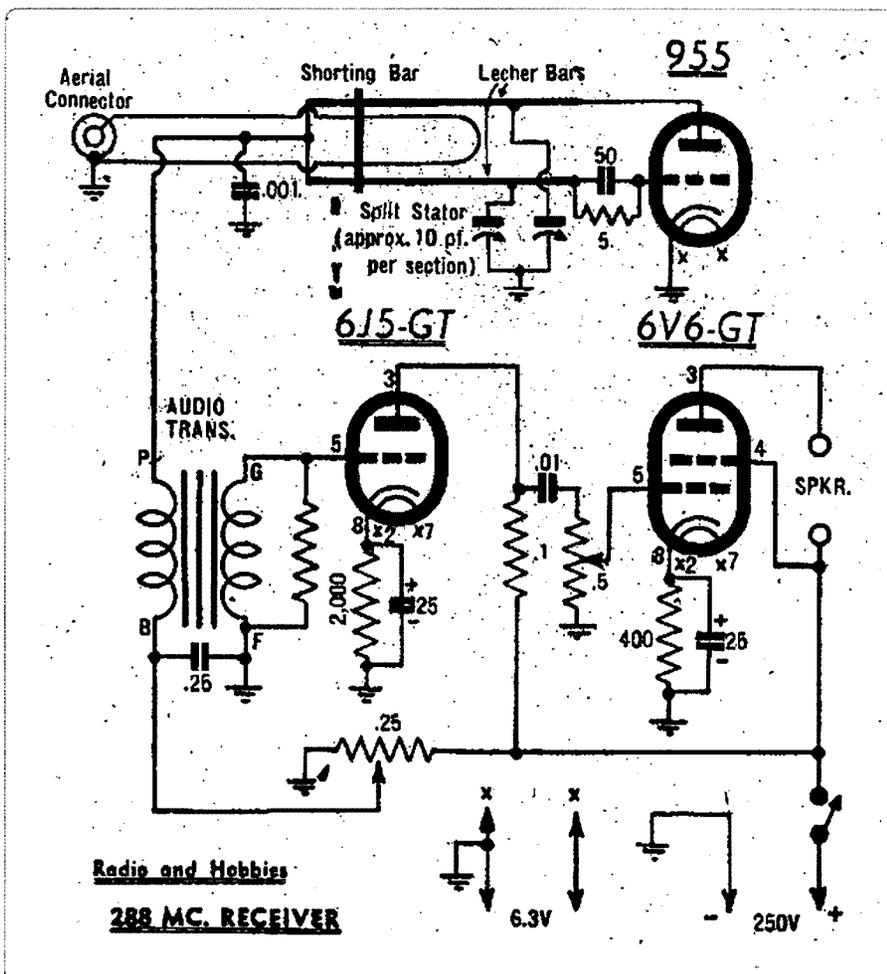


Figure 1: The 288 MHz receiver, from *The Australian Shortwave Handbook*, 1950 edition.

and a noise floor level so low that it had to be heard to be appreciated, and would be the unachievable dream of virtually everyone today.

In 1942 at age 18 I joined the RAAF as a wireless maintenance mechanic and served four years learning all I could about wireless, as it was then called. My introduction to VHF came with repairing SCR522A VHF radios in Kittyhawk fighter aircraft, despite having received no training to do so! In other words you learnt on the job! These units operated on four selected frequencies in the range of 100 to 150 MHz.

In 1947 I set out to procure my amateur licence but was so

busy repairing the district's radios that I put such aspirations aside until later. It was in the early 1950s when I made my first foray into amateur radio, with a mate and I constructing one metre (288 MHz) gear, a modulated oscillator for transmitting (a pair of 7193s) and a super-regenerative receiver. With an output of about four watts we covered the ten kilometres between us with ease using three element beams consisting of a folded dipole, director and reflector. We could not work similar stations in Adelaide due to the hilly terrain. In any case we had no desire to widely advertise our clandestine operations!

The one metre operations

came about in the following manner. One Saturday we were idly thumbing through the pages of the newly arrived 1950 edition of *The Australian Shortwave Handbook* by the late John Moyle SMIRE (Aust) in which was featured a transmitter and receiver for 288 MHz. My mate David said, "We should each build one of those and talk to one another." I replied that we did not have a licence to do so. His answer was, "So what, who is going to hear us out here?" Not having a suitable answer to that we agreed we would each build identical equipment based on the circuits and information in the Handbook.

To do so we would need 7193, 955, 6J5, 6V6GT and 6X5GT valves and a meter, which could all be obtained cheaply from the Waltham Trading Co. in Adelaide, a company which traded in surplus war equipment. Anything not found

in our junk boxes could also be obtained from there. My SCR522A days had taught me the basics of VHF but I was about to learn how little I really knew.

Our local engineering business was able to bend up the required number of U shaped metal chassis and the ends were filled in with planed wood about 10 mm thick, which provided a rigid chassis. The transmitters, receivers and power supplies were each mounted on a separate chassis, the construction being fairly straight forward. We thought we had gone past the most difficult part but we soon learnt just how hard it was to operate such equipment on 288 MHz.

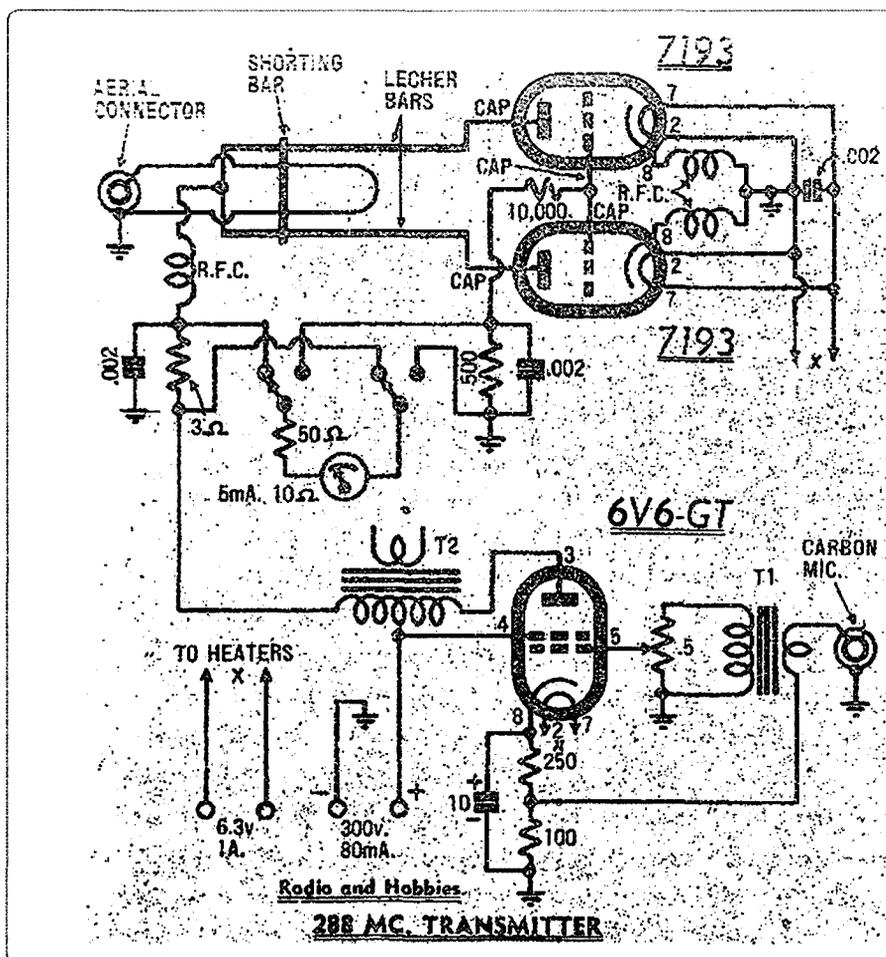
First we had to find ex-disposals carbon microphones which really worked as they should. After buying a number we found two which worked well with reasonable output. We had no idea on what

frequency we were transmitting but we knew there was some output as indicated by a torch globe with a pick-up loop. An unexpected bonus was that each receiver could actually hear the companion transmitter. That was a start! But neither receiver could hear the other transmitter! So, what next? Did we shift the frequency of the transmitters to match the receivers or vice versa? We decided on the former course which eventually had all units on the same frequency, but what frequency? At this point we decided we needed to be fairly close to 288 MHz where no doubt John Moyle would have had the units operating best. After much adjusting of the shorting strip on the transmitters we had the plate and grid currents similar to what had been recommended. We did note that it was very easy to have a degree of frequency modulation but also noted that the super-regenerative receivers seemed to handle that mode without too much trouble.

We were at a total loss to know what to do next in regard to establishing the correct frequency. We knew we were pirating but still thought we should at least be operating in the 288 MHz band. Finally, we decided to build an absorption wave meter and take it to Adelaide and have it calibrated. On returning we found our transmitters were both around 290 MHz so we hadn't done too badly by following John Moyle's instructions closely. A small adjustment to the shorting strip on the lecher lines soon had both transmitters on 288 MHz or close to it. There seemed to be a reasonable output as the globe glowed brightly when placed near the lecher lines.

One thing we did note was that mechanical rigidity was essential to avoid a shift in frequency. Moving the transmitter around on the bench could shift the frequency. Despite the chassis being strongly made we eventually had to add triangular brackets behind each front panel so

Figure 2: The 288 MHz transmitter, from *The Australian Shortwave Handbook*, 1950 edition.



that whatever adjustments we made would stay where we wanted them. They were frustrating times. I am sure that less determined people would have given up long ago and gone on a holiday!

Now it was time to turn our attention to the receivers or "rush boxes" as they were colloquially called, due to the loud hissing they made in the absence of a signal. As they were already working the most important thing was to get the aerial coupling correct. There is an art in getting the aerial coupling right. Too much coupling appeared to take the receiver out of its super-regenerative state and too little resulted in weak signals. So too with the regeneration control – once you had it right then leave it alone!

The three element antennas were constructed from aluminium and were a proportionally reduced version of a 144 MHz model as per the ARRL Handbook. They seemed

to work OK as there was a null in the signal when side on. They were mounted about six metres high.

It was with some sense of achievement as I watched David head for his home with his precious cargo. I erected my antenna and on the appointed sked time there was David calling me but barely in a super-regenerative state. A small adjustment to the receiver tuning and the regeneration control gave a much stronger signal with little hiss. After each had adjusted our antenna directions for best results we found that we had very strong signals with no hiss. At last, we could communicate!

For several months we maintained almost nightly contacts after which it was decided that whoever was able would call at 2000 and again at 2015 if a contact were not made. This system worked well for about five years until David and his parents moved

to Queensland. In the meantime though, each of us had gained a better understanding of VHF from the practical experience of our construction work and from the articles appearing in Radio and Hobbies magazine. This was with a view to obtaining our amateur licence.

Through the good years of solar Cycle 19 (1956-60) I did much listening on 50 MHz using a Kingsley tuneable converter joined to an AR7 receiver and a modified Channel 2 TV antenna especially imported from Melbourne where television had already commenced. I logged many signals from Japan, USA, Mexico, New Zealand, New Guinea and from all over Australia. The VHF bug was really biting and I had to do something about it! I obtained my licence in 1961, but that is a story for another time!



ANNUAL - HAM FEST

29th JULY 2012

1st Lavington Scout Hall Mutsch Street
Lavington

ALBURY WODONGA AMATEUR RADIO CLUB inc.

P.O. BOX 396 ALBURY NSW 2640

TOM VK2MY

H. 02 6026 2260 M. 0417 546 695

E. sanders_01@bigpond.com

Peter VK2ATY

H. 0260402219

Peter VK2ZZA

H. 02 60256558 M. 0407 928464

<http://www.awarc.org>



Spotlight on SWLing

Robin L Harwood VK7RH.
e vk7rh@icqmail.com

Radio Canada International has reacted to savage budget cuts that were recently announced by axing all shortwave programs as from the 26th of this month. These cuts have also affected its parent organisation, the CBC, with the closure of several domestic studios and reductions in program output and the sacking of staff. The shortwave service uses senders in Sackville, New Brunswick as well as relays from senders in Japan, China and England. The Sackville site is also used by Japan, Korea and China to broadcast to the Americas and if Sackville indeed does cease, it will cause problems for these broadcasters reaching their audience in the Americas.

This indeed is sad for me because Radio Canada International was one of the friendliest stations when I started off listening to shortwave in the late 50's. I remember hearing my letter read out by Earle Fisher. RCI was easily heard because it was on the 49 meter band in our late afternoon hours before the arrival of television.

Also I recollect hearing it boom in around breakfast time as it was

broadcasting to Europe in the 25 and 31 metre bands. It sounded so different to the VOA and even the AFRTS. I can tell the difference between the American and Canadian accents and still find the latter much easier on the ears.

RCI did change over the years and its programming no longer connected with their audience. Canadian expatriates became extremely frustrated at not being able to hear it and get news from home. The focus seemed to be on encouraging immigrants to come to Canada. Therefore it is no surprise really that RCI lost their direction and audience.

On the 10th and 11th of May, Radio Netherlands said goodbye to the worldwide Dutch diaspora with a marathon 24 hour retrospective of history of the station. It was the final Dutch program transmitted from Hilversum on shortwave. The relay site in Bonaire will continue as will the Madagascar base but mainly for other broadcasters. The mission for the former Radio Netherlands is now focusing on human rights and

free speech worldwide and not on developments in Holland or indeed the European Union.

Last month, I mentioned Radio Australia was to commence transmissions using DRM. At the last minute technical difficulties caused this to be abandoned before any signals were sent. It is not known when or if they will appear. Interestingly Russia and the various nations that make up the CIS also decided to abandon DRM. This now leaves India and China as the major nations committed to broadcasting in DRM. Receivers with DRM are available but have yet to be produced in industrial quantities to become commercially viable. India does broadcast in DRM on shortwave but I have yet to hear any Chinese outlet domestically or on shortwave. Our Kiwi friends have been on DRM for some time but mainly as a feeder to small Pacific Island broadcasters. I find 7285 kHz provides a stronger signal than the companion AM signal around 1000.

GippsTech 2012

GippsTech 2012 will be held on the weekend of July 7 & 8, 2012, a date which is fast approaching.

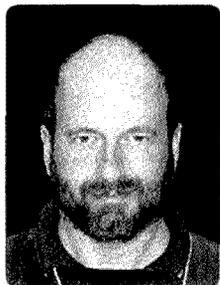
It is time to register!

The program is coming together and lots of interesting presentations have been offered.

Topics include:

- Inaccuracies that will lead to a deficiency in your EME system performance or Why the other guy does better than you!
- A local cost GPS frequency reference for any radio
- DVSSB - A PC based digital speech mode that rivals SSB above 30 MHz
- Converting ex Analogue TV equipment for use on the amateur bands
- 24 GHz propagation
- 78 GHz and Up!! An alternative, simple approach to millimetre wave Homebrewing
- Stepping in it
- 10 GHz rainscatter
- Cheap preamp for 10 GHz
- Microwave power amplifier construction
- DVB-T dongles for amateur SDR
- 5.7 GHz preamp
- Digital Interface for the IC-706.

Find further details and the registration form by following the links from the Eastern Zone ARC website: <http://www.vk3bez.org/>



AMSAT

David Giles VK5DG
e vk5dg@amsat.org

'I have just come across something most remarkable'

This month sees two major anniversaries. It has been 10 years this month since these words were sent to the AMSAT-BB – more on that below. It is also the 50th anniversary of OSCAR-II and a look at a new method of propulsion.

OSCAR-II

The successor to OSCAR-I was launched a mere six months later. OSCAR-II was very similar to OSCAR-I; they shared the same structure, the same function and were launched from the same type of rocket. OSCAR-II had design improvements after analysing the data received from OSCAR-I. OSCAR-II was launched on 2/6/1962 into a very low orbit and lasted only 18 days before re-entry. Three main improvements over OSCAR-I were made in the short time they had. By changing the surface coatings, the internal temperatures were lowered. OSCAR-I spent most of its time running at 50 degrees while OSCAR-II operated between 10 and 20 degrees. The second improvement was to the temperature sensing, so it retained its accuracy at lower battery voltages. The third improvement was lowering the transmitter output to 100 mW to improve battery life. OSCAR-I went silent before re-entry but OSCAR-II kept transmitting as it re-entered when internal temperatures soared from 25 to 55 degrees in the space of a few orbits. OSCAR-II again showed that amateurs could produce (and improve) a functional satellite, track it and gather telemetry data from around the world. There was a third satellite built in the mould of OSCAR-I and II but was never launched due to the success of its

predecessors. It would be almost another three years until the launch of the next amateur satellite, and that would be worth waiting for.

'I can't believe what Pat was hearing'

The quote at the top of the page comes from an email by Pat Gowen G3IOR. While scanning the 2 metre satellite segment on 21 June 2002, he had heard a familiar CW beacon sending number groups around 8 WPM. He determined it was an old OSCAR satellite, either 6, 7, or 8 but couldn't clarify which one at the time. We all know now that it was indeed AO-7 which had not been heard since mid-1981. The second quote comes from an email to the AMSAT-BB by Jan King W3GEY the next day. Jan was the project manager for AO-7 and had a comprehensive knowledge of AO-7. From those first observations Jan was able to confirm that AO-7 had the following functioning – the solar panels, battery charge regulator, instrumentation switching regulator, mode-U/V transmitter and beacon insertion, Morse code encoder and voltage reference. Soon after, amateurs expanded that list to include most of AO-7's circuitry. The only major on-board failure was the batteries.

At that time AO-40 was operational, UO-14 was the popular FM LEO satellite, FO-20 and FO-29 for mode V/U SSB, UO-22 for the digital enthusiasts and RS-12 for HF. My first contact via AO-7 was with ZL1MO via mode V/H on the 27th June. Great days indeed!

AO-7 has a 24 hour timer that allows it to switch transponders on alternate days. This works well during non-eclipse periods such as we have enjoyed of late. During eclipse periods it will wake up in any of its four modes – mode A with the V/H transponder,

mode-B with the U/V transponder, mode-C with the U/V transponder at low power and mode-D with transponders off. The beacons appear to be more random. I have heard the 70 cm beacon sending CW and on rarer occasions RTTY. This beacon can also be commanded on by ground stations as well as during mode-A. There are no reports that the 2.304 GHz has ever been activated.

One aspect of AO-7 coming back to life has since influenced other satellite missions. Delfi-C3 (DO-64) was flown without batteries and operates only when in sunlight. AMSAT-NA's upcoming Fox-1 will be able to isolate its batteries when they fail and operate only in sunlight.

MEOSAT revisited

With the demise of AO-40 and the low possibility of a successor David Bowman G0MRF came up with a dream idea for a rainy night. He looked at the possibilities of putting a satellite into a medium Earth orbit around 8000 km high. This would give passes around 90 minutes long and a footprint to cover southern Australia with most of Asia. There is a 'safe' area between the two Van Allen belts at heights of 6000 to 12000 km with low levels of radioactivity [1]. The main problem is how to get there. Most flights go to low Earth orbit (500-1500 km) or geostationary orbit (36000 km), neither of which is suitable. The best chance is a flight to low Earth orbit and use some form of propulsion to get to a medium Earth orbit. In the seven years since David proposed the idea there have not been any thruster systems that have had the right combination of small size, low mass, safe propellant etc. to be feasible for satellites less than 10 kg. But now a new method is being developed that has the potential to take a one kg cubesat

from low Earth orbit to lunar orbit in the space of six months, and only weighing 200 grams (including propellant). The MicroThrust ionic motor uses a conductive liquid that has its molecules split into ions which are then accelerated by an electrostatic field to high speeds, of around 40,000 kmh [2]. Previous ionic engines use xenon gas which is ionised and electrostatically ejected. Since these ions are positively charged an extra cathode is needed to emit electrons for an overall zero charge (otherwise the ions would be attracted back to the spacecraft and reduce the overall thrust). A MicroThrust thruster is made up of many miniature thrusters that will emit positive and negative ions so the overall charge is zero. There are no pumps or other mechanical devices needed, no gases under pressure to worry about and the electrical power is relatively low. Ionic thrusters produce a tiny amount of thrust over long periods of time. As

an example NASA's Deep Space 1 was a 373 kg space probe that went to the asteroid Braille and comet Borrelly. It was powered by an ionic engine that produced 92 mN of thrust (about the same amount of force as holding a 9 gram mass at Earth's surface).

Back to David's dream idea. The European Consortium for MEMS based micropropulsion website gives you the opportunity to design your own thruster system [3]. David's MEOSAT page points to a spreadsheet to calculate how much change in velocity is needed to move your satellite to a higher orbit. The default example is 2124 m/s. By using these figures at the microthrust.eu site you can derive how long it will take and how much fuel/mass is needed to get to that orbit. As a quick calculation I used a satellite of 3 kg with a power input of 5 watts, an Isp of 3500 seconds and the default delta-v taken from the spreadsheet. It came up with

an extra mass of 477 grams and a flight time of nearly 11 months. At this stage it is purely a theoretical exercise but who knows what may be achieved in the future. They are already proposing missions to the Moon, Mars, the asteroid belt and manoeuvrable spacecraft that can catch space junk and de-orbit it.

Final Pass

AO-7 has been our highest transponder based satellite since AO-40 went silent in 2004. Although erratic at times it is probably more popular in the last 10 years than when it was originally used. Hopefully we will get more years of use out of the old bird before the solar panels deteriorate too much.

References

- [1] <http://g0mrf.com/MEOSAT.htm>
- [2] <http://www.uk.amsat.org/6180>
- [3] <http://microthrust.eu>



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT

email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU

email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft.

AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater:146.850 MHz

VK2RIS Saddleback repeater: 146.975 MHz

VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz

VK4RRC Redcliffe 146.925 MHz IRLP node

6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz

VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124

VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.



VK2news

Tim Mills VK2ZTM
e tim.ztm@gmail.com

The Illawarra ARS, after six years of meeting at Industry World, have moved down the road to the Figtree RSL Bowling Club at 120 The Avenue, Figtree. They have also changed their meeting night to the second Wednesday, in the Northern meeting room. See www.iars.org.au
Phil Wait VK2ASD, WIA Vice President, was a guest in April when he presented a cheque as part of the club grant scheme. The club plans to use the grant for an audio visual pack to take to high schools in the Illawarra to promote amateur radio as part of the science curriculum. Phil then talked about BPL.

On Saturday April 14th members of the Tamworth Radio Club were involved in the launch of two balloons carrying various payloads. Both were released from near Breeza and came down almost together near Nundle in the New England part of NSW. The first balloon – Helios – was lifted by helium gas. The other – Loki – used hydrogen. Helios was a project of two secondary school students from VK4, Liam and Ricardo. Using the callsign VK2BTW-12 it carried a SPOT tracker and a recording video camera. Loki was a project of the TRC. It was VK2BTW-11 and had a periodic still camera, 23 cm ATV transmitter and a Geiger counter. The only failure was that the still camera did not operate. Both balloons reached an altitude of over 32 km, and both were tracked by APRS. Details are to be found on the TRC web site www.trci.com.au
This was the weekend of balloon flights with the successful operation of Project Horus VK5ARG-11 on Sunday in VK5.

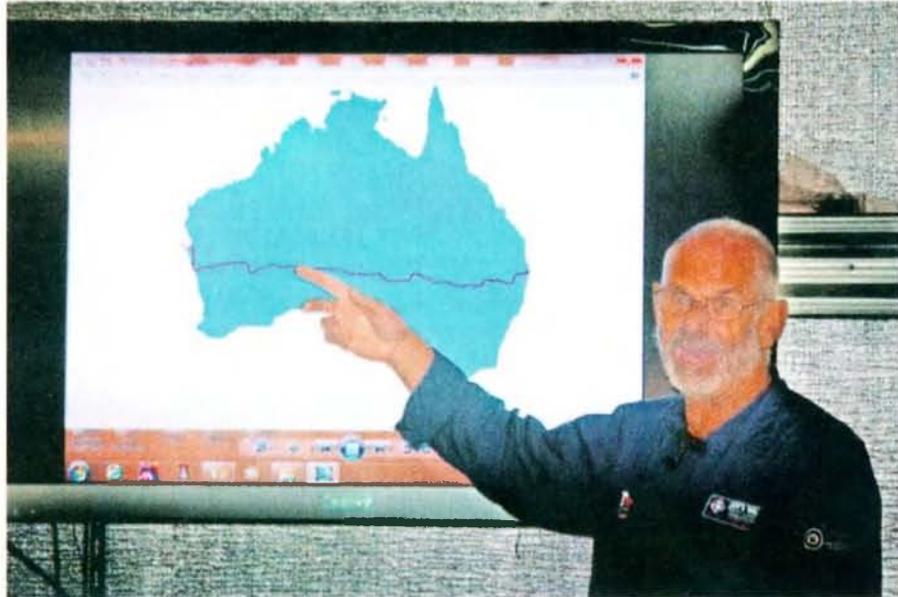


Photo 1: Jeff Johnson VK4XJJ describing his East to West walking route across Australia.

Over the June long weekend the Oxley Region ARC have their annual field day at the Tacking Point Surf Lifesaving Club hall in Port Macquarie. Details of the weekend appeared last month in AR, on page 33. Check out their web site www.orarc.org come along and join the fun on the NSW mid north coast.

Hornsby & District ARC held their AGM last month. On April 21 they operated in the International Marconi Day when they activated VK2IMD. See their website www.hadarc.org.au

Another successful convention was held on the mid north coast of NSW at Urunga over two days of Easter: Thought to be the oldest continuous fox hunting field day in Australia, having started in 1949.

NSW WICEN had a field operation at the VK2WI site in late April. Originally planned for a site

in the Blue Mountains, uncertain weather conditions prompted the change. More than 50 attended from WICEN, along with other groups including VRA and CREST. There were several lectures and demonstrations together with field set ups of antenna installations. Next month the annual Bushwalkers Nav Shield is on the weekend of 7th and 8th July. The Shahzada Horse enduro will commence Monday 27th August and Trek for Timor in the Blue Mountains on Saturday 15th September. www.nsw.wicen.org.au

Waverley ARS set up a display at Bondi Beach as part of the WIA National Field Day in April. Check them out at vk2bv.org or call Publicity Officer Simon VK2UA 02 9328 7141. Their repeater VK2ROT on 147.025 now requires a 91.5 Hz CTCSS access tone. The annual auction is next month – Saturday 14th July.

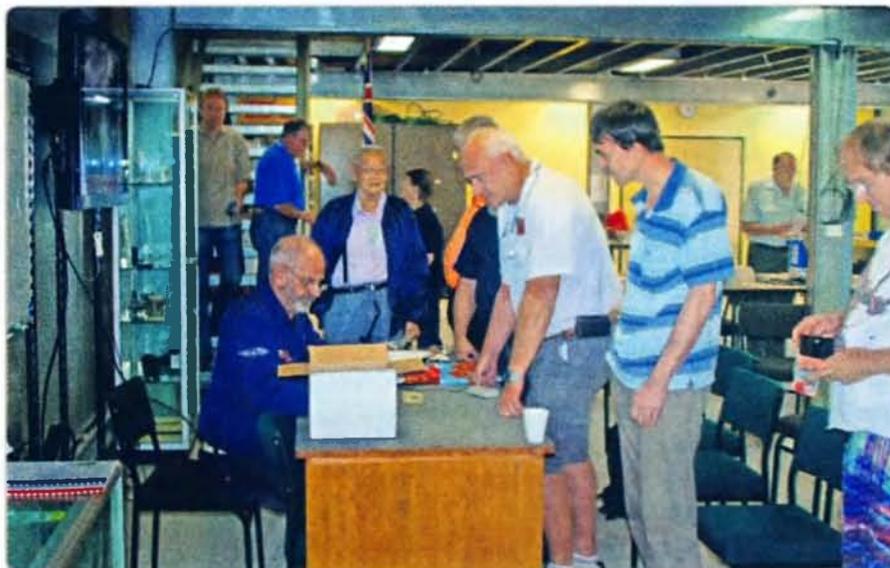


Photo 2: Jeff VK4XJJ signing copies of the book "Gulf to Gulf - The Long Walk", the story of his first walk across Australia from Spencer Gulf to the Gulf of Carpentaria.

ARNSW conducted their AGM on 21st April at the VK2WI site. Thirty five members attended and quickly got through the business. They then had a most interesting talk from Jeff Johnson VK4XJJ about his two walks across Australia. The first from south to north through the centre, the second one last year was across Australia from east at Byron Bay in VK2 to west at Steep Point in VK6. Jeff has done these for NETS.

This year an election was not required for ARNSW. Two of last year's committee members did not stand, being Norm Partridge

VK2TOP and Brian Kelly VK2WBK. Joining this year were Al Hirschell VK2VEC and Julian Sortland VK2YJS. President is Terry Ryeland VK2UX along with the Education portfolio, Senior Vice-President Mathew Magee VK2YAP with Broadcasts and Web services and Junior Vice-President Peter Zielinski VK2VG with Security and Education. Secretary is Tim Mills VK2ZTM along with property. Al VK2VEC is Treasurer. Mark Blackmore VK2XOF looks after VK2WI Engineering and Disposals. Bob Yorston VK2CAN has Welfare and Membership. Julian VK2YJS has the library.

Included in the post out of the papers for the AGM a membership card was included. The date on the card indicates when renewal is due. With many amateurs upgrading and changing callsigns there may have been some errors. Where these occurred those ARNSW members should email membership@arnsw.org.au or write to Box 6044, Dural Delivery Centre, NSW, 2158.

The next bi-monthly Trash & Treasure will be conducted at VK2WI on Sunday 29th July. There will be a Foundation training day on Sunday 22nd July. Assessments for all licence grades will be held on Sunday 29th.

In the early part of last century, a famous amateur was Mrs McKenzie VK2GA. Mrs Mac, as she was known, was an electrical engineer, opened a radio shop in Sydney and then, as World War II approached, developed a school to train – first – women in the art of Morse code. This was extended to men across all services. The school continued after the war with Morse training as this was the main means of communication of the day. An extensive report has been posted to Wikipedia about Mrs. Mac – search for Florence Violet Mc.Kenzie for the full story.

73 – Tim VK2ZTM



WAVERLEY AMATEUR RADIO SOCIETY

Auction of Radio and Electronic Equipment. Saturday, 7th July 2012

at

The Scout Hall, Vickery Avenue, ROSE BAY, NSW 2029

All are welcome to attend this annual event to buy or sell. Entry is only \$2 and there is plenty of free parking nearby. The club is adjacent to Lyne Park and Sydney Harbour. Doors open at 8:30 am and the auction commences at 10:00. Full details, including pictures of some of the items to be sold, can be found on the club's web site at www.vk2bv.org.

Contact: Simon, VK2UA. Email: vk2bv-info@vk2bv.org



DX-News & Views

John Bazley VK4OQ
e john.bazley@bigpond.com

It is interesting to hear that we could see some more activity from ZS8 following the return of Pierre ZS8M to South Africa. The ship SA Agulhas departed South Africa for Marion Island (ZS8) on April 12th with the new 'over-wintering team'. Pierre ZS1HF, formerly ZS8M, said on his Skype profile that 'There could be a new ZS8 callsign activation this year - I will keep you all updated. It could take another three months to get the callsign activated'. The new radio technician's name is Rory; we don't have other information on any callsign he may already have.

During last weekend's International DX Convention in Visalia, California, the **STØR** team was honoured as the DXpedition of the Year as voted upon by the membership of the Northern California DX Club. The **STØR** team was very honoured to receive this recognition. **STØR** co-leaders Antonio Gonzalez EA5RM and Paul Ewing N6PSE received the honour from NCDXC President Russ Bentson K6KLY. **STØR** team members David Collingham K3LP, Roberto Filloy Garcia EA2RY and Hrane Milosevic YT1AD were also present and participated in this great honour. The Intrepid-DX Group and the DX Friends/Tifariti Gang are very proud of this honour and are actively working on future plans for further DXpeditions together. Thank you Antonio Gonzalez EA5RM, the Tifariti Gang, Paul Ewing N6PSE and The Intrepid-DX Group.

The Queen's Diamond Jubilee special **UK** prefixes. Subject to prior authorisation, individual amateur radio operators and club stations in the United Kingdom may

use special prefixes from 5 May to 10 June to celebrate the Diamond Jubilee of Queen Elizabeth II. The second letter in the existing call sign (D, I, J, M, U and W plus E for Intermediate licences) may be replaced by the letter 'Q'; where no second letter exists, the letter 'Q' may be added. For instance, GD0XXX (Isle of Man), GI0XXX (Northern Ireland), GJ0XXX (Jersey), GM0XXX (Scotland), GU0XXX (Guernsey), GW0XXX (Wales) and G0XXX (England) may all be amended to GQ0XXX.

Frosty K5LBU is again on his African travels and says that he and two others are planning to go to 7P8, Lesotho, in mid-July. If anyone is interested in joining him on this trip he can be contacted at his e-mail address below. The planned itinerary is arrival in Johannesburg July 12, with a drive to Roma, Lesotho, and operating until July 21. The flight out of Johannesburg is July 22. Frosty's email is Frosty1@pdq.net.

Freddy F5IRO will be in Uganda, 5X, from the beginning of May until June 2012, where he has a job assignment. He is not sure exactly how long he will be in Uganda. On arrival he will set up his K3 and DIY antennas, probably verticals or dipoles, space permitting at the location. Some contacts have been done with David 5X1D (KH9AE) who is helping Freddy to get a ticket for the first week of May. He will be working CW on the upper HF bands, especially 10 MHz in the evening (5X = GMT + 3) and maybe a little PSK. Stay tuned and watch the clusters. The QSL route is still via his friend Michel F8DFP, via the French bureau or direct with SAE and IRC/postage.

It is reported that Darko J28AA/E7ØA will be active from Hargeisa, May 25-31. He is expected to work SSB/RTTY and six metres. For possible updates (under NEWS), online log and photos see the Bosnia & Herzegovina Contest Club web page <http://bhcc.ba> QSL via K2PF.

Japanese operators JA1JQY, JK1EBA, JA3MCA and JA1KJW will be in Thimphu, Bhutan from June 6 to 14 and QRV as A52JY, A52BA, A52MA and A52KJ respectively. Activity will be on 1.8 through 50 MHz on CW, SSB and RTTY. They will have a 'breakable beacon' running on 50.125 MHz. QSL via their home calls.

Daniel ZS6JR will again be active from the Bilene resort, Mozambique with the callsign C91JR from April 22 to May 10. He will operate mostly RTTY/PSK, 'holiday style' with 100 watts and a vertical antenna. QSL via GI4UFM.

Robert S53R is back in Sudan, where he operates as ST2AR. He says he will try to put some focus on six metres 'as it seems the conditions are picking up quick'. QSL via S53R.

F4EBT will be operating from FO, French Polynesia, June 1-24. Pat plans to be on Tahiti, OC-046, Moorea, OC-046, Raiatea, OC-067, Huaine, OC-067, Bora-Bora, OC-067 and Maupiti, OC-067. It will be holiday style. QSL to his home call.

Poland and Ukraine will host the 14th UEFA European Football Championship, 'Euro 2012', June 8-July 1, for the first time. There will be special prefixes allocated, including EM2012, EN2012 and EO2012. For more details, check out <http://ut7ut.org.ua/index.php/euro-2012/>

Pasi OH3WS reports that many are asking about the possibility of an operation from **Market Reef**. Pasi is a contact person between amateurs and the Finnish Lighthouse Society, which holds the lease on the lighthouse on the reef until 2019. The Society is renovating the second floor of the lighthouse this summer, just for amateurs, so, says Pasi, 'OJ0 is almost QRT until the autumn'. It is possible a voluntary worker may be active with his own rig. It was a hard winter and there is no electricity at the moment. They will also be working this summer on the power system.

GP3ZME/P will be an operation from **Guernsey** in the Channel Islands, IOTA EU-114. Telford and District Amateur Society club members will be there June 22-27. They will be on 160-10 metres, plus VHF+, all the way up to 24 GHz. David 2W0ZJA will be tweeting <http://twitter.com//@2W0ZJA> They will also use VHF talk back and ON4KST chat, <http://www.tdars.org.uk/library/Newsletter%20October11.pdf> QSL via G3ZME by emailing him at buroqsl@pleasemail.me.uk

Al VE1AWW is back on **Sable Island**. Unfortunately his antennas did not make the trip, but are expected to arrive later. Once they arrive he will be QRV as CY0/VE1AWW in his spare time for three months. QSL via VE1AWW.

Beginning May 21st Andre GM3VLB will be returning to the **Orkney Islands**, EU-009, where he plans to activate SCOTIA islands Muckle Green Holm (OI20), Linga Holm (OI21), Eynhallow (OI24), Faray (OI28) and Calf of Eday (OI29)

through June 7th or later.

Mike ZB3M and Ed ZB2ER will be active with special call signs ZQ3M and ZQ2ER, May 5 to June 10. They will be celebrating the Diamond Jubilee of Queen Elizabeth II. QSL both calls via ZB3M direct only. No bureau or electronic QSLs.

EM350S in **Ukraine** is May 1-June 30 to celebrate the 350 years of the city of Ivano-Frankivsk. This one will be on all the HF bands and six, CW, SSB and digital. QSL via the bureau, LoTW or eQSL to UW8SM.

SD7V/6 and SD7N/6 will be on the air from **Orust Island**, EU-043, May 11-14, by Ric DL2VFR and Norbert DL2RNS. They will be on HF CW and SSB, high power. QSL bureau or direct to their home calls. They will be LA/DL2VFR and LA/DL2RNS when they go to the **Hvaler Islands** in Norway, EU-061, from May 16-21. Again, QSL bureau or direct to their home calls.

Some QSL information

HK0NA QSL update: The cards have been designed, the order has gone to the printer and the HK0NA QSL card processing should start sometime in May-June. 'This will be an enormous enterprise and will take time to process', N2OO says. 'QSL cards will not be mailed all at one time. We are pre-processing direct OQRS requests first. Direct mail will be next'. Updates will be posted to www.sjdx.org/hk0na.htm

Cesar PY2YP/PY0S reports he has uploaded a few more **St. Peter and St. Paul Rocks** logs to LoTW and to the log search on the dedicated page at www.py2yp.com [425DXN 1091]: PW0S (February

2001), ZY0SAT (March-April 2001, satellite QSO still pending), ZY0SAT (February-March 2002), ZW0S (April, September and December 2003) and PY0S/PS7JN (November-December 2004, September 2005, January-February 2006). He is now working on paper logs for PY0SJ, PY0SP, PY0ZSA, PY0ZSB and PY0ZSC (September-October 1982) and PY0SK and PY0SR (May 1991). Cesar is also trying to get the logs for 1978 and 1987.

F08RZ and F08RZ/p have a new QSL manager. The new route is F5PHW direct, bureau or LoTW. If you have already sent QSLs to F8BPN, don't worry, those are being taken care of. The direct address for the new manager is: Phil Berger, 14 Rue du 4 Emé Bataillon, FFI 56690 Nostang, France.

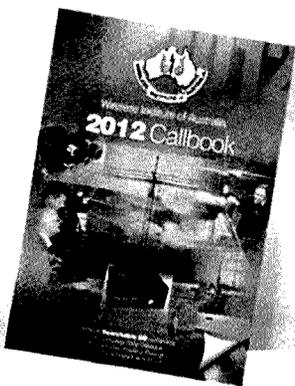
The ARRL has announced new guidelines for DXCC card checking. The new procedures will allow card checkers, who have DXCC on 160 metres, to check 160 metre QSL cards. The card checkers can also now check deleted DXCC entities. Complete details can be found, and should be read by all DXers who participate in the ARRL DXCC program, on the ARRL Awards Blog <http://www.arrl.org/awards-blog>

Good luck in the pile-ups until next month.

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (1JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from www.dailydx.com/trial.htm



Is your Callbook current?



The WIA
2012 Callbook
is now available
www.wia.org.au/bookshop

VK6news

John Ferrington VK6HZ
e vk6hz@wia.org.au

G'day from WA! Firstly, thanks to Bill VK6WJ for last months column. I was away on holiday with my family!

From Keith VK6RK -

Three members of the NCRG are making the trip to Freidrichshafen this year for the 36th Annual Ham Convention which takes place from June 22 -24. Andrew VK6IA, Peter VK6PA and myself Keith VK6RK are travelling together to the show. Located on the shores of Lake Constance in the south of Germany, this is the site of the annual Ham Fair. Last year around 16,300 attendees from around the globe made the trip to meet other hams, exchange information, stock up on the latest products, and see new equipment releases. The three day exhibition featured new products from 184 exhibitors, a flea market with a variety of treasures to discover and many informative lectures.

What is the reason for my ramblings you may ask ? Well I'm sure others from Australia will be there and I'd like to propose we meet up at some stage and have a chat, a stein or two, and a

photo shoot for AR magazine. Please contact me, Keith VK6RK at vk6rk@wia.org.au and we will try and arrange a time and place. We look forward to catching up in Germany !

<http://www.eventseye.com/fairs/f-ham-radio-hamtronic-9171-1.html> 73 Keith.

Thanks Keith. I hope you, Andrew and Peter have great time away! Now to Bill at the Hills Amateur Radio Group -

National Field Day

The Hills Amateur Radio Group (HARG), in collaboration with the Peel Amateur Radio Group (PARG), participated in the WIA National Field Day on Sunday 15th April.



Photo 2: The PARG communications trailer set up and in operation.



Photo 1: The PARG communications trailer ready for action.

PARG brought their very professional Mobile Communications Trailer and HARG set up their large gazebo in McCallum Park on the foreshore in Victoria Park just behind Bunnings.

We were next to the cycle path and attracted quite a bit of attention from the public, including some CBers and short wave listeners, one of whom attended our next club meeting. The communications trailer also attracted many admiring looks from the 26 amateurs who were there at various times during the day. This included two visiting G calls and two VK5s. We logged about 20 QSO's with the 15 metre high rotatable dipole on the trailer, including Switzerland and Paris and,



Photo 3: Hargfest 2012.

of course, Glen VK6IQ in Wandina, using the VHF/UHF vertical.

Hargfest

HARG's annual buy and sell day was held on Saturday 28th April

at the club rooms in Lesmurdie. Hargfest was a great success with a good turn-up of both buyers and sellers. The sausages in rolls were popular, many old acquaintances were renewed and various items

of radio gear changed hands, producing smiles on both sides of the table. A special thanks to Mark and Graham of TET-Emtron who set up a very popular display and donated several prizes for the raffle.

A special highlight was the presentation of the club's inaugural award for Outstanding Service to the club to Richard Grocott VK6BMW. Richard has worked tirelessly for the club for over 20 years, serving in most of the Committee positions during that time and acting as the glue that has held the club together for so long. Thanks to all the committee and others who worked hard to make Hargfest happen. 73 from Bill VK6WJ - Publicity Manager - HARG.

Thanks Bill.

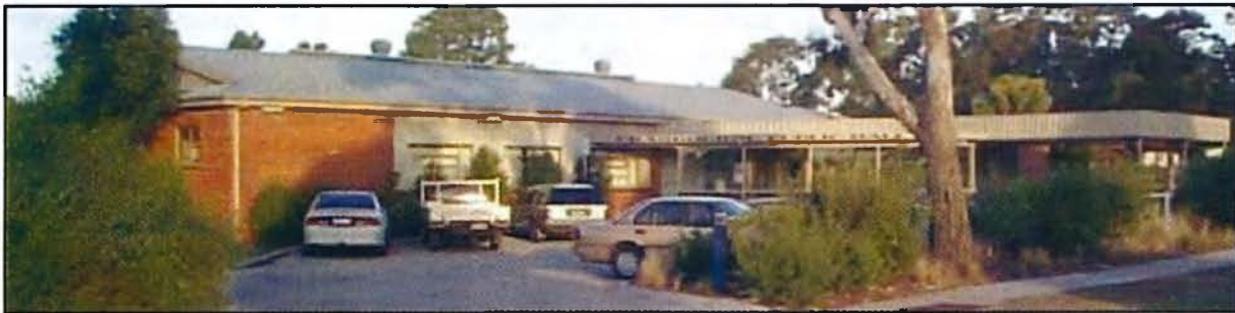
If you have anything for the VK6 Notes column, please email it to me at the above email address. Thanks and 73's for now!



GGREC HAMFEST

Saturday 21st July 2012

Gippsland Gate Radio & Electronics Club Hamfest at our LARGE venue, the CRANBOURNE PUBLIC HALL, located at the corner of Clarendon St. and High St. Melway 133 K4. See our web page at <http://ggrec.org.au/hamfest>



40 tables of new and used Electrical, Electronic and Amateur Radio equipment.

- Everything is under cover.
- Tea and Coffee available during the event.
- A selection of hot & cold food will be available.
- Great Door Prizes will be drawn at approx 1:00pm.
- Doors open to sellers at 8.30am & buyers at 10am.
- Buyers can gain entry for \$6.00.
- Sellers will pay \$20.00 per table, which includes entry.
- Proceeds from the sale will go to Gippsland Gate Radio & Electronics Club's ongoing promotion of Amateur Radio.

Persons wishing to reserve a table position must contact Steve Harding now on 0408 878934 or email hamfest@ggrec.org.au Book early, positions are limited!

VHF/UHF - An Expanding World

David Smith VK3HZ
e vk3hz@wia.org.au



Weak Signal

A short tropo opening from the east coast to ZL was probably the highlight of the month. During the morning Meteor Scatter session, Bob ZL3TY observed that the Channel 5A TV vision carrier from Newcastle was up to S2. By 2230Z, it had reached S3. Steve ZL1TPH/P portable at Moirs Hill in the north was also hearing the TV at S2. At 2240, Bob worked Steve VK2ZT first on CW (519) and then SSB (5x2). Colin VK2BCC also worked Bob on SSB (5x2). Norm VK3DUT then appeared and worked Bob at 5x2. By 2330Z, signals had risen and Colin had a CW contact with Bob (559). Steve ZL1TPH/P was reporting the Newcastle TV as having rolling QSB from S1 to S5. Finally, at 0300Z with the TV having risen to S9, Steve ZL1TPH/P worked Steve VK2ZT (5x1) and Colin VK2BCC (5x1). By 0315Z, signals had dropped off and the opening disappeared.

It will be a big loss to those monitoring the ZL-VK path when Newcastle Channel 5A shuts down in November. With an EIRP of 70 kW, it is equivalent to someone running our legal limit of 120 W into a 27 dBi antenna. That makes it an ideal early-warning indicator for propagation on 2 m. We may have to look for alternatives for monitoring the path, like a digital-mode beacon running into a directional antenna.

2.4 GHz QSO Party

Another microwave activity day was organised recently in VK3. Rob VK3MQ reports: 'The third annual 'VK3 2.4 GHz QSO Party' was held on Easter Monday, April 9, 2012. The success or failure

of any event like this rests with the enthusiasm and commitment of the participants and this year severely tested both elements.

Despite good weather leading up to the day (and following for that matter) the heavens opened up, releasing hail and rain in good measure. My own experience started on John's Hill, QF22rc, at 8.00 am setting up the two metre antenna. Having just completed this task the rain front, which had been approaching from the south, hit and a scramble for the car was called for. A brief lull in the storm allowed the 2.4 GHz antenna to be installed before the rain resumed.

At this point Gavin VK3HY arrived and we discussed the advisability of continuing the setup, as we both had 10 GHz stations to deploy. Some activity on the two metre calling frequency did encourage us to at least attempt 2.4 GHz and we were soon in contact with VK3PY, VK3QM and VK3AKK.

I noted home stations in the suburbs, which were otherwise dry, battling Wi-Fi interference but nevertheless completing QSOs over difficult terrain.

Special congratulations must go to Andy VK3ES for his contact with Ted VK1BL, establishing a new VK1 2.4 GHz record of 424.9 km.

Despite all that nature could throw at us I think a good time was had by all and the continuance of the event is assured.'

New Records

Several new VHF/UHF records have been added to the list:

03/01/2012 - VK5 2 metre record - VK5BC to ZL2OK - 3493.9 km

13/02/2012 - 24 GHz digital modes record - VK3HZ to VK7MO - 255.1 km

23/02/2102 - VK7 24 GHz record - VK7MO to VK3QM/7 and VK3AKK/7 - 167.4 km

25/02/2012 - VK7 2.4 GHz and 5.7 GHz records - VK3QM/7 and VK3AKK/7 to VK3NX and VK3PY - 469.1 km

09/04/2012 - VK1 2.4 GHz record - VK1BL/1 to VK3ES - 424.9 km

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au



Digital DX Modes

Rex Moncur
VK7MO

VK7JG qualifies for Worked All Call Areas on two metres

The VHF Worked All Call Areas award requires three contacts each with VK2, 3, 4, 5 and 6 and one each with VK0, 1, 7 and 8. Joe VK7JG had achieved the more difficult VK0 by working VK0MT on Macquarie Island, VK7MO portable VK8 and VK9LS at Lord Howe Island (operator VK7MO) all on meteor scatter but still required one more VK6 for the award. When Michael VK6WS became operational on EME, Joe saw this as his opportunity. Joe has only a single 18-element Yagi and Michael had two 9-element Yagis. While there was evidence of signals both ways, a QSO could not be completed. Michael then put up a set of four seven-element LFA antennas and while decodes were achieved over many attempts, a QSO still eluded them. Michael then moved to four

nine-element Yagis and by choosing a time when the degradation was low, a QSO was finally achieved to complete Joe's qualification for the award. Congratulations Joe and Michael.

King Island 10 and 24 GHz DXpedition

From 12 to 14 April Rex VK7MO and Eric VK7NFI visited King Island to activate three rare grid squares QF10, QF20 and QE19 which are only accessible from the island. Eric was the pilot and provided his light two-seater aircraft to access the island. There is only a small amount of room behind the seats so the 10 GHz system had to be specifically designed to fit the aircraft and used a small 47 cm plastic offset dish. When the idea of taking 24 GHz came up, and more room was required, it was necessary to push the seats hard forward such that it became a contortion exercise to fit into the aircraft, as shown in Figure 1.

Paths of Propagation

Figure 1 shows the paths of propagation to the stations. The list of stations worked from each grid square was as follows: (* for stations at John's Hill lookout and # for stations at either Anglesea or Bayview).

QF10 10 GHz: VK3HZ*, VK3PY#, VK3AKK#, VK5DK, VK3ZQB, VK3HY*, VK3MQ*, VK3PF, VK3NX#, VK3BQJ, VK3TPR*, VK3WRE, VK3QM# and VK3ALB#. Best distance VK3BQJ at 393 km -13/-15 dB JT65c.

QE19 10 GHz: VK3HZ*, VK3MQ*, VK3TPR*, VK3HY*, VK3PY#, VK3AKK#, VK3QM#, VK3NX#, VK3ZQB and VK5DK. Best distance VK5DK at 372 km -12/-20 JT65c.

QF20 10 GHz: VK3HZ*, VK3NX#, VK3PY#, VK3AKK#, VK3QM#, VK3MQ*, VK3HY*, VK3PF and VK3BQJ. Best distance VK3BQJ 400 km -15/-17 dB JT65c.

Attempts were made on 24 GHz on 12th and 13th of April from QF10 and QF20 but nothing was heard or seen. On 14 April we returned



Photo 1: Rex VK7MO after squeezing into the aircraft with equipment behind the seats.



Figure 1: Paths from King Island to stations worked.

to QF10 and started on 10 GHz to pick up stations not worked earlier. The Geelong group had moved a little closer to Anglesea (132 km) and were giving reports of 5/9+60 dB which augured well for 24 GHz. As soon as VK7MO started TXing on 24 GHz, the Geelong group received the signal and reports were exchanged at 5/8 and 5/9 on VK3NX's system and 5/2 and 5/9 on VK3QM's system running 60 mW. The Geelong group then moved back to Bayview to extend the distance while we focused on VK3HZ at John's Hill lookout, who was worked at -20/-18 dB on JT65c. At Bayview VK3NX was worked at 5/4 and 5/7 over 161 km.

Stations worked on 24 GHz were:

QF10 24 GHz:

VK3NX#, VK3QM#, VK3AKK#, VK3ALB# and VK3HZ*. Best distance VK3HZ* 226 km.

Overall the results were beyond expectations and Rex was ecstatic

with the 24 GHz results as may be seen in photo 3.

King Island 10 and 24 GHz DXpedition – The Other Side

Peter VK3PF reports on his efforts on 12/4 from QF31 in working Rex VK7MO in QF10:

That morning I finished off the PC/FT-817 sound card interface and thought that I had everything OK ... Well, not quite it turned out.

I went across to the Mardan area - QF31bn, on the side of the hill 'Mardan' at about 260 m ASL. The site had a reasonably clear take off in the correct direction, with convenient visible landmarks for aiming. From about 0530Z, I was

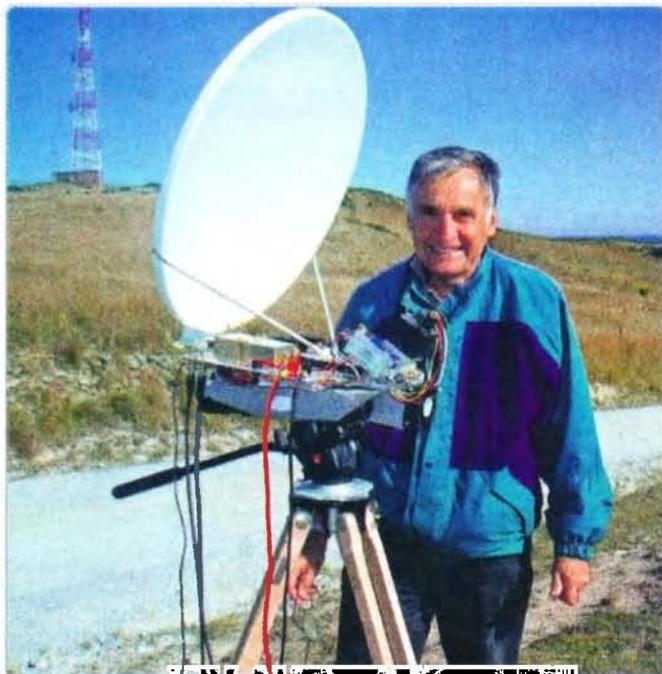


Photo 2: An ecstatic Rex VK7MO after the 24 GHz QSOs with 24 GHz dish and system.

MaCom Whitebox with VK3XDK LO locked to a Thunderbolt. The 817 is not locked. Antenna - a typical Austar PayTV dish fed with about 1.5 m of FSJ4-50.

Charlie VK3NX reports on his contacts on 10 GHz and 24 GHz:

This morning (Saturday, 14th April) Lou VK3ALB, Ken VK3NW, David VK3QM and myself went to the Anglesea Lookout to work Rex.

Rex was worked on 10 GHz with excellent signals and then upon QSY'ng to 24 GHz we proceeded to work Rex on 24 GHz. Signals were 'enormous' on SSB and 59++ reports exchanged both ways with no QSB. We even had an FM contact with 'full quietening'! This was following our disappointment a few days earlier on 24 GHz.

The distance to Rex was ~ 132 km and this was purely over water and 'over the horizon'. We were ~53 m above sea level with an estimated optical horizon of ~ 30 km.

Following this success (loudest signals I've worked so far on 24GHz) we decided to try an obstructed path from our field day site. A quick drive and 30 minutes later we were working Rex with 57/54 reports exchanged. QSB was strong and soon after signals started to 'disappear'. Our field day site is ~ 29 km further to Rex than the initial contacts with the extra part of the path over 'Terra-Firma'. Distance is 160.6 km (~6.8 km shy of the VK7 record set earlier this year). At this time a very visible duct layer was evident on the horizon and I assume this was part of the reason for the very large signal attenuation.

All in all, a very interesting exercise in propagation along a 'non line of site path'. I am looking forward to trying over much greater line of sight paths...

My homebrew 24 GHz equipment:

System 1- 600 mW 300 mm dish, Kuhne transverter. System 2 - one W, 600 mm dish, Thales unit with 1296 - 144 double down conversion. Thanks Rex for the 'DXpedition' to King Island and the great contacts over the last few days on 10 GHz and 24 GHz.

David VK3HZ reports on the efforts from John's Hill over the three days:

On Thursday, Friday and Saturday, a group of keen microwavers gathered at Johns Hill Reserve carpark on the east side of the Dandenongs to work Rex VK7MO as he travelled around King Island. Present with gear primed for 10 GHz were:

- Gavin VK3HY - Mitec transverter and one watt Kuhne PA to 650 mm offset-fed dish.
- Rob VK3MQ - VK3XDK transverter and one watt Qualcomm PA (low drive producing 0.4 W) to a 650 mm offset-fed dish.
- Peter VK3TPR - Mitec transverter, GPS-locked and three watt DEMI PA to a 600 mm prime-focus dish.
- David VK3HZ - Qualcomm transverter, GPS-locked and eight watt DEMI PA to a 600 mm prime-focus dish.

For 24 GHz, I also had a Thales transverter (~1.5 watt), GPS-locked to 380 mm prime-focus dish.

I have operated from Johns Hill on many occasions as it has a clear take off to Tasmania. For heading reference, a shed in the distance falls conveniently due south of my favourite location in the south eastern corner of the carpark. However, on Thursday morning, I happened to look at a photo of the outlook in the direction of King Island and saw two large gum trees rising well above the horizon.

successfully hearing Rex at about -21/-22. However, Rex was not hearing me. We gave up after a bit to allow Rex to work others.

At about 0630Z, Rex gave me a 'phone call and we tried again. This time I did another gentle sweep with the dish and found that I needed to drop elevation to get a peak - Rex was now -12! Much better. But I had DF issues, plus Rex was not hearing me. We agreed to try later as Charlie VK3NX was now ready. I had a quick check of the system and found that the audio level was too low via the interface. After adjusting the level, I called Rex via the mobile and he was hearing me. So we resumed attempting a contact. For reasons unknown (apart from my operator brain fade and more than two years since I last operated WSJT) I could not get DF into the reliable decode region.

I gave up and called Rex on USB. Shortly after we completed a USB contact - Rex was 55 and I received 52. Thanks again Rex - a new square on 10 GHz on SSB. Lesson for me - more preparation, including lots more time using WSJT again!

Gear was a homebrew interface to the FT-817 via the data port, to a



Photo 3: (L-R) VK3TPR (2 dishes), VK3HY, VK3HZ dish and VK3MQ.

Saturday morning and have another go at 24 GHz, this time from the closest point on King Island in QF10.

Saturday, Peter was again present and had set up as he hadn't worked Rex in QF10. Gavin and Rob were there but only observing. Rex's signal was down a little on the previous evening, but still 5x7. Peter easily worked Rex who also worked a number of others.

Then Rex assembled the 24 GHz system and

easily worked the Geelong group who were now located somewhat closer to him at Angelsea. He turned his dish our way, and immediately there was an audible tone on 24,048.325 MHz. We quickly switched to JT65c and had a contact exchanging -18/-20 reports. Then we switched back to tones and attempted to improve our signals by tweaking our dish alignment (Az and El). I found that I was already pointing correctly which I was pleased to see - confirming my calculations and 'reference shed' position. Rex also was unable to improve on his initial pointing. Signals were fading, so we tried a CW contact using the WSJT CW mode (neither of us had a key, although Gavin did offer the use of his ...). We copied Rex's 419 report, but he was unable to copy ours so we gave it away as signals were dying off - a pity as at 226 km, it would have been a new VK7 record, and only four km off the national record.

So, all in all, a very successful few days, and I was very pleased to get through on 24 GHz. I am rapidly concluding that 24 GHz is a completely different beast to 10 GHz. The level of moisture in the air along the path makes a dramatic difference to the signal levels.

Thanks to Rex VK7MO for all his efforts.

On Friday, Peter VK3TPR joined us for the morning (work getting in the way of any afternoon operation). We re-aligned the elevation on both Gavin and Rob's offset dishes on the VK3RGI beacon coming through trees on the eastern side. Rex, now in a more difficult spot on the south western side of the island in QE19, was worked easily on JT65 with reports of -6 each way. We also all worked him on SSB with reports up to 5x8.

Peter then departed for work, while Gavin, Rob and I - waiting for Rex to relocate across the island - exchanged tall tales and true of ever more difficult QSOs we had (possibly) had - and the only beverages consumed were coffee and a strange sugar-free liquid that Gavin had brought.

Finally Rex was available again, this time in QF20, and we exchanged reference levels of -5/-1 on JT65 and 5x9+ SSB reports - the proverbial rock-crushing signals.

Once Rex had finished with the dogpile on 10 GHz, he assembled his 24 GHz system and attempted to work the Geelong crowd, without success. He also turned it our way, but there was absolutely no trace of a signal either way on JT65. We confirmed that 10 GHz was still as strong, but nothing on 24 GHz ... So, we agreed to re-convene on

Fortunately, there is a gap between the trees, so a move of about 20 metres to the west was needed, and a re-survey of the 'reference shed' showed it was now about one degree east of south - important when the beamwidth of the antenna on 24 GHz is less than that.

When I arrived at the carpark, slightly late, Gavin and Rob were already there and set up in the south western corner under the shade of some large trees - and in line with the gum trees, blocking their path to King Island. When I suggested a possible move, the reaction was 'it won't make THAT much difference, will it?' and they thought they'd have a go from the comfort of the shade.

Finally Rex's JT65 signal appeared and we exchanged -12/-8 reports. Gavin was seeing about -23, while Rob wasn't seeing much at all. So, a hasty relocation of their systems was carried out while Rex turned away to work the queue of stations lined up across the state (and VK5DK). Finally, Gavin got to try again and signals were now 10 dB stronger, out from behind the trees. Rob was still having challenges until we bodily leaned his offset dish forwards about 15 degrees, whereupon Rex's signal rose substantially. Rex re-aligned his system a little, and we now had SSB contacts up to 5x7.

Initial 10 GHz EME tests with small 64 cm portable station.

Alan VK3XPD has been using his 50 watt three metre dish 10 GHz station to test if it is possible to work Rex VK7MO on EME on his eight watt 64 cm dish portable 10 GHz station using JT65c. The technique used was to automatically tune Rex's IC-910-H IF transceiver to compensate for Doppler on both TX and RX so Alan did not have to tune for Doppler (The program for automatic Doppler correction was written by Glen VK1XX for the IC-910H and picks up the Doppler value from WSJT – it can be made available to others who may wish to use it with an IC-910-H by contacting Rex VK7MO at rmoncur@bigpond.net.au. Also both stations were GPS locked or intended to be. The tests were also run at a time of low Libration spreading as predicted with GM4JJJ's Moonsked program.

The following examples on Table 1 of the signals received by Rex (there was a problem with Alan's GPS locking which explains the DF of around 720 Hz and some drift in the tests as below). The bold numbers in the last column show the predicted libration Spreading. It is noted that the reported signal level on WSJT increased from about -22 dB when spreading was low at around four Hz to around -26 dB when spreading increased to around 40 Hz.

While Alan could see Rex's signal he did not achieve a decode which is not surprising given the power difference and the Doppler spreading. He may also not have sorted things out to find Rex's signal until later in the tests when the libration spreading was wider. It is intended to run the tests again at a time of low spreading in the hope of achieving a two way QSO.

Rex & Alan have now completed a QSO. Ed.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

070300	4	-22	2.2	725	5	*	VK7MO	VK3XPD	QF22	0	10	4
070500	2	-22	2.3	723	6	*	VK7MO	VK3XPD	QF22	0	10	4
070700	2	-22	2.3	723	5	*	VK7MO	VK3XPD	QF22	0	10	5
070900	1	-25	2.4	725	6	*	VK7MO	VK3XPD	QF22	0	10	6
071100	3	-21	2.3	731	6	*	VK7MO	VK3XPD	QF22	0	10	7
071300	4	-24	2.3	731	7	*	VK7MO	VK3XPD	QF22	0	10	8
071500	6	-23	2.3	734	7	*	VK7MO	VK3XPD	QF22	1	10	10
071700	2	-24	2.3	736	8	*	VK7MO	VK3XPD	QF22	0	10	12
071900	6	-22	2.3	739	7	*	VK7MO	VK3XPD	QF22	0	10	14
072100	2	-25	2.3	739	7	*	VK7MO	VK3XPD	QF22	0	10	15
072300	4	-22	2.3	742	9	*	VK7MO	VK3XPD	QF22	0	10	16
072500	5	-23	2.2	744	9	*	VK7MO	VK3XPD	QF22	0	10	19
072700	4	-23	2.3	752	8	*	VK7MO	VK3XPD	QF22	0	10	21
072900	4	-24	2.3	752	11	*	VK7MO	VK3XPD	QF22	0	10	23
073100	3	-24	2.2	752	9	*	VK7MO	VK3XPD	QF22	0	10	24
073300	3	-25	2.3	752	12	*	VK7MO	VK3XPD	QF22	0	10	26
073500	3	-24	2.3	752	11	*	VK7MO	VK3XPD	QF22	0	10	28
073700	2	-25	2.3	747	7	*	VK7MO	VK3XPD	QF22	0	10	29
073900	3	-26	2.3	750	15	*	VK7MO	VK3XPD	QF22	0	10	31
074100	4	-24	2.3	755	12	*	VK7MO	VK3XPD	QF22	0	10	33
074300	3	-24	2.3	752	12	*	VK7MO	VK3XPD	QF22	0	10	35
074500	3	-25	2.3	750	9	*	VK7MO	VK3XPD	QF22	0	10	36
074700	4	-25	2.3	747	11	*	VK7MO	VK3XPD	QF22	0	10	38
074900	2	-26	2.3	739	10	*	VK7MO	VK3XPD	QF22	0	10	40

Table 1



The Magic Band – 6 m DX

Brian Cleland
VK5BC

Although there were almost daily openings from VK to the northern countries of Japan, Korea and China, April was disappointing with very few openings to the Pacific, northern or central America areas and nothing towards Europe. There was very little activity on the Sun and at one stage during the month the Solar Flux dropped to below 100 but a little flare activity towards the end of April lifted the Solar Flux and caused some activity particularly from the northern areas of VK. VK6 seemed to be the lucky state with regular openings to the north throughout the month from as far south as Perth, which have in the main missed VK2, 3, 5 and 7.

As mentioned above VK6 experienced some good openings to the north and Andy VK6OX reports the following:

Well... after an excellent five week holiday in ZL, I arrived back late March expecting that any activity on six metres would have subsided. As things turned out, that's definitely not the case! What follows is a précis of six metre activities as experienced from the Perth area.

On 4th April the 49.75 MHz videos from Russia/China came in weakly, around 0430Z. At 0628Z I worked Kwon DS2CYI and later on worked Hide JR6EXN at 0808Z. Next day (5th) the band opened up nicely to JA, with JA1, 2, 3, 4, 7 and 9 areas being worked from about 0520Z to 0735Z. Most signals into Perth were S9 or over.

The band opened briefly again on the 6th, and several of us (VK6KXW, JJ, RX, RO and the writer) managed to work Gennady UR7FM/MM on CW. He gave his locator as OJ34, which placed him (and the bulk carrier he was on!)

in the South China Sea between West Malaysia and Borneo, heading towards Singapore.

The rest of the Easter period saw little activity from this QTH, but on the 10th we had another somewhat patchy opening to JA, with three stations worked from here. The 11th produced yet another interesting opening with somewhat shorter F2 contacts being made along with JA and HL. Several Perth 'sixers' worked (variously) Willem DU7/PA0HIP, John 9M6XRO, Tan 9W6RT and several JAs and HL/DS stations from South Korea. Of particular note was the successful QSO's of Peter VK6KXW and John VK6JJ with the Spratly Island DXpedition 9M0L.

Not to be outdone, next day VK6RO, RZ, DU and OX (maybe others?) also worked 9M0L! Dave VK6AOM in Jurien Bay (about 250 kms north of Perth) and Rick VK6XLR at Geraldton were also worked from this QTH, courtesy of some tropo conditions prevailing at the time (around 0930Z).

For the next few days it was quiet on the band, but on the 16th we had propagation to JA and HL (the latter stations of which seem to be more active of late).

Again there were three days of little or no happenings, but on the 20th I worked Jinho HL1LUA and 9M0L (again) both on CW around 0500Z. On the 22nd, the band opened to JA and HL yet again, with many stations worked over a three hour period from roughly 0530Z to 0830Z. The 23rd saw a repeat of the previous day, but yours truly decided to play SWL! I did work one JA on CW though!!

The 24th promised some hope with the SFI around 142, K-index 23 (!) and A-index 5 (yuk!) but unfortunately no stations were worked, just weak TV video carriers from up north and even weaker JA beacons! If I've missed any VK6 operators in Perth area who were involved in the foregoing openings, I apologise.

From a little further north Rex VK6ARW in Exmouth reports that

he has not been too active of late with other tasks about the place, but on 22nd April he responded to a call from a JA station at 0700Z and gave it away at 0819Z after logging 92 Jas. Prior to that pile-up Rex had worked 57 others on six metres between January and April which included China, Hong Kong, South Korea, Philippines, JA's, East Malaysia, and a MM somewhere in the South China Sea with a UR5FA/MM call.

Rex is planning to build a six element six metre LFA which he hopes will attract some 'Rare' DX. Good luck Rex.

Meanwhile from Darwin, Gary's VK8AW log for April included the contacts as listed in Table 2 below:

On the morning of the 25th April Andrew VK3OER heard Bob ZL1RS and shortly afterwards at 0056 UTC worked N3LL 5/2 SSB in Florida over a distance of 15,445 km. During the month Andrew also work into Hawaii on the 14th and 27th completing contacts with Art KH6SX and Fred KH7Y. Same morning Norm VK3DUT was hearing the ZL2WHO beacon and heard

N3LL and the TI2NA/b 419. Norm then nearly completed with XE1JP but unfortunately he missed a letter in Norm's call before fading.

Frank VK7DX also worked KH7Y 5/1 SSB on the morning of the 25th and reports hearing BA4SI, 3W2BB, AH0BT, T88WJ and many JAs during month.

A good opening to the USA from the Hervey Bay area on the morning of the 26th with Wayne VK4WTN working several stations including N6KK, K6QXY and K7JA. During this opening the band opened between VK4 and VK5 and with the aid of the Es extension. Brian VK5BC heard K6QXY calling CQ on CW. Norm VK3DUT also heard the K6FV/b.

Openings to JA areas occurred most days to northern areas of VK but did extend south to VK3 and VK5 on the 14th when BA4SI was worked with very strong signals into VK3 and VK5. JAs were also worked in the southern states on 27th April.

Please send any six metre information to Brian VK5BC at briancleland@bigpond.com

01/04/12	0300Z	USB	KH6RH	GARTH	HAWAII	5/2
01/04/12	0310Z	USB	KH7JJ	NED	HAWAII	5/3
02/04/12	0907Z	CW	A61Q		DUBAI	5/5
10/04/12	1300Z	CW	9M0L		SPRATLY ISL	5/5
12/04/12	1235Z	CW	A45XR	CHRIS	OMAN	5/5
12/04/12	1250Z	USB	9W6RT	RODGER	E MALAYSIA	5/9
13/04/12	0935Z	USB	A92IO	DAVE	BAHRAIN	5/9
21/04/12	2330Z	CW	FK8CP	REMI	CALEDONIA	5/9
21/04/12	2333Z	USB	FK8CP	REMI	CALEDONIA	5/9
21/04/12	2335Z	USB	TI7/N5BEK	PHILIP	COSTARICA	5/1
23/04/12	1015Z	CW	J11CUL	PAPA	JAPAN	5/5
25/04/12	0730Z	CW	KH7Y	FRED	HAWAII	5/7
27/04/12	0320Z	CW	KH6HI		HAWAII	5/5
27/04/12	0756Z	CW	A92IO	DAVE	BAHRAIN	5/9
28/04/12	0900Z	USB	YB1MH		INDONESIA	5/9
28/04/12	0915Z	USB	YB0AN	HATKI	INDONESIA	5/9
28/04/12	1140Z	CW	JE1BJT		JAPAN	5/5
28/04/12	1148Z	CW	A92IO	DAVE	BAHRAIN	5/9
28/04/12	1205Z	CW	BD8ASG		CHINA	5/9
28/04/12	1220Z	CW	HL2CFY	KIM	KOREA	5/9

Table 2

Silent Key

Bruce Hedland-Thomas VK600

21 October 1938 – 5 April 2012

Bruce grew up in Northam and Inglewood, moving to Inglewood at the age of 10. Before they left Northam, Bruce was taught to play the cornet by the bandmaster of the local Salvation Army and remained part of the Salvation Army Band until the age of seventeen. Attending Perth Boys' High School for three years did not lead into a leaving certificate as his father thought security lay in having a trade.

Bruce followed his father's advice and became an apprentice electrical fitter, first with an electrical contractor and then with the WA Government Tramways and finally the Railways. After a couple of years working on diesel-electric locomotives he lost interest and found a job as a Laboratory Assistant in the Fuel Technology Division of the Government Chemical Laboratories.

Being a bit of a petrol head at this time (his words), Bruce imagined himself running a Ricardo variable compression engine to determine octane ratings of fuels. Imagine the anti-climax when he learned that the bread and butter of the division was to perform trials on steam raising boilers in government hospitals and other facilities.

In 1967 Bruce studied physics at the Western Australian Institute of Technology (later to become Curtin University). In the early 1970s Bruce moved to the UK to undertake post-graduate studies at the University of Surrey, graduating with a Masters in Physics and joining the Medical Physics Department at Guy's Hospital in London. While in the UK, Bruce was licensed as G4EKR. In 1975 Bruce returned to WA and joined the Medical Physics Department at Royal Perth Hospital where he was involved with



Radiotherapy (Radiation Oncology) treatment for cancer. Bruce retired from RPH as Senior Physicist in 1999.

Shortly after arriving back in WA, Bruce obtained a reciprocal licence as VK600 and joined the WIA. In 1978 Bruce became a WIA Councillor and served continuously on the VK6 Council for 27 years from 1978 until 2005:

1978/79 – Assistant Secretary and Councillor,
1979/80 – Vice-President and Federal Convention Observer,

1980/81 – 1987/88 – Eight years as President and Alternate Federal Councillor,

1989/90 – 1990/91 – Councillor, Alternate Federal Councillor and

1989/90 – 2005 – Treasurer until the Division was wound up in 2005.

Those amateurs who worked on Council with Bruce during those years said that he was always a delight to have at a council

meeting and had a dry wit along with a balanced gracious approach. He was always focussed on resolving any 'issues' in the most efficient and amicable way.

Bruce was not able to spend much time on air from 1978 because most of his leisure time was taken up by the administrative side of amateur radio and his other interests of choral singing, music, hi-fi and photography. However, he had a very handsome set-up of HF and VHF transceivers in a beautiful purpose-built desk feeding a TH3Jnr beam on a tower plus a trapped HF vertical and various VHF antennas.

Bruce completed and had published for the widow, the autobiography called 'A Radio Active Life', which Harry VK6WZ had nearly finished when he became a silent key. Later in life, Bruce the petrol head was to express his love of motor cars as the President of the local branch of the Austin Car Club and spent many happy hours in his garage restoring various models. A cavalcade of Austin cars was a highlight of Bruce's funeral.

In November last year Bruce was diagnosed with an inoperable cancer around his oesophagus and died on 5th April, 2012 at his home under the care of the Silver Chain Hospice Service. Bruce is survived by his wife Dorothy, his two daughters Genevra and Rebecca and his two stepsons John and Jason.

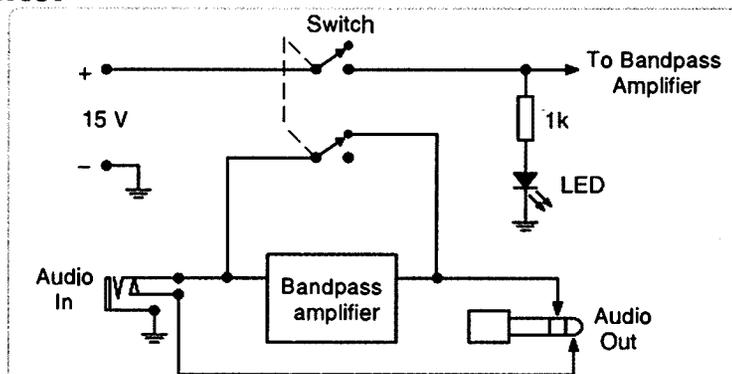
Amateur radio and the WIA will forever be in debt to Bruce for the time he unselfishly gave to the administration of his hobby.

Contributed by Bill Rose VK6WJ.

Erratum | A BPSK bandpass filter

A reader has noted an error in a portion of Figure 1 of the article "A BPSK bandpass filter" by John Sutcliffe VK3TCT, published in the May issue of /Amateur Radio/ (pages 44 - 46). The circuit concerned is the power supply and switching arrangements in the lower left portion of Figure 1.

As shown, the switching actually bypasses the bandpass amplifier. The Figure on the right shows a corrected version of that portion of the circuitry.



© WIA AR11022_1 correction Drawn by VK3BR

A telephone conversation with Al Shawsmith, ex-VK4SS

Peter Hadgraft VK4APD



Alan Shawsmith VK4SS in an animated discussion with WIA President Michael Owen VK3KI in 2008, on the occasion of the presentation to Alan of the GA Taylor Medal.

On the occasion of Alan Shawsmith's being awarded the GA Taylor medal by the WIA, I wrote to him.

Dear Sugar-Sugar,

On behalf of the Historical Wireless Society of SE Queensland, allow me to congratulate you on your recent receipt of the prestigious GA Taylor award. Although there comes a time when ego-boosting awards are no longer important, it must be nice to know that one is not forgotten, and that one has made a satisfying contribution to the radio amateur fraternity in particular, and to society in general.

Yours sincerely...

A week later, I received a phone call "Al here, man". To point out that he didn't have such a big ego, he had showed his daughter the letter, and she said that everyone has to have some ego.

"I've never been big-headed, man, but always put myself forward. I've had a great life and experiences you wouldn't believe. But that's another story.

"I've been called everything, but being called egotistical isn't a big thing."

I interjected. "Called everything

except 'sir', eh?"

"Well, as a matter of fact, I worked in logistics in the RAAF during the war. I was known as Smithy, of course. One day a mate came up to the hut and asked "Is Sir Charles there?"

"I came out of the RAAF with PTSD. To this day, I can't watch war films with aeroplanes. I know what will happen."

"Before I finish, there was something else I wanted to say. They reckon, man, I've written over a million words as a journalist and historian. At one stage I was writing about three columns a month, like contesting, and historical stuff. I counted it up myself and it's probably more like two million."

I said "Reminds me of the old 'Gabba Russian joke.

Host says to his guest 'Have some more.'

'No thanks', says the guest, 'I've already had two.'

'Actually you've had three,' replies the host, 'but we don't count here.'

Continuing, Al added, "One thing, I've always had was a good memory. I got that from my father. Grandfather was a miner, but father was in the Missing Persons Bureau. That didn't go down too well. He was never there, and no one had seen the top of his desk for years. He was always elsewhere."

"So, Al, you got more from your Dad. He had a good memory, was a careful observer and listener, researcher, and loved dealing with people."

"Right on, man," said Al, "but in fact I've really been a journalist, not a historian."

"And before I finish, have you got the time?" ("Yes, wife's in church and I'm home alone."). There's something else I wanted to say. This letter you sent me, there's no date

and you haven't signed it."

"Al, I will drop by and personally sign and date it."

"And that award I got. A few days before I received it, my son rang to say "There are a few people coming Saturday morning. Spruce yourself up for it." "I thought a few of his mates were coming around. Now I gotta say when I was a young bloke, I played footy. I was light but quick. Still, I couldn't always get past those big forwards. Then I played hockey. And got belted in the back with a boot or stick – ending up with a fractured, and twisted verterbrae. The doctor patched me up, said I would improve, but that my back would probably come back to haunt me in my old age. Never a truer word. You have good days and you have bad days. Come Saturday morning, I was crook, could hardly move. I rang the son and said, I'm bugged, man." Son replied "No, you'll be right Dad. Now get up and get yourself ready."

"I got up, had a shower, shave, shampoo. My legs barely held me up. About 11 o'clock there's a knock at the door, and in comes, among others, the President of the WIA, Graham Kemp and Mick Charteris of the Ipswich group (but that's another story). Suddenly there's a whole lot of other people, there's lights and cameras. Every point in the house is being used. My voice wasn't too good, and I reckon I didn't put on too good a performance."

"The President said a few words, like one does on these occasions. I'd never heard of the Taylor medal. Then he opens this beautiful polished wooden box, and showed the medal inside, and that it really did exist."

"Yeah, and there was one other thing. My son now has my call-sign, VK4SS."



An isolated USB interface for controlling radio equipment

Dale Hughes VK1DSH

Times change; it wasn't long ago that every PC had at least one RS232 serial port. That port was very useful for talking to modems and other devices. The various handshaking lines were convenient for controlling radio transceivers or other devices; it was simple and reliable. However the RS232 standard is now quite old and in many ways is obsolete; most modern computers, especially laptops, no longer are equipped with RS232 ports. Serial ports have been generally replaced by the USB connector, which although being based on a serial protocol, lacks any hardware handshaking lines and is relatively complex from a hardware and software perspective. So what

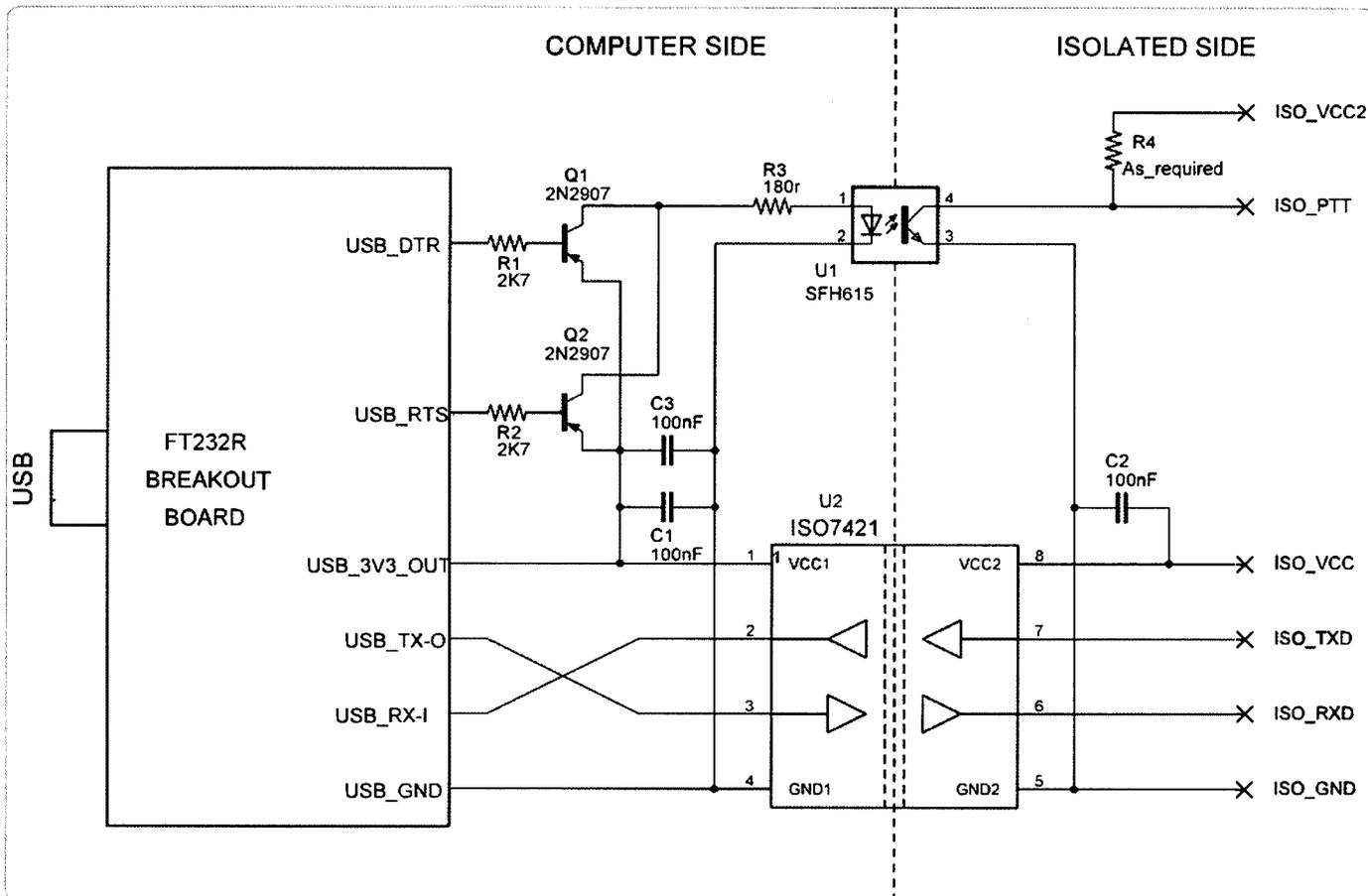
do you do when you want to control your radio from your favourite communications software?

One simple solution is to use a common USB to RS232 converter cable and I have used this approach a number of times. The main problem with it is that some converter cables are known to be 'difficult' and it's messy... another cable to get lost, accidentally disconnected etc. It would be so good just to be able to use a standard USB cable and dispense with the separate converter cable. My initial thoughts were to build a device using one of the various USB to serial converter chips from *Future Technology Devices International Ltd.* See <http://www.ftdichip.com/>.

The FT232 series devices are readily obtainable, easy to use and inexpensive. However, when reading another technical magazine I noticed an advertisement for a 'USB breakout board for ft232r1' and this appeared to be a better solution. It's a small printed circuit board fitted with a USB connector and a FT232 USB-serial converter chip – and it has handshaking lines. The beauty of the thing is that:

1. It can be built into whatever device you want,
2. To your software it 'looks like' a standard serial port,
3. It works with the various amateur radio communications packages without difficulty.

Figure 1: USB interface circuit. The breakout board sits on top of a small PCB which holds the other components and allows for simple mounting of the device into whatever apparatus it is built into. The pull-up resistor R4 can be installed if required. If an open collector output is not required, the opto-coupler could be replaced by another ISO7421 or one of its sister devices which have more channels.



4. It's cheap and easy to use!

The device in question is produced by a company called *Sparkfun* and I purchased several units from another company called *Protogear*. See <http://www.protogear.com.au/breakout-board-for-ft232rl-usb-to-serial.html> The first unit was mounted on a small piece of vero-board and coupled the RTS and DTR lines through a low current opto-coupler to drive the Press-To-Talk line of my transceiver. It worked very well as a virtual COM port with a direct USB connection. At about the same time I was working on a micro-controller project and thought it would be useful to be able to use the breakout board to extract the serial data lines, but galvanic isolation was desirable. While galvanic isolation is not strictly necessary, it does help reduce interference problems and can simplify interfacing the data and control lines to your radio or other equipment. As already shown, isolation of the control lines is straight forward as a simple opto-coupler can be used. However isolation of the serial data lines required additional thought as I wanted to be able to stream serial data as fast as possible through the interface and most opto-couplers cannot run fast enough. A colleague told me about a new range of high-speed isolators, some of which can run as fast as 25 Mbit/second. These devices come in various formats and are produced by *Texas Instruments*, see <http://focus.ti.com/docs/prod/folders/print/iso7421.html> They use dielectric insulation techniques rather than optical coupling, that is, it is basically a capacitor which provides isolation up to 2.5 kV RMS! The clever idea in the design is that the signals follow two paths within the device. Low frequency or DC signals are modulated by a sub-carrier so that they can pass through the isolation capacitor. High frequency signals just pass straight through – it's a very neat solution.

The device I chose was the ISO7421 which has two channels and gives a fully isolated and one Mbit/sec serial data link. On the computer side of the interface, the ISO7421 is powered from the 3.3 volt supply which is available from the USB breakout board. The isolated side is powered by whatever 3.3 or 5 volt supply is available from the equipment to which you connect it. Having decided on a suitable design, a small printed circuit board was produced which holds the breakout board along with the associated interface and isolation components. Figure 1 shows the schematic diagram.

Construction and components

As built, the device uses a mixture of leaded and surface mount components, but there is no reason why a fully SMD unit couldn't be constructed. Figure 2 shows the completed unit, with the breakout board sitting on top of the interface board.

Opto-coupler U1 is a low current device with a high current transfer ratio, but other devices can be used

if available. I obtained the ISO7421 directly from *Texas Instruments* and they are also available from other suppliers. The USB breakout board was purchased from *ProtoGEAR* and their website also has a complete range of technical information and application tutorials for the product.

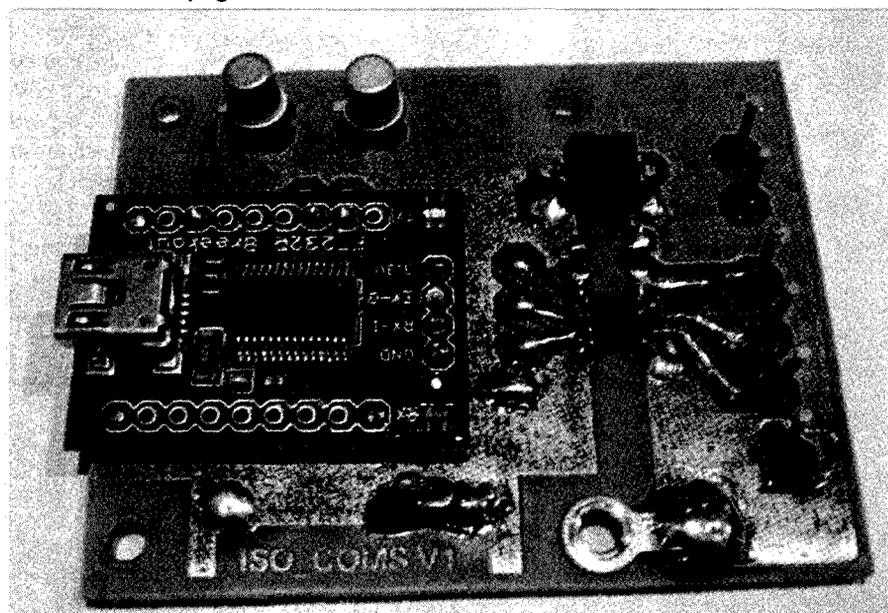
In Use

The device has been used with software such as *WSPR*, *FLdigi*, *LabVIEW* and various terminal emulators. It has worked perfectly and several units have been built into various devices which can now be connected to the laptop PC by using a standard USB cable.

Conclusion

Using the USB to serial breakout board has simplified using the USB port to control various devices by eliminating a converter cable. Galvanic isolation reduces the interference potential of the computer and this has proven worthwhile in various weak signal applications. A copy of the PCB artwork in *EAGLE* Cad format can be provided to interested readers.

Figure 2: Breakout board mounted on interface PCB. The isolation between the two sides of the circuit is clearly shown by the gaps between the ground planes on the PCB. If required, a slot could be cut between the sections to further increase the creepage distance.



Hamads

WANTED – NATIONAL

Copies of Radio Weekly magazine.

The WIA Archive is seeking copies of Radio Weekly for copying and/or adding to the

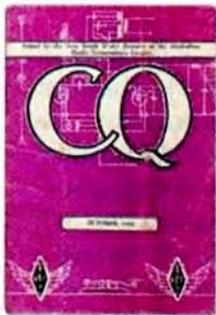
WIA Archive's shelves.

Little is known about this magazine. The WIA holds two copies only. Volume 1, Number 1 and Volume 2, Number 2. They contain about 36 pages and issues included articles of general radio interest in addition to the odd experimental article.

The magazine was published in Melbourne commencing in February 1925 and claimed a circulation of 25000!

For those who have responded to previous requests for copies of early magazines, thank you. We are gradually building up our collection of important Australian magazines which will be available to future researchers.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate copies of this magazine.



Copies of Australian CQ magazine. See photo at top next column.

The WIA Archive is seeking early copies of the late 1920s Australian CQ for copying and/or adding to

the WIA Archive's shelves.

This magazine was published by the NSW Division of The Australian Radio Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrajong Radio Museum. Collectively, we wish to build up the issues extant. The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.

FOR SALE – ACT

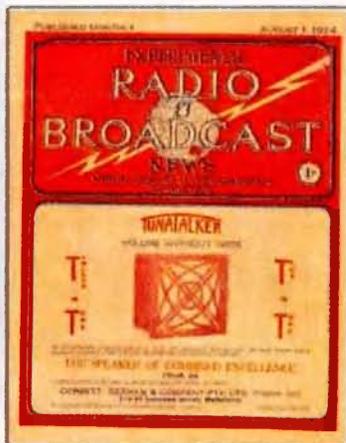
Free for pick up Canberra region. Vintage computers - Toshiba Satellite 2520CDT Win98SE; 2X Toshiba T1910 Win 3.xx; Sega SC300 with green screen monitor; VZ300 and VZ200 with some peripherals. Sony Trinitron 30 cm analogue TV. All working when last tested; a shame to dump.

James VK2XFC, phone 02 6299 2993.

FOR SALE – SA

Kenwood TM-D710A 2 m/70 cm, 50 W dual-band, dual in-band receive, 1000 memories, has all the latest features and is an excellent performer. Current model as new in box with all supplied accessories. S/N 90800396. No modifications. Immaculate condition. Cost me \$895, sell for \$680 o.n.o.

Contact VK500, QTHR Phone 0412 000 076.

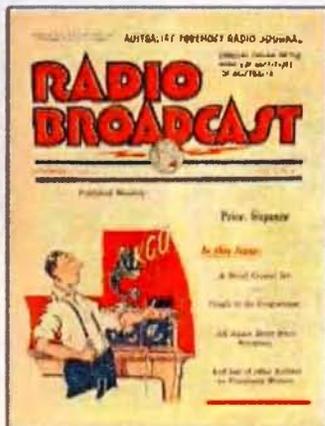


H.K. Love and Ross Hull were responsible for their production, initially from Melbourne, but moved to Sydney in October 1925.

The archive has only eight copies of these magazines at present and as the cover proclaims, they were the official organ of the Wireless Institute of Australia. Issues included detailed reports about individual amateurs in each state and also Institute activities, consequently we are keen to increase our collection. To those who have responded to previous

requests for copies of early magazines, thank you. We are gradually building up our collection of important Australian magazines which will be available to future researchers.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate copies of the above magazines.



WANTED – NATIONAL

The WIA Archive continues to seek copies of early Australian radio magazines containing aspects of our history and in particular those which were associated with the Institute.

Radio Experimenter, Experimental Radio & Broadcast News and Radio Broadcast were monthly magazines produced during the mid 1920s.



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

AMIDON FERROMAGNETIC CORES



tts systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystems.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links related to Amateur Radio and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products
Visit the Hamak website at

Hamak.com.au
for
**Linear amplifiers,
Power supplies
and accessories**

About Hamads

- Submit by email (**MUCH PREFERRED**) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'

PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

JACKSON BROS

www.jacksonbrothers.com.au

Highest quality products made by UK craftsmen

Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES

HAMMOND MANUFACTURING - Large range of quality electronic enclosures for the discerning Radio Amateur.
Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many ARRL projects.

Cookson Controls CHARLES I COOKSON PTY LTD

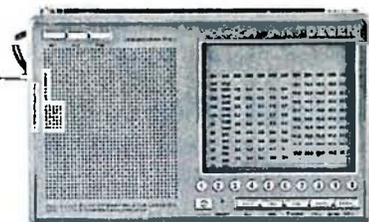
11-13 Port Rd Queenstown SA 5014

Tel: (08) 8240 3200 Fax: (08) 8240 3233

sales@jacksonbrothers.com.au

ccookson@hammfg.com

ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND



DEGEN 1103 HF Receiver

Pocket sized, 100 kHz - 29,999 kHz

LCD display, SSB, AM wide/narrow FM Stereo, DX/Local, 10 m long wire NiMH batteries & charger
Earphone & Carrycase included
Full review Silicon Chip Jan 2007



ONLY \$99
with 12 month warranty

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100

Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au

www.avcomm.com.au

ADVERTISERS INDEX

Av-com	63
ATRC	13
Com-an-tena	15
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	7
TET-Emtron	37
TTS	9, 63
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Directory

National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>



The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au
* John Bishop VK2BK
Dominic Dahl VK2YDD
* Timothy Mills VK2ZTM / VK2UJ
Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au
* Bob Tait VK3XP
Luke Steele VK3HJ
Noel Ferguson VK3FGN
Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au
Don Wilschefski VK4BY
Kevin Johnston VK4UH
* Michael Charteris VK4QS
Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au
* David Clegg VK5KC
* Peter Reichelt VK5APR
Ben Broadbent VK5BB
Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au
* Martin Stretton VK6ZMS
* Heath Walder VK6TWO
Craig Lamb VK6FLAM

Tasmanian Advisory Committee

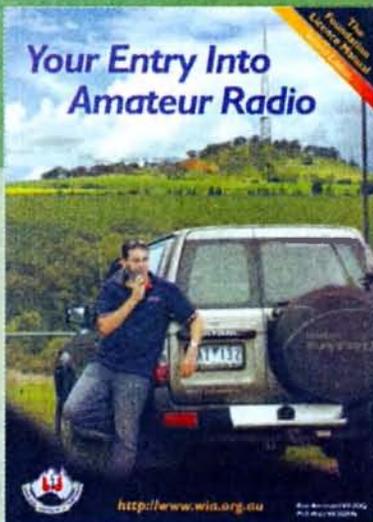
Email: vk7advisory@wia.org.au
Clayton Reading VK7ZCR
* Justin Giles-Clark VK7TW
Peter Rumble VK7IY

Northern Territory Advisory Committee

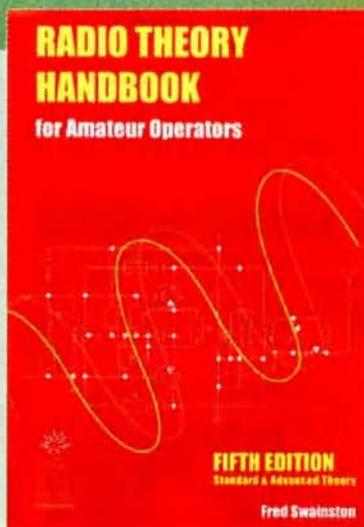
Email: vk8advisory@wia.org.au
* Peter Blackadder VK8HPB
Garry Woods VK8GW
* Alan Baker VK8AB
Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board
(*Nominated Member)



WIA Bookshop



Two of the great learning resources available from our online bookshop.

Visit <http://www.wia.org.au/members/bookshop/> to see more!

WIA 2012 Callbook

Now available

Visit our
online
bookshop
for details.



Wireless Institute of Australia

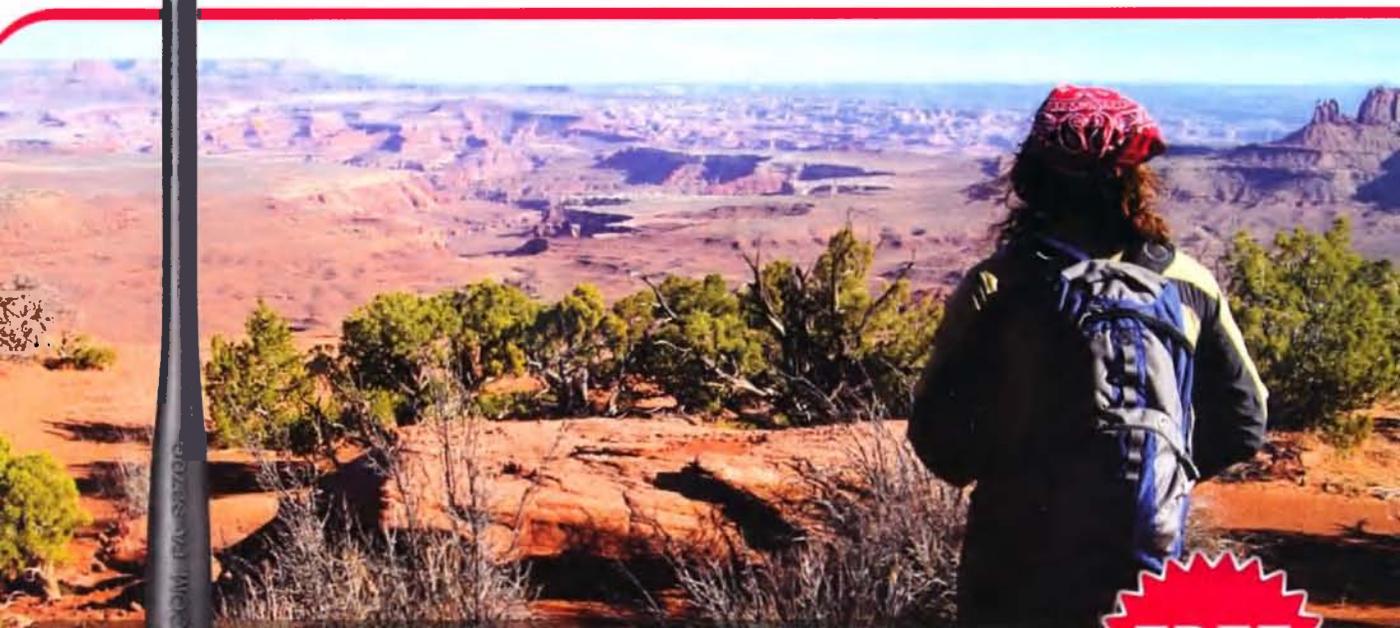
2012 Callbook



Includes **Searchable CD** containing:
The complete 2012 Callbook
+ All Australian Amateur Callsigns
+ Printable Great Circle Maps

www.wia.org.au/bookshop

The Evolution of D-STAR Continues



**FREE
SD CARD***

ID-31A

- Slim, Compact and Lightweight
- IPX7 Waterproof (1m Depth for 30 Minutes)
- GPS Built-In
- GPS Logging
- Micro SD Card Slot
- Pre-programmed with main worldwide repeater frequencies
- 1252 Memory Channels (500 Regular, 700 D-STAR Repeater Memories, 50 Scan Edges, 2 Call Channels)
- CS-31 Cloning Software Included (Update available from Icom Inc. website)
- D-STAR DV Mode and Analogue FM Mode
- Directional Keypad and Quick Menu Button
- Large Dot-Matrix Display

* Free 2GB SD Card available for a limited time only.

**ICOM**

ICOM 609

To find out more about our latest products, call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

Volume 80
Number 7
July 2012
Price: \$8.00 + GST

www.wia.org.au



Horus high altitude balloons

- Icom ID-31A review
- WIA Annual Conference reports
- USB transceiver control and audio interface



ISSN 0002-6859

07



9 770002 685062

The radio...YAESU

HF/50 MHz 100 W Transceiver
FTDX 3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments



The amazing Crystal Roofing Filter performance

The Down conversion 9 MHz 1st IF frequency receiver construction, can realize narrow 300 Hz (optional), 600 Hz and 3 kHz bandwidth roofing filters.

Outstanding receiver performance, the heritage of the FTDX5000!

The high dynamic range IP3 performance that was realized and proven in the FTDX5000.

IF DSP provides effective and optimized QRM rejection

Independent Frequency display

The newly developed LCD has a wider viewing angle and higher contrast.

4.3-inch Large and wide color LCD display with high resolution

High Speed Spectrum Scope built-in

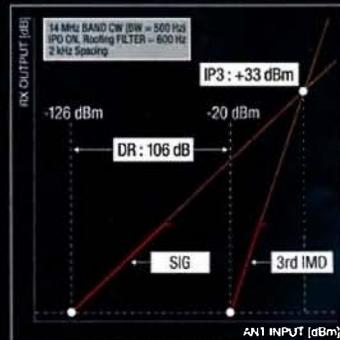
AF SCOPE display and RTTY/PSK encoder/decoder (optional)

Other features

The specialized Receiver amplifier for 50 MHz is built in / Three antenna connectors are provided / The "ANT-3" terminal may be assigned to "RX-only" / Signal output for an external receiver and the 9 MHz IF output are furnished / High speed Automatic antenna tuner built in / Optional u-tune unit available / USB interface equipped



Characteristics of the Crystal Roofing Filter (300 Hz)



3rd Order By-Amv...Rnoise...IP3

YAESU
The radio

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

For latest Yaesu news, visit us on the Internet:
<http://www.yaesu.com/>

The FTDX3000 has not been approved by the FCC. This product may not be sold or leased, or offered for sale or lease until FCC approval has been obtained.



Amateur Radio

Volume 80
Number 7
July 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor
Peter Freeman VK3PF
editor@wia.org.au

Technical Editor
Peter Gibson VK3AZL

Publications committee
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters
nationaloffice@wia.org.au

How to submit material
Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor
Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads
'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising
All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines
All articles, columns, hamads and
advertising booking by **first day of
previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

WICEN (Vic) Communications at the
Arthurs Seat Challenge 6
Paul Whitaker VK3DPW

Report on the WIA Annual
Conference Mildura 8
Onno Benschop VK6FLAB

The SCRC (VK3KID) play the
VK/trans-Tasman 80 metre phone
contest 10
Michael Romanov VK3CMV

VK4ILH Cape Moreton Lighthouse 32
AU0009, Moreton Island IOTA OC-137,
ILLW 2012
Derek Toreaux VK4MIA

A squid pole antenna mast 38
Richard Certis VK2XRC

Technical

Introducing Project Horus: 22
High altitude ballooning in South
Australia

Grant Willis VK5GR, Matthew Cook VK5ZM,
Mark Jessop VK5QI and Alan Kovacs

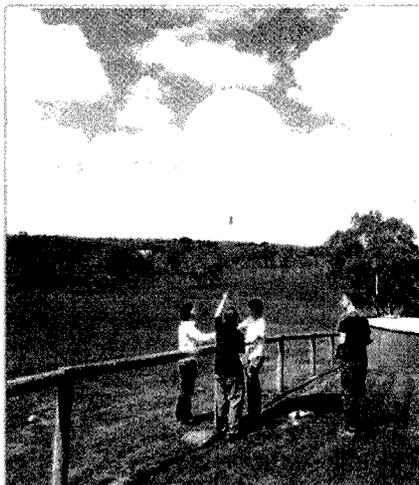
Magnetic loop for HF 34
pedestrian mobile
Peter Parker VK3YE

Review: The Icom ID-31A 70 cm 44
handheld transceiver
Peter Freeman VK3PF, Michael Carey VK5ZEA

A transceiver control and audio 49
interface using USB components
Dale Hughes VK1DSH

Columns

ALARA	60
AMSAT	56
Contests	17, 19
DX - News & Views	42
Editorial	2, 6
Hamads	62, 63
Over to You	14, 53
Silent Key	14, 20, 48, 53, 59
Spotlight On SWLing	55
VHF/UHF - An Expanding World	39
WIA Comment	3, 5
WIA News	4, 5
News from:	
VK2	54
VK3	12, 15
VK5	21
VK7	13



This month's cover
**Horus 8 launch with Terry VK5VZI, Chris VK5CP,
Joel Stanley and Alan Kovacs at the QTH of Graham
VK5GH. See the story of Project Horus commencing
on page 22. Photo by Scott Testi VK5TST.**

Contributions to Amateur Radio



Amateur Radio is a forum for
WIA members' amateur radio
experiments, experiences,
opinions and news. Manuscripts
with drawings and/or photos are
welcome and will be considered
for publication. Articles attached to
email are especially welcome. The

WIA cannot be responsible for loss or damage to any material.
Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage
within Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are
available to members at \$2.50 each (plus an additional \$2 for
each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily
reflect the official view of the WIA and the WIA cannot be held
responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road

Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mal Brooks	VK3FDSL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDIZ

Board of Directors

<i>President</i>	Michael Owen	VK3KI
<i>Vice-President</i>	Phil Wait	VK2ASD
<i>Directors</i>	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Piatt	VK5CP
	Trent Sampson	VK4TS
<i>Secretary</i>	David Williams	VK3RU
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Piatt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyte Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
<i>NTAC</i>	John Martin	VK3KM
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Piatt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV
<i>International Travel Host</i>	John Miller	VK3DJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Oawson	VK2CBD
	Dale Hughes	VK1DSH

QSL Curator

<i>Repeater</i>	Peter Mill	VK3ZPP
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Wait	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV

Editorial

Peter Freeman VK3PF



WIA Annual Conference – an enjoyable trip

The WIA Annual Conference was a success. The team from the Sunraysia Radio Group did a terrific job for all who attended, regardless of which activities one participated. The technical program on Saturday afternoon was an interesting mix of topics, with two presenters making their contribution from afar through the use of technology. From all accounts, the Partners' Tour was also a resounding success.

The social activities were well attended and enjoyed by all. Good food, great company and some liquid refreshment was accompanied by much discussion about all sorts of topics, not just radio. The Friday and Saturday dinners had excellent local speakers who entertained all present.

Despite the early hour and the brisk morning, there was a good turnout of people at the Old Aerodrome Sporting Complex to watch the launch of the two Horus balloons. Several people had a variety of equipment set up, either to monitor the progress of the balloons or to simply "play radio". Once the first balloon (Horus 26) was launched, many amateurs used their hand held radios to make contact through the balloon-borne cross-band repeater, even if it was only with the control station.

As I had been discussing my portable antenna with several people on Saturday, I quickly erected the system – a multiband switchable inverted V dipole supported by a squid pole, fed with RG-58 to a FT-817 powered by a Lithium Polymer battery. The system is relatively lightweight and was used during the trip to activate several National Parks and SOTA summits.

Those that had arrived at the launch site just before the release of Horus 26 were able to watch the preparations of the balloon and payloads for the second launch – Horus 27 with an imaging payload. We watched the balloon disappear from sight and wished the chase teams good fortune prior to making our way back to our hotels or other activities before heading to the jetty to board the Paddleboat Mundoo for the cruise on the Murray River.

With a good crowd on the Mundoo, the atmosphere was a very social one. I was able to occasionally check the progress of the Horus flights and the chasers by looking over the shoulder of one of several people on board who were monitoring via tablet devices.

At the rear of the vessel, a squid pole vertical antenna was lashed to the guard rail, with an antenna tuner at the base. The coax led into the rear cabin, where a station was set up and operated using the special event callsign VK102WIA. The operators were kept busy with a steady stream of callers, including a couple of operators on board the Mundoo who did not let the lack of an antenna stop them from making contacts – the FT-817 was simply held progressively closer to the VK102WIA antenna until sufficient signal was coupled to the antenna from the rear connector of the FT-817!

The cruise included some commentary on the sites of interest as we progressed upstream. The call for lunch was announced; again the meal was enjoyed by all.

Continued on page 6

WIA comment

Michael Owen VK3KI

A Code of Conduct



At its meeting in February 2012 the WIA Board prepared a first draft of a Code of Conduct, a code of on-air conduct, which was released on the WIA website and in the April 2012 issue of *Amateur Radio*, inviting comments, with a view to further discussion at the Open Forum at the WIA Annual Conference 2012 at Mildura.

We received a number of thoughtful responses, but all, interestingly, supporting the concept of a Code.

One of the suggestions received was perhaps that we should be clearer about why we have a Code, perhaps a reminder of the unique privileges of the amateur service and even a reminder of the spirit of amateur radio.

I must say that I was initially a bit reluctant about that. Perhaps it was a feeling that in today's world we are doers, and many people could think that in today's world what we regard as a right was in yesterday's world regarded as a privilege. Perhaps it was all a bit too old fashioned for an organisation desperate to attract a younger generation.

Then, in an entirely different context, I received an email from a Foundation licensee, who told me that he is an undergraduate student, but thinks that amateur radio is being killed by having the level of knowledge for both Standard and Advanced certificates of proficiency too high.

That brought me full circle, back to the issue of privileges that the comment about the code had raised.

I drew my correspondent's attention to the fact that the Australian syllabus for Standard and Advanced certificates was not higher than the rest of the

world. For example, the Australian Advanced level conforms to the CEPT (The European Conference of Postal and Telecommunications Administrations) HAREC (Harmonised Amateur Radio Examination Certificate) syllabus, which enables Australian Advanced amateurs to operate without doing more while visiting some 32 other countries.

Why is the level of knowledge required for an amateur certificate what it is?

The amateur service has access to a family of frequencies across the spectrum. The Standard and Advanced radio amateur can modify a transmitter built for other purposes to be used on an amateur frequency. Indeed, not only does the radio amateur not have to use type approved equipment, he or she can make his or her own transmitter. And it does not have to be checked by the regulator before it is used. In addition, there are not many other spectrum users who can be frequency agile.

In short, since radio all began, the extent of regulatory control of the radio amateur has been minimal.

Pretty obviously, the radio amateur has to know enough not to cause interference to other users of the spectrum, whether it be the reception of entertainment or a safety service.

So, the more I have thought of it, the more a Code of Conduct is really appropriate, and so, the decision of the Board to adopt a code at its meeting following the Annual Conference was right.

One of the really useful contributions to the discussion came from a very respected amateur who pointed to the much

more detailed IARU Region 1 publication "Ethics and Operating Procedures for the Radio Amateur" written by John Devoldere ON4UN and Mark Demeuleneere ON4WW.

That is readily available on the IARU Region 1 website, as well as the IARU and IARU Region 3 websites.

While it contains much useful material, I think it may be a bit too detailed and a little too European to be really accepted as the ultimate guide in Australia.

But I do accept that the Code is necessarily brief and for certain uses parts could be enhanced by either further explanation or examples to clarify the meaning. I accept that the Code is only a starting point for the new or aspiring radio amateur.

But as it is, it is a reminder to all of us that how we operate our station is seen in a very public arena and that if one of us ignores proper operating techniques, uses inappropriate language, transmits matter that should not be transmitted on amateur bands, defames individuals or otherwise abuses our privileges, we all suffer.

Remember the value of the radio spectrum. It may be a reusable resource, but it is a very finite resource. Many compete to use it.

How we use the spectrum allocated to the amateur service may be watched by those who covet the spectrum we occupy.

I do not believe that I live in some long departed time rather I live in today's seriously competitive world when I say "Let the Code guide us all."

Continued on page 5

Board decides to continue Club Grant Scheme

Following the very successful WIA Annual Conference 2012 in Mildura, the WIA Board met on Monday 28 May 2012 and among the matters it considered was the WIA Club Grants Scheme.

The question as to whether the Club Grants Scheme should be continued was raised in the Comment in the December 2011 issue of *Amateur Radio*, and comments were invited.

While little response was received to the Comment, a very productive discussion ensued at the Open Forum following the Annual General Meeting as part of the Annual Conference.

It was clear that almost everyone thought that the criteria for a Grant had become too complicated, and that rather than a project being innovative in an identified way, it should simply be useful, for amateur radio, the WIA or the club.

The Board decided to continue the Scheme, and adopted new Rules with a much simpler and wider test for a Grant.

The Board felt that some suggestions could not be adopted, but did allocate a sum of \$6,000 for the current year as the maximum sum to be distributed this year.

The test for a Grant is now for "a project to receive a Grant under these Rules it must be considered by the Grant Committee and the Board to be sufficiently useful for any one or more of amateur radio, the Affiliated Club or the WIA to justify the making of a Grant."

The new Rules are on the WIA website together with a new and hopefully user friendly application form.

The Board has set the date by which applications for Grants are to be lodged to be Monday 20 August 2012.

WIA Board meets in Mildura

NZART President Vaughan Henderson ZL1TGC was welcomed to the WIA Board meeting in Mildura on Monday 28 May 2012.

The Board reappointed Michael Owen VK3KI as President and Phil Wait VK2ASD as Vice President.

The Board formally confirmed its previous decision to appoint Trent Sampson VK4TS Acting Director Awards until Chris Piatt is able to resume the role and to appoint Bob Robinson VK3SX as Awards Manager.

The Board also reviewed a number of its previous decisions and set new time frames for a number of matters and provided significant guidance to the Awards Committee on other matters.

The Awards Committee will be making various announcements in the near future.

The Board accepted with regret the resignation of Sarah Thompson VK3SD as Secretary, effective from 30th June 2012, and appointed David Williams VK3RU as Secretary with effect from 1st July 2012.

Following the Board meeting, the President, the Treasurer and the WIA Manager met with Sunraysia Radio Group Secretary Noel Ferguson VK3NF to review all aspects of the Annual Conference in Mildura. Also present was WIA Director Bob Bristow VK6POP, who is taking a leading role in coordinating the 2013 Annual Conference which will be held in Perth, WA.

Peter Young VK3MV Awarded GA Taylor Medal

A number of amateurs were recognised at the Annual General Meeting/Open Forum at the WIA Annual Conference Mildura 2012.

Former Director, but still responsible for Government Liaison and the Monitoring Service, Peter Young VK3MV was presented with

the GA Taylor Medal, one of the most prestigious awards made by the WIA, in recognition of his unique contribution to amateur radio.

The Chris Jones Award was presented to Gavin Reibelt VK4ZZ in recognition of his contribution to the Townsville Amateur Radio Club and to the WIA Exam Service and, at the same time, his untiring promotion of amateur radio in his community.

The Ron Wilkinson Award was presented to Dale Hughes in recognition of his work with WRC-12 including as a member of the Australian delegation and his many technically excellent articles published in *Amateur Radio* magazine.

The Al Shawsmith Award for journalism was presented to Justin Giles-Clark VK7TW for his article 'Modern communications technologies - a quick Centenary review and the future', published in the December 2011 issue of *Amateur Radio*.

The *Amateur Radio* Technical Award was presented to James (Jim) Tregellas VK5JST for his articles 'An introduction to stepper motors' and 'Building an 80 metre magnetic loop antenna for your attic', published in the May, July and August 2011 issues of *Amateur Radio*.

The Higginbotham Award was presented to David Clegg VK5KC for his many activities over the years supporting amateur radio, the WIA and the clubs.

In addition to the President's Commendations presented to the WIA's Nominated Assessors reported below, President's Commendations were presented to Neil Husk VK6BDO for his outstanding work in relation to HAM college, Keith Bainbridge VK6XH for his many years of contribution, including his contribution to the Awards program and Onno Benschop VK6FLAB in recognition

of his active participation in many aspects of amateur radio as a newly licensed amateur.

David McAulay VK3EW and Alek Petkovic VK6APK were both honoured by a President's Commendation for their ongoing contribution to the WIA Awards Committee.

WIA's Nominated Assessors honoured at 2012 Annual Conference

The WIA's Examination System relies heavily on its Nominated Assessors, highly qualified Assessors who perform regular audit functions, conduct Special Assessments and other functions and are central to the efficiency and credibility of the system.

The WIA Board had decided to recognise their contribution by awarding each of the 24 Nominated Assessors a President's Commendation.

Five of the WIA's Nominated Assessors, Terry Ryeland VK2UX, Peter Watts VK5ZFW, Trevor Quick VK5ATQ, Eric Van De Weyer VK2VE and Philip Adams VK3JNI, participated in the WIA's Annual Conference 2012 held in Mildura on 25, 26 and 27 May 2012, and were presented with the Commendation.

Terry Ryeland accepted the certificates on behalf of the other Nominated Assessors who were not present.

The other Nominated Assessors are Roger Cordukes VK4CD, Peter Willmott VK3TQ, Ron Bertrand

VK2DQ, Larry Lindsay VK2CLL, Peter Dowde VK7PD, Colin Pomroy VK3BLE, Craig Cook VK3CMC, Lyle Dobbs VK4LM, Trevor Connell VK8CO, Laurie Pritchard VK4BLE, Dale McCarthy VK4DMC, Tony LaMacchia VK2BTL, Ian Ellings VK7QF, Paul Hoffmann VK5PH, Owen Clarke VK3BC, Steve Tregear VK3TSR, Scott Habgood VK2UBQ, Kathi Sumner VK6KTS and Gail Lidden-Sandford VK4ION.

WIA President Michael Owen paid a warm tribute to their contribution to amateur radio and the WIA.

WIA comment

Continued from page 3

Code of Conduct

Recalling amateur radio's proud history as a self regulating user of a unique family of frequencies;

Recognising the value of maintaining the "Spirit of Amateur Radio" so valued by generations past, and

Acknowledging the importance of a continuing justification for access to spectrum and the special privileges enjoyed by radio amateurs:

The Wireless Institute of Australia adopts the following Operating Principles to guide all Australian radio amateurs.

Australian radio amateurs will:

- act with integrity;
- ensure that our station is safe for ourselves and for visitors;
- show respect and courtesy to our fellow amateurs and all who use the spectrum;
- comply with our licence conditions and all laws and regulations that govern the installation and operation of our station;
- strive to promptly resolve any problems arising from the operation of our station;
- be mindful that we should not transmit anything that may cause offence to others;
- strive to improve our technical and operating skills;
- use our skills to assist our community in emergencies;
- promote the benefits of amateur radio to our community, and
- encourage others to participate in amateur radio.



Get on the Air with HF Digital

WIA Member Price: \$30.00 Retail: \$35.00

It is a step-by-step guide that will get you started in the fascinating world of **HF digital technology**.

Written in an easy to understand, conversational style, this book will show you how to set up and operate your own HF digital station.

The text includes instructions for configuring software programs for popular modes such as RTTY, PSK31 and JT65.

You'll also learn about other digital communication modes such as MFSK, Olivia and PACTOR.

Once again, discussion continued amongst friends old and new and perhaps too early for some we arrived back in Mildura to disembark.

The formal events for most concluded with an even more social barbeque at Fergus Park, the home of Noel VK3FI.

I met with the Board on Monday morning to discuss aspects of the work of the Publication Committee prior to departing on my trip toward home.

During my travels to Mildura, I had activated four National Parks and one Summit on the Air (SOTA) summit using the FT-817 and inverted V antenna. The plans for the trip home had a similar theme.

More National Parks to add to my tally of Parks activated towards the Keith Roget Memorial National Parks Award, plus some SOTA summits. The plan was a little loose – basically head towards the south with a meandering route to allow entry into most of the National Parks in the west of Victoria. Then to head back toward Melbourne along the coast.

The end result of the overall trip was that I activated 16 National Parks and five SOTA summits over an eight day period, with three days spent at the Annual Conference in Mildura during those eight days. I thoroughly enjoyed the break from the usual routine.

DX News columnist to retire

I have been advised that John Bazley VK4OQ will be retiring from his role as the compiler of the DX News column in the near future – his last column will appear in the August issue of AR. John has undertaken this role for the past eight years. The Publication Committee thanks John for his outstanding contribution over this period. We are currently exploring options to ensure that the column will continue.

Cheers,

Peter VK3PF



WICEN (Vic) Communications at the Arthurs Seat Challenge

Paul Whitaker VK3DPW - WICEN Event Co-ordinator



Photo 1: WICEN volunteers on the day, (left to right): Phil VK3FDAA, Graham VK3KMG, Ian VK3IFM, Ken VK3HKV, John VK3FR, Les VK3MLM, Ross VK3SF, John VK3CVF, Gerard VK3GER, and Paul VK3DPW was safely behind the camera.

One of the many events WICEN participate in happened on 6 November, 2011. Here is a report of the Arthurs Seat Challenge, from a communications angle. Arthurs Seat is a large hill, about 320 m high, on the western coast of the Mornington Peninsula, about 50 km south of Melbourne.

The Arthurs Seat Challenge is a charity event raising funds for the 'Fit to Drive' teenage driving programme in schools throughout Victoria. It is held every year on a Sunday morning, when roads are closed around Rosebud and Arthurs Seat for approximately four hours. There were more than 2000 participants who sprinted, jogged, walked, crawled and even a couple of babies got pushed in a stroller, from the Rosebud Pier to the top of Arthurs Seat, a distance of nearly seven kilometres, within a two hour time limit. This is the first year that WICEN (Vic) has been involved. Previously, the organisers used mobile phones for safety and logistic communications.



Figure 1: The WICEN banner.



Photo 2: Competitors crossing the Finish line.

We handled various logistic and official messages, made enquiries for the public, and had a lovely time sitting in the shade on top of Arthurs Seat watching LOTS of people 'heaving' and 'sweating' across the finish line! This is one of those events where I have no desire to be on the other side of the fence!

There were no health or safety issues on the day, but Ken had a great time practising CPR in the back of the St John Ambulance! The Arthurs Seat UHF repeater was not operating at its full potential. Operators at checkpoints in close to the hill had difficulty accessing the repeater, so two metre simplex handled the more difficult locations of checkpoints. We had seven checkpoints spread along the course. All the checkpoints used handheld radios, and at the Finish, we set up a two metre portable station using a ground independent antenna on a 10 metre mast, with 20 watts. The pager interference was reduced by choosing a frequency low in the band, and using a low gain antenna. For access into the UHF repeater, Finish only needed a handheld, as the repeater is located 400 metres away.

We used special callsigns for the network. Callsigns such as Start, Point 17 and the like are allowed with the authority of ACMA. Announcements to the effect are made regularly. WICEN do not

need, or have the right to demand, exclusive use of particular repeaters or frequencies. We do however ask for the cooperation of amateurs in minimising traffic on a frequency in use for a WICEN exercise.

We had three Southern Peninsula Amateur Radio Club (SPARC) members involved, with a new F call who proved valuable exercising his CFA skills directing traffic at the roadblock on top of the

hill - onya Phil! - thrown in at the deep end, and swam well!

This is one of many training exercises WICEN conducts in conjunction with community events each year. These events provide WICEN operators with practice passing traffic accurately, and the opportunity to test their portable equipment. It also gives good exposure to amateur radio in the community. If you'd like to participate, contact your local WICEN coordinator. Contact details for Victoria are on our website at <http://www.vic.wicen.org.au>

My thanks to all the operators that participated. Job very well done!



Photo 3: Checkpoint 17, at the start of the climb!



Photo 4: The portable field station at FINISH. The visitor was John Vardanega VK3BCR, also a WICEN member, but working as a volunteer with ROTARY for the day (I think he dropped in to check out what we had to drink!). With Graham VK3KMG and John VK3CVF, our expert logkeeper.

Report on the WIA Annual Conference Mildura

Onno Benschop VK6FLAB

For many arrivals in Mildura the first taste of hospitality was the airport arrival lounge where local amateurs were waiting to provide personal transport to accommodation. After check-in, registration was one stop in a whirlwind of meeting amateurs left, right and centre. Mal Brooks was handing out the registration packs together with a locally grown mandarin and maps to aid navigation through Mildura.

The Friday afternoon was topped off with a visit to the local boutique brewery pub where we sampled some local ales. A brisk walk around the corner and we were on the way to Settlers where the amateurs outnumbered the locals three to one, but they took it in their stride and dinner was on the way in the blink of an eye. The buffet style meal was punctuated by local Balloon Pilot and all-round Scotsman, Alan Cameron who regaled several tall tales, some of which may have had a little help from the local brew. Dinner was accompanied by local musicians who kept up a lively flow of song and music.

Breakfast the next morning was a social affair with amateurs making their way to the central dining hall where all manner of great food was available, and as food goes, Mildura kept up its end of the deal with great food the whole way through the weekend. Afterwards a

quick registration for the AGM - every current WIA member was presented with a blue voting card - not that we needed to vote on anything in the end, but being prepared is always par for the course.

WIA President Michael Owen VK3KI ran a tight ship and after opening the AGM celebrating 102 years of the Wireless Institute of Australia at 09:07 and the acceptance of apologies we stood for a minute silence to acknowledge the silent keys who passed in the last year. 65 WIA members and 55 further Amateurs, two Life Members among them. The minutes of last year's AGM were accepted and the financial report was passed without comment. New Directors were introduced and at 09:13 the AGM was all done and dusted.

Next item on the agenda was the annual awards and President's Commendations.

After the awards, we started the Open Forum Discussion. Discussions were productive

and engaging about many issues close to the heart of Amateur Radio, including several proposals to promote our hobby to new audiences and the future of the club grant scheme. There was discussion about how successful the club grant scheme had been, whether it was too confining in its requirements - one example from the floor was that it should be possible for the club-grant scheme to be used to buy tins of paint because it might well be that this would be the most important thing for a club to spend money on and one member stood to ask for exactly that - having just moved into a hall that needed more than some TLC. During morning tea - which included several nice pastries - several discussions continued on and the topic of promotion of the hobby was discussed.

After lunch we had four technical presentations. We saw a demonstration of Amateur TV, saw satellites launched into space, heard about how audio chirps help determine propagation and saw amazing footage and inventiveness with project Horus.

Pre-dinner drinks were enjoyed by some, but yours truly was putting together the announcement for the conference next year in VK6 and you'll hear more about that in the news next week. Dinner was accompanied by classical music and a classic speaker who had



Photo 1: The participants gathered on the forward decks of the Mundoo after an enjoyable cruise on the Murray. Photo by Robert Broomhead VK3DN.



Photo 2: The top end of a Horus balloon train. See also Figure 6 on page 24. Photo by John Longayroux VK3PZ.

a lifetime in media and commercial broadcast radio and had many tales to tell about radio in Mildura.

For early risers the next morning, there was the opportunity to witness two Horus launches, weather balloons with electronic payloads. One of the launches had a repeater as a payload and many amateurs used it to check-in with VK3WIA.

Meanwhile, the festivities continued on the Paddle Ship Mundoo - where among the food and fun we had a live shack operating the call-sign VK102WIA - try saying that in a hurry. Many amateurs took the opportunity to operate the station and QSOs were had with New Zealand, VK6 and Russia. At several times signal reports were quite strong but some detective work determined that a few hams decided to make call-backs from the boat - anything for a QSL card.

After lunch and a group photo we made our way to the QTH of Noel Ferguson VK3FI who opened up his home and his shack for all of us to be inspired by. A life-time of building is visible in Noel's shack and his attention to detail comes with a dry wit which saw the local bag-pipers come by to annoy the President of the Sunraysia Radio Group. The BBQ was of the same high standard that Mildura offered throughout and it was topped off with a masterfully called raffle, under the auspices of Ray VK3HSR.

And that's how it ended, laughing into the distance. What an experience! Next year we'll have to put on a great show to top this one.

Electronics Enthusiasts

Jaycar Electronics - Better, More Technical



12V Motor Speed Controller

The pulse width modulation (PWM) used in this controller allows you to vary intensity of a 12V device from 0 to 100% with high efficiency. Operating on any 12VDC system at up to 8 amps, the circuitry is fully potted and the control potentiometer is splash proof.

- Size: 95(L) x 47(W) x 26(H)mm
- MP-3209

\$27⁹⁵



0 to 32VDC 3A Dual Output, Dual Tracking Laboratory Power Supply

This power supply is effectively two 0-32VDC 3 Amp power supplies in one case. The two outputs can be operated independently, connected in parallel, or series for multiple output currents and voltages. Displays are backlit and extremely easy to read

- Size: 185(H) x 260(W) x 400(D)mm
- Weight: 10kg approx.
- MP-3087

\$240⁰⁰



3-in-1 Digital Tyre Gauge

Measures tyre pressure in four units (PSI, Bar, Kg/cm², Kpa) and tyre tread depth to know when it's time to change tyres. Features a large backlit LCD display and blue LED light. See website for full specifications.

- Pocket-sized
- Size: 100(L) x 50(W)mm
- QP-2297

\$14⁹⁵



Digital Map Measure with LED Light

Use this gadget to work out the distance between two points on a map or chart. The scale can be adjusted on each map and can calculate the time required to travel the distance at a given speed.

- Backlit LCD
- Size: 23(L) x 35(H) x 5(W)mm
- XC-0374

\$9⁹⁵



Digital Car Power Adaptor - 3A

Offers 7 different DC voltages with 3A continuous output, plus a USB charging output suitable for the latest Smartphones and i-Gadgets. The display provides accurate digital read outs of vehicle's battery voltage, selected output voltage and power used by the load. LCD features selectable backlight colours.

- Size: 98(L) x 57(W) x 17(H)mm
- MP-3673

\$69⁹⁵



3-in-1 Function Heat Blower and Soldering Iron

A handy 3-in-1 unit with flame or flameless heat blower and soldering iron function. Great for general heating, drying, melting, soldering, heat shrinking etc. It features adjustment for temperature control, piezo ignition, child resistant latch and uses butane gas.

- Burning time: 55-95min
- Size: 148(L) x 35(W)mm
- TH-1604

\$29⁹⁵

Conical Tip (TH-1603 \$3.95) & Butane gas (NA-1020 \$5.95) available separately



To order call 1800 022 888
www.jaycar.com.au



The SCRC (VK3KID) play the VK/trans-Tasman 80 metre phone contest

Michael Romanov VK3CMV

Members of the Sherbrooke Community Radio Club (SCRC) VK3KID got off to an early, mid-week start, during the second week of May, commencing preparations on the 10th by packing up voluminous quantities of radio equipment, plus half a ute load of wire antennas, a generator, one nine metre tall aluminium extension mast, and 'Flickee'.

Following much later, after the large ute load of operating equipment arrived on Friday morning, were four carloads of other various, far less important, mere life support items, such as food, clothing and bedding. All of this was for the purpose of undertaking their annual 'Sacred Pilgrimage' event, the VK/trans-Tasman contest.

Members and visitors travelled to Kurth Kiln Regional Park, near Gembrook, for the assembly of a substantial wire antenna farm and portable HF station at the historic, heritage listed, Kurth Kiln Charcoal making camp.

Club president Jim McNabb VK3AMN who shall now, henceforth and hereafter, be officially titled and addressed as 'El Presedente' and new club member Michael VK3CMV commenced assembly of the wire antenna farm mid Friday morning, finishing just before sundown.

Three very substantial wire antennas were hauled skywards, courtesy of 'Flickee' and six of the local 35 metre tall 'mountain ash' antenna supports.

Number one antenna consisted of a full size folded dipole, fed by a 4:1 current balun into a resonant quarter wave 75 ohm transformer section and then another quarter wave of 52 ohm coax into the main operators shack. This antenna



Photo 1: The Kurth Kiln huts in the Kurth Kiln Regional Park.

was aligned by hand compass, broadside to ZL on a bearing of approximately 125 degrees.

The second antenna erected was a single element, square configuration, quad loop with the flat top mounted at approximately 20 metres above ground, fed directly at the centre of the base, by a section of quarter wave 75 ohm coax into another quarter wave of 52 ohm coax running back into the shack. Again, the hand compass was used to align the quad loop, on bearing 90 degrees, giving east/west coverage.

Antenna number three was the ever reliable G5RV, mounted at 20 metres above ground, aligned at 45 degrees, giving broadside coverage to Queensland and other compass points to the north-east.

A local communications link was also established, via a portable EchoLink node, VK3KID/L. The main historic shack became the

'Operating Shack' with members preparing for camping overnight in several of the other smaller shacks also on the reserve.

Club members then very successfully participated in the 80 metre phone section of the contest, logging over 240 contacts during the six hour contest period from 1800 -2400 EST on Saturday. Numerous contacts were made into all mainland Australian states, with excellent signal reports being received. Considerable numbers of ZL contacts were also logged, with the four New Zealand regions being worked.

Marcel VK3FAAJ, John VK3JRB, Jim VK3AMN, Leo VK3FLMR and Michael VK3CMV all thoroughly enjoyed their pilgrimage to the high forest and the 'VK/trans-Tasman' contest. For Leo VK3FLMR it was his very first foray into the battlefield of a phone contest and a real baptism of fire which he handled

with great efficiency. Well done Leo.

Most members elected to camp overnight in the historic timber huts, alternating between huddling around the glowing camp fire drum outside the main 'Operating Shack' and the occasional trip inside to participate, observe the frantic activity at the microphone and the logging laptop, or simply to boil the kettle for a regular cuppa, and recharge with essential nourishment, in order to keep the very chilly evening conditions at bay.

Sunday morning saw many bleary eyed faces emerge from the huts to make breakfast and then gradually disassemble the station and wire antenna farm, in-between the persistent rain showers. Members departed late morning for their various homes all having enjoyed a great weekend.



Photo 2: Michael VK3CMV and Leo VK3FLMR at the VK3KID operating position.



www.ttssystems.com.au

Phone: 03 5977 4808 Email: Info@ttssystems.com.au

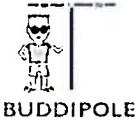
Your Australian reseller for:

YouKits

New Products coming soon

AVAILABLE NOW

- Hard Drawn Copper Wire, Insulators, Dipole Centres
- Open Wire Transmission Line, Spreaders, Kevlar Guy Line
- Spiderbeam Fibreglass Poles, Baluns and Switches



BUDDIPOLE



ELECTRONICS



...America's Best!



- Meanwell power supplies
- Diamond products
- Daiwa products
- Technical books
- Amidon products
- Custom cables made to order



Will be at the Albury/Wodonga Hamfest – 29 July 2012



VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC



Photo 2: The tuneable snout by VK3FGRL.

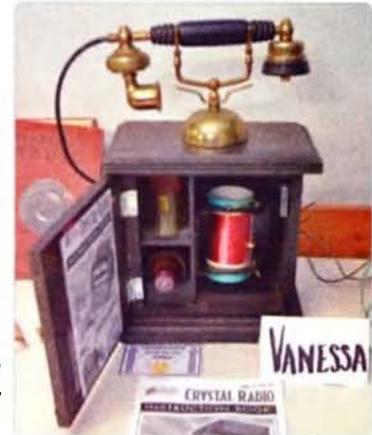


Photo 3: In a replica telephone stand, by VK3FUNY.

Photo 1: From left to right - Dallas VK3DJ who built a crystal set almost entirely from car parts, Derek who demonstrated his grandfathers original crystal set, Courtney VK3FGIR whose crystal set was tuned by rotating the pigs snout coupled to a multi tapped coil, David VK3QM with his 'bread board' crystal set and Bert VK3TU with his toggle-tuned crystal set.

Crystal Set Construction Night

The awards night on 27 April provided ample evidence that in spite of the enormous commercialisation that abounds within amateur radio it is still possible to generate interest in the construction of the most basic of communication devices – the crystal set.

The evening was a resounding success and stemming from this it is planned for more evolutionary jumps from the crystal set into further competitive construction forays involving the 'forgotten' technologies from all our yesterdays.

The full set of equipment entered can be found on www.vk3atl.org within the *crystal set* link provided. But Photos 3 and 4 show a couple of the more bizarre entries from the many and varied crystal sets offered up.



Photo 4: Part of the audience in the clubs presentation room, with the exhibits on the right hand side table.



VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/

Congratulations to Rex VK7MO and Alan VK3XPD who established the first VK 10 GHz EME digital record. This contact proved that a small portable field day type station can successfully complete a 10 GHz digital EME contact when lunar libration is low.

Over the Queen's Birthday long weekend in June there was an event of national significance happening in St. Helens in NE VK7. No, it wasn't the Queen's Diamond Jubilee, it was the Tom Quilty National Equine Endurance Championship. The weekend saw well over 100 horses, riders and support crew ride a 160 km course in and around the bush of St Helens over a 24 hour period. At the time of writing this column 32 registered communications support people were heading to NE VK7. This was made up with 20 from WICEN South, five from CCARC, five from NTARC and two from the Land Rover Owners Club of Tasmania. The 160 km ride is made up of five legs of decreasing length with 13 checkpoints at six different locations. I am sure there will be an article on this national event in a future AR magazine.

Cradle Coast Amateur Radio Club

Dave VK7EX lets us know that CCARC have been busy with preparations on their VK7RMD Mt Duncan two metre repeater refurbishments. The deep cycle batteries, wiring and controllers are all being replaced. This repeater is only accessible by walking up a steep heavily wooded slope or by helicopter and deep cycle batteries are not something you want to have to carry up those



Photo 1: Atop Mt Duncan are Steve VK7NZL, Winston VK7EM, Dick VK7DIK and Chris VK7KEE. Photo courtesy of Winston VK7EM.

slippery bush tracks! Four very dedicated amateurs lugged the battery retrieval crate to the top of Mt Duncan and made all necessary changes and upgrades in readiness for the day the helicopter delivers the new battery box and takes the old batteries away. A great big thank you to our resident mountain men, Steve VK7NZL, Winston VK7EM, Chris VK7KEE and Dick VK7DIK.

A reminder that the WIA and VK7 Regional News broadcasts are rerun every Tuesday night from 8.00 pm from Mt Duncan on 146.625MHz by Winston VK7EM, with call backs.

Northern Tasmania Amateur Radio Club

Congratulations to Frank VK7BC who received his IOTA 800 Islands Award from the Radio Society of Great Britain. This is a first for a VK

station and one of only two going to the Oceania region. Frank also claimed the Worked All Antarctic Directory Award for working all 28 Antarctic bases and Frank is only the second recipient in VK. Congratulations also to Peter Dowd VK7PD on his recent retirement and his WIA President's commendation for Nominated Assessor.

Brendan VK7FESQ, Joe VK7JG and Peter VK7PD ventured up to the VK7RBH repeater atop Ben Lomond, at 1570 metres, and found the antenna on the ground and the mounting pipe snapped. The wavelength of the pin of the N-type connector unfortunately did not match the 433.050 MHz input frequency resulting in a distinct lack of sensitivity! A quick rearrangement to the mounting and new heliax and the antenna and repeater were back in operation.

NTARC's May dinner meeting was very well attended and by all accounts the presentation by colleague and fellow astronomer Martin George on Grote Reber's life and research was excellent. A quick reminder about NTARC's informal coffee mornings each Monday and Friday at Friends Cafe in Jimmy's complex in Charles Street, Launceston, where the start time is 10.30 am.

Radio and Electronics Association of Southern Tasmania

Congratulations to Ian Ellings VK7QF on his WIA President's commendation for Nominated Assessor and also congratulations to our four new Foundation licensees Lee Kuskopf, James Leech, Tony Hills and Andrew Oosterkamp who recently passed their assessments and at the time of writing are awaiting their call signs.

REAST's May presentation was a focus on RF, GPS and transport which was entitled Planes, Ships and Automobiles (+Horses)! Thanks to Tony VK7VKT and Rex VK7MO who talked about ADB-S aircraft

Silent Key Mark Finlayson VK7FMD

I have to inform you that Mark VK7FMD died on Monday night, 14 May 2012 after retiring for the night. He had that night done a lighting design job for the Uni Review.

He was a harmonic of Rod VK7TRF, son of mum Jan, brother of Scott VK7FSCO and sister Alice, and a much loved uncle of two. He was aged 33.

While not very active on air, Mark had a keen interest in things electronic, and theatrics, but lighting design/operating was his forte, being a member of the Hobart Repertory Theatre. Other interests included digital

photography, 4WD, radio (both amateur and volunteer public stations) and assisting with TARGA when his very busy schedule permitted. He also had his own public address and lighting gear.

Although having three diplomas, he was doing a part-time course at university, as well as working for Staging Connections.

His family will miss him intensely.

Vale Mark.

Submitted by his Dad, Rod VK7TRF.

tracking with practical application for aircraft scatter. Thank you to Andrew VK7AW who gave a detailed presentation on AIS for ship tracking. Thanks also to Roger VK7ARN and Scott VK7HSE for completing the trifecta with a

presentation on APRS and how it is used for vehicle as well as horse tracking. The presentations have been recorded and will be in the DATV video library very soon.

Over to you

A digital Amateur Radio?

In your June editorial, you note that you have received little feedback about making *AR* available electronically.

I've had very little opportunity to read *AR*, because I read very little in the way of paper these days. I read in between meetings, on public transport, in the air and in bed. I don't carry all the magazines I want to read with me everywhere - instead I carry my phone. An electronic version of *AR* would be extremely welcome.

I'd like to ask that in preparing an electronic version of *AR*, a few things are considered. Likely there will be a call for applying DRM, or Digital Rights Management, the ability to protect content against being copied by unauthorised people. On the face of it, this might sound reasonable, but dig a little deeper and you'll soon realise that DRM has no place in amateur radio or society. Specifically, we're a community of people sharing ideas. Imagine that 50 years from now you're confronted with an electronically locked version of *AR* that cannot be used because the key has expired, or the software used to lock it is no longer used. DRM solves a problem that doesn't exist. It's from the accounting mind of Hollywood, not from any member of society who wishes to share information.

Furthermore, I'd like you to consider people who use screen-readers, people who currently are unable to actually read *AR* at all. Creating a PDF is a quick

solution, since production generally revolves around PDF files, but you might consider publishing the content as simple HTML pages on a website instead, making it possible to re-use and re-purpose content. Perhaps you might consider a creative commons licence for the content. The simple truth is that we don't know how people might re-use this information. For example, I can make my phone generate text to voice and listen to articles while I'm in the car - who knows what other ideas people might have.

Finally, I can imagine outcries about "giving away our content" - advertisers pay for distribution, eyeballs. Authors want to share their story. Making content scarce or inaccessible is not in the interest of amateur radio. Distributing electronic copies can be all but free, spread the information far and wide and attract people from around the world. If 1% of 1000 people become members of the WIA, we have 10 new members, but if 1% of 1 million people become members, we treble our membership.

If all that a WIA membership represents to a member is *AR* magazine, we have bigger problems. In closing, if cost reduction associated with printing less copies is negligible, I'd like my paper copy of *AR* to go to my local library instead, otherwise, don't print one for me, there are enough dead trees in my office as it is.

Onno Benschop VK6FLAB



VK3news Amateur Radio Victoria

Barry Robinson VK3PV
e arv@amateurradio.com.au
w www.amateurradio.com.au

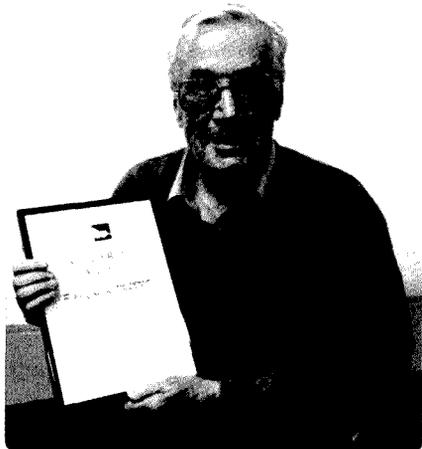


Photo 1: Peter Cossins VK3BFG with his Life Membership certificate.

More on the AGM

We had two surprise presentations at the recent Annual General Meeting. The first was a Life Membership bestowed on Peter Cossins VK3BFG for meritorious service mainly to do with but not confined to amateur television. A report of this occasion and the annual reports from the President and Treasurer in summary form were included in this column last month.

The second presentation went to Jim Linton VK3PC for an outstanding contribution to amateur radio. It was noted that he was already a WIA and ARV Life Member. His contributions are too numerous to mention, but here are a few of them.

Jim VK3PC had a lot of input into the nationalisation of the Wireless Institute of Australia. He has written many articles for *Amateur Radio* magazine and our national broadcast items, and presented them as well. When the new licensing scheme started he was one of the first instructors and assessors. He formed the Standard Licence course with Kevin

Luxford VK3DAP/ZL2DAP. His has worked for special events such as the Centre Victoria RadioFest, the WIA centenary, the 100th anniversary of WIA Victoria and the VK100ARV events as well as input into the lighthouse weekend held at Williamstown, and the list goes on.

The past 12 months have been very hard for him. But with his mental fortitude he is battling through and is on the improve, and promising a lot more input to the amateur radio hobby.

A long serving President of WIA Victoria and Amateur Radio Victoria, it is with great pleasure that the Council of Amateur Radio Victoria presented this commemorative trophy. On this occasion he was recognised as being the President from 1983-1986 and 1988-2011 and in being involved in all its affairs over the years.

It was a very surprised and humbled Jim VK3PC who accepted the award presented on behalf of the Council of Amateur Radio Victoria. In accepting the award



Photo 2: Jim Linton VK3PC displays his Service Award.

he described it as coming as a surprise and was humbled by the experience. He also acknowledged the presence of former councillors John Adcock VK3ACA and Derek McNeil VK3XY, along with several current councillors, and members.

We show what the hobby has to offer

Amateur Radio Victoria was again portable at the Timeball Tower at Point Gellibrand Coastal Heritage Park in Williamstown for the WIA National Field Day. We had decided to participate in the WIA National Field Day this April on Saturday rather than the usual Sunday due to a number of participants having prior commitments. Terry Murphy VK3UP had his very nice caravan set up with tea and coffee on call together with an array of transceivers for all bands HF, VHF and UHF.

Of particular note was the fairly tall multiband HF vertical which worked very well at that location. As an added bonus a dipole on 40 metres was set up from the top of the tower in inverted vee configuration. An assortment of VHF/UHF antennas completed the ensemble. Helping out on the day was Ian Downey VK3XID, Wayne Bruce VK3VCL, Barry Robinson VK3PV, Tony Hambling VK3VTH and Peter Cossins VK3BFG.

Quite a few contacts were made on a variety of frequencies and Peter VK3BFG had his DVB-S television transmitter set up on 1255 MHz and kept Melbourne abreast of the activities with live and recorded interviews transmitted via VK3RTV1 throughout the day.

The site was made available through a permit from Parks Victoria, and one of its rangers

visited for a considerable time seeing the facility was well used and visited. We were also visited by WIA Director Phillip VK3JNI who is in charge of the weekend and was to visit a number of sites. He was most impressed by our set-up and operation.

The day was very successful with a number of interested people coming over to see amateur radio in action. One lady and her son both had conversations on two metres and time will tell if they and others join the hobby. In all VK3WI had about 125 contacts plus the frequent updates through the VK3RTV DATV repeater on Mt Dandenong.

In the name of KRMNPA

A group of radio amateurs have been able to activate the Wilsons Promontory National Park during a weekend of hiking to the Roaring Meg camp. They were Peter Fraser VK3ZPF, Wayne Merry VK3WAM, Kevin Bedford VK3KAB, Trevor Bedford VK3ATB and Glenn Sneddon VK3YY.

Very keen was Wayne VK3WAM who headed off before the rest of the team and was soon busy setting his antenna which was a vertical with eight radials and tuner. Glenn VK3YY used two random lengths of wire and a tuner while Peter VK3ZPF relied on his now standard switchable inverted vee antenna. In the March activation the team used three battery-powered Yaesu

FT-817s and made QSOs across the HF bands on SSB and CW. At the end of the trip they had made a total of 65 QSOs. Despite their best efforts they could not get beyond VK or ZL. Very strange they didn't work any VK4 stations, but there is always next time. Full details of the KRMNPA can be found at <http://amateurradio.com.au/awards>

From HMAS Castlemaine

On this museum ship in Williamstown is our station VK3RAN, and it was active during the ANZAC Day in support of the AM/CW on air event and to support the regular volunteers and public. The Event Leader Terry Murphy VK3UP tried out the Terlin Outbacker multiband mobile whip antenna mounted above the bridge. The VSWR was quickly adjusted to 1.1 to 1 on 40 metres. A check of 20 and 15 also showed a low VSWR and it was assumed to be low on the other bands. It proven to be quite impressive but the local industrial noise was still a problem and at times was 10 dB over S9.

Terry VK3UP quickly suspended his old faithful 40 metre inverted vee from a halyard and that dropped the noise by about 2dB and increased the on air performance by about the same. After operating on 40 metres using both the Terlin and the dipole, with only 100 watts, 20 metres was tried and immediately a Mexican gave VK3RAN a 5 by 9. The Terlin should work very well on

20 metres in the future! Considering the size of the ground plane sitting in the water, a night-time session from the ship is being considered. In excess of 100 contacts were made on the day. Both the crew of HMAS Castlemaine, and Amateur Radio Victoria, deemed the day a total success. We eagerly look forward to future participation in the ANZAC Day event.

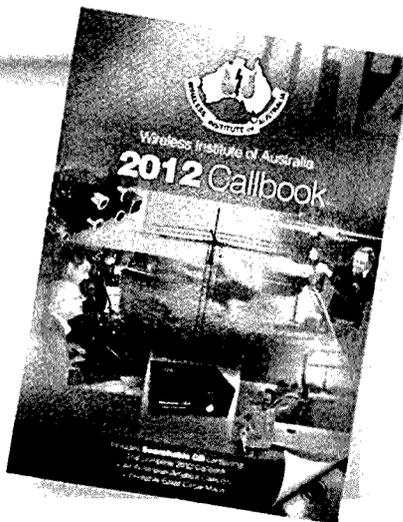
The operators on the day were Peter Cossins VK3BFG, Barry Robinson VK3PV, Wayne Bruce VK3VCL, Jeff Swaby VK3HJA and Terry Murphy VK3UP. John Kessner VK3ATV also dropped in for a visit. The main operation was on SSB but occasionally moved to AM and worked a few local and interstate stations. We hope to restore a dedicated AM transceiver in readiness for next year.

Next class session

Enrolments are open for the Foundation licence session to be held on July 21 and 22. For enrolment into the training, assessments or for more details contact Barry Robinson VK3PV via email at foundation@amateurradio.com.au or telephone 0428 516 001.

Our recent Standard Bridging Course, again under the tutor Kevin Luxford VK3DAP/ZL2DAP, saw all seven candidates successful and they are now enjoying their new operating privileges and callsigns.

Is your
Callbook
current?



The WIA
2012 Callbook
is now available
www.wia.org.au/bookshop

Contests

Phil Smeaton VK4BAA
e vk4baa@wia.org.au

Welcome to this month's Contest column.

WPX CW Contest 2012

Well, what can you say about this contest this year? Simply put - phenomenal. Well, depending where you were, as always. Much of the planet saw 15 metres burst open to allow all manner of DX to be worked. With the band in this condition, a yagi can often be considered to be a disadvantage as signals are arriving at the antenna from all around the world simultaneously. VK stations reported LP and SP openings at the same time, with the familiar echoes to be heard. 10 metres decided not to play as hard as 15 metres, unfortunately.

Vlad VK2IM fell just short of 2000 Qs and six million points and was kicking himself for missing EU openings on 20 and 40. The LP opening to EU on 20 was good, but EU were more interested in NA than VK.

Steve VK3TDX was active, but suffered from a Murphy attack in the shape of a dodgy 15 metre trap on his antenna. Steve reported noise-free 40 metre and 80 metre bands in VK3 and he wasted no time in capitalising as quickly as he could to bag almost 1300 Qs in total for a claimed score of just under 2.7M.

Mirek VK6DXI used his remote station during the contest for the first time and he already has a long list of station improvements. Mirek netted 1876 Qs for a claimed score of just over 4.9M points.

Patrick VK2PN was operating on 'DX-pedition' mode as VK9PN. Patrick also found 10 metres to be a hard slog, with 20 metres and 40 metres being the money bands. The guys got 1444 Qs into the log for a claimed score of just under 3.5M points.

Contest Calendar for July 2012 – September 2012

July	14/15	IARU HF World Championship	CW/SSB
	21/22	CQ Worldwide VHF Contest	All
	28/29	RSGB IOTA Contest	CW/SSB
August	4	TARA Grid Dip	PSK/RTTY
	4	Waitakere (NZART) Sprint	CW
	4/5	10-10 International QSO Party	SSB
	11/12	Worked All Europe	CW
	11/12	Remembrance Day Contest	CW/SSB/FM
	25/26	ALARA Contest	CW/SSB
Sept	1/2	All Asian DX Contest	SSB
	1/2	Region 1 Field Day	SSB
	8/9	Worked All Europe DX Contest	SSB
	29/30	CQWW RTTY DX Contest	RTTY

Note: Always check contest dates prior to the contest as they are often subject to change.

For John VK4CT/VK4EMM the contest was an absolute hoot. From the horse's mouth: 'If you are thinking about getting started in radio contesting, there has never been a better time.'

Band conditions during the CQ WPX contest was the best that I have experienced in all my years of contesting. Participation is in a growth spurt – in VK/ZL and 'the rest of the world'. I expect these conditions to continue through the peak of the current solar cycle – hopefully for the next two or three years. Band openings on 15 metres were remarkable, with virtually all global paths open during our afternoon and morning sessions. Under these conditions, the antenna for me is a simple dipole favouring Europe. My 15 metre dipole worked South America, Europe and Russia on the long-path at the same time as JA on the short-path. The orientation of my dipole also picked up strong signals from North America. A quick switch to a Yagi antenna picked up the weaker signals from North America. For my efforts with a dipole, the 'run rate' was splendid for two hours in the afternoon session and one-hour in the morning session –

with callers coming from virtually 'everywhere'. A message here for beginners is that a 'single-band' 15 metre entry is a good way to get started using a dipole antenna – the higher the better. Another remarkable experience on 15 metres was a complete great-circle path opening from VK4 to VK4. For at least an hour, I clearly heard the last letter of my call as soon as my transceiver switched to receive mode. When I first heard this effect, I thought someone was beginning to respond to my CQ call. No – it was my 'T' coming back. This global path opening was clearly evident when I listened to VK4FJ. No doubt, the use of a dipole helps to recognise a global path opening. The downside in these circumstances is the echo effect. High speed operators are almost unreadable.

An easy way to get started in radio contesting is to contact a team of multi-operators or a single operator who may be interested in a 'multi-single' or 'assisted' entry. You will find a list of VK and ZL contesters who entered a range of categories in CQ WPX contests by visiting the CQ WPX website: <http://www.cqwpw.com/claimed.htm?mode=ph>

The link takes you to the CQ WPX SSB and CW contest 'raw' scores. Raw scores are the claimed scores prior to log checking.

For a comprehensive list of 206 VK contest operators visit:

http://wrtc-rank.com/ctyrank.php?rank_type=claimed&cty=VK

For a comprehensive list of 68 ZL contest operators visit:

http://wrtc-rank.com/ctyrank.php?rank_type=claimed&cty=ZL

Australia's participation is well represented at number 24 out of 206 countries in the World Radio Team Championship (WRTC) events scheduled in 2014. If you are thinking about getting started, stop thinking about it and 'just do it'.

Couldn't put it better myself. Thanks John.

Changes in WRTC Rules

Following on from last month's (very) brief glimpse into WRTC and its workings, this month sees a slight tweak to the rules.

Originally, WRTC operated as a 'sort of' SO2R type of approach, but with one operator running one station and the other searching for mults or as many new stations as possible and only one signal on air at any one time. The latest rules appear to twist that slightly, stating that the contest is a full Multi-Operator Two-Transmitter type operation (so two simultaneous signals are permitted) but that the only limitation is that each radio must transmit on a different band regardless of mode.

If this rule alteration is indeed the case, the WRTC takes a new approach as M/2, changing the required strategy and decision making format from before. Two stations could indeed be running, but I suspect that the winning formula will be one station permanently running and at some stage a decision has to be made as to when to make the second station stop running and start an S&P approach for multipliers. Without this formula being correct, winning

will be more of a hard slog than usual.

However, the selection criteria for WRTC used to allow potential entrants to mix and match single operator and M/2 activities to maximise their WRTC qualification score. The selection rules for 2014 then reduced the points available for M/2 in relation to M/S – which made sense as WRTC was similar to the M/S approach of operating as regards just one signal on the air. These new rules for the WRTC event itself seem to wriggle back somewhat, in that the event appears to be more M/2 than M/S but the qualifying selection points reflect the M/S format still.

The whole process is an interesting creature anyway, in that half of the participants qualify for attendance whilst the other half of the entrants do not. So, it is possible that if you're the Top Gun CW operator of wherever you happen to live, then you might be asked to be the team member of whoever qualifies year after year –

and never actually have to qualify at all. Could you imagine the Olympics taking the same stance, with half of the VK team being athletes and the other half not?

It seems to me that a competition would be made up of only those who have personally qualified to be there and by doing as close to as possible what would be expected during the completion. To limit Multi-2 submissions and then turn it into a M/2 contest is ironic. Surely, everyone who competes should have earned the right to be there and what they are doing competing should as closely resemble what got them there as possible. Maybe, the thinking is that the qualifying logic still fits the new format because you qualify as an individual and then pick your teammate - thus putting more emphasis on individual performance for qualification purposes.

Maybe WRTC should be a single operator event and allow SO2R? Making WRTC single operator would

ARRL 2011 10 metre contest results

Callsign	Score	QSOs	Mults
VK4CT (VK4EMM, op)	1,470,016	1,838	223
VK4UC	171,936	527	144
VK4ATH	21,080	156	68
VK4LAT	261,632	1,035	128
VK4NDX	25,668	191	69
VK2HBG	7,120	91	40
VK4BAA	6,624	95	36
VK5AKH	3,190	55	29
VK4FJAM	986	29	17
VK6GD	504	18	14
VK4FATT	336	14	12
VK3AVV	37,556	234	82
VK3GK	36,656	232	79
VK4GH	4,320	56	40
VK2BO	1,406	38	19
VK2PN	90,000	307	75
VK4TT	46,176	148	78
VK3FM	27,940	128	55
VK4DX	17,908	122	37
VK4IU	32,648	158	53
VK4WIL - (VK4HS, VK4MN, VK4QH, VK4SN ops)	1,321,672	1,857	253
VK2GGC - (VK2SJK, VK2MOR, VK2ZMT ops)	156,468	671	118
VK4IZ - (VK4DJH, VK4PDR, VK4TJF, VK4NUT ops)	72,590	348	85

make more sense but it would limit fun from the current 100 to 50 competitors.

Looking at operators trying to qualify around the planet, in some areas it's almost impossible to do so without a serious team behind you. Many seem to be part of teams and participating in major contests as a serious multi operator team member and mostly using 800 point contests for single operator entries. Anyway, in the end, the main thing is to have fun and to create a competitive environment for the participants.

ARRL 2011 10 metre contest results

The long awaited results are in. The band came alive and records tumbled. Peter VK4LAT achieved 14th in the world for his category and VK4ATH set a new Oceania record for his category. The team at VK4WIL kept their crown for another year, but there are rumours of 'others' hoping to give the guys a run for their money in 2012. For casual and serious entrant alike, room was hard to find at times – astonishing when you

consider the bandwidth available.

Congratulations to the VK stations who got into the results table on previous page.

If you have any contest related material for inclusion within the column, topics that you'd like covered or even some experiences and pictures you'd like to share, then please feel free to get in touch via vk4baa@wia.org.au

See you on the bands.

73 de VK4BAA



The 32nd ALARA contest, 25/26 August, 2012

Lesley Smit VK5LOL

Note: The contest is always on the last full weekend of August.

Eligibility

All licensed operators throughout the world are invited to participate. Also open to SWLs.

Object

Participation: YL works everyone, OMs and clubs work YLs only. One contest (combined phone and CW) run over 20 hours.

Times

Saturday, 25th August, 2012 at 0400 hours UTC until 1359 UTC, then continues on Sunday, 26th August, 2012 at 0400 hours UTC until 1359 UTC.

Frequencies

Bands to be used are 3.5, 7, 14, 21 and 28 MHz only. The following are suggested frequencies for easier location of contacts:

28.380 to 28.410; 21.170 to 21.200 and 21.380 to 21.410; 14.250 to 14.280; 7.070 to 7.100 and 3.560 to 3.590.

Operation

Single operator only (one operator per call sign). NB: If YL is operating as a 2nd operator her husband/partner cannot participate in the contest. Every individual phone or CW contact may be counted.

There must be an interval of greater than one hour between contacts with any one station on any one band and in the same mode.

No net or list operations. No cross-mode operations. No cross-band operations.

All contacts must be made in accordance with operator and station licence regulations.

Procedure

Phone: call "CQ ALARA CONTEST".

CW: YLs call "CQ TEST ALARA" OMs call "CQ YL"

Exchanges

ALARA member: RS or RST, serial number starting at 001, ALARA member, name.

YL non-member, OM or Club: RS or RST, serial number starting at 001, name and whether Club station.

OMs, clubs and SWLs work YLs only.

Scoring

Phone: 5 points for ALARA member contacted

4 points for YL non-member contacted

3 points for OM or Club station contacted

CW: All contacts made on CW count for double points

OM, SWL & Club: 5 points for ALARA member logged, 4 points for YL non-member logged

Logs

Single log entry. Logs must show date/time UTC, band, mode, callsign worked, report and serial number sent, report and serial number received, name of operator of station worked, whether it is a Club station, and points claimed.

Sample Log

Date UTC	Time UTC	Band MHz	Mode	Callsign	RS(T) & Serial No. Sent	RS(T) & Serial No. Received	Name	Points
25/2/12	0135	28	SSB	VK6DE	59001	58028	Bev	5
	0141	21	CW	VK3KS	599002	599045	Mavis	10
	0600	14	SSB	FK8FA	59025	59011	Aimee	5
	1103	3.5	SSB	VK3BSP	59130	59006	Joe (Club)	3

Logs must be signed.

Logs also to show full name, callsign and address of operator, and show final score (points claimed). Logs must be legible. No carbon copies. No logs will be returned. Decision of the Contest Manager will be final, and no correspondence will be entered into.

Logs must be received by the Contest Manager by 30th September, 2012.

Contest Manager: Lesley Smit
VK5LOL,

4 Perry Barr Road,
Hallett Cove, SA 5158,
Australia.

or to alaracontest@wia.org.au

Certificates will be awarded for the following:

- Top score YL overall
- Top score YL phone only
- Top score Australian YL CW
- Top score DX YL
- Top score ALARA member in each country and VK call area
- Top score OM in each continent
- Top score SWL in each continent
- Top score VK YL Foundation Licence holder
- Top score overseas YL CW
- Top score VK Club station

A trophy will be awarded to the following:

- Top scoring Australian YL
- Top scoring Foundation Licence ALARA Member

- The top scoring VK non-ALARA member will be awarded one year's membership to ALARA.

Club Stations

Operators of Club stations may use the Club call only for contacts, and MUST identify each contact as with a Club station. Use of personal callsigns while operating as a Club member is not permitted. A Club station will be recognized as such whether operators are YL or OM. If the Club call is used, the score will be as a Club station.

Please Note: This contest is always held on the last complete weekend of August.



Silent Key

John Stacy VK2JT

Sadly, John Stacy VK2JT became a silent key on 11 May 2012. Among John's passions were amateur radio and photography and he was a well-respected member of HADARC and his local Probus club. John was a keen DXer and made friends in the amateur radio community around the world. He was known as 'Jolly John' due to a friendly and optimistic nature. John was a professional engineer and in recent times John's assistance was invaluable in the mechanical design of the masts for HADARC's Chatswood repeater project. John will be remembered by HADARC members for the presentation on this project that he gave to a club meeting. John had suffered ill health for some time but continued to be optimistic till the end.

As mentioned, John VK2JT had made friends in the amateur radio community around the world. The following tribute was received from John's DX friends: A decade ago, Eric Rogers G3MWN, operating from his amateur radio station in south Yorkshire, England, put out a general call on the 20 metre band and was greeted by a cheery, 'Hello G3MWN this is VK2JJS calling you'. This was the start of a long friendship and countless, almost daily radio contacts with one John Stacy of Gordon, NSW. John's callsign eventually changed to VK2JT but the person remained the same cheerful, jolly and remarkably courageous one who made that first call so long ago. It was not long before other UK radio amateurs in Ted Holmes G4TLY, Peter Day G3PHO, John Lee G0OPA, Gordon Holdom



G4SVU and Ron Barker G4JNH joined Eric in both morning and evening conversations with John. The regular 'net' that developed saw these radio contacts develop into personal friendships as Ted, Peter and Ron met up with John and Ailsa during trips to Australia while Eric and John had the pleasure and privilege of showing the couple some of the UK during their holiday a few years ago. It was not long before others joined in these short wave chats... Boris Nikitin UA3MCJ in Central Russia and Ron Dower VK3UZZ in northern Victoria popped in regularly.

It was plain to all of us that John was a special person, a real gentleman in fact. This attribute was obvious from the on air contacts but was even more so to those of us who met him in person. Peter Day G3PHO and his wife Judy have very happy memories of their stay at Rosedale Road in 2008 when John and Ailsa arranged a wonderful three days of visits, dinners and sightseeing. John seemed to really love coming on the radio to speak to us or send us emails with samples of his photographic work so it was a very sad time

indeed when he told us of his daughter Helen's illness and subsequent passing. This alone would have been enough to crush the enthusiasm for life from any one of us but John maintained his forward looking and positive attitude, the same attitude that carried him through years of personal medical problems. He did not like things to stop him enjoying life and, in particular, his family. He greatly valued his radio amateur friends, both in Australia and overseas.

We will all miss his cheery voice very much indeed. Our hobby is much the poorer now that he is gone from the airwaves. To John VK2JT we would like to wish a final '73' and '55' which, in the radio amateur Morse code means 'best wishes' and 'peace be with you'. To his loving and supportive wife Ailsa we send our '88' (love and kisses) and hope that the coming weeks will see the sadness ease. We know she has a lovely family to help her through this difficult time.

It has been our privilege to know John Stacy.

A tribute from members of Hornsby and District Amateur Radio Club (HADARC) and John's friends from around the world, and contributed by Eric Rogers G3MWN, Ted Holmes G4TLY, Peter Day G3PHO, John Lee G0OPA, Gordon Holdom G4SVU, Ron Barker G4JNH, Ron Dower VK3UZZ and Boris Nikitin UA3MCJ, and John's fellow HADARC members.

The April meeting was another very interesting meeting. We were addressed by Paul VK5SL about some of the interesting problems he has had to deal with in his work life and how the solutions can apply to amateur operation.

The first problem was in a government building in the CBD in which the people were finding that they had trouble getting good signals from any of the broadcast radio stations, (which they needed as part of their work) including those of the ABC. It didn't seem to matter where in the building they were working, the problem remained.

The solution, after some paper problem solving was to improve the earthing of all the electrical and electronic equipment. A number of heavy earth stakes were driven into the ground in the basement which then were all joined to a common earth inside one of the columns of the building. Then on each floor all electrical and electronic devices were linked to the common earth. The result was more than expected. All the local radio stations were received loud and clear and even some of the regional stations across the gulf were heard.

In another building, whenever a telephone hand piece was lifted, the current radio program came through loud and clear. The solution this time was the same. A common earth was introduced and all equipment was linked to it. Problem solved. Since then Paul has adopted the mantra 'earthing, earthing, earthing'. He advises all amateurs to do this with their equipment. He also recommends isolating the aerials from the roof with ferrite beads.

Next Paul gave us a warning from his own experience in his own house. Sometime after the house was rewired he had cause to go

up into the roof space to find that due to a fault in the plastic or the plasticiser used on the wires, he found terminals on some of the junction blocks exposed ready for an unwary hand to land on them. He suggests that we be careful where we put our hands on the wiring.

The last part of his talk concerned some of the problems the Government had after they sold the Radio Australia stations at Shepparton to private enterprise. The government still had to check that there was no extraneous radiation from the aerials. They had to measure the strength of the signals at certain distances and heights from the source.

A number of possible ways to make these measurements were considered (poles, helicopters, and blimps) and the best was found to be using a tethered balloon. In the long run a local manufacturer made the balloon, rather than importing one from overseas at a far greater cost. It must have been quite a sight for the local people to see this balloon hovering over the field in front of the antennas, but the result of the measurements was very accurate and repeatable and until it was decided there was no need to continue measuring, this was the means used. The antennas were found to be behaving perfectly and no danger to the public was ever detected.

Paul has also been experimenting at home with a possible replacement for his beam antennas, in view of the problems of climbing towers as ones joints become less pliable. He is suggesting a system of slope wire antennas from a unipole. We may hear more of this in the future if Paul puts pen to paper in *AR*.

COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$265
6 m vertical 5/8 with radials	\$169
20 m confined space beam 3 el.	\$469
20 m 5 el. Yagi 12.2 m 1 boom	\$995
M B vert 6, 10, 12, 15, 17, 20, 30, 40 and 80 m Auto switch between bands	\$360
40 m lin load 2 el. cap hats	\$705
6 m 7 el. 6.8 boom bal feed	\$456
23 cm 36 el. 2 m 1 boom n-con	\$249
70 cm hi/gain Yagi 3 mtr boom	\$170
2 m 5 el. hi/gain Yagi beam	\$149
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$319
Log-periodic 9 el. 8.4 m boom	\$1194
2 & 70 combined beam 1 feed	\$285

Guyed masts 13 or 21 metres

Winch up, tilt-over, aluminium and stainless steel three sided construction. Auto brake winches.

115 John Street
Glenroy VIC 3046

Phone
0419 542 437

Introducing Project Horus: High altitude ballooning in South Australia

Grant Willis VK5GR, Matthew Cook VK5ZM, Mark Jessop VK5QI and Alan Kovacs



Figure 1: South Australia from 'Near Space' - Horus 12.

Photographs and diagrams by Scott Testi VK5TST, Mark Jessop VK5QI, Alan Kovacs and Grant Willis VK5GR.

Where did Project Horus begin?

In late 2009, Terry Baume VK5VZI and a group of friends hit on the idea of flying a weather balloon carrying a camera into 'Near Space', after watching a video of the successful attempt by some students from the Massachusetts Institute of Technology (MIT). Near Space is defined as the region of atmosphere between 20 km and 100 km, after which 'Space' proper is deemed to start.

The MIT students, under the project name 'Icarus' used a GPS connected to a cell-phone to track and recover their balloon. Terry and his friends back in Adelaide thought 'well, if they can do it, why can't we?' and so the journey began.

At first, the plan was to replicate what had been achieved in the USA. Terry made contact with the Icarus

group as well as the Cambridge University Space Flight club (CUSF) in the UK to learn more. An assessment of the MIT and CUSF projects was made considering what was repeatable here.

Not long after, Project Horus was born, named after the Egyptian god of the sky. This then is the story of the team's journey into Near Space, and all of the challenges, pitfalls and fun that has been had along the way.

Balloon flight basics

Launching a weather balloon with a few polystyrene boxes tied underneath up into the stratosphere and then tracking them back to Earth seemed like an easy and fun thing to do at the outset. However after a short while and a steadily growing mountain of equipment, software, payloads, and information from other groups, it became clear that

launching a high altitude weather balloon was going to be a long series of challenges that would need to be overcome step by step. Since there weren't any other groups in Australia doing this kind of activity at the time, many long hours on the internet were required to research and discuss with others how to overcome each technical challenge. Thankfully the US and UK high altitude balloon community is friendly and willing to assist answering questions no matter how trivial. Then came the red tape.

In Australia, airspace is strictly controlled by the Civil Aviation Safety Authority (CASA). From the very start of the project, obtaining the necessary permits and approvals to fly high altitude balloons was by far the biggest hurdle to overcome. After many letters, telephone calls and months

of waiting, Project Horus was issued with a high altitude balloon permit along with a list of restrictions. Many of the restrictions are specific to the airspace around South Australia, but the most notable is the requirement to inform CASA of any balloon flight no less than 48 hours before launch.

Once CASA has been informed they issue a Notice to Airmen (NOTAM). The purpose of this is to warn other aviators of the balloon's presence, and make sure that when it is released at its appointed launch time there are no aircraft in the immediate vicinity of the launch site. Safety first!

The team also needed to give careful consideration to the design of the electronics being carried aloft. There is very little data or research papers available about flying electronics in 'near space'. The payloads are subjected to punishing conditions, with temperatures as low as -60° C and extremely low pressure both of which contribute surprisingly to problems with cooling in the case of payloads that generate a lot of heat.

Pre-flight prediction

To meet the CASA restrictions, it was immediately obvious that a pre-flight track predictor would be needed. There are also geographic obstacles such as metropolitan Adelaide, Gulf St Vincent, the lower Murray Lakes and the Southern Ocean off the Coorong all of which are obviously undesirable landing zones. Project Horus asked the CUSF group if it too could use their flight prediction system for their flights in Australia. Thankfully they were willing to help.

The CUSF prediction system sources high altitude wind data from the National Oceanic and Atmospheric Administration (NOAA) in the USA. These models describe the wind speed and direction in the upper atmosphere. Once additional details such as launch site coordinates, estimated ascent and descent rates and burst height estimates are supplied, a flight path prediction can be generated.

The flight prediction accuracy improves when run closer to launch

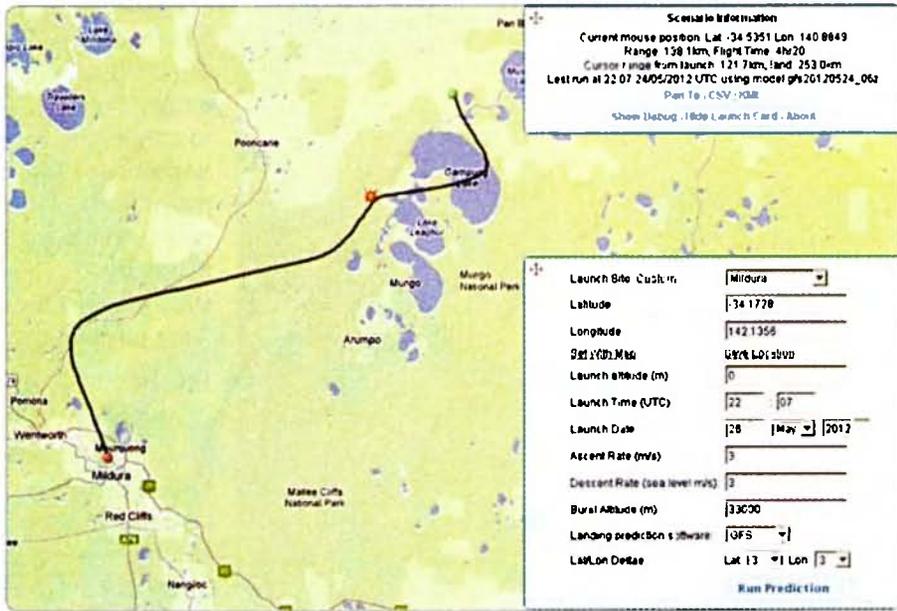


Figure 2: CUSF Pre-Flight Track Predictor - prediction for Horus 26. Mapping courtesy Google Inc.

day. The wind data being used is constantly revised by NOAA with input from weather observations from agencies around the globe. At seven days before launch, landing predictions can be achieved to within a fifty square kilometre area, improving to twenty square kilometres or better when predicted two-three days in advance. This allows the Project Horus team to determine if it is safe to launch, as well as providing tactical information useful for planning payload recovery. It is also why advanced notice of some flights is difficult to provide.

Balloon launch

Launching the balloon is an involved process. The weather balloons used are made from latex rubber imported either from China or the USA. The latex is fragile and

can easily become damaged by something as simple as oil present on your skin. Hence, care must be taken when handling the balloons so as to not cause damage before lift-off. The team also needs to be able to estimate how much helium gas is required for each flight and to be able to measure how much lift is generated versus the payload weight. This is important as it affects the ascent rates and flight path.

To further prevent damage to the balloon and simplify handling in windy conditions, the team prefers to inflate it in the safety of a sheltered building. During that time,



Figure 3: Mark Jessop VK5QI holding a payload and Joel Stanley filling the balloon (Horus 14).

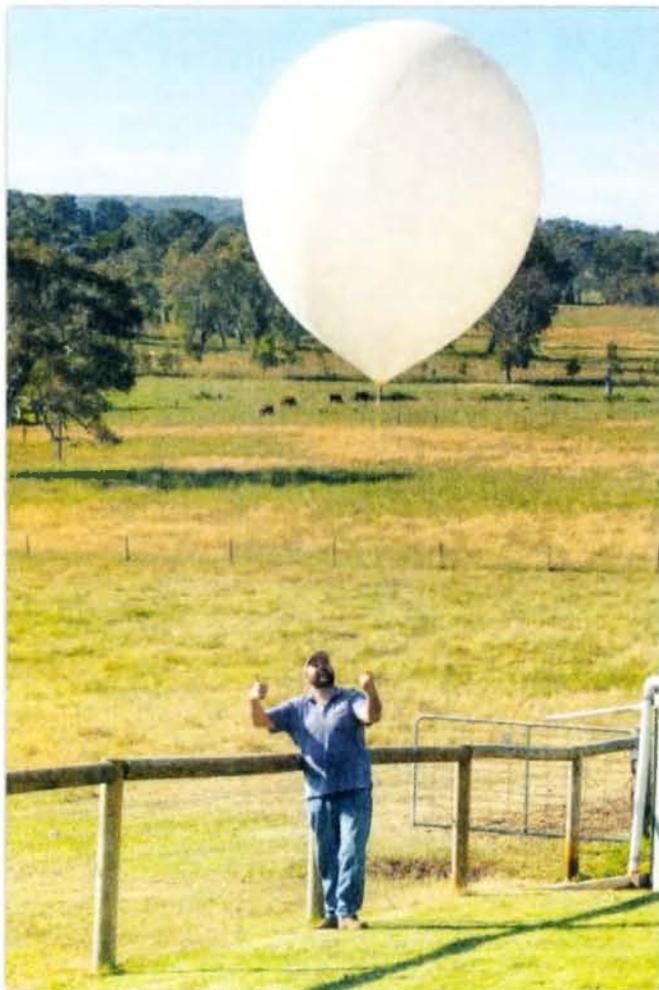


Figure 4: Matthew VK5ZM holding the balloon.

the payloads are powered on, GPS lock is verified and the payloads strung together for flight.

The rig that is flown consists of the balloon, a radar reflector



Figure 5: Adrian VK5ZSN, Josh VK5FMJP, Terry VK5VZI, Alan Kovacs and Joel Stanley launching the balloon train (Horus 23).

(detectable by aircraft proximity radar), a parachute to control the descent speeds, the primary and secondary telemetry systems, and the flight payload.

Flight computer

The next problem to solve was how the tracking telemetry was going to be generated and relayed to earth. While the Icarus group in the USA had been able to use cell-phones, cellular coverage at the predicted landing sites located in the remote districts of South Australia is not universal.

Reliance on cellular coverage would have hampered the team's ability to successfully recover the payloads so an alternative was required.

Instead, Project Horus borrowed ideas originally developed by CUSF-UK and other USA groups who were using low power 434 MHz LIPD transmitters. These were adapted to broadcast 300 baud 7N1 RTTY and proved to be ideal on a number of fronts. In particular, it minimized the weight and power consumption

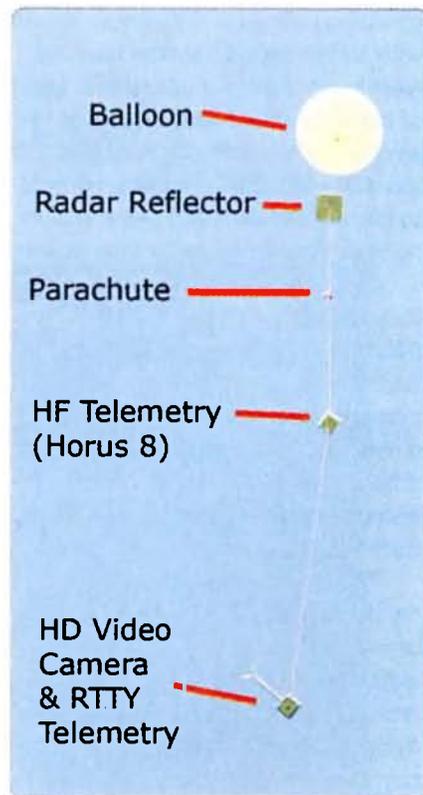


Figure 6: Typical balloon train layout.

requirements. Those two factors combine to reduce the amount of helium needed for a given ascent rate, making it easier to fly higher and longer. Indeed, the beacons today can run for over 24 hours.

Early systems developed by Terry VK5VZI were based on an Arduino microcomputer. These were designated as the original 'Nut' flight computers. More recently, the core PCBs have been redesigned and miniaturised by Mark VK5QI. He developed the new 'MicroNut' boards based on the same Arduino platform used previously, allowing the same software to be used in lighter payloads.

To complete the puzzle, the flight computer's PCBs include a small, on-board GPS receiver. In fact, the GPS receiver itself has presented some major technical challenges. The team found that many GPS receivers are programmed not to report height above 18 km 'or' speeds over 1854 km/h. This is unfortunate since the government restrictions on GPS receivers was written as 18 km 'and' 1854 km/h.

It also needed to be small and light enough to use on the balloon. In the end, suitable modules were sourced that did not have the 18 km ceiling limit and met the weight requirements. Yet one more hurdle overcome.

70 cm primary telemetry system

To make the entire system flight ready, the flight computer/transmitter board is packaged inside a polystyrene box, complete with four x AA lithium primary cells and an upside-down quarter wave whip antenna. This has yielded a very reliable telemetry beacon transmitter which today flies on every Project Horus flight.

The transmitters broadcast either on 434.075 MHz or 434.650 MHz (plus or minus 5 kHz depending on temperature) allowing the team to fly two balloons simultaneously. The 25 mW RTTY signals have been reliably decoded over 700 km distant from the balloon. The use of RTTY also simplified tracking the frequency drift of the transmitters caused by the extreme cold.

The beacons also incorporated two temperature sensors in their design. One is outside the payload, sampling the external air temperature, while the other is inside monitoring the payload electronics. The external temperature has reached as low as -55° C while the internal temperatures have varied between -20° C and -40° C. This supplied further insights into the environment the balloon experiences.

The temperature profiles measured as the balloon climbs have in fact been a very interesting aspect of the flights. Once past the Tropopause, external temperatures actually begin to increase again. This is a result of the incoming solar radiation heating the payload faster than it can dissipate it. For high power payloads such as voice repeaters, this brings yet more interesting design challenges,

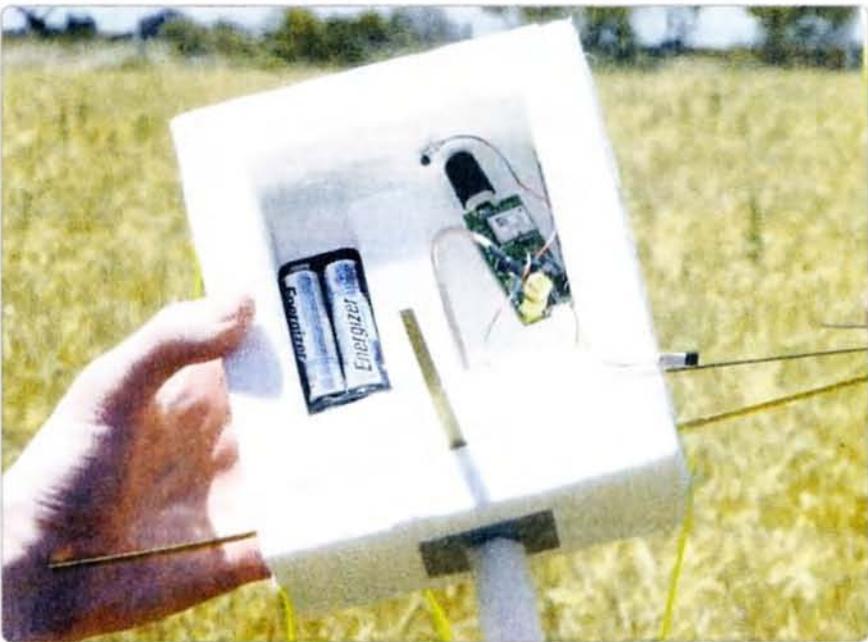


Figure 7: Completed 70 cm RTTY telemetry payload.

and is another of the many quirks observed when flying the balloons.

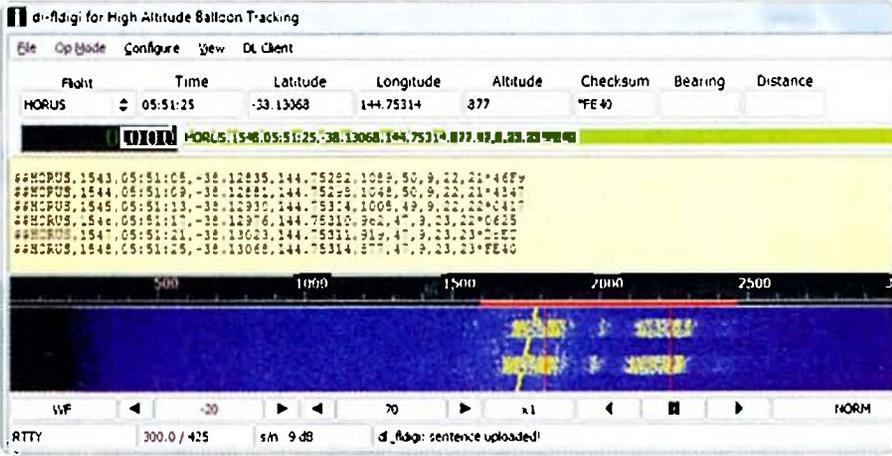
Producing and broadcasting the telemetry is only part of the tracking solution. It is important that all of the data is collected for later analysis. To achieve this, Project Horus relies on having multiple ground stations receiving, decoding and then pooling the data into a common database via the Internet. To support this, a software package called 'dl-fldigi' is used to collect and send data into the database called Habitat. Each receiving station then only needs a 70 cm SSB receiver tuned to the beacon and to then have it attached to the PC's sound card. (You can see the

resulting telemetry being decoded in Figure 8.)

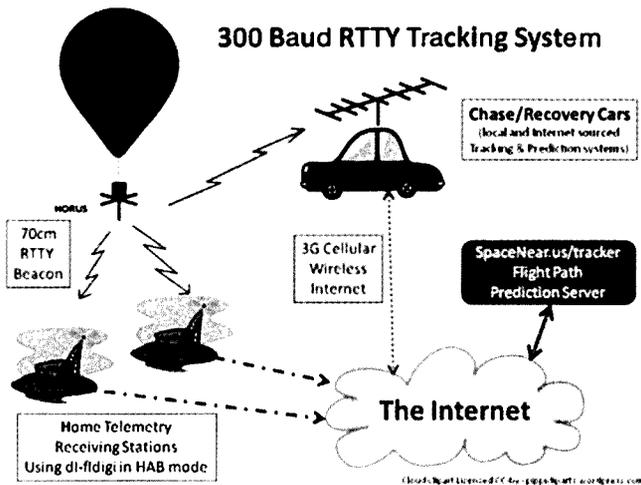
To complete the chain, each station then needs to enable the 'send to Internet' function in the software. The data collected can then be shared with the online database at spaceneer.us/tracker. This website not only collects and stores the data, but actively uses it to predict in real time the estimated landing zone for the flight, presenting the result for all to see.

The chase cars can also access that data via 3G cellular Internet links. These, in addition to their own telemetry receive systems, forms part of the information used to locate and recover the payload

Figure 8: dl-fldigi software decoding a balloon.



300 Baud RTTY Tracking System



A complete picture of the flight tracking system can be seen in Figure 9.

APRS backup telemetry beacon

Project Horus has experimented with flying AX.25 1200 baud APRS beacon payloads since Horus 9. The very first attempt

number of batteries, had an output power of over one watt and was heavy in comparison to the primary telemetry. Notwithstanding these problems, this first APRS tracker experiment was a resounding success, and paved the way for future flights.

Following Horus 9 Matthew VK5ZM set to work developing an alternative tracker, built upon the Micronut flight computer already used for RTTY. He added a new power subsystem, radio module and firmware; the end result being a smaller, light-weight 300 mW APRS beacon for 145.175 MHz. This version was able to be powered for in excess of 24 hours by a pair of AA lithium batteries.

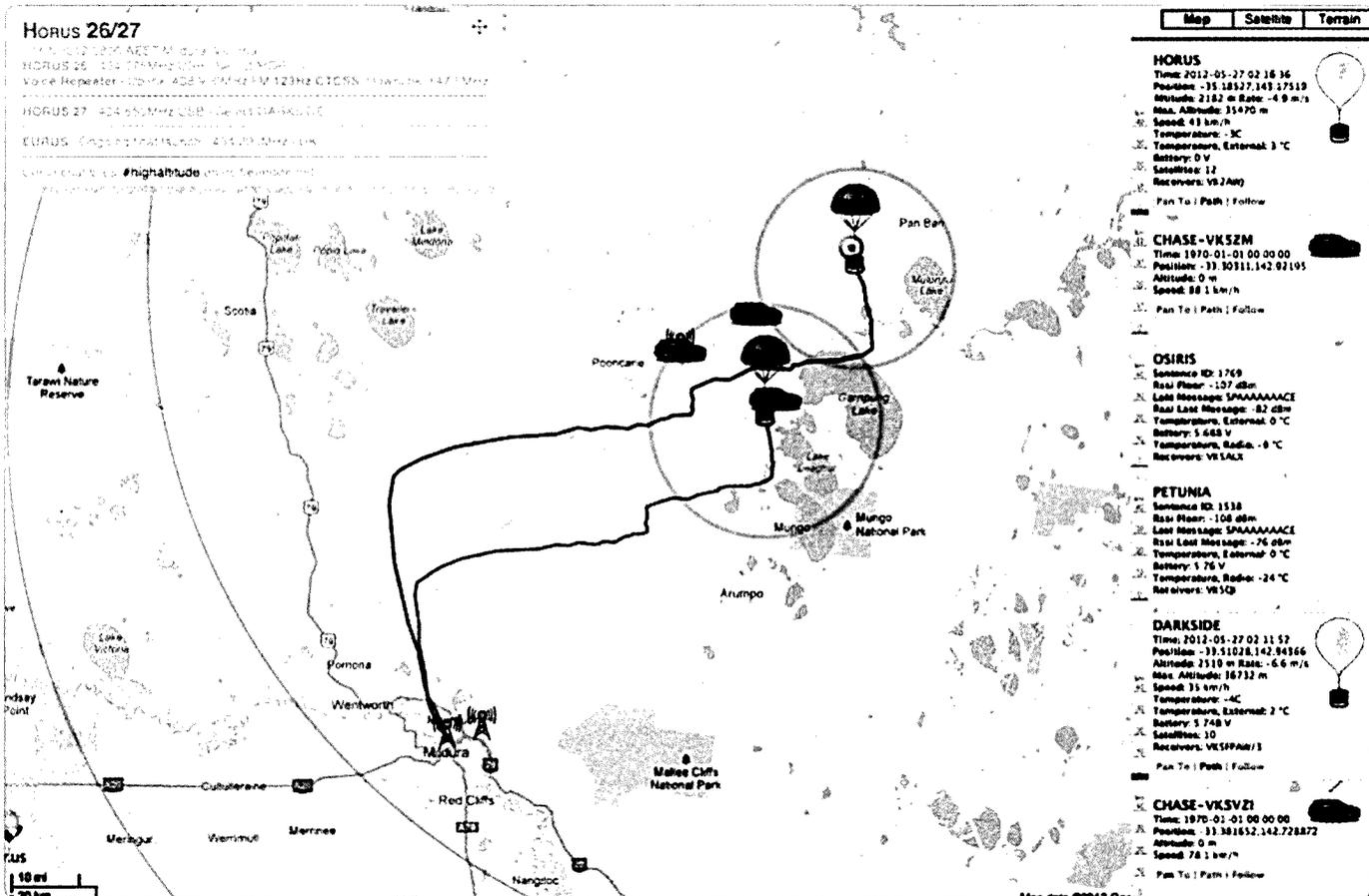
The main advantage of the APRS system was that it provided a complete backup telemetry system for the flights without additional infrastructure. Using the existing national APRS network means it is possible to take advantage

at APRS used a TinyTrack3 from Byonics. Being new at balloon-based APRS, a couple of mistakes were made - not the least of which was the setting of the wrong digipeater path. (The subject of APRS paths for balloon experiments is a controversial topic best left for a later article.) It also required a large

Figure 9: Telemetry decoding network.

successfully. At times, the balloon teams rely very heavily on the distributed listener network and the Internet feed, as mobile flutter and fading can make direct balloon decoding difficult while driving. In this way, amateurs listening and uploading data from across the balloon's footprint can contribute directly to the success of the flight!

Figure 10: SpaceNear.us/tracker plots of Horus 26 and 27 flight paths. Mapping courtesy Google Inc.



of the existing repeaters and I-Gates across SE Australia. APRS also provides the chase teams with an independent tracking receive system. The teams use radios such as the Kenwood D710 and D72 to directly obtain range and bearing information to the balloon.

Amateurs across the world can also follow the flight on the various APRS mapping packages found on the Internet. For those living in the coverage footprint, direct reception and plotting on your own APRS software packages is quite feasible. The new balloon orientated features on *aprs.fi* now plot the balloon's radio horizon, making it easier to observe the balloon's coverage area relative to your listening station.

In addition to standard APRS position data, the current generation APRS beacon is also capable of sending telemetry data. This is used to report battery voltage, internal and external temperature and the number of GPS satellites being received. *Aprs.fi* can decode this data and display it graphically in real time; giving amateurs even easier access to information on how the flight is going. See Figure 12.

Payloads and Experiments

Apart from the fun that has been had just building and flying a trackable high altitude balloon platform, there is of course a more interesting side to the project. So far, Project Horus has flown a multitude of different payloads for different groups around the country, as well as its own experiments. Here are but a few of them.

Cameras - stills and video

Various camera payloads have flown to date. These flights always yield some of the more 'stunning' images generated by the project, because let's face it, who doesn't want to obtain their own photos and videos of the world from 'near' space!

Figure 11: APRS plotted balloon track via the *aprs.fi* website. Mapping courtesy Open Street Maps.

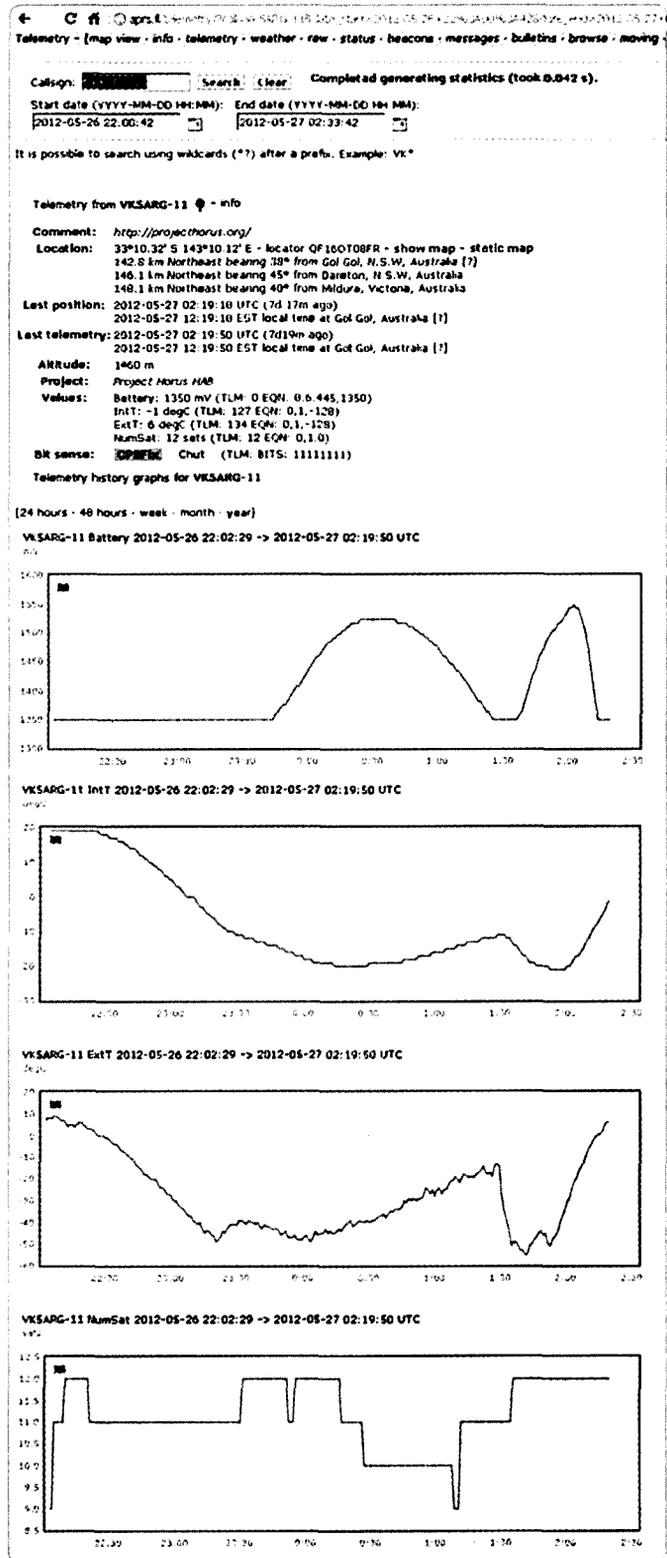
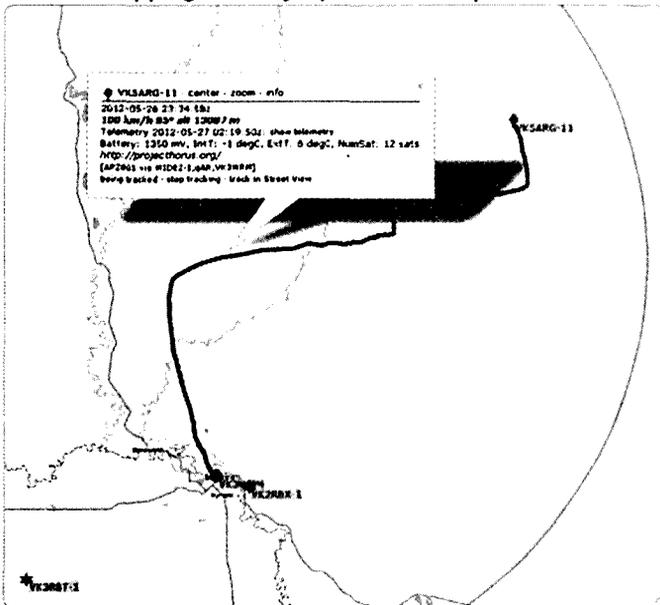


Figure 12: APRS telemetry output on *aprs.fi*

The camera of choice for most of the HD video flights has been the GoPro HD Hero. This little camera weighs just 94 grams but records HD Video at 1080p resolution, perfect for suspending below a balloon.

Probably one of the most memorable flights was that of Tux the Penguin. Tux is the mascot for the Linux operating system. The flight was Horus 14, and



Figure 13: Tux the Penguin flying over South Australia on Horus 14.

occurred right after the Queensland flood disaster of 2011. Since the Australian Linux Conference was being held in Brisbane just after the flooding, the team hit upon the idea of auctioning off a photo of Tux signed by the conference keynote speakers (Linus Torvalds, Vint Cerf, Geoff Huston and others) plus the actual Tux that flew for charity. Over \$23,000 dollars was raised for the Queensland Premier's Flood Appeal.

Repeaters - Simplex and cross-band

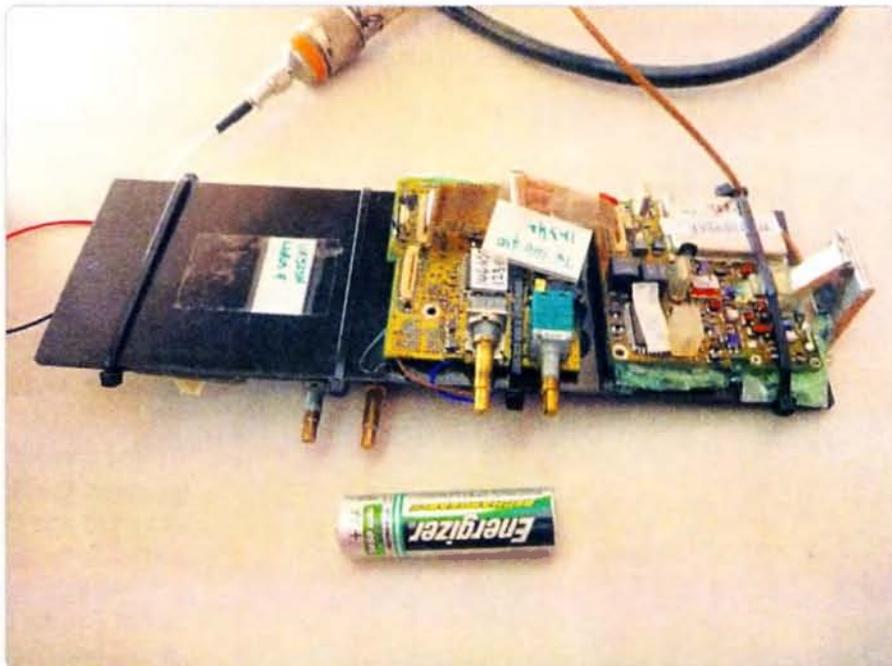
Another popular payload has been the flying 'airborne' repeaters. The first of these was a simplex parrot repeater on Horus 6. It worked by connecting a digital voice record/playback device to a two metre radio using an Arduino microcontroller. Whatever the parrot repeater heard within a 10 second window was repeated back after the squelch closed. Not the most efficient method of communication but certainly effective. On that first flight, 22 stations from VK5 and VK3 made contact through this system.

The parrot repeater incidentally also taught the Project Horus team a valuable lesson about batteries. During its second flight on Horus 9, it became clear that not all lithium batteries work in extreme temperatures. The LiPO battery used to power it on that occasion literally froze, resulting in the failure

of the system at ~ 10,000 metres altitude.

Horus 9 was also the debut of another new repeater payload. This flight carried aloft a cross band 70 cm/2 m FM voice repeater, which was constructed by Adrian VK5ZSN. The core of this system comprised two Motorola GP68 handholds that were stripped bare to reduce weight and held together with hot melt glue and cable ties. It was powered using six AA Lithium batteries. The payload used 'Slim Jim' antennas made from 300 ohm TV ribbon cable to save weight. The final output power was ~one W on

Figure 14: 2 m/70 cm cross-band repeater.



two metres. On receive, access was controlled via the use of a 123 Hz CTCSS tone.

This payload has proven that 'antenna height is everything' when it comes to repeater coverage. At apogee, range of the repeater is estimated to be 760 km. During the recent Horus 26 WIA AGM flight, over 120 contacts were logged via this repeater.

Whenever the group flies the repeaters, it also endeavours to arrange for a net control station. This is to allow as many stations as possible to make contact through the repeater. Special thanks must be extended to all of the volunteer net control operators that have assisted with every flight.

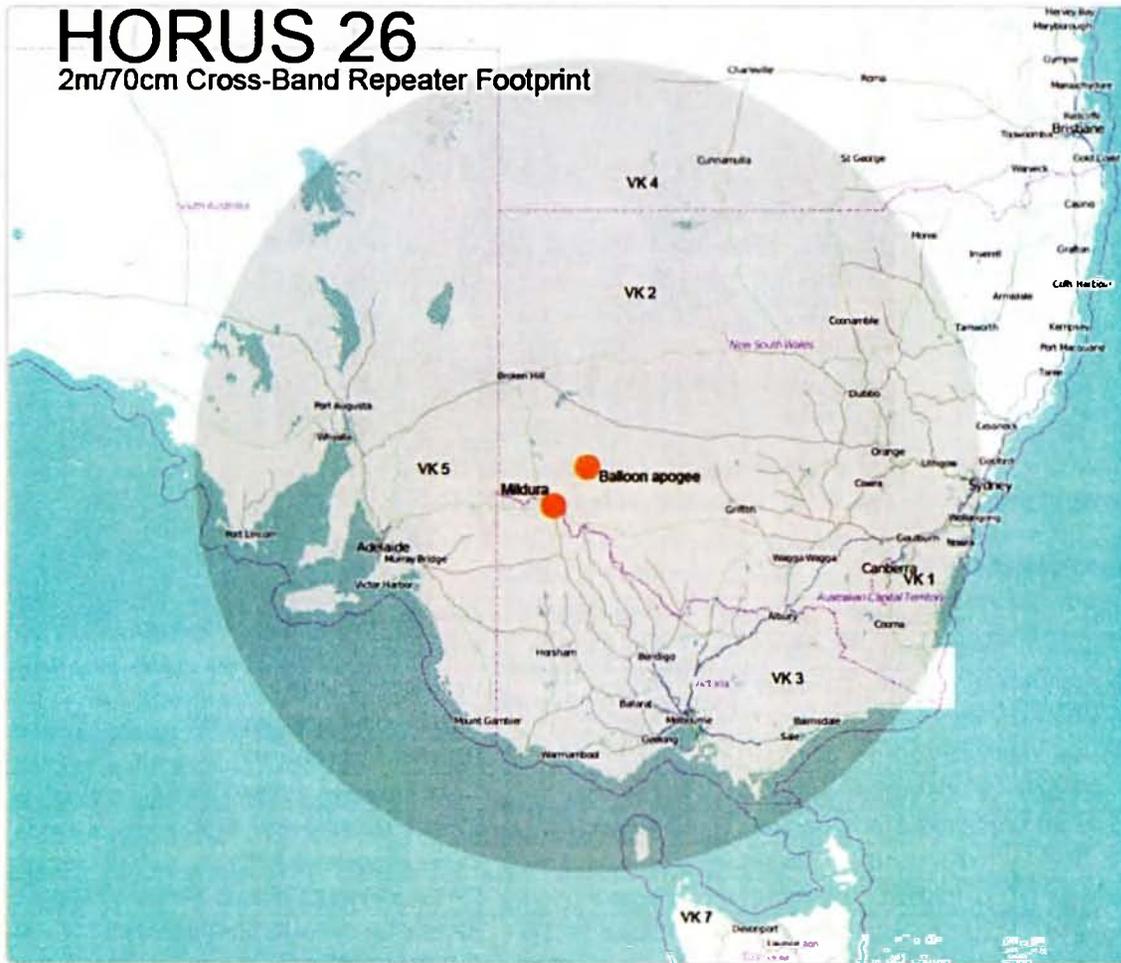
Payloads for other groups

It was recognised early on that the project's balloon launch capabilities and location would be of interest to other groups around Australia. As such, several flights have been made for groups including the University of Adelaide and University of Sydney Rocketry Club.

In short, if you or your club have an idea, then the team is more than happy to discuss this with you.

HORUS 26

2m/70cm Cross-Band Repeater Footprint



3G Cellular. This RTTY data is also used to feed the offline flight path predictor (in-house software) which interfaces with the OziExplorer mapping software.

Most teams also have an APRS receiver to listen to the backup telemetry. As a last resort, the teams are also equipped with RDF equipment to track the beacons by hand should the telemetry become too weak to decode or corrupted by some other systems failure. Inter-team communications equipment is also included. Each car is equipped with combinations of

Figure 15: Estimated 2 m/70 cm cross-band repeater footprint at 35 km altitude. Mapping courtesy Open Street Maps.

Flight phase and recovery operations

The final chapter of any flight is to chase and recover the payloads after the balloon has burst. The project team's chase vehicles have

evolved through the life of the project into quite complex systems.

Each of the teams has a RTTY telemetry receiver and is using the fl-digi software to decode the data and upload it to the Internet over

HF, two metre and 70 cm radios to cover all situations.

Many challenges have been faced in making all of these systems work together harmoniously. The story of these systems, however, is



Figure 16: Adrian VK5ZBR and Rod VK5UDX - Horus 9 Net Control.

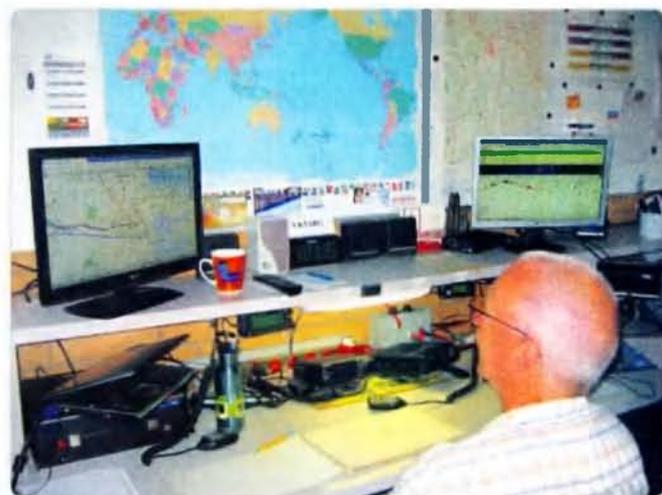


Figure 17: Paul VK5BX and Graham VK5GH - Horus 23 Net Control.

a long one and will be the subject of a future article!

Thank You!

It is also worth noting that the teams would have far less success if it wasn't for the multitude of amateurs across SE Australia that assist on each flight collecting the telemetry, and uploading it to the Internet. To those people, Project Horus would like to say a big thank you!

A very special thank you is also required for Graham VK5GH and Carol VK5ZCH. They have graciously hosted the majority of the project



Figure 18: Typical team chase cars (VK5ZM & VK5ZSN).

Project Horus Launch History

Payload name	Status	Launch date	Altitude	Flight time	Description
Horus 1	Recovered	5/02/2010	29,606 m	Approx. 2 h	Initial launch, 2 cameras
Horus 2	Recovered	8/03/2010	1,479 m	Approx. 1 h	Unsuccessful launch
Horus 3	Recovered	8/07/2010	32,718 m	Approx. 3 h	High baud rate telemetry test
Horus 4	Recovered	16/07/2010	14,413 m	Approx. 2 h	High baud rate telemetry test
Horus 5	Recovered	24/08/2010	31,180 m	Approx. 2 h	Collaborative launch with USYD
Horus 6	Recovered	28/08/2010	34,297 m	Approx. 3 h	Simplex radio repeater flight
Horus 7	Recovered	29/08/2010	35,354 m	Approx. 3 h	Camera (video & still) flight
Horus 8	Recovered	9/10/2010	32,101 m	Approx. 7 h	HF Telemetry, HD Video
Horus 9	Recovered	23/10/2010	34,205 m	Approx. 3.5 h	APRS beacon, Cross band repeater, Simplex Repeater
Horus 10	Recovered	15/11/2010	17,385 m	Approx. 3.5 h	Offline predictor test launch
Horus 11	Recovered	21/11/2010	33,708 m	Approx. 3.5 h	HD video launch (Jason Hansma - Hermes)
Horus 12	Recovered	23/11/2010	33,773 m	Approx. 2.5 h	Stills, HD video launch (Lonely Planet)
Horus 13	Recovered	4/01/2011	31,107 m	Approx. 3 h	HD video launch (Camera Launch)
Horus 14	Recovered	18/01/2011	30,209 m	Approx. 2.5 h	HD video launch (Linux.conf.au Launch - Tux Penguin)
Horus 15	Recovered	26/02/2011	20,290 m	Approx. 2 h	HF telemetry, HD video
Horus 15.5	Sacrificed	20/08/2011	40,575 m	Approx. 5 h	Altitude record attempt - UK Launch
Horus 16	Lost	18/09/2011	38,807 m	Approx. 24 h	Altitude record attempt
Horus 17	Recovered	16/10/2011	9,303 m	Approx. 40 m	'Pico' payload test
Horus 18	Recovered	13/11/2011	33,243 m	Approx. 3 h	HD video, APRS, (Yoyoshop Launch)
Horus 19	Recovered	27/11/2011	33,588 m	Approx. 3 h	HD video, APRS, (Skipping Girl Vinegar Monkey)
Horus 20	Sacrificed	17/01/2011	22,040 m	Approx. 1.5 h	Linux.conf.au launch #1 Pico Launch from Ballarat
Horus 21	Recovered	20/01/2012	20,863 m	Approx. 2.5 h	Linux.conf.au launch #2 Pico Launch from Ballarat
Horus 22	Lost	14/03/2012	37,113 m	Approx. 4 h	Network 10 (Scope-TV) launch
Horus 23	Recovered	15/04/2012	35,376 m	Approx. 3 h	X band rptr, APRS & uplink testing for WIA Field Day
Horus 24	Recovered	8/05/2012	13,625 m	Approx. 2 h	Uplink & Termination Test #1
Horus 25	Recovered	20/05/2012	31,360 m	Approx. 4 h	Uplink & Termination Test #2
Horus 26	Recovered	27/05/2012	35,449 m	Approx. 4.5 h	Cross Band Repeater, APRS @ WIA AGM Launch Mildura
Horus 27	Recovered	27/05/2012	36,732 m	Approx. 3 h	HD Video and Stills Launch @ WIA AGM Launch Mildura

Table 1: Project Horus flight history to May 2012



Figure 19: Balloon landing (Horus 7).

team's balloon launches from their carport and front paddock. Your support for the project has been above and beyond and is genuinely appreciated by every team member, especially Carol's hospitality with tea, coffee and homemade biscuits.

Project Horus - where to from here?

So, that's the Project Horus journey to date. The project team has so far had a lot of fun flying these unique experiments, and hopes that others have enjoyed watching and participating too! It is worth mentioning that this still is really only the beginning, we've a lot

Horus Telemetry Tracking Honour Roll

Project Horus would like to thank all of the amateur radio operators across SE Australia who have tracked our flights over the last two years and uplinked data to the Internet.

ACT: VK1KW

NSW: VK2AWJ VK2HRX
VK2KAW

VIC: VK3ALB VK3AMZ VK3HGI
VK3NFI VK3SI VK3SMC
VK3VCL VK3VFO VK3YFL
VK3ZYC

SA: VK5ACY VK5AKH VK5AKK
VK5ALX VK5AW VK5AWP
VK5BWR VK5CP VK5CV
VK5DJ VK5DK VK5DMC VK5EE
VK5EU VK5EX VK5FDRK
VK5FMLB VK5FPAW/3
VK5FSCK VK5GH VK5KK
VK5KX VK5LA VK5LY VK5NE
VK5NEX VK5NG VK5NIG
VK5NRG VK5OI VK5PJ VK5QI
VK5VCO VK5VZI VK5ZAI
VK5ZD VK5ZEA VK5ZM
VK5ZPS VK5ZRL VK5ZSN
VK5ZT

Table 2: Horus telemetry tracking honour roll.

more ideas for future payloads and experiments we wish to try.

So keep an ear out for some of the future experiments that the group is considering, that include live ATV transmissions, more scientific



Figure 20: Graham VK5GH - one of the Project's major supporters.

payloads, distance and height record attempts and loads more imaging payloads. One thing you can also be sure of, amateur radio will play an integral part along the way!

If you would like more information?

If you would like to learn more about Project Horus, it's past flights, how to track the balloons or receive warning about future activities then please take a look at the Project Horus website <http://www.projecthorus.org/>

Video documentaries about the project are also regularly uploaded to the project's Vimeo web TV channel. You can find this at <http://www.vimeo.com/channels/projecthorus> If you capture some film of a Project Horus event, why not upload it to Vimeo directly and let us know so we can add it to the channel as well!

Onwards, upwards and happy hunting!

Figure 21: Horus 23 recovery team.



VK4ILH Cape Moreton Lighthouse 'AU0009, Moreton Island IOTA OC-137, ILLW 2012

Derek Toreaux VK4MIA, Team Leader VK4ILH



Photo 1: Cape Moreton Lighthouse viewed from the water.

Cape Moreton Lighthouse, on Moreton Island, off the south east coast of Queensland, will be activated for the first time for the ILLW by a team of eight operators who will undertake a DXpedition style activity for ILLW 2012.

With the experience of three returning members from the V14FI activation of Sandy Cape on Fraser Island last year it was decided that the ILLW team this year would be a larger contingent of operators. As per the previous year, we contacted the Queensland Parks and Wildlife Service (QPWS) and submitted our interest in making a return trip to Sandy Cape for two years running and putting V14FI back on the air again on a much larger scale for this year. Unfortunately, due to QPWS not having an available time slot on their schedule for us, our application was quickly declined, dashing the hopes of the growing team.

With morale fairly low within the team, it was decided to push forward and not let this spoil

our plans for ILLW 2012. After a discussion with Co-Team Leader Paul VK4FPDW it was decided that we try for something that had not been done for a number of years.

Cape Moreton topped the list in VK4, with only one previous listed activation, in 2007 by then VK4HAM (now VK4NM). Since I had known Andrew for quite a number of years, I dropped him an email to get his mobile number to ask about his activity at Cape Moreton and as to whether he had a contact number for one of the Rangers based on Moreton Island. As it turns out Andrew's response was 'mate, I never went', so with that it was back to searching for which QPWS office would be in charge of operations on Moreton Island.

After a brief search, the Manly Office came up as a contact point for Moreton Island and without any delay I picked up the phone and after a few brief moments explaining my reason for calling, the young lady gave me a contact number for

the Ranger on Moreton Island... wow, too easy!

About a week or so had passed and, thinking the worst, I was tempted to call the Ranger again and leave another message but didn't want to seem pushy. Towards the end of my lunch break at work my phone rang and to my surprise and delight it was Ranger Terry Christensen from the QPWS on Moreton Island calling, curious as to why I had contacted him. After briefly explaining who I was, what we had achieved the previous year and what we would like to do this year on Moreton Island, he was more than attentive and asked me to email him our plans and also what took place at Sandy Cape last year so they could 'get a feel' for what we were about. That night I put together a very detailed email including the article in *AR* magazine that featured in the October 2011 issue, website links, photos and so on, to which Terry promptly replied the next day and said we would hear back from someone in due course.

However, one week turned into two weeks, three weeks into four...eight weeks went by, and I thought the worst again, so dropped Terry a quick email asking about the application and whether any decision had been made as our team was starting to run out of time. He quickly replied and thought that somebody has already been in contact with me but alas, no. After giving Terry my home number to contact me, the phone rang not long after 9 am on the Friday morning. The discussion we had certainly put a smile on my face as I heard the words 'we really support what you guys are doing and we want to accommodate the team as best we can'. All they requested from us was



Photo 2: A closer view of Cape Moreton Lighthouse showing some of the infrastructure immediately adjacent to the light.

final dates, times and number of people in our team, also where we wanted to set up our antennas and operating stations.

At this stage we had seven definite operators for the team but as an added extra we wanted to add something special for the amateur community with a lone CW operator as part of our team for 2012. We had three operators in mind but two of them were interstate and only one local. After a discussion with Ewan VK4ERM he suggested I contact our local operator as he was keen on CW and would probably like to join the team; with that in mind I did just that but due to work commitments our only local CW operator could not join the team. So I went out on a limb and sent one of the interstate CW operators an email inviting him to join the team as we were only about a week or two away from approval for Cape Moreton. To my surprise the response was a 'yes! I would like to do that as I have never been to Moreton Island before' – this being Luke VK3HJ, our eighth and final member of the team.

Now that the team was complete another email was forwarded to Terry at the QPWS with final numbers and noting the fact we now had

an interstate guest joining us and flights would need to be booked ASAP so could they please take this into consideration with our formal approval. Within four days I received the email that we had all been waiting for, approval for team VK4ILH to operate from Cape Moreton Lighthouse! With an adrenaline rush I quickly composed an email for the entire team while on my break at work to let them all know of the good news; in addition dropping Terry an email as well to quickly ring me to verify what I was reading was correct...you simply couldn't wipe the smile from my face.

Two days later, after unveiling the website, Facebook and Twitter profiles, I received in the mail the formal letter of approval from Andrew Hoffman 'Operations Manager' at QPWS Branch at Manly outlining everything that had been discussed in the weeks leading up to this point. This was scanned and emailed out to the entire team and also displayed proudly on our website. Cape Moreton 2012 was 'Go!'

Our last step in making everything complete was to again contact Dave Tavener VK4ICE (VK4ICE Communications) as he made mention that he'd love to again support our venture in 2012 as he had done in 2011. Paul VK4FPDW contacted Dave regarding an issue which hampered Sandy Cape the previous year; internet access. So this year Dave will be supplying Team VK4ILH with 3G Yagi antennas so we can still have contact with the outside world, as well as the Butternut HF6V multi-band vertical which Dave donated to the team last year for VI4FI.

Other antennas being used for Cape Moreton 2012 will be a three band Spiderbeam for 10, 15 and 20 courtesy of John VK4IO and Catherine VK4GH. For the lower bands we will use a combination of the Butternut and a full sized 80-10 dipole (similar to a full sized G5RV). We will be operating up to three bands at once, which will give everyone an opportunity to work us

either on SSB or CW, depending on propagation.

The team for VK4ILH Cape Moreton Lighthouse AU0009, Moreton Island IOTA OC-137 is Derek VK4MIA, Paul VK4FPDW, Brooke VK4MBL, John VK4IO, Catherine VK4GH, Ewan VK4ERM, Graham VK4GRA and last but certainly not least, Luke VK3HJ.

The date of operation will be from Friday 17th August until the morning of Monday 20th August, which will include the entire 48 hours of the International Lighthouse & Lightship Weekend. Further information and updates will be available on the website at www.capemoreton2012.com or via social media networks on Facebook and Twitter.

2012 marks the 155th anniversary of the Cape Moreton Lighthouse, which was the first lighthouse built in Queensland, in 1857. This DXpedition also marks the first time that Cape Moreton Lighthouse has been activated in the history of the ILLW. Although Moreton Island OC-137 is not a 'Most Wanted' IOTA it has not been active in almost 15 years! Last recorded activity was in 1998.

We look forward to working as many Lighthouses and Lightships within VK/ZL and around the world, not forgetting the WLOTA and IOTA chasers as well. CU on the bands!

Editor's Note: It is not intended to publish articles announcing upcoming ILLW activations. This article has been published because it describes the detailed planning required for the activation. There will be many other VK stations planning to participate in the ILLW – as at 3 June, the illw.net website shows 45 lighthouses registered. Further details of the ILLW can be found at <http://illw.net/> Readers should note that the ILLW was founded by the Ayr Amateur Radio Group (AARG). Another group exists, based in the US, which also promotes lighthouse activations. The US group and its activities are not part of the AARG sponsored activities.

Magnetic loop for HF pedestrian mobile

Peter Parker VK3YE

www.alpha-link.com.au/~parkerp

All practical HF mobile antennas involve some compromise. The trade-offs are especially severe for the pedestrian mobile operator, who must carry the entire station (including antenna) by hand. This may explain the low amount of pedestrian mobile activity despite suitable transceivers being widespread.

The author's first pedestrian mobile antenna was a base-loaded 1.5 metre whip, similar in concept to the commercially-available 'Miracle Whip'. Performance was adequate for its weight but still insufficient for reliable results on 40 metres.

The next attempt was a one metre diameter magnetic loop made of RG213 coaxial cable encased in ribbed tubing supported on a broom stick. Performance was excellent, but it was too heavy to comfortably carry, defeating its purpose.

The antenna that proved just right is described here. A lighter (and compromised) version of the first loop, it can be carried with ease and covers 7, 14, 18, 21, 24 and 28 MHz. Efficiency is higher than the whip and results have been pleasing, even on 40 metres. Construction cost is around 20 dollars.

Obtaining the parts

All parts (except the capacitors and optional switch) are available from hardware stores. A list is provided below:

- 1 three core mains extension cable x 3 metres
- 1 three core mains extension cable x 0.85 metres
- 1 RG58 coaxial cable x 3 metres
- 1 PL259 or BNC plug to suit transceiver
- 1 9.5 mm timber dowel x 225 mm (see text)
- 2 9.5 mm timber dowel x 450 mm (see text)

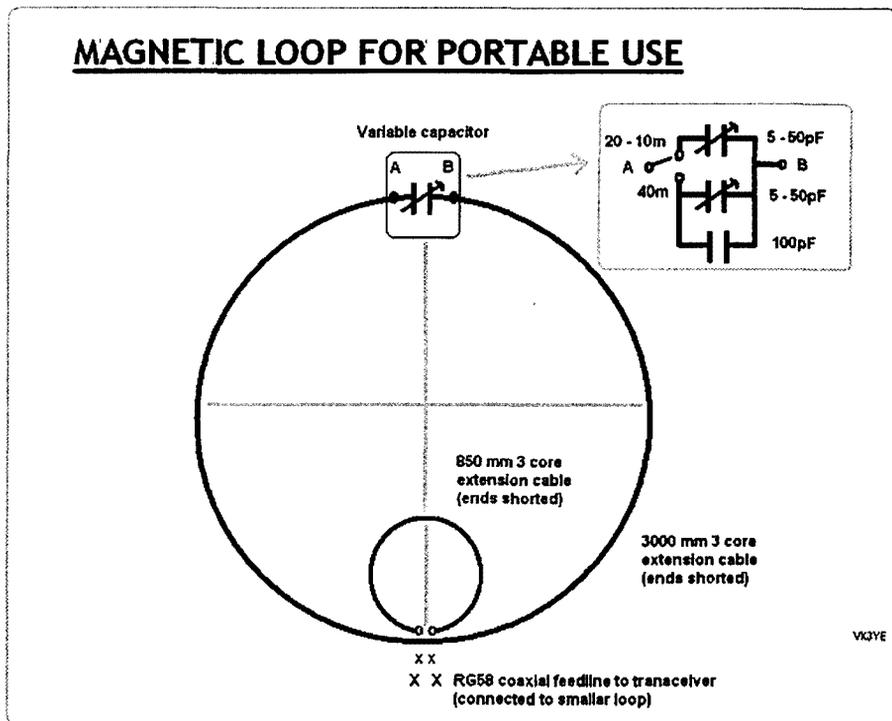


Figure 1: The pedestrian mobile magnetic loop.

- 1 9.5 mm timber dowel x 1030 mm (see text)
- 2 irrigation tubing cross-piece
- 5 irrigation tubing tee-piece
- 2 5 - 50 pF variable capacitor (see text)
- 1 100 pF mica capacitor (see text)
- 1 SPDT toggle switch (see text)
- 1 small plastic box
- cable ties and tape

The capacitors are the hardest to find and you may have to make substitutions. I used beehive trimmers that can be finely adjusted by hand. These came from VHF low band FM transceivers and have a maximum capacitance of 50 pF, usefully allowing 14 - 28 MHz coverage. 7 MHz requires 100 pF more capacitance to be switched in, and as it is the most used band I included a separate variable capacitor for it.

There are several things you can do if you do not have 50 pF beehive

trimmers. 25 pF trimmers are more common and are fine for the higher HF bands. Depending on the size of the loop two in parallel may be needed for 14 MHz.

Compression-type mica trimmers may work but are harder to adjust. However they should be acceptable for fixed frequency loops. Anything smaller, for example, plastic trimmers, should be avoided as they may not handle the high voltages present, even at low transmit powers.

A small air spaced variable capacitor will also work, though a reduction drive is desirable for accurate tuning. If it has a maximum capacitance of at least 150 pF you will not need the switch or the 100 pF parallel capacitor for 7 MHz. The other advantage is continuous coverage, including 10 MHz.

Larger dual gang air spaced variable capacitors are also suitable but heavier. These have

a maximum capacitance around 400 pF. To reduce losses both capacitors should be wired in series by leaving the frame unconnected and connecting each end of the large loop to each gang. If these capacitors have trimmer capacitors on their frame either set them to minimum or, preferably, remove them. This will lower minimum capacitance and improve coverage of the higher HF bands. If ten and twelve metres still cannot be covered you may need to make the loop smaller to resonate.

If all else fails you will need to make your own capacitor, which is after all just two conductive surfaces separated by air. Possibilities include use of tin plate, copper tube, circuit board material and/or coaxial cable. If you are still stuck making several single or dual band loops may be easier than a wide band loop such as this one. This is probably more efficient anyway, especially if you can make the 40 metre version larger.

Construction and testing

Construction takes a couple of hours. The antenna comprises two loops. The large loop is tuned to the operating frequency. A smaller loop couples it to the transceiver. A light frame of irrigation fittings and snugly fitting timber dowelling supports both loops. The fit is tight enough not to fall apart but loose enough to be dismantled when not in use.

The large loop's dimensions are not critical except for having to resonate in all desired bands with the variable capacitor at hand. Three metres of three core extension flex, with the wires soldered together at both ends, was used in mine. The coupling loop is made of similar cable but is smaller, a quarter to a fifth the larger loop's diameter. It is mounted at the bottom of the loop, furthest from the variable capacitor.

Make the loop before its support to ensure its dimensions are right for the desired frequency range. Start with a longer length and

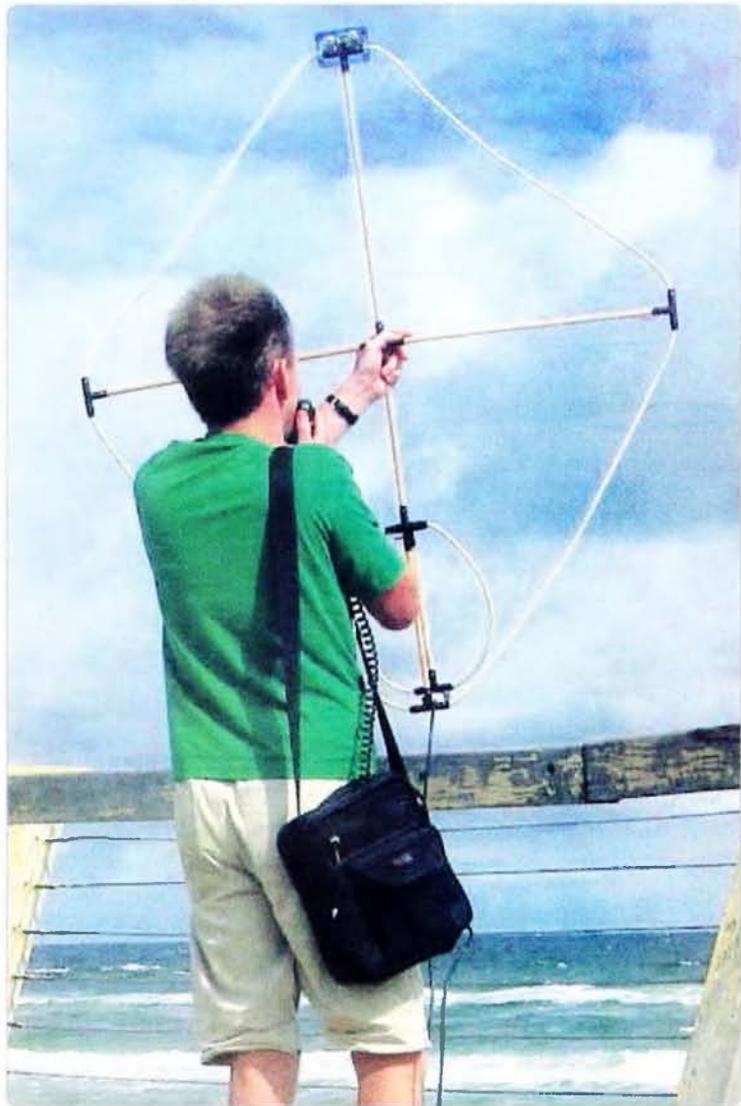


Photo 1: The magnetic loop in use. AR recommends that you do not operate in this manner – use a mast to increase the distance between yourself and the antenna.

cut down until you reach a length that resonates on 10 metres near minimum capacitance. I found 3 metres satisfactory for 28 MHz SSB but too long for the 29 MHz FM segment. The smaller loop is less critical. For both loops the ends of all three leads inside the cable are stripped and soldered together – having these in parallel lowers resistance and losses.

Small pieces of circuit board material were used to more firmly mount the variable capacitors and join the coaxial feedline to the smaller loop. Note that the larger loop is not connected at all to the feedline but its proximity to

the smaller loop allows efficient coupling between them.

Suspend the frameless loop with string from a tree or similar so that it forms a square diamond, you may need to use a spacer to keep it open. Temporarily string and tape the smaller loop so that it is inside and in the same plane as the larger loop and does not flop around. The variable capacitor should be at the top with the feedline at the bottom.

With a general coverage receiver or transceiver tune to various HF amateur bands and the loop's variable capacitor for maximum noise received. The peak should be fairly sharp – this reflects the loop's



Photo 2: A close look at the magnetic loop.

(All amateurs need to keep in mind the potential dangers posed by exposure to electromagnetic fields. Even if you are only operating at 5 W PEP on SSB, one should always ensure that all body parts of all persons, including the operator, are a safe distance from the antenna. Always assume a worst case scenario until you have done the calculations or used an appropriate tool to determine the exclusion distance for the power, mode and antenna in use. Using the VK3UM Site Radiation (EMR) Calculator, with a 5 W carrier on 14 MHz, the on-axis exclusion zone is 0.53 m for a half wave dipole. Whilst the loop described here will be less efficient than a dipole, one should take a conservative approach. Operating the loop hand-held, as described by the author, is NOT recommended. Ed.)

narrow bandwidth. If you cannot obtain a noise peak for a band, most likely 10 or 40 metres, as these are at either end of the range, the loop and/or capacitor values are either too large or too small. If these bands are important, make the loop and/or capacitor smaller (10 metres) or larger (40 metres) to resonate.

VSWR can be checked with a transceiver set to five watts and a VSWR meter. It should read a low value near the loop's resonant frequency. However it rises rapidly when the frequency is moved. This narrow bandwidth means that you may need to retune the loop if you're changing frequency by more than a few tens of kilohertz. Test VSWR in all bands the loop covers.

Make the frames for both loops once you are happy with frequency coverage. This comprises dowelling cut to a size that allows a snug fit but easy assembly. Irrigation cross and tee pieces form the mounting brackets, while tension from the loop holds it all together. The dimensions I used appear in the parts list above.

It is possible to mount a loop onto a backpack, but I kept mine hand held. The loop is light enough to be carried for long walks and

holding it allows better control of direction – important as the antenna is directional. The transceiver and battery fit in an over-the-shoulder bag from a discount store. Get one with separate compartments to fit the battery, transceiver and accessories. To keep things neat it is sometimes helpful to make a hole between compartments to take the power lead.

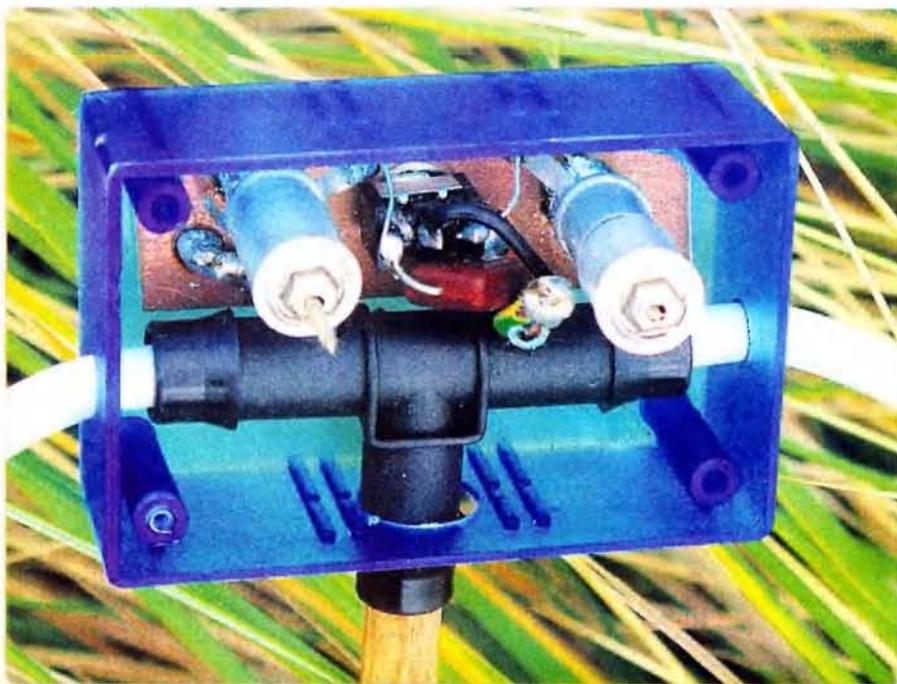


Photo 3: A close up of the capacitor box.

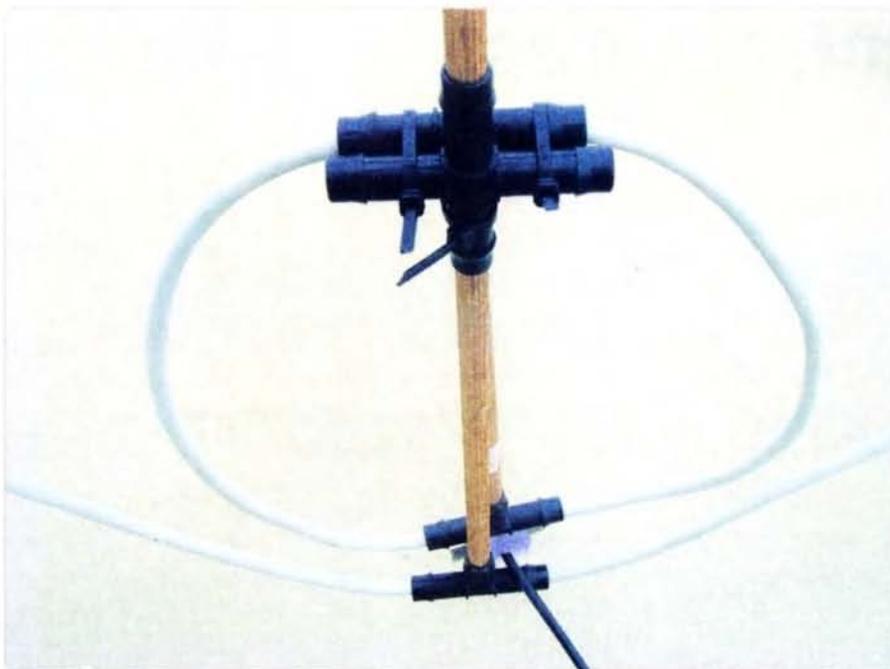


Photo 4: A close up of the coupling loop.

Results

The loop has delivered excellent results, especially on ten metres. On that band solid contacts have been made with the USA, South Africa and around Australia and New Zealand. Efficiency falls on lower bands, but solid contacts around VK/ZL are still possible. 20 metres is a bit hit and miss due to the band's DX orientation. When conditions are good 17 metres can be a good refuge and provide some high quality contacts.

As would be expected, performance is least on 7 MHz. Due to its compromises, performance was about 7 dB down on a similar sized (but heavier) loop using RG213 coaxial cable. Compared to a G5RV it is about 20 dB down. These tests were tested on a path

to VK7 using reports from WSPR. Nevertheless good 7 MHz contacts have been made up to about 500 – 600 km but the station worked needs to have a quiet receiving environment.

Conclusion

Described has been an antenna that will get you started in the exciting world of HF pedestrian mobile, which is open to all licence types. You will get some funny looks but the rewards are great; DX will become increasingly common with rising sunspots in the next few years and in many cases contacts will say you are their first pedestrian mobile contact. Demonstrations of this antenna can be seen on the author's YouTube channel at www.youtube.com/vk3ye

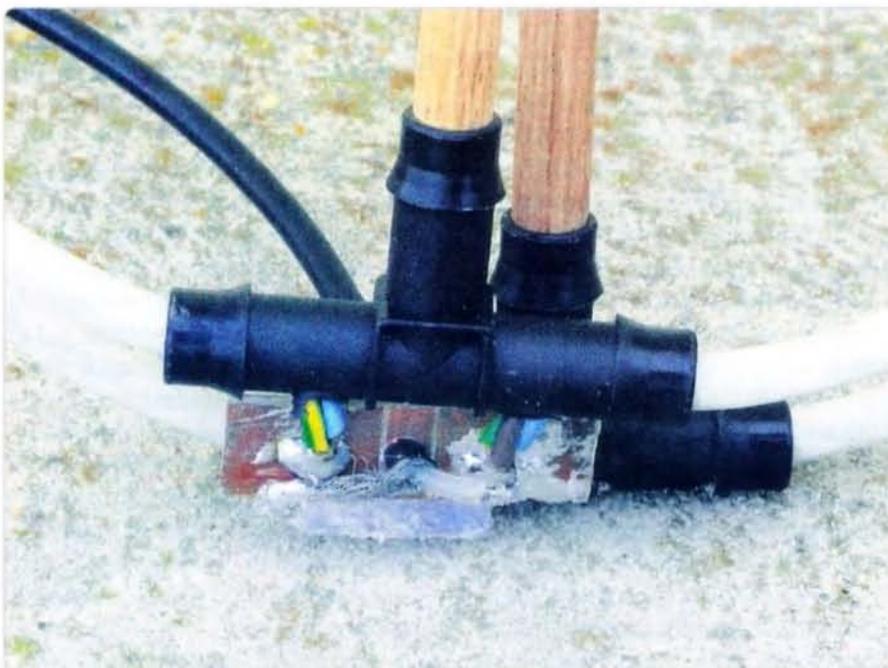
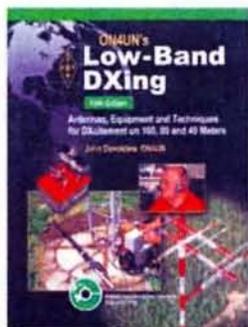
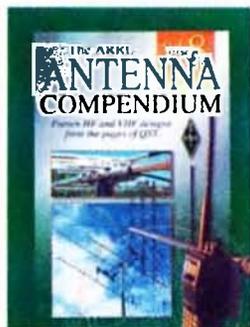


Photo 5: A close up of the feedline connection.



FROM THE WIA BOOKSHOP!

The ARRL Antenna Compendium - Volume 8
Proven HF and VHF designs from the pages of QST

ON4UN's Low-Band DXing
Fifth edition

View and order online at:

<http://www.wia.org.au/members/bookshop/about/>

A squid pole antenna mast

Richard Cortis VK2XRC



Photo 1: System components.

This is a suggestion for a simple, quick and easy VHF/UHF antenna mast for portable operation. All that is needed is a suitable antenna such as a Diamond or similar which has a short aluminium tube support for the base, the antenna feed line, and a seven metre or similar squid pole.

To erect the mast, pull the rubber bung out of the top, unscrew the cap from the base of the squid pole and withdraw the two top sections so that the top of the remaining section is large enough to pass the PL259 connector. You may need to remove the rubber knob on the top of the top section to be able to withdraw it satisfactorily. I suggest that you use at least a ten metre long feed line because you will need five metres to go up the mast. It is easier to slide the end of the co-ax feed line up the squid pole before you start erection. Run the cable out straight so it does not get kinked. Slide the aluminium tube mount over the feed line and the top of the squid pole. With the feed line fed up the squid pole, connect it to the base of the antenna and then slide the aluminium tube antenna support base onto the bottom of

the antenna and do up the retaining screw or bolt. Slide the antenna onto the top of the squid pole and then erect the squid pole. Tie off the squid pole to something firm. Connect the feed line to the radio and away you go.

Try not to lose the rubber tip, the two top sections from the squid pole, the rubber plug for the top or the plastic and rubber base cap so that you can put it all back together when you are finished. You can either guy the mast with some venetian blind cord or bricklayers' twine or fix it to your tent post or a fence post with an electrical tie or two.

The system is useful for a quick portable set-up where you plan to move on. If it is windy or you plan to be there for a while, ensure that the sections are firmly engaged.

If you are sensitive about scratching your squid pole, you can wrap some insulation tape around the squid pole at the bottom of the aluminium support tube to provide some resistance to chafing.

Have fun operating portable!

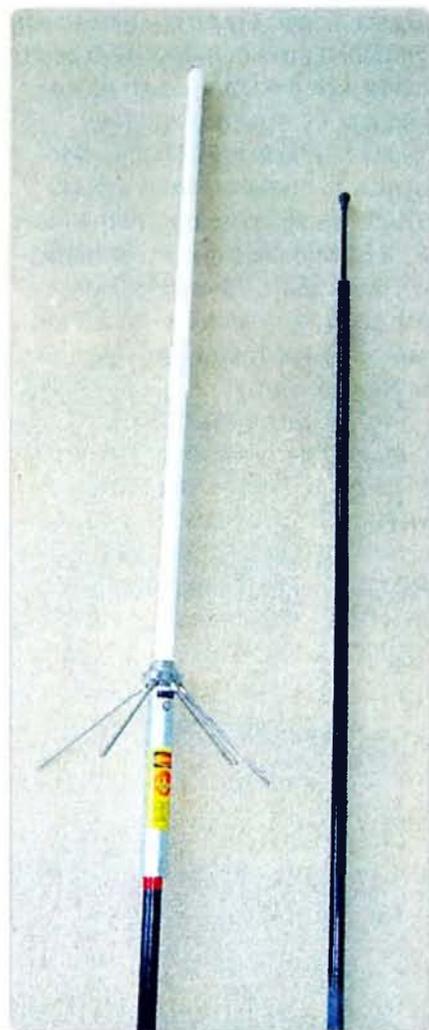


Photo 2: Final assembly.



VHF/UHF - An Expanding World

David Smith VK3HZ
e vk3hz@wia.org.au

Weak Signal

The main activity of any note for the month involved the Eta Aquarids meteor shower. Adrian VK4OX was heavily involved with the northern end of the VK4 to VK3 path and reports:

The Eta Aquarids (EA) for 2012 once again proved a very reliable source of 144 MHz, two way SSB QSO's over the VK4-VK3 path. The OH5IY Meteor Scatter Predictor program stated 'The EA meteor shower peaks on 2012-05-05 at 1900Z. Above half max eight days. Prediction has accuracy of ± 48 hours. ZHR 60 meteors/hour, velocity 65.5 km/sec'. Predictor programs suggested, for the QF22-QG63 path, a minor peak around 1800Z, a null around 2000Z-2100Z and the major peak between 0000Z and 0200Z.

Note: To avoid confusion with UTC dates and times, all following dates and times are AEST.

I started monitoring the VK3RGL beacon on 144.530 MHz on Wednesday, 2nd May and managed to work VK3HY at 1105. On Thursday at 0859, I worked VK3HY and VK3XQ on the same burn. Friday morning I worked VK3HY at 0932 and again at 0950 on two good burns.

Saturday morning had lots of FSK441 activity and many were reporting super long burns - one up to 180 seconds long around 0700. I worked on SSB VK3HY, VK3AMZ, VK3BBB and VK3DUT several times during the morning.

Sunday morning was possibly the best time because there were many stations on. Many long, loud burns from 0800 right through to 1100.

Monday morning was another very good day with long burns

occurring from 0530 right through to 1220. One burn was over 120 seconds with VK3AMZ and another allowing us to complete a two way CW QSO. I was very happy with that QSO!

Tuesday morning, the shower was noticeably weaker and only VK3AMZ active but still a few good burns.

Wednesday morning - shower over.

General observations. I thought the predictions were quite accurate. The peak seemed to be Sunday morning (that's Saturday, UTC time). The QF22-QG63 path of 1420 km is ideal for 144MHz meteor scatter. The common window for two, well equipped stations is very large so the footprint for these burns is vast. I have worked Sydney stations off meteors that produce a burn for VK3RGL. VK3RGL is using 7.5 watts to a 7 dBd Yagi pointed up this way and is a fantastic meteor scatter beacon. VK3AMZ was using Channel 5a Newcastle as a beacon and it is a very reliable indicator for a burn on the QF22-QG63 path, even though I am almost 700 km north of Channel 5a. Any average ham station of '100 watts to a Yagi' should be able to participate in this exciting mode.

Next decent Meteor showers suitable for 144MHz SSB are:

- Orionids: October 21 (disappointing last year).
- Leonids: November 17 (unreliable but every 33 years fantastic. Next big event, 2030).
- Geminids: December 14. Very reliable.

Catch a falling star!

Gavin VK3HY submitted the following regarding his experience from the southern end of the VK4-VK3 path:

144MHz SSB QSOs from VK3HY during Eta Aquarids meteor shower, May 2012.

			Sent	Rcvd
2nd May	0105Z	VK4OX	5x2	5x5
	2258Z	VK4OX	5x7	5x5
	2350Z	VK4OX	5x3	5x5
3rd May	2332Z	VK4OX	5x5	5x7
	2350Z	VK4OX	5x7	5x5
4th May	2105Z	VK4OX	5x7	5x9
	2105Z	VK4VDX	5x7	5x7
	2106Z	VK4NWH	5x5	5x7
5th May	1937Z	VK4OX	5x5	5x5
	2022Z	VK4OX	5x2	5x5
	2031Z	VK4OX	5x6	5x7
	2036Z	VK4OX	5x7	5x7
	2253Z	VK4OX	5x2	5x4

Stations heard but not worked on 5th May: VK2KOL VK4NE VK4JMC.

There were many contacts made by others in VK2, VK3 and VK4 with plenty of burns of sufficient length for complete SSB QSOs.

There was lots of listening to 'white noise' in between the pings and burns but plenty of rewards for those who persevered.

Arie VK3AMZ was busy at the southern end of the path. He reports: *The Eta Aquarids meteor shower delivered a mixed result but certainly meteor scatter conditions were much enhanced due to their presence over the weekend of 4th and 5th of May. I principally concentrated on completing two-way SSB QSOs on 2 metres. One technique that I adopted from Adrian VK4OX was to monitor a signal for a meteor ping - in this case Channel 5A Vision carrier on 138.276 MHz, and then call CQ on either 144.1 or 144.2. This technique proved to be quite successful, completing two-way*

SSB contacts with the following stations on the 4th of May: VK4OX, VK2BCC and VK2KOL.

Conditions ramped up on the 5th of May where I completed two-way SSB contacts with the following stations: VK4OX, VK2ZT, VK2BCC, VK2KOL, VK4VDX and VK4JMC. Good meteor scatter conditions continued on the 6th of May where I completed numerous two-way SSB contacts with VK4OX (one ping lasted just over two minutes), VK4VDX, VK4NE and VK4JMC. A very memorable contact on this day was the completion of a two-way CW contact with VK4OX! This I consider quite a rare event and was the result of a very favourable meteor burn. Both of us used hand keyers and relied on the grey matter between our ears to decode the signals (very unusual these days!).

By the 7th of May, meteor scatter conditions had deteriorated but despite this I completed two-way SSB contacts with VK4OX (four times) and VK4JMC.

Meteor showers occur throughout the year and it's worth noting their dates and times to exploit the opportunity of long haul VHF DX.

As Adrian said once (and I agree), 'a five second meteor burn is a waste on FSK441 - it should be used for SSB'.

GippsTech 2012

A late reminder that GippsTech 2012 is just around the corner. This year it is being held over the weekend of 5-7 July. It is an event not to be missed by VHF/UHF/microwave enthusiasts.

Details: http://www.vk3bez.org/gippstech_ver1.htm

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au

FSK441

Welcome to Paul VK2XDX at Wauchope, near Port Macquarie in NSW, who has joined in the weekend activity sessions and has worked down to VK3 and VK7.



Digital DX Modes

Rex Moncur
VK7MO

FSK441 VK Procedure

WSJT provides two standard procedures for North America and Europe. In VK we have developed our own procedure that is optimised for the activity sessions and has advantages that it allows one to work more than one station at a time and explicitly identifies the transmitting and receiving stations. The short hand or signal tone messages used in Europe and North America are not used during activity sessions as these are not identified with callsigns and would cause confusion. An example of a QSO with two stations is as follows on the table below.

The messages can be typed by hand into any of the 6 TX message positions on WSJT. Even if you are working only one station there is benefit in using this procedure as it helps others who are monitoring to identify the station transmitting as this station does not have a '/' after the callsign. ZL stations also use this procedure.

Note that after callsigns are exchanged in full both ways it is acceptable to abbreviate the callsign of the station you are working but your own callsign

should be sent in full for the benefit of other stations who might wish to call you. It is generally impractical to work more than two stations because of the limitation of WSJT on the number of character that can be transmitted. If you do attempt to transmit a long message check the message actually being transmitted in the bottom right hand corner of the WSJT window in case it is truncated.

Activity sessions are held on Saturday and Sunday mornings as below and all are welcome to participate. Times are local times in VIC/NSW/ACT/TAS. Please see table on next page.

It may seem odd that all stations operate on the same frequency but the above procedure ensures that stations in the same area are transmitting and receiving at the same time and if their computer times are accurately set should not interfere. In general meteor pings from stations in the same area do not overlap as the foot print of a meteor ping on two metres is typically only a few km.

Small Station 10 GHZ EME

Following last month's report of initial tests Alan VK3XPD (three metre [10 ft] dish and 75 watts) completed an EME QSO to Rex VK7MO's small portable station (64 cm dish and eight watts). This work took advantage of a time of low lunar libration (less than 10 Hz) so that JT65c could be used as well as using a program by Glen English VK1XX to automatically tune Rex's

Transmitted by VK7MO	Transmitted by other Stations
CQ VK7MO	
	VK7MO/26 VK4KSY
VK4KSY/R27 VK7MO	
	VK7MO/27 VK1WJ/26 VK4JMC
VK4KSY/R27 VK4JMC/R37 VK7MO	
	7MO/RRR VK1WJ/26 VK4JMC
VK4KSY/R27 4JMC/73 VK7MO	
	VK1WJ/26 VK4JMC
	7MO/RRR VK4KSY
4KSY/73 VK7MO	

Day and Time	Frequency MHz	Stations involved	Stations transmitting first period
Saturday 0600 to 0700	144.330	VK to ZL	ZL
Saturday 0700 to 0800	144.230	VK3/5/7 to VK1/2/4	VK3/5/7
Sunday 0700 to 0800	144.230	VK1/2/3/5/7 to VK4	VK1/2/3/5/7

microwave/Low-Libration-EME.pdf

It was found that libration spreading is best for stations on the same longitude, worst for stations 90 degrees apart in longitude and improves again for stations 180 degrees apart. It also improves for stations nearer the poles than at the equator.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

IC-910-H to correct for Doppler from the moon. While Alan's 75 watts was reliably decoded with libration spreading as wide as 80 Hz Alan had to wait until the libration was below 15 Hz before he could gain sync on Rex's signal – even then he had to use Deep Search averaging over several periods to

achieve a decode. A full report of this work is at: <http://www.vk3hz.net/microwave/10-GHz-EME-QSO-with-64-cm.pdf>

Following this work a paper has been prepared on the "Occurrence of low libration spreading" which is available at: <http://www.vk3hz.net/>

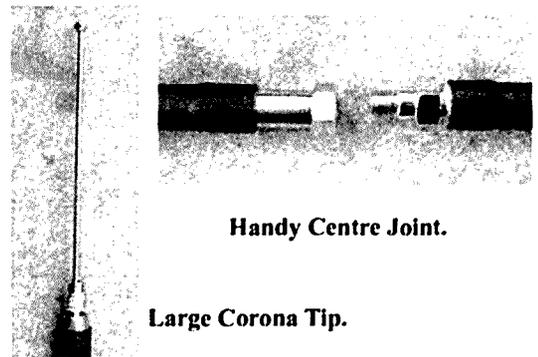
WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

www.wia.org.au/members/contests/about

TET-EMTRON

Autotunes, Baluns, Beams, Stainless Whips, Insulators, Aluminium, Copper Wire, Co-ax, Connectors, Home Brew Parts, U-Bolts, Ladder Line Spreaders, Traps, Codan and Barrett Parts, Verticals, CB and much more...



Handy Centre Joint.

Large Corona Tip.

New HFTW Tapped Whip. New designing allows this whip to be separated in the centre for easy and clean storage in its own bag inside your car.

- Coated with thick, tough waterproof glue lined heatshrink.
 - Covers amateur bands 80-6 m, as well as most popular 4WD and RFDS.
 - Covers 160 metres with our new extension.
 - Covers the long talked about 60 m band.
 - Comes with its own drawstring storage bag.
 - Large easy to read writing.
- Does not include IIF base and spring.



160 m Extension.

www.tet-emtron.com
TET-Emtron
 80 Stock Road, IERNE HILL, WA 6056
 Phone: 08 9296 3224

DX-News & Views

John Bazley VK4OQ
e john.bazley@bigpond.com

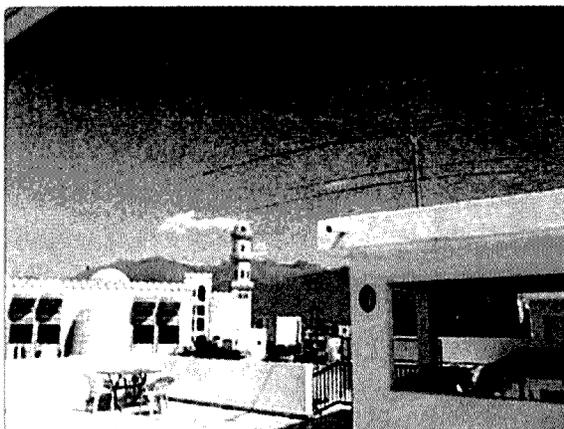


What will probably be defined as the DXpedition of the year, the 7O6T Yemen (Socotra Island IOTA AF028) bash has concluded, with many DXers very happy to have worked a new one and, as a bonus, a very rare IOTA, and others saddened because, for any number of reasons, they didn't make it into the log this time around.

The DXpedition achieved around 162,000 QSOs, and worked 187 countries, and it is pleasing to report that quite a few VK/ZLs worked them, on a variety of bands and modes. Indeed, it was great to hear the operators call for 'VK/ZL only' on numerous occasions, leading to about 200 VK/ZLs making it into the log for around a total of 1,000 QSOs; although, significantly, this constitutes less than 1% of the DXpedition's QSO total and illustrates the degree of difficulty VK/ZLs often have working in the big piles.

By the time you read this, the A5A Bhutan DXpedition will have concluded and its crew returned to their home QTHs. This proved to be quite a battle for the VK/ZL DXing community – at time of writing, a day or so before they finished their effort, only thirty or so VKs had made it into their log, for not many QSOs. Still, those who did make it will no doubt be very satisfied, as Bhutan has proved a difficult grab from VK/ZL over time.

An intrepid VK DXer has asked me to pass on his request to all VK9/0 DXpeditions that they make even a modest effort operating SSB mode on 30 metres, which they are allowed to do, but nobody ever seems to try. A well published sked, perhaps issued before the



Antennas on the shack roof at 7O6T. Photo courtesy of 7O6T.

DXpedition gets under way would, surely, attract a few VK DXers for what would, indeed, be one up on the world. And surely take very little operating time away from the broader DXing effort.

Eric KV1J will be returning to Miquelon and operating as FP/KV1J from July 10 through July 17. He plans to be on QRV on 160-6 metres on SSB, CW, RTTY, PSK31 and Feld Hell. Eric plans to be active in the IARU HF World Championship running about 600 watts. The Motel de Miquelon (Maxotel) has closed indefinitely, so Eric will be operating from a private home that may become a location for future DXpeditions. Eric has a web page at <http://www.kv1j.com/fp/July12.html> QSL via KV1J and LoTW.

V31WH, V31MX and V31MO in Belize by W5HNS, K0BCN and W5MRM will be on Cay Caulker, NA-073, from July 23-31. They will be on 40-10 with a five band hexbeam and 40 metre dipole, both CW and SSB. They're still considering digital modes. They will have just one station operational and will be in the IOTA contest July

28-29 with the V31MX callsign, alternating between SSB and CW. QSL on LoTW or to their home calls.

The planned AS-154, Giresun Island expedition has been *cancelled*. Refer *The Daily DX* newsletter (Vol 16, nr 108, 4 Jun), also *DX World*. The reason stated: "The Hungarian operators were refused operating permission by the Turkish authorities".

Oleg UA1PBA/ZS1ANF is now working from the Bellinghausen Base on King George Island (AN-010), in the South Shetland Islands. Listen for either RI1ANF or ZS7ANF/A with an emphasis on the low bands (1.8 through 7 MHz). QSL via ZS1ANF or RK1PWA.

Radio Amateurs of Canada (RAC) is anticipating 'public consultation through the Canada Gazette' for VE amateur radio operators to gain authorization on 5 MHz on 'a secondary basis' by summer 2012. RAC's goal 'is to ensure that Canadian amateurs have the 60 metre allocation available to all amateurs as part of their amateur radio certification, that is, without licence applications, licence fees or special call signs'. VE amateur radio operators can acquire a provisional 60 metre authorization by contacting their local Industry Canada Regional Office for less than \$100.00. More details can be found at <http://www.rac.ca/en/news/bulletins/2012/21/>.

Members of the Jersey Amateur Radio Society (GJ3DVC) contest group plan to operate in the RSGB

IOTA contest on July 28-29 as GJ2A. QSL via K2WR (NA) or GJ3DVC (all others) and LoTW.

Ralph VK3FRNB is now on a volunteer assignment in Honiara, Solomon Islands for the next two years. He is currently able to operate on 20, 15 and 10 metres and soon hopes to be on 40 metres, as H44RK. As for QSLing Ralph says 'At the moment only eQSL until I organize a mailing address and some QSL cards'.

Tiho HH2/9A7GAE is working at the Red Cross Mission in Leogane, Haiti for at least the next five months. He will be QRV on 80, 40, 20, 17, 10 and 6 metres on SSB and the digital modes, in his spare time. QSL via 9A7GAE, and eventually LoTW.

Eric T6MO (K9GY) says 'It's official now' – he will be in Afghanistan until April or May of next year. He planned to go to Dayton this year.

Luigi OD5/IV3XNF will be on a UN Interim Force mission in Lebanon between May and October. He will be on a military base but plans to operate in his free time. He will have an FT-817ND (QRP) and wire antennas. He prefers CW/digital modes. QSL direct to home call.

7P8 Lesotho. Frosty K5LBU stays busy... He says: 'Well there are three of us that are looking at going to Lesotho 7P8 in mid-July this year. Anyone else out there that might like to go? Email me at frosty1@pdq.net Schedule will be to arrive in Johannesburg on the morning of 12 July. Drive down to Roma, Lesotho to set up and play

being DX till Saturday the 21st. Then go back to Johannesburg on the morning of the 22nd to fly out that evening'.

CG7CWPC, a 'two by four callsign' is a special one from Canada for the VE7BAR group from the Burnaby Amateur Radio Club, for the 100th anniversary of the 'C.W. Parker Carousel' at the Burnaby Village Museum. They plan to operate on all HF bands and modes, June 15-July 15. We don't know if there will be Doppler effect if they operate from the moving carousel. QSL direct or via bureau to VE7EES. www.ve7bar.org/

A combined Irish and Polish group plans an operation to Little Saltes, EU-103, for the RSGB IOTA contest, July 28-29. The operators are EI5JQ, EI7KD, SP9UUC, EI9KC, EI3JZ, EI6KD and SQ7NNM.

Dick AH6EZ and Harry K9DXA plan to be QRV as VY0/AH6EZ and VY0/K9DXA Rankin Inlet (grid locator EP32tw), Nunavut, Canada between June 21st and July 2nd, including the ARRL's Field Day. On July 1st they will be QRV in the Radio Canada Contest as VY0RAC. On one day between June 25th and 29th they hope to operate from Marble Island (NA-185) running QRP for a few hours. They will be using a HexBeam and vertical running a kW on seven through 50 MHz on SSB, CW and maybe even some digital modes. The two have a website at <http://ah6ez.yolasite.com> QSL via AH6EZ, K9DXA, or VY0RAC.

V47JA, St. Kitts and Nevis, is by W5JON, July 12-August 2. He will be at Calypso Bay on St. Kitts, planning to operate on 80-6 metres

and including 60 metres, SSB. QSL via W5JON or LoTW. He plans to be active in the RSGB IOTA contest. W5HAM will also operate, using the V47HAM callsign, occasionally.

MJ/OT9Z on Jersey Island is planned for July 20-27. The operators will be ON8ZZ, ON3JA and ON3NT. QSL via the bureau to the OT9Z callsign.

GB1HF is a special event station for the **2012 Olympic Games**, July 27-August 23. This operation is being run by the South Essex Amateur Radio Society. They plan to be on various bands and modes, with an apparent special emphasis on an operation from a cross-country cycling venue.

<http://www.southessex-ars.co.uk/olympic2012.html>

Josep A3AKY has joined the D64K team, which plan to be QRV from the Comoros Islands in August. Despite it being a 'bad month for F2' he will be QRV on 50 MHz and will do their best 'to work as many stations as possible'. They will also be on six metres EME. 'UKSMG and InnovAntennas are looking to sponsor them with a seven element LFA Yagi' says Peter G3ZSS. More news from D64K is expected in the coming weeks. They have a website at <http://www.d64k.com/>

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (11JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from www.dailydx.com/trial.htm

Participate

July 14 **Maryborough Electronics and Radio Group Inc Hamfest**

July 21 **Gippsland Gate Radio & Electronics Club Annual Hamfest Sale**

July 29 **AWARC Hamfest Albury Wodonga Amateur Radio Club**

Review: The Icom ID-31A 70 cm handheld transceiver

Peter Freeman VK3PF, with Michael Carey VK5ZEA



Photo 1: The ID-31A 70 cm hand held.

Earlier this year, Icom Australia released a new 70 cm handheld transceiver – the ID-31A. As one might expect from the deviation from the usual model identification prefix (ID instead of the usual IC), the new radio includes digital capability in the form of D-STAR built into the transceiver as standard.

In early February, I received an email from Icom which included a press release on the ID-31A together with an offer of the loan of a unit with the view to preparing a review. Naturally, I had to accept. The package arrived a day or two later.

The ID-31A is a five watt 70 cm FM transceiver complete with the D-STAR coder/decoder and GPS. Readers may recall a review of the IC-92AD dual band handheld some time ago: with the IC-92AD, the D-STAR board was an optional extra, as was the handheld microphone which had a built in GPS receiver.

On opening the box, one could note the usual style of packing of a typical handheld transceiver: the main body of the radio, the battery pack, the antenna, a belt clip and a wrist strap, an operating manual, a battery charger and a warranty card. In addition, the ID-31A package included a 'D-STAR Quick Guide', a CD and an envelope marked 'Introductory Offer' which contained a two GB MicroSD memory card. The CD includes an electronic copy of the Instruction Manual, the D-STAR Quick Guide, the Icom booklet 'Ham radio terms', an 'Advanced Instructions' manual and a copy of the CS-31 cloning software with a digital manual for the software.

The transceiver was quickly assembled without the need to refer to the Instruction Manual and was soon in operation on the local 70 cm FM repeater and on simplex. Personally, I found basic operation of the unit extremely simple and intuitive.

It should be noted that we do not have a D-STAR repeater in the Latrobe Valley. As a result, I (VK3PF) shall describe the general features of the transceiver. During discussions with others during the review period, I became aware that Michael VK5ZEA was making good use of an ID-31A on the D-STAR network from Port Lincoln. I dropped an email to Michael and asked him to prepare some comments about the unit with respect to D-STAR usage. His comments will follow mine.

Transceiver features

The ID-31A is a true palm-sized handheld transceiver. Its dimensions are 58 (W)×95 (H)×25.4 (D) mm (not including projections), with a mass of only 225 grams (140 grams without battery pack). According to the Instruction Manual, the key features include:

- 'Built-in GPS receiver
- GPS Logger function allows you to check your route as you move
- MicroSD card slot ready for memory storage
- Voice recorder to record your communication
- Waterproof construction (IPX7 - Only when the BP-271 or BP-272 battery pack, antenna and jack cover are attached.)
- DV mode (Digital voice + Low-speed data communication) operation-ready
- Text message and call sign exchange

- Transmit position data DR (D-STAR Repeater) mode and repeater list allow you to easily operate using a D-STAR repeater.'

Unlike many handheld transceivers currently on the market, there is no numeric keypad with multiple functions. Instead, the ID-31A has a full dot-matrix display and a directional keypad which allows for quick access to essential features and commands. Combined with the built in firmware, the combination offers operation that is easy-to-use and understand.

The ID-31A includes 552 standard memory channels, with 50 scan edge memories and two call channels. In addition, there are 700 D-STAR repeater memories, which gives a total of 1,252 memory channels. There are multiple scan functions and CTCSS/DTCS encoding.

The transmitter is specified to cover 420 – 450 MHz for the Australian model, guaranteed to work across the 430 – 450 MHz range. Tuning steps available are 5, 6.25, 10, 12.5, 15, 20, 25, 30, 50, 100, 125 and 200 kHz. The transceiver can cope with external power supplies across the range 10 – 16 V DC. Based on the supplied battery pack (BP-271 – 7.4 V 1200 mAh Li-Ion) at 7.4 V, on transmit at five watts output, the unit will draw a maximum of 2.5 A. Transmit power can be set to one of four levels: High 5.0 W, Mid 2.5 W, Low 0.5 W, S-Low 0.1 W.

The receiver is listed as covering 400 – 479 MHz, again with the 430 – 450 MHz range guaranteed. On receive, the unit draws between 200 and 450 mA, depending upon mode and if it is the internal or an external speaker which is in use. The receiver uses a dual conversion superheterodyne system, with IF frequencies of 46.35 MHz and 450 kHz. Sensitivity is listed as less than -15 dBµ in FM mode and less than -11 dBµ in DV mode. Audio output power is listed as 0.4 W into a 16

ohm load (internal speaker) and 0.2 W into an eight ohm load (external speaker).

In addition to FM and DV modes, the unit will also operate in FM-N (narrow FM) mode.

The antenna connector is an SMA female on the unit, requiring an SMA male on the antenna or a coaxial cable connecting to a remote antenna.

Many optional extras are available, including a variety of battery packs (including AA cells) and chargers, power leads, leather case, headset, speaker/microphones and a level converter if you wish to program the unit direct from a computer. The easiest (and cheapest) option for programming is to copy the inbuilt memory contents to the microSD card installed in the ID-31A, and to then use the supplied CS-31 software to modify the memory contents with the microSD card in the computer.

The microSD card is also used by another feature of the radio – the inbuilt voice recorder. You can record received audio for later replay, audio for later transmission or a voice message to use as a DV auto reply message if you are called in DV mode.

The ID-31A in use

This transceiver is a delight to use. It fits snugly in the hand and its size and mass means that it can realistically be dropped into a shirt pocket. There is no need to clip it to a belt via the belt clip, which is a requirement with many handheld transceivers. It was simple to use the radio without reference to the Instruction Manual for basic FM operations. The manuals are well written and it is easy to find your way through the menu system to change settings.

I received excellent reports on air on FM simplex and via the local repeater. You can read Michael's comments below regarding DV (Digital Voice) and DR (DV Repeater) operations. Audio quality during receive was excellent, with

adequate volume from the speaker.

The CS-31 cloning software was simple to use. You do not need a cloning cable if you use a microSD memory card. Be sure to read the manual on installing and formatting the memory card. Beware not to wipe the pre-programmed memory contents! (I accidentally clicked a 'Yes' prompt button without having looked at the manual. However, the situation was recoverable.)

The strong point of the ID-31A really is the way it works on the D-STAR system. I had little opportunity to access the D-STAR system during the review period, so over to Michael VK5ZEA to talk about those aspects.

D-STAR – the ID-31A strong point

Michael Carey VK5ZEA

I use my Icom ID-31A D-STAR radio on a daily basis. I am fortunate in that I can play with my ID-31A while at work and this allows me to check into a lot of overseas D-STAR nets around the world. On an average week I check into around 10 D-STAR nets which tend to be conducted in the morning (Australian time).

Operationally the ID-31A is quite different from my previous Icom IC-91AD radio. This is mainly due to the lack of the more familiar numerical/function keypad. All of the numerical/operational buttons on the front of my IC-91AD have two functions...this makes quick access to a lot of functions relatively quick and easy...the ID-31A goes about things a little differently...

Most of the common D-STAR operations can be performed by using the central D-pad in the middle of the control keys. This in conjunction with the Menu and Quick Menu keys makes using the ID-31A in D-STAR mode very intuitive.

One of the main features of the new Icom ID-31A 70 cm handheld radio is its D-STAR capabilities.



Photo 2: The ID-31A 70 cm hand held beside its older cousin, the IC-92AD.

In my opinion, this more than makes up for the fact that the ID-31A is a single band (70 cm) radio in a world where virtually all new handheld radios are a dual band device.

I have been using D-STAR since January 2008. In July 2008 I installed the VK5REX B 70 cm D-STAR repeater in Port Lincoln and I really haven't looked back, I'm a D-STAR-aholic!

The ID-31A incorporates all the familiar D-STAR features of past Icom D-STAR radios and adds a whole heap of new ones!

Probably the most welcome feature addition in the ID-31A is the incorporation of an internal GPS receiver. The sensitivity of the internal GPS is remarkable, although accuracy does suffer if the GPS is inside a building...the better the view of the sky, the more accurate the position.

The GPS receiver has several functions...the first is a no-brainer, it allows you to send your GPS position when you key up in D-STAR

mode. One of the features of the D-STAR protocol is that it allows you to send data at the same time as digital voice. This data can take several forms, but GPS data is a common use. When the ID-31A is in GPS-A mode, this position data takes the form of a more familiar APRS position frame. A D-STAR Gateway computer can extract this from the D-STAR data stream and send it off to the APRS-IS system. All previous Icom D-STAR radios had this feature as well, but the ID-31A is the first handheld where the GPS receiver has been integrated into the transceiver.

The ID-31A can also use NMEA data from an external GPS, plus you can manually enter a position. In the GPS mode, there is an option to switch on the GPS to get a fixed position and then turn it off. Great if you are operating stationary portable and don't want the GPS receiver to drain the battery. You can also send NMEA GPS data from the internal receiver out through the serial socket, fantastic for feeding

position data to a laptop, APRS tracker or navigation device.

The GPS receiver can also be used to set the ID-31A's internal clock, very handy!

The other novel use of the GPS receiver is to allow the user to easily set up the ID-31A radio to use a nearby D-STAR repeater based on location. If you travel to a new area with a D-STAR repeater, the radio can use the position determined by the GPS to program the repeater frequencies, offset and callsign information automatically. For example, if you hopped off a plane at the Port Lincoln airport, your ID-31A radio could configure itself to use the Port Lincoln VK5REX B D-STAR repeater with four quick button presses. The ID-31A comes pre-programmed with D-STAR repeater information; updated information can be downloaded from the Icom Japan/Global website. This makes it quite easy for a new user to get things going with minimal user programming required. One little criticism is that this function only works with D-STAR repeaters...it would be great if the database could be expanded to include FM repeaters too. Imagine turning your handheld radio in a new city and having it 'find' the closest repeaters and then automatically configure frequencies, offsets and CTCSS tones.

The ID-31A can also log GPS positions to the MicroSD card. The interval at which the positions are recorded can be selected from 1, 5, 10, 30 or 60 seconds. The file that is saved in the MicroSD card consists of the raw NMEA data sentences from the GPS receiver. I've successfully been able to load GPS log files created by the ID-31A into Google Earth. The ID-31A also has a GPS Logger Only mode where all other functions of the radio are turned off, extending the operating time of the GPS logger considerably.

Operationally, the most commonly used D-STAR functions are accessed through the central

D-pad. Each quadrant of the ID-31A D-pad has two functions, a quick press is used to navigate within menus and the central blue button is the OK or Enter key. The secondary functions of the D-pad keys are accessed with a long press. The up key performs the D-STAR RX>CS function where you can review past received D-STAR calls and then set the calling stations D-STAR callsign in the ID-31A's URCall field...great for using the traditional D-STAR repeater callsign routing capability.

A long press of the down key enables the DR (D-STAR Repeater) mode, this makes using the D-STAR callsign routing functions more intuitive and easier than in previous non-DR mode enabled D-STAR radios. In the DR mode you can use the GPS to select your nearest D-STAR repeater and also select the repeater or D-STAR user you want to send your D-STAR call to.

A long press of the left key brings up the received callsign history. This is where you can go back through the last forty received D-STAR calls. Each entry holds a whole heap of information...the callsign of the calling station, the 20 character 'text' message sent along with the transmission, the time the call was received (always accurate with the GPS referenced internal clock), if the received station was transmitting GPS information this too is displayed along with course and speed information, their maidenhead grid is also shown along with a distance to their station from you. This received callsign list is updated with each received call... the newest is at the top of the list.

A long press of the right key brings up the callsign menu. This is where you can change the four D-STAR callsign fields, UR, R1, R2 and MY. The most common one that most users change frequently is the UR or URCall. This is normally set to CQCQCQ but is used to command the Dplus linking system. Dplus is the add-on software that works with

the Icom G2 gateway software that enables 'IRLP style' linking.

The ID-31A has 200 URCall memories which is a most welcome increase over the 60 I have in my IC-91AD. The Dplus linking system responds to 'commands' in the URCall field to connect and disconnect links to other gateways or reflectors...the more URCall memories you have, the more commands you can store. The default configuration files that can be downloaded from the Icom Japan/Global website have pre-programmed link commands for Dplus reflectors 001 to 047, each with three modules A, B and C. Dplus has recently been upgraded to include modules D and E. I have modified my memories with links to the Dplus reflectors that I use the most. A little bit of forethought with programming beforehand can make real-world Dplus linking operation of the ID-31A very easy.

The Quick Menu key is context sensitive, when pressed it will bring up options that relate to what you are doing at that time. This makes using the ID-31A, even without a full keypad, extremely easy.

I find the speech function of the ID-31A an amazing feature. Others have found it annoying; I suppose it is a personal choice. The speech function enables the radio to announce received D-STAR calls by reading out the callsign in either English or Japanese. There are two speech modes; one announces every time a call is received, the other mode is the one I use. Called 'Kerchunk', it only speaks the callsign after a short transmission. On D-STAR, you are identified by your radio each time you transmit. Your callsign is embedded in the data stream and a lot of operators simply quick-key to announce their presence. With other D-STAR radios you would then need to either look at the screen to see who pressed their PTT, or you would need to go through the 'called' menu and review the received call that way.

With the ID-31A's speech function, the radio will read this information out for you. Some have complained about the US pronunciation of the 'Z' character...I simply selected the 'phonetic' alphabet and each letter of the callsign is read out in the phonetic alphabet.

There are also tone controls for use with the D-STAR DV mode. The user of the radio can adjust TX bass and treble and RX bass and treble. There is also a RX bass boost function to restore a bit of bottom end to received audio that can be missing at times.

I've found the receive performance of the ID-31A in D-STAR mode to be exceptional. I've not had the opportunity to view a service manual of the ID-31A to see the GMSK modem section to compare to other Icom D-STAR radios...but I expect that lessons learnt from earlier D-STAR radios have been incorporated by Icom into the ID-31A.

Conclusions

The ID-31A is a compact, highly capable and lightweight 70 cm handheld which performs superbly. As supplied, it comes with all the essentials, including a software package which enables one to easily manage the large number of memory channels available. It makes the use of the D-STAR system much easier to use for someone who is new to the system.

It will be interesting to see the next generation D-STAR capable dual band hand held when one is released. The ID-31A with its extensive capabilities gives an interesting glimpse into the direction that Icom is taking with its radio development.

The ID-31A is excellent value for money – they are selling for \$399.00 from authorised dealers.

Thank you to Icom Australia for the loan of the unit used by VK3PF.

Gippstech 2012

We will be running an alternate program for partners, with Pauline Corrigan acting as the guide. In addition, there are social gatherings in the form of a Bistro meal on Friday evening and the Conference Dinner on Saturday evening.

Registration including meals close on 30 June. We can accommodate a small number of additional participants after that date, but meals will not be available to late registrants.

The **Annual Gippstech 2012 Conference** is almost here. The conference is hosted by the Eastern Zone Amateur Radio Club (Inc.) and will be held on the weekend of 7 and 8 July 2012 at Monash University Gippsland Campus, Churchill. The technical program is almost finalised, with the following topics offered:

- A local cost GPS frequency reference for any radio
- DVSSB - A PC based digital speech mode that rivals SSB above 30 MHz
- Converting ex Analogue TV equipment for use on the amateur bands
- 24 GHz propagation
- 78 GHz and Up!! An alternative, simple approach to millimetre wave homebrewing
- Stepping in it
- The Marconi Poldhu Station
- 10 GHz rainscatter
- Cheap preamp for 10 GHz
- Microwave power amplifier construction
- DVB-T dongles for amateur SDR
- 5.7 GHz preamp
- New software from VK3UM
- Digital Interface for the IC-706
- Es Backscatter Doppler Shift Measurements Using CW and Chirp Radar Techniques
- Publish your radio projects on the web, in three easy steps
- Long-range ionospheric DX on 6 m and 2 m - new angles on success
- SOTA - a new challenge
- WRC-15 issues for amateurs

More information is available by following the Gippstech links at the Club website: <http://www.vk3bez.org/>

Silent Key William A Wells VK4UA

Bill Wells VK4UA became a Silent Key on 30 May, 2012 having turned 89 earlier in May 2012. He came from country Victoria and his interest in radio began as a 14 year old when he built his first radio receiver. Bill served in the RAAF from 1942-46. Licensed for 65 years, first as VK3AWW in November 1947, his first equipment was a 6V6 PA modulated by a pair of 6V6s and he used an ex-military BC348 as a receiver. As a young man he founded and ran his own business manufacturing RF heat sealing equipment.

In 1950 he joined the Department of Civil Aviation and become an airways engineer.

About 1952 he became VK3WL and upgraded his station to a pair of 807s with an 807 modulator in class B. The antenna at this time was a two-element wire beam about six metres high.

In 1963 he was seconded to a position in the USA to investigate the possibility of having underwater sonar equipment being manufactured in Australia.

In 1967 he went to Canada as Technical Manager for EXPO-67 in Montreal. In 1968 he moved to the USA for three years as a Senior Engineer on the Mallard Project. This was an international

co-operative research and development between Australia, Canada, United Kingdom and the United States of America of a military communications system. While there he operated as VK3WL/W2 working about 180 countries with a two element quad antenna, a Hallicrafters SR100 and a Heathkit SB2 linear amplifier, which was needed and used because of the high power of the W2 stations.

On returning to Australia in 1970 he lived in Canberra where he was Supervising Engineer of Guided Weapons and Electronics with the Department of Supply, responsible for the design and installation of communications which revolutionised air traffic control Australia wide. His call sign was then VK1WB.

In 1979 he was badly injured in a fall from his tower even though wearing what he thought was a correctly fitted safety belt. He retired a year later and in 1986 moved to Queensland, on to an acreage property where he had a very good take-off for radio communication and was always on the air with the call sign of VK4CWB, which he changed to VK4UA about 1989.

From about 1990 he assisted Percy VK3PA to run the ANZA DX Net where many new entities were worked by those checking in. He told of days when he was acting as net controller and there would be up to 140

check-ins. When this happened they would have to split the net and work on two frequencies and could often be there for two or three hours. Over his operating time he QSLed 376 entities, which included 40 deleted countries. When Percy became a SK in July 1998, Bill VK4UA, Morris ZL1ANF, Tex VK1TX and a group of volunteers got together and drew up a roster of net controllers to keep the ANZA DX net going. One of the memorable DX visitors to the ANZA net was Chuck Brady 3Y0C, who made a solo trip to Bouvet Island in December 2000. Chuck checked in to the ANZA net several times and net controller Bill VK4UA consistently managed to pull his signal out of the mire and assisted many operators to get this rare DX station in their logs.

With his health failing he moved from his acreage location in 2008 and after a short time with his daughter moved into an aged care home where radio was not possible. This really frustrated him but he was, on occasion, able to operate from his daughter's house where a vertical antenna had been erected.

Vale Bill VK4UA.

Contributed by Ray Crawford VK4NH.

A transceiver control and audio interface using USB components

Dale Hughes VK1DSH

It's funny how a combination of circumstances can help recall memories or ideas previously stored away... The events in this case were:

- Annoyance at the apparently poor frequency calibration of the inbuilt sound card in the laptop computer I use for weak-signal digital mode communications.
- Frustration at having too many cables to change over when wanting to use the laptop to operate different transceivers on digital modes.
- Lack of a standard serial port on the laptop which meant always needing a 'USB-to-Serial' converter cable.
- Publication of a USB sound interface project in the June 2011 edition of Silicon Chip magazine (see reference 1).

Out of interest, I acquired the necessary parts for the USB sound interface and was very happy with its performance when it was constructed. Its sample rate (therefore its frequency calibration) was accurate and its signal to noise ratio appeared to be much better than the laptop PC sound interface. Based on these factors, the decision was made to consider using it in place of the laptop sound device, but just using another sound card would mean more cables etc. It seemed like a good idea to combine all the necessary hardware into a single enclosure and look for a way to simplify connection to multiple radios and the laptop PC. That would solve all of the problems!

Then returned the memory of a GippsTech presentation describing a similar device, using all commercially available components. Searching through the conference proceedings of the last few years, I found that the presentation was given by David

Smith VK3HZ at GippsTech 2009 (see reference 2). David's presentation described how he combined a USB sound card 'dongle', USB-serial converter and USB hub in a small box which give him a small and portable device for operating his radio from his PC. That now seemed like a very good solution. Of course I could have purchased one of the commercially available units, but that would have spoilt the fun.

So, that is the preamble. Let us get on with the technical stuff. The USB sound interface is based on a PCM2902E CODEC which includes the audio analog-to-digital and digital-to-analog converters and USB 1.1 interface. It also includes a digital audio interface which isn't used for this project. The printed circuit board supplied by Silicon Chip is a double sided board which is well laid out and most of the components, except for the CODEC and low-noise voltage regulator are through-hole devices which makes for simplified construction. The required parts were purchased from Element14 and Jaycar – no kit is available. The unit was assembled and tested in a few hours and it worked first go. Furthermore, the completed unit works significantly better than the on-board audio interface in my laptop PC.

The most important aspect for my use is the accuracy of the ADC sample rate. The PCM2902E supports seven standard sampling rates between 8 and 48 kHz. The sample rate is set by a 12 MHz crystal oscillator which, in principle, can be adjusted to set the oscillator to exactly 12.000 MHz. I modified the original design by using silver-mica capacitors instead of the specified NPO types and the oscillator appears stable and very

close to 12.000 MHz without any adjustment. As an aside, access to the CODEC oscillator would allow locking it to an external frequency reference which would be useful for very weak signal work.

Why is the accuracy of the CODEC sample rate so important? It only matters when you are doing some sort of spectral analysis for signal detection and demodulation. For example, it is very common on the 137 kHz band to use very long 'dot lengths' for DX communications, maybe as long as 120 seconds per dot. This is called QRSS120 and it requires a high level of frequency stability for both the receiver and transmitter. Typically, the receive bandwidth is only a few Hz, with the width of the associated FFT-bins being perhaps 10 mHz wide (that's correct, it's milli-Hertz). To put it another way, weak signal work is a lot like looking for a 'needle in a hay stack'. You need be looking in the correct 'hay stack' if you are going to successfully receive a weak signal, hence the need for accurate frequency calibration.

The USB audio device is also used to generate audio signals for the transmitter; therefore frequency stability and accuracy are just as important. As the frequency of the audio signal generated by the CODEC DAC is mostly determined by the sample rate, it needs to be accurately defined to ensure you are transmitting in the right 'hay stack' (frequency).

As published, the Silicon Chip USB audio interface also includes microphone input channels which may or may not be useful depending upon your application. I included them in my unit, but all radio related audio input-output is at

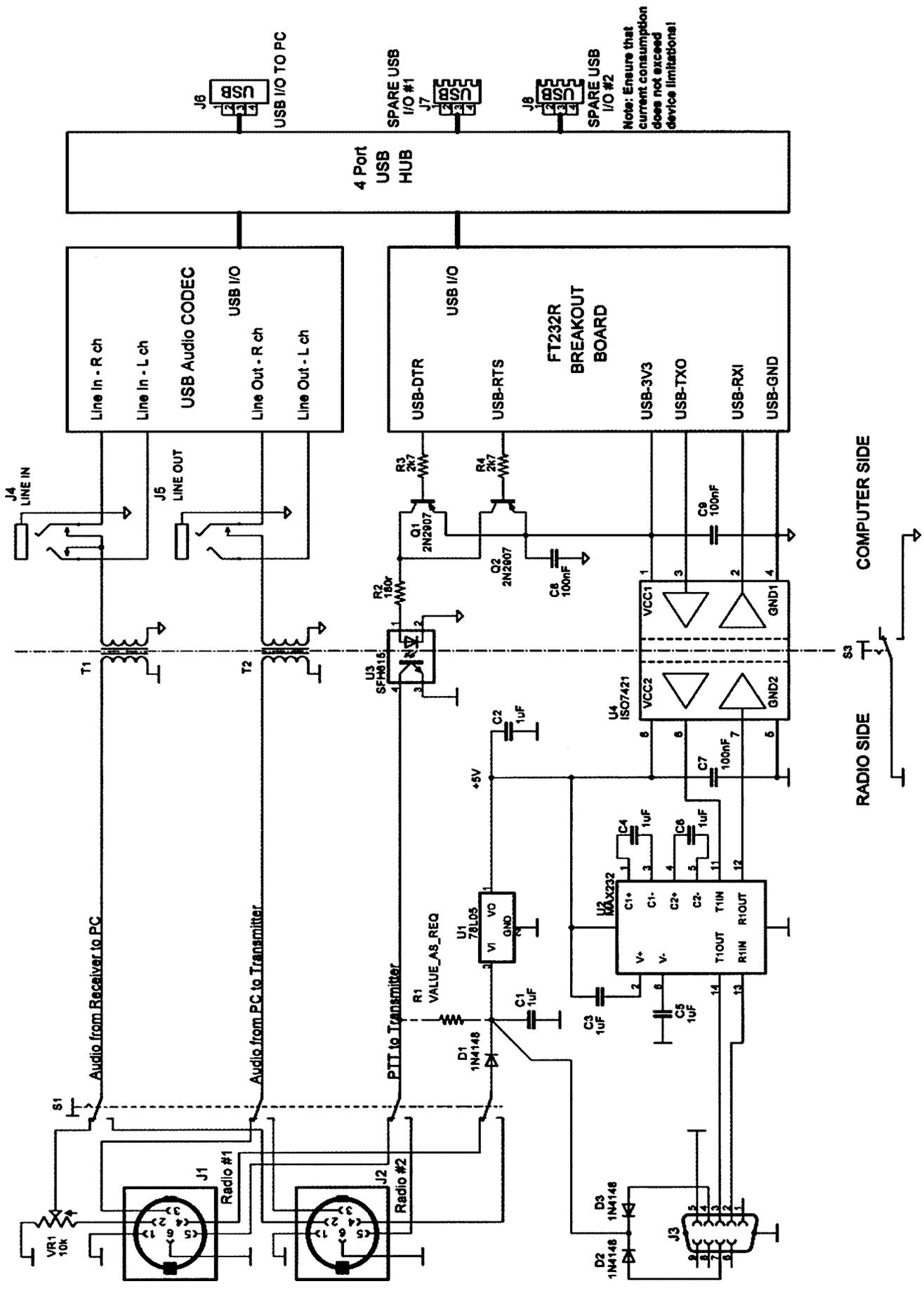


Figure 1: Schematic diagram of USB-transceiver interface.

'line level' so the microphone inputs are not strictly necessary. Audio from the radio(s) is fed to both right and left channels of the CODEC, but this can be changed if required. Audio out from the CODEC uses the right channel alone, but again this can be changed to suit the particular need of the user.

My experience (see reference 3 for more details) has been that 'galvanic' isolation between the radio and computer equipment is very useful in eliminating the last vestiges of computer noise from the receiver. Galvanic isolation means that there is no direct, or copper, signal connection between the devices. Suitable isolation techniques generally use magnetic or optical coupling, although capacitive coupling may be suitable in some situations as you will shortly see. The schematic diagram shows two earth symbols and these are physically and electrically separate earths which help to maintain the isolation between the radio and computer. However it is useful to be able to link the earths for testing, or where noise is not an issue, and a switch is provided which connects the two earths together (S3 on the schematic diagram).

To achieve the audio isolation I used two 600:600 ohm audio transformers (Altronics M1000 or similar) and mounted the radio connections on an insulated plate which isolates the earth connection between the attached radios and computer. Note that in any case, the radio should be connected to a proper radio earth and that the computer should be connected to the mains earth for safety reasons. From a noise reduction point of view it is generally better to have a separate radio earth built around a number of independent earth rods driven into the ground. In the unlikely event you are using the system in an aircraft you will have to adopt other measures for proper earthing...

The other important part of the interface is the control circuitry

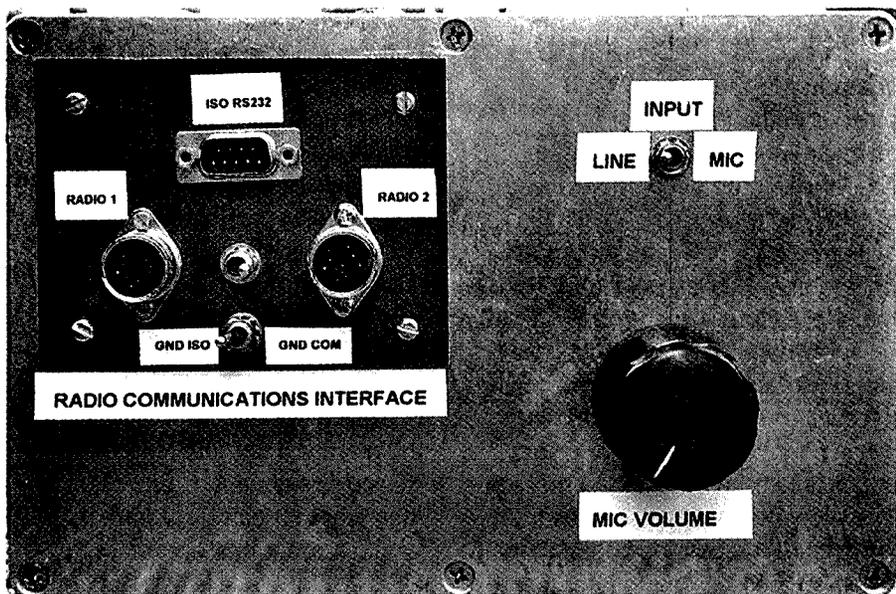


Figure 2: The completed interface. All connections to the radio(s) are mounted on an insulated panel which isolates the radio earth path from the computer earth.

which uses a USB-to-serial converter module. The module contains the all necessary circuitry and firmware to provide a virtual serial port which can be used to send and receive serial data and handshaking information just like a physical serial port on a computer. The module was obtained from Protogear (see <http://www.protogear.com.au/breakout-board-for-ft232rl-usb-to-serial.html>) (Ed: See OTY page 53 regarding this supplier). It is a small module which is inexpensive and easy to use; however the converter circuitry doesn't provide any galvanic isolation from the computer, or components to convert the logic levels on the USB serial interface to RS232 voltage levels.

Conversion to/from RS232 levels is easily accomplished using the well-known MAX232 device (U2). This chip contains the 'charge pumps' to generate the required positive and negative voltages; it also contains the RS232 transmitters and receivers. Galvanic isolation of the serial input/output is provided by an ISO7421 chip (U4) from Texas Instruments. This device is a clever unit which uses capacitive coupling to isolate its inputs and outputs. Separate

supply voltages and independent earths ensure the isolation. However the isolation comes at a price: power for the RS232 converter and isolator must be supplied from the radio side, but this can be provided either through several unused handshaking lines on the serial port or through a supply feed from the radio. A three-terminal regulator (U1) reduces the voltage to 5 V as required for U2 and U4. An alternative would be to use an isolated DC-DC converter which could derive power from the USB connection, but that wasn't implemented in the current version.

'Press-to-talk' control of the transceiver is isolated via a low-current optical isolator (U3) which is driven via a couple of PNP transistors connected to the RTS and DTR lines from the USB serial converter module. Generally the communications application software will allow you to select a suitable handshaking line for use as the PTT line for transmitter control. When the handshake line is asserted the output transistor of the optical isolator will conduct, pulling its collector terminal to ground. Note that a 'pull-up' resistor may be required in some instances for the PTT to work properly.

The final part of the circuit is a USB-hub which connects the computer to the various USB devices in the interface. I used an inexpensive four-port device. After the printed circuit board was carefully removed from its plastic case, the hub PCB was mounted onto a small piece of blank PCB material so that the assembly could be screwed into the die-cast box along with the audio and serial interfaces. The two spare ports were mounted so that they were accessible from outside the box as this allows other USB devices to be connected if required. Connections between the USB audio interface and USB hub was made by a short length of twisted pair wire that was soldered onto the USB audio board and USB hub PCB. A first attempt at removing the miniature USB connector from the USB serial converter resulted in a damaged board as the tracks are very thin, so another board was used and connection made with a cable that had miniature USB connectors at one end, the other end being soldered to the USB hub PCB.

The USB hub that I used

supports the USB 2.0 specification and the USB serial converter supports both the USB 1.1 / USB 2.0 full-speed physical interface; however the PCM2902 CODEC only supports the USB 1.1 standard, but still runs at a bus speed of 12 MHz. I have experienced no problems with this situation and the CODEC works fine through the hub and with all application software that I have tried. An updated PCM2902B part is available which supports the USB 2.0 standard and the rest of the device specifications are virtually identical to the original part, so it would appear that upgrading to USB 2.0 for all USB components is possible. I have not yet tried to do so.

Power for both the USB audio and USB serial circuitry (excluding the RS232 level conversion) is provided by the USB connection from the computer via the USB hub. This is convenient as it means that no additional power supplies are needed and this simplifies application of the device. The only thing to consider is that no more than 500 mA can be supplied by the USB connection from the PC.

While the power consumption of the unit is well below this limit, the user will have to make sure that any additional USB devices that are connected to the hub do not draw excessive current.

Connections to and from the radios are made through a pair of 5-pin DIN connectors and a switch (S1 on the schematic diagram) allows selection of the operational radio. A similar arrangement could be applied to the RS232 port, but this was not needed for my application. The line level audio input and outputs are made available through 6.5 mm chassis sockets with inbuilt switching as this increases flexibility of the unit by making it easier to access the audio input/output ports for other applications.

Depending upon the type of radio used, there may be some need to adjust the audio input level to the USB audio interface. Some radios have a fixed audio output level which cannot be adjusted at the radio, for example, the FT-817, in which case it is necessary to be able to adjust the audio level to avoid overdriving the CODEC. The schematic diagram shows a potentiometer (VR1) on one of the radio inputs which can be used to adjust the input level and the same circuitry can be fitted to the other input if required, or can be deleted if the output level from the radio can be controlled at the radio.

When the unit is complete and first connected to your computer, the operating system (Windows XP in my case) will search for and install the appropriate drivers for the sound and serial interface. I experienced no difficulty with this and everything worked first go; however the Silicon Ship article does describe the process in great detail and the article should be consulted if a unit is constructed.

There is one point worth noting for convenience. If possible always use the same USB port when connecting the unit to your PC as the COM port enumeration will stay

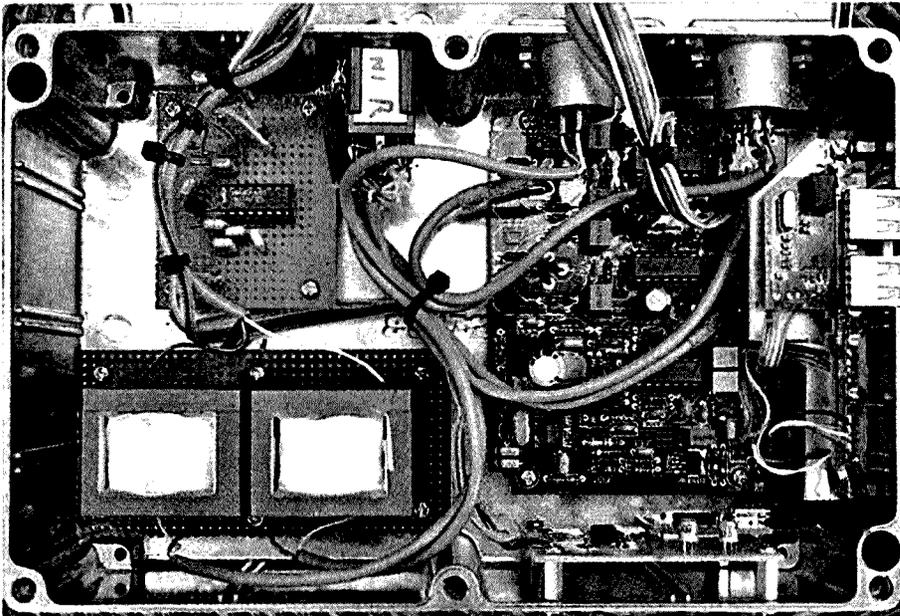


Figure 3: Inside construction and layout of the interface. The USB hub and sound interface are on the right hand side; below that on the bottom right is the USB interface and isolators. The RS232 level converter is built on a small piece of 'Vero' board which is just above the audio isolation transformers. The line and microphone sockets can be seen at the top of the box.

the same. If you use a different USB port, the COM port may be assigned to another number which will mean having to change the settings in your application software.

The unit has proven to be flexible and easy to use; the ability to easily switch between multiple radios is very convenient. The performance of the USB sound interface is very good and is substantially better than the inbuilt computer sound card. A further advantage of an external unit is that it reduces the possibility of damage to your computer if something goes wrong with the radio or interface. It is all too easy to overload the audio input of the PC sound interface and permanently damage it. Using

an external device means that the damage should be confined to components that are relatively easy to repair.

My thanks go to Bill Maxwell VK7MX for his helpful comments and suggestions about this article.

References

1. USB Stereo Recording & Playback Interface. Jim Rowe. Silicon Chip, June, 2011.
2. USB Rig Interface. David Smith VK3HZ. Proceedings from the Twelfth Annual Gippsland Technical Conference, 11/12 July, 2009.
3. PC RFI reduction and sound-card interface. Dale Hughes VK1DSH, Amateur Radio. July, 2009, Volume 77, No 7.

Over to you

An isolated USB interface for controlling radio equipment

AR June 2012, p 60.

I have been advised by a reader of AR that Protogear, the supplier of the FT232R board that was used in the June article "An isolated USB interface for controlling radio equipment" is going out of business. I have located another supplier - Australian Robotics - <http://australianrobotics.com.au> - who can supply the breakout boards. This problem will also affect builders of the upcoming article about the isolated sound card interface (published in this issue of AR, Ed.).

The ISO7421 device also appears to be difficult to source, so if there is sufficient reader interest I would be prepared to purchase a tube of the devices (75 units) and distribute them at cost.

Dale Hughes VK1DSH

Dale can be contacted via email at: dalevk1dsh@gmail.com

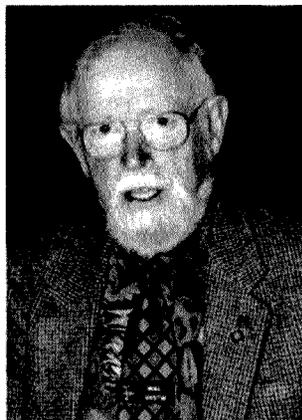
Silent Key

Walter (Wally) Giles-Clark VK5TW

It is with sadness that I tell you of the passing of my OM, Walter Edward Giles-Clark, born on 27 November 1929 and died 16 May 2012 from leukaemia.

Wal got into electrics which lead to electronics through his next door neighbour John Stewart (later VK5ZJS) who was an auto electrician. Wal's parents organised a table in his room and he experimented with crystal sets and one day he let out a scream when he heard something and his Mother came running thinking he had electrocuted himself! Wal's Dad gave him a shed to build things in and he built amplifiers and got into mechanics. Wal went through school and experimented with mate Geoff Taylor VK5TY (SK). This included experimentation with light beam communications using audio amplifiers across the backyards at Black Forest in the 1940s.

Both Geoff and Wal started work in the Adelaide Electric Supply Company on an electric training scheme and Wal ended up specialising in underground fault location and 44.5 years later retired from the Electricity Trust of South Australia (ETSA). Whilst District Electrical Inspector at Gumeracha, Wal studied for his amateur ticket at the Marconi school in Adelaide and passed his theory and became VK5ZEH. He



went on and did the black and white TV course at the Marconi school and built a TV just in time for the moon landing. Wal struck up life-long friendships with many people in the district including Eric Jamieson who he convinced to get his amateur licence, which he did, becoming VK5LP. The 'magic band' six metres was all the rage and Eric and Wal were mad keen experimenters.

When Wal went to ETSA - Adelaide Area he was back working with his school mate - Geoff Taylor VK5TY and Geoff convinced him to do his Morse tests. Six tries later the Radio Inspector accused him of using the examinations as practice sessions! He did eventually pass his Morse and put in for VK5TT because he was a mad keen motorcyclist. He was allocated

VK5TW - 'Tangled Whiskers' and he always thought it was conspiracy!

Wal was very involved with the Southern Australian branch of the Wireless Institute of Australia and helped refurbish the old Burley Griffin Incinerator into the club rooms and transmitters. He edited the club newsletter for a period as well. The Wireless Institute journal was Gestetner copied and assembled in various amateurs homes and posted out and this was always a very social gathering.

Wal got back into amateur radio in the 1990s and joined the Adelaide Hills Amateur Radio Society when they were meeting at Blackwood High School, along with joining the VK QRP club and enjoyed helping with their magazine - Lo-Key.

Wife Colleen and Wally travelled all over Australia in their Kombis and both were very appreciative of all involved in the VK Traveller's Net, and Wal would always make a page of contacts in the Remembrance Day contest to remember those fallen in WWII.

See you mate - we'll really miss you.

Contributed by Justin Giles-Clark VK7TW.



VK2news

Tim Mills VK2ZTM
e tim.ztm@gmail.com

The next bi-monthly Trash & Treasure conducted by ARNSW will be on the last Sunday this month, 29th July, at the VK2WI site. As well in the morning there will be assessments for all licence grades. The Home Brew and Experimenters group meet in the early afternoon. On the previous Sunday, the 22nd, there will be a one day Foundation course. Information about these events is contained in the weekly VK2WI Sunday news bulletins or it can be found on the ARNSW web site www.arnsw.org.au Email contact for courses is education@arnsw.org.au or a message to the office telephone 02 9651 1490.

Candidates for assessments need to bring with them a head and shoulders passport sized photo, identification and money for the assessments being undertaken.

Equipment upgrade at VK2WI has enabled callbacks to again be taken on the 20 metre service which is to be found on 14.170 MHz. Callbacks on all frequencies from VK2WI are most welcome via the session after the bulletin or can be sent by email to callbacks@arnsw.org.au

With other VK2 clubs this month, the Hunter Radio Group has a Ladies night on Thursday the 5th. The Waverley ARS have their annual auction on Saturday, 7th July at their Rose Bay clubrooms. This is a week earlier than that advised in last month's notes. They held their AGM in late May and have a Foundation weekend scheduled for the 8th and 9th September. The Paddington repeater 147.025 now requires a 91.5 CTCSS access tone. WICEN NSW have the annual Bush Walkers Search and Rescue NavShield

exercise over the weekend of the 7th and 8th.

The Illawarra ARS are settling into their new meeting location at the Figtree RSL Bowling Club, 120 The Avenue, Figtree, on the second Wednesday evening. Part of the arrangement is for IARS members to join the Bowling Club. The IARS, like many clubs, are finding the cost of operating repeaters is not helped by the tax imposed by the NSW State Government when systems are located on Crown Land sites. IARS operate many sites and are considering moving off some sites where this 'tax' applies. They are in the process of developing a new repeater within the Jervis Bay territory. Once Jervis Bay is established, the Mount Boyne VK2RBT 146.975 will be decommissioned and relocated to a yet to be determined site south of Batemans Bay. A CTCSS tone is to be fitted to the VK2RPM Maddens Plains 146.850 repeater due to the high intermods at the commercial site. It is then planned to add the VK2RRR repeater on trial at Razorback Range to the coast link network, advises IARS Secretary Ross VK2VVV.

St. George ARS have been able to make antenna improvements to their Heathcote VK2RLE on 6800. Also, their Mt. Bindo 6650 has had the VK2WI broadcast linking restored.

HADARC held their AGM in late May with almost the same committee line up from last year. The President is again John VK2ZOI who has stated it will definitely be his last year. HADARC will be taking part in this year's International Lighthouse and Lightship Weekend

and have secured access to the Lightship Carpentaria which is moored adjacent the Maritime Museum at Darling Harbour. This is one of four Lightships that Australia built in 1917. These Lightships worked in pairs – one on station and the other in port under maintenance. They were changed over annually. Most of the time one was located off Sandy Cape at the northern tip of Fraser Island, Queensland and the other in the western approaches to Torres Strait. HADARC members will operate alongside Carpentaria across both days on 18th and 19th August.

The Albury Wodonga ARC will have their annual Hamfest on Sunday, 29 July at the Lavington Scout Hall in Mutsch Street. Contact Peter VK2ZZA: p_burg@tpg.com.au The Snowy Mountains ARC is a small club covering the Monaro, Snowy Mountains and south coast region. They had their AGM in early May with a committee of Bill VK2ZZF as President, Fred VK2FJS Secretary/Treasurer and Richard VK2HRM as Technical Officer. Besides two metre repeaters their six metre unit on 53.575 is now operational. They are looking into repeater coverage in the west of the Snowys. The club has a Saturday night net on 147.025 MHz.

The Blue Mountains ARC now has a new club house in Moore Street, Glenbrook. At their recent AGM Richard VK2BO was elected President with Kevin VK2ERP as Vice President; Alf VK2YAC is Secretary and Carl VK2HRC is Treasurer. On Committee are Rick VK2FRMC, Michael VK2MJB and Erik VK2EJH. Other positions have Bob VK2AOR as Net manager,

Andrew VK2XPT Web manager, Daniel VK2DC Ragchew Editor, Tony VK2HO Repeater manager, Erik VK2EJH Publicity officer, Steven VK2BOS IRLP manager and Richard VK2BO Education. Carl Harford VK2HRC was given the honour of being elected as a Life Member of

the club. Later in the year they plan to hold Winterfest.

Last month the Oxley Region ARC held their annual two day field day on the long weekend. The venue was again the Tacking Point Surf Lifesaving Club Hall. The Saturday night dinner was held at

the Port Macquarie Golf Club. A report is in the bi-monthly Oxtales newsletter which can be found at www.orarc.org The Fishers Ghost ARC celebrated their 30th year of activities last month with a special event callsign VI2FG30. Check them out at www.fgarc.net



Spotlight on SWLing

Robin L. Harwood VK7RH
e vk7rh@icqmail.com

Winter has certainly arrived here and also the carbon tax! My electricity has already jumped \$22 a fortnight and Tasmania is supposed to have no coal-fired power. Yes we do have an undersea cable linked to the mainland to share power between us and the rest of Australia. I guess others are also grumpy about the effect that the carbon tax is having on the cost of living!

The 27th of this month sees the commencement of the London Olympics, which will go on to the 12th of August. As it is in the UK and the BBC have host broadcasting rights, we may have some shortwave coverage on their limited HF output. However as in previous Olympiads, most internet streams will go dark because they do not have rights to stream the Olympics. I, along with millions, will be glued to the television anyway and will not have time to listen on radio. I do expect that the local ABC will again have extensive coverage on radio which will be better than the Nine coverage with endless commercials.

I believe that there was a very short-lived clandestine station in May. It was supposed to be sympathetic to the Tamils who

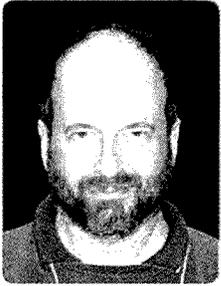
either fled from the recent civil war in Sri Lanka or are still in hiding. I personally did not observe it but reports say it first appeared on the unusual frequency of 12250, possibly from central Asia. A few days later it appeared on 12225 yet the programming was western music without any announcements. It was a mystery for a few days until one night a brief ID as the Sri Lanka Broadcasting Corporation was heard in English. It was on 11940 also and it now looks likely that the government in Colombo used the Tricomallee site, formerly used for Deutsche Welle to jam the clandestine signal. Some even speculate that the clandestine never had a chance against the 250 kW sender.

Radio Canada International (RCI) did indeed close down on the 26th of June, despite the protests of staff and loyal listeners. The future of the Sackville site is very much in limbo. I believe that several major international broadcasters had agreement to utilise Sackville and it is unclear at the moment if they too have lost out. Also Radio Netherlands ceased broadcasting in Dutch on the 10/11th of May. The remaining languages will cease at

the end of October. It is so sad to witness the decline of shortwave broadcasting in such a rapid and undignified manner.

Papua New Guinea is extremely unstable at the moment with political turmoil swirling about Port Moresby. There are elections apparently scheduled for July in an effort to sort out the mess. The main 100 kW senders are no longer in use yet the provincial stations on the 90 metre tropical allocation are still operational. Also the PNG service of Radio Australia is a reliable source of news for the region. RA is heard in local languages at 0900 on 6020 and 9705, both from Shepparton. Incidentally this instability has spilled over to Vanuatu and the Solomon Islands, both of who are also on shortwave. Vanuatu is on 3945 and 7260, although the latter channel is drowned out by international stations. It is best heard around 0730. Solomon Islands are heard on 5019.9, signing off at 1100. On Sunday night, they have a hymn singing program usually in local languages.

Well that is all for now. Stay warm and keep monitoring.



AMSAT

David Giles VK5DG
e vk5dg@amsat.org

2012 – The first six months

The main news from the first half of 2012 has been covered in previous columns: FO-29 was brought back, VO-52 went silent and its second transponder activated, COMPASS-1 went silent and the launch of the Vega rocket. All satellites listed below have been heard by me during the months of April and May except UO-11, NO-44, SO-67, FO-69 and FO-70.

Six-monthly review of operational OSCARs

Here is an updated review of the operational OSCARs and other satellites using amateur satellite

service bands. The names of the satellites are given as OSCAR number, full name and (NASA catalogue number). Modes are represented by frequency bands: H=10 m, V=2 m, U=70 cm, L=23 cm, in order of uplink/downlink.

Linear transponders use CW and SSB. With the exception of AO-7's V/H transponder, all linear transponders are 'inverting' types and use LSB for the uplink and USB on the downlink. For AO-7 mode V/H use USB for both links. Most of the activity is in the middle of the passband. If manually adjusting for Doppler then the most compensation should be done with

the highest band in use. Foundation licensees are permitted to transmit SSB/CW and FM voice to any of the satellites in the 10 m, 2 m and 70 cm bands as well as receive all the satellites. Foundation licensees are not permitted to use 23 cm uplinks (for example CO-65). See the AMSAT column in September 2009 AR for more details.

Telemetry decoding programs for several satellites are available from Mike Rupprecht's website at <http://www.dk3wn.info/software.shtml> Reports of selected satellites heard by amateurs during the past six days can be found at <http://oscar.dcar.org> (especially useful for AO-7).

AO-7 AMSAT OSCAR 7 (7530)

Launched: 15/11/1974.

Status: Operational only when it is in sunlight. It may be in any mode.

During non-eclipse periods as it is currently, AO-7 will alternate between modes V/H and U/V every 24 hours.

Beacons are not always on.

Mode: V/H (old mode 'A'), linear, non-inverting.

Uplink: 145.850-145.950 MHz, Downlink: 29.400-29.500 MHz.

Beacon: 29.502 MHz CW. Occasionally the 435.106 MHz CW or RTTY beacon may be on.

Mode: U/V (old mode 'B'), linear, inverting.

Uplink: 432.125-432.175 MHz, Downlink: 145.975-145.925 MHz.

Beacon: 145.972 MHz CW at 10 or 20 WPM.

UO-11 UOSAT-2 (14781)

Launched: 1/3/1984.

Status: Intermittent. UO-11's 145.826

MHz beacon will only work when in full sunlight. You may hear its distinctive signal while monitoring the frequency for other satellites such as ISS, NO-44 and FO-70.

Beacon: 145.826 MHz FM 1k2 AFSK.

<http://www.g3cww.co.uk/oscar11.htm>

IO-26 ITAMSAT (22826)

Launched: 26/09/1993.

Status: Semi-operational. IO-26 is in Master Boot Loader (MBL) mode. It transmits continuous BPSK carrier with the occasional telemetry packet.

Beacon: 435.790 MHz 1k2 BPSK (Note: this has shifted from the original published frequency)

<http://www.amsat.dk/oz7sat/tlm/view.php?sat=io26>

FO-29 FUJI-OSCAR 29 JAS-2 (24278)

Launched: 17/8/1996.

Status: Semi-operational as linear transponder. Most activity is around 435.850 MHz. The BBS and digipeater operation have not been used since 2003.

Mode: V/U linear, inverting.

Uplink: 145.900-146.000 MHz, Downlink 435.900-435.800 MHz.

Beacon: 435.795 MHz CW telemetry.

<http://www.ne.jp/asahi/hamradio/je9pel/index.htm>

<http://tinyurl.com/FO29Blog>

NO-44 PCSAT (26931)

Launched: 30/9/2001.

Status: Operational only in full sunlight.

One solar panel and the batteries are not functioning.

Mode: V/V 1k2 AFSK packet digipeater.

Uplink: 145.827 MHz, Downlink 145.827 MHz.

<http://pcsat.aprs.org>

SO-50 SAUDISAT-1C (27607)

Launched: 20/12/2002.

Status: Operational. SO-50 has a sensitive receiver and a transmit power of only 250 mW.

Mode: V/U FM voice with 67 Hz CTCSS tone.

Uplink: 145.850 MHz, Downlink 436.795 MHz (but may switch to 436.790 MHz).

To switch the transmitter on you need to send a few seconds of 74.4 Hz CTCSS tone.

The order of operation is thus (allow for Doppler as necessary):

- 1) Transmit on 145.850 MHz with a tone of 74.4 Hz to arm the 10 minute timer on board the spacecraft.
- 2) Now transmit on 145.850 MHz FM voice using a 67 Hz CTCSS tone to access the transponder.

3) Sending the 74.4 Hz tone again within the 10 minute window will reset the timer.

VO-52 HAMSAT (28650)

Launched: 5/5/2005

Status: Operational. VO-52 has two linear transponders that use nearly the same passbands. The Dutch transponder has been in use since March 2012. Its beacon is very strong and an 'image' can be heard in the transponder downlink. Most activity is around 145.900 MHz. AMSAT-India have requested that FM is not used through either transponder.

Mode: U/V linear inverting.

Indian transponder:

Uplink: 435.220-435.280 MHz, Downlink 145.930-145.870 MHz.

Beacon: 145.936 MHz continuous carrier.

Dutch transponder:

Uplink: 435.225-435.275 MHz, Downlink 145.925-145.875 MHz (up to +/-5 kHz variation).

Beacon: 145.862 MHz CW 12 WPM preset message.

<http://www.amsatindia.org>

The following are mainly Cubesats.

Reception reports are often well received and can result in a QSL card for your efforts. See websites for details.

CO-55 CUTE-1 (27844)

Launched: 30/6/2003.

Status: Operational. From the first cubesat launch CO-55 continues to send CW telemetry though the beacon now has an additional carrier.

Beacon: 436.8375 MHz CW telemetry.

http://lss.mes.titech.ac.jp/ssp/cubesat/index_e.html

CO-57 Xi-IV (27848)

Launched: 30/6/2003.

Status: Operational. From the first cubesat launch, CO-57 continues to send CW telemetry. It also has an on-board camera. Pictures of the Earth can be found on the website below.

Beacon: 436.8475 MHz CW telemetry.

<http://www.space.t.u-tokyo.ac.jp/g/en/index.aspx>

CO-58 Xi-V (28895)

Launched: 27/10/2005.

Status: Operational. CO-58 has an on-board camera. Pictures of the Earth can be found on the website below.

Beacon: 437.465 MHz CW telemetry.

<http://www.space.t.u-tokyo.ac.jp/g/en/index.aspx>

DO-64 Delfi-C3 (32789)

Launched: 28/4/2008.

Status: Semi-operational. The linear transponder has failed. The control team switched DO-64 back to science mode on 29/1/2009. Often by the time it has reached VK/ZL the transmitter has stopped, so it will be heard here occasionally. If they change it to basic mode then the telemetry will be heard over VK/ZL on most passes. The telemetry can be demodulated and decoded using software from the Delfi website.

Beacon: 145.870 MHz (primary) or 145.930 MHz (secondary) 1k2 BPSK telemetry.

<http://www.delfic3.nl/index.php>

CO-65 CUTE-1.7+APDII (32785)

Launched: 28/4/2008.

Status: Operational. The CW beacon is on continuously. The mode L/U APRS digipeater has been activated during weekends using 9k6 GMSK modulation. Unproto via JQ1YTC.

Mode: L/U 9k6 GMSK.

Uplink: 1267.602 MHz, Downlink 437.475 MHz.

Beacon: 437.275 MHz CW telemetry.

http://lss.mes.titech.ac.jp/ssp/cute1.7/index_e.html

CO-66 SEEDS II (32791)

Launched: 28/4/2008.

Status: Operational. CO-66 is a cubesat that transmits CW telemetry, packet telemetry and a pre-recorded message of voice and SSTV. Sometimes all three can be heard during a pass over VK/ZL as it changes modes. At 450 mW output, CO-66 has one of the strongest signal of any cubesat.

Beacon: 437.385 MHz CW telemetry, 1k2 AFSK packet and FM Digitaler/SSTV.

http://cubesat.aero.cst.nihon-u.ac.jp/english/main_e.html

SO-67 SumbandiiaSat (35870)

Launched: 17/9/2009.

Status: Non-Operational. SO-67 has had many problems and the main mission is considered finished. The amateur payload is still functional but there is a problem with the power controllers. Recovery efforts are still continuing. Keep an eye on the AMSAT-SA website at <http://www.amsatsa.org.za/> for the latest news.

Mode: V/U FM voice.

Uplink: 145.875 MHz with 233.6 Hz CTCSS, Downlink 435.345 MHz.

HO-68 XW-1 CAMSAT (36122)

Launched: 15/12/2009.

Status: Semi-operational. A faulty antenna relay is stopping use of the transponders but the beacon is operating continuously. The website has also gone offline.

Beacon: 435.790 MHz CW telemetry.

FO-69 FASTRAC 1 (37227)

Launched: 20/11/2010.

Known as 'Sara Lily'. FO-69 and FO-70 are a dual system to explore inter-satellite communications. APRS packet experiments have been successful using the 145.825 MHz uplink at 1200 baud.

Mode: V/U FM PACKET.

Uplink: 145.980 MHz 1k2 AFSK, 145.825 MHz 9k6, Downlink: 435.345 MHz.

FO-70 FASTRAC 2 (37380)

Launched: 20/11/2010.

Known as 'Emma'.

Mode: U/V FM PACKET.

Uplink: 435.025 MHz 1k2 AFSK, 437.345 MHz 9k6, Downlink: 145.825 MHz.

http://fastrac.ae.utexas.edu/our_project/overview.php

AO-71 AUBIESAT-1 (37854)

Launched: 28/10/2011.

AUBIESAT-1 is a cubesat from the Auburn University of Alabama. Its mission experiments are radio wave propagation and protective films for solar panels.

Downlink: 437.475 MHz 20 wpm CW for 20 seconds every minute or 75 seconds every five minutes.

<http://www.space.auburn.edu/index.htm>

MO-72 MaSat-1 (38081)

Launched: 13/2/2012 (part of the Vega launch).

Status: Operational. MO-72 was built by the Budapest University in Hungary. Its mission is student design of various subsystems. It has taken some stunning photos of the southern hemisphere.

Telemetry decoding software is available on the website. MO-72 is very popular among the amateurs who want to try working with satellite telemetry.

Downlink: 437.345 MHz CW and GFSK.

<http://cubesat.bme.hu/en/>

RS-series satellites

RS-15 RADIO ROSTO (23439)

Launched: 26/12/1994.

Status: intermittent. The beacon only comes on when satellite is in full sunlight, and is not on every pass.

Beacon: 29.352 MHz on/off carrier.

RS-30 YUBILEINY (32953)

Launched: 23/5/2008.

Status: Operational. Only the CW beacon has been heard over VK/ZL. Other transmission types are heard when it is in range of the control stations in Russia.

Beacon: 435.315 MHz (primary), 435.215 MHz (secondary) CW telemetry.
http://www.dk3wn.info/sat/afu/sat_rs30.shtml

Other satellites using amateur frequencies

ISS (25544)

Launched: 20/11/1998.

Status: Operational. The International Space Station has an amateur radio station that operates in many modes. Ultimately it depends on the manned crew's activities. Voice, digital, and SSTV modes are used. Sometimes experimental modes are tried; one example was a 23 cm FM repeater uplink on 1269.650 MHz.

Mode: U/V crossband FM repeater.
Uplink: 437.800 MHz FM, Downlink 145.800 MHz.

Mode: V/V Digital / APRS 1k2 AFSK FM.
Uplink: 145.825 MHz, Downlink: 145.825 MHz.

Mode: V/V FM Voice, SSTV.
Uplink: (Region 1) 145.200 MHz, (Region 2/3) 144.490 MHz, Downlink: 145.800 MHz.

<http://www.issfanclub.com/>
<http://www.rac.ca/ariss/>

STARS (33498)

Launched: 23/1/2009.

Status: Operational. STARS is two satellites tethered together. Both 'Mother' and 'Daughter' have CW and 1k2 AFSK packet telemetry on 70 cm. The CW beacon of 'Mother' is on continuously, but 'Daughter' is weaker and intermittent.

Beacon: Mother 437.485 MHz, Daughter 437.465 MHz FM 1k2 AFSK.

Beacon: Mother 437.305 MHz, Daughter: 437.273 MHz CW telemetry.

<http://stars1.eng.kagawa-u.ac.jp/english/index.html>

PRISM (33493)

Launched: 23/1/2009.

Status: Operational. Following from the success of CO-57 and CO-58, the University of Tokyo built PRISM to carry a larger camera with a telephoto lens. The packet downlink is only available over the command stations in Japan, though the CW beacon is on world-wide. PRISM also has an uplink channel but frequency and modulation details have not been published yet. A test was made for amateurs during May 2011 but no news since.

Mode: -/U 1k2 AFSK or 9k6 GMSK.
Downlink: 437.425 MHz.

Beacon: 437.250 MHz CW telemetry.
<http://www.space.t.u-tokyo.ac.jp/prism/en/main.html>

KKS-1 (33499)

Launched: 23/1/2009.

Status: Operational. KKS-1 transmits a series of messages on its CW beacon.

Beacon: 437.385 MHz CW message.
<http://www.kouku-k.ac.jp/~kks-1/kks-gs-top-e.htm>

SWISSCUBE (35932)

Launched: 23/9/2009.

Status: Operational. Transmits CW telemetry with frames every 30 seconds. Decoding software is available at their website. SWISSCUBE's mission had ended and will now be under control of two amateur stations in Europe.

Beacon: 437.505 MHz CW telemetry.
<http://swisscube.epfl.ch>

ITUpSAT (35935)

Launched: 23/9/2009.

Status: Operational. This Turkish cubesat transmits a frame of CW every three minutes giving its name and callsign.

Beacon: 437.325 MHz CW message.

Tlsat-1 (36799)

Launched: 12/7/2010.

Status: Operational. Tlsat-1 is the first Swiss student-built satellite. Its mission is to test various materials exposed to atomic oxygen at low Earth orbit.

Downlink: 145.980 MHz FM FSK, CW.

Beacon: 437.305 MHz CW at varying speeds.

<http://www.spacelab.dti.supsi.ch/tlSat1MS.php>

SRMSAT (37841)

Launched: 12/10/2011.

Status: Operational. SRMSAT is a 10kg nanosatellite built by SRM University in India. Its mission is to monitor greenhouse gasses.

Downlink: 437.425 MHz CW telemetry.
<http://srmsat.in>

RAX-2

Launched: 28/10/11.

Status: Operational. The Radio Aurora Explorer was built by students of the University of Michigan. Its mission is to find irregularities in the ionosphere using ground based radar – which it has done. Its downlink is bursts of data using 9k6 GMSK at 20 second intervals.

Downlink: 437.345 MHz 9k6 GMSK.
<http://rax.engin.umich.edu/>

HRBE and MCUBED (37855)

Launched: 28/10/2011.

Status: Operational. The Hiscock Radiation Belt Explorer (formally known as E1P, Explorer one prime) is a cubesat developed at the University of Montana. Its mission is to measure the lower Van Allen radiation belt similar to the original Explorer One. HRBE has a strong signal and should be easy to decode. It is joined to M-CUBED from the University of Michigan. M-CUBED's mission is to photograph the earth but has been unsuccessful so far. The satellites didn't separate after launch.

MCUBED Downlink: 437.480 MHz 9k6 FSK.

HRBE Downlink: 437.501 MHz 1200 baud AFSK (use SSB not FM).

<http://ssel.montana.edu/e1p/>
<http://www.pe0sat.vgnet.nl/satellite/cube-nano-picosats/e1p/>
<http://www.umcubed.org/>

Xatcobeo-1 (38082)

Launched: 13/2/2102 (part of the Vega launch).

Xatcobeo is a cubesat from the University of Vigo in Spain is demonstrating a software defined radio and measuring ionising radiation. Downlink: 437.365 MHz CW (use FM to receive, 75 seconds between frames), 1k2 FFSK.

<http://www.xatcobeo.com/cms/>

HORYU-II (38340)

Launched: 21/5/2012.

Status: Operational. Horyu-II will investigate high voltage generation issues with solar panels. The CW beacon is on worldwide, the 1k2 packet downlink is used over Japan. Downlink: 437.345 MHz 20 WPM CW telemetry and 1k2 AFSK.

http://kitsat.ele.kyutech.ac.jp/index_e_new.html

Final pass

There are plenty to choose from. I have heard (and occasionally been part of) QSOs on all the satellites with working transponders. MO-72 has been popular with telemetry gatherers, partly due to the universal ground station software.



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT

email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU

email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater:146.850 MHz

VK2RIS Saddleback repeater: 146.975 MHz

VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz

VK4RRC Redcliffe 146.925 MHz IRLP node

6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz

VK5RSC, Mt Terrible on 439.825 MHz IRLP

node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124

VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

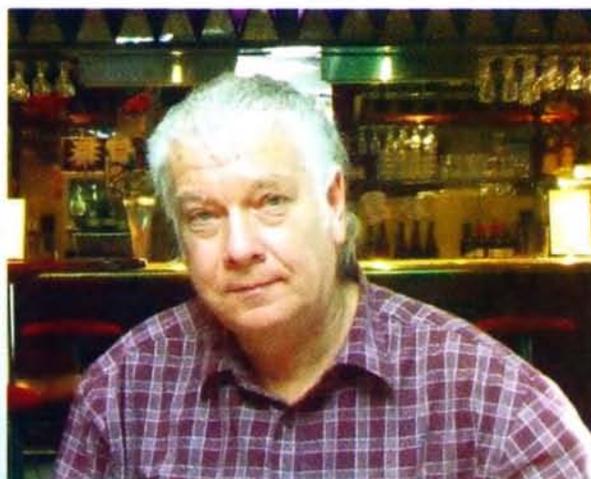
Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

Silent Key

Mitchell Edward Hamilton VK5AZM



Mitch was born in 1954 where, at the age of nine, there started an interest in electronics and communications. While a high school student he built several VHF receivers and a 100 watt 50 MHz SSB transmitter. He began a radio and TV trades apprenticeship through Radio Rentals, as well as TV and sound equipment through Kilkenny Technical College. Places of employment in the industry included Farmer's Radio, CFS and Taxi Radios, Car Audio Services (Sydney), Standard Telephone and Cables and the SA Police Department.

As a keen and prolific builder of projects, Mitch originally began designing and building projects for personal needs, where there was a requirement of test equipment for various jobs he was working on.

Although it was sometimes difficult for Mitch to attend club meeting nights, his continued offer of his knowledge and expertise was graciously accepted,

particularly in the tuning and repairing of the clubs repeater systems. This totalled numerous hours of personal time and something that SCARC appreciated immensely, although this was always quietly done by Mitch behind the scenes. Mitch was always happy to share his vast amount of knowledge to help those either studying for exams or in upgrading, or trying to

understand some item or device obtained by a club member.

Those who remember Mitch can certainly visualise him having a video camera (in some format or another) on his shoulder, recording contests, club functions and anything of interest to him. This was confirmed by the copious amount of tapes at his QTH when the time came to organise his estate.

Mitch will be sorely missed and our thoughts go out to his partner, children and family, who have lost a dearly loved family member. We too have lost an interesting and valuable member of the amateur community and a wonderful

member of the SCARC family. The Club has been enriched by his presence and would like to share his contributions to the wider amateur community.

Submitted by Stef Daniels VK5HSX and Bary Bates VK5KBJ, on behalf of the South Coast Amateur Radio Club Inc.

ALARA

Margaret Blight VK3FMAB – Publicity Officer

What a busy autumn we had this year. We not only had the YL International Meet in Adelaide but also the WIA Annual Conference which was held in Mildura only a couple of weeks later. Much planning had gone into the preparation for the YL International Meet, an event which is held on a two yearly basis. ALARA members in South Australia are to be congratulated for hosting and developing a most successful week.

ALARA International Meet 2012

It was noticeable that all the participants were happy to meet and greet both friends and visitors alike and a very friendly environment prevailed. Some of the YLs brought a partner and they also participated in the outings and dinners throughout the week. There was a very comprehensive program planned which certainly kept everyone 'on their toes' as we were taken to visit various sights and experiences. We travelled by bus to such places as Handorf, Cleveland Park Animal Sanctuary and Mt. Lofty on our first day. This offered another opportunity to catch up and chat with the other YLs on the tour.

The following day we gathered at the main venue for an official welcome from Tina VK5TNC the then current President of ALARA. During this period the OMs/partners went off on their own tour. Sound familiar? We were shown an interesting presentation on SYLRA by Inger OZ7AGR of Denmark. SYLRA is made up of YL members living in five Scandinavian countries, Denmark, Sweden, Iceland, Norway and Finland. They all meet up every two years and the next Meet will be in Denmark on 22-25 August, 2013. For further information look up the SYLRA web page.



Photo 1: YL attendees at the ALARA International Meet in Adelaide, 2012.

Unni LA6RHA from Norway gave an interesting talk about a YL DXpedition to Fair Isle, Britain's most remote island. Situated midway between the Shetland and Orkney islands, while being remote it appears to have very friendly people. There are lots of bird life on the island and each year puffins return to nest. Five YLs participated in the DXpedition which took place in 2010. They successfully made contact with 96 countries. Unni's talk was illustrated by photos taken during their time on the island.

There were visitors from a number of countries attending the Meet. These included three YLs from Japan and one YL from Korea, and representatives from New Zealand, the UK, the USA, Sweden, Denmark, Norway, and Germany. There were also a number of interstate attendees from Queensland, NSW, Victoria and Western Australia.

A visit to Port Adelaide was scheduled for the following day. The bus left us at our destination and we spent an hour or so visiting a local market before boarding The

Dolphin Explorer for a cruise on Port River. An excellent lunch was provided during the cruise. We even managed to catch sight of a couple of dolphins who seem to have made their home in the river. On the way home we called into

the Railway Museum and enjoyed a ride on a small scale train that runs there.

A very special day was the trip to the Barossa Valley for a progressive meal held at three wineries. We visited Chateau Tanunda, Saltram Wines and Chateau Mildara. At each stop we had a presentation on the winery and its products, and a tasting. The first stop included a cheese and fruit platter, the second included lunch and the third provided most enjoyable sweets and coffee for everyone. I have never had such a good time at a Winery.

In every way the YL International Meet was a great success. We look forward to hearing who will pick up the baton for the next one in 2014.

Photo 2: The international group of YLs attending the Meet.





Photo 3: Door.Prize winner, Elfi DF3TE with Meet Organiser and ALARA President, Tina VK5TMC.

BBQ Club social

One sure way to get a group of likeminded people together for a social occasion is to arrange a BBQ. Such an occasion took place at the Goulburn Weir one autumn Sunday afternoon when the Midlands and Shepparton Radio Clubs met for an annual get-together. Five members of the Eastern Mountain District Radio Club also attended. It was a very friendly environment and everyone felt welcome. Despite threatening rain clouds the day proceeded successfully until, as everyone started packing up, the rain finally descended. What good timing, we were able to retreat to our cars and head for home after a most enjoyable day.

I believe that this annual gathering of radio enthusiasts has now occurred four times. It was suggested that in future it may be possible to nominate a location accessible to even more Clubs. Providing an opportunity for clubs to meet up with other amateurs and their partners can only be a good thing. So I look forward to hearing further news on this matter.

VK5 news

There was a large gathering of radio amateurs at Womberoo, near Swan Reach, at Easter. Twelve people



Photo 4: Y/L Group attending taken adjacent to the Buffalo, a replica of the sailing ship which brought the first settlers to South Australia.

slept inside the building while two couples brought up their caravans for sleeping and the group was joined by the next-door-neighbour, as has been the pattern for many years.

Couples took it in turn to prepare meals so no-one had the full responsibility, and each couple made sure there was ample food for everyone. In fact the half a dozen that stayed an extra night enjoyed the left-overs for that meal.

Much talking and a little work was the order of the days and with such a large group it was not difficult to find a different person to speak to from time to time. A little radio was played as several of the mobile units were tested using the large vee-beam that was erected several years ago. Yes several stations in various parts of the world

were contacted but the records are in the hands of each of the different operators.

On Monday night the three Y/Ls still there were heard on the ALARA net; just to show that they could.

This year a jigsaw was completed in the weekend. In the past a jigsaw had been started and finished by later visitors. Many hands make light work! Various crafts were worked on and shown.

As a consequence of the 'work' done that weekend, solar-heated hot showers were enjoyed by all but unfortunately a leak was discovered after the showers, caused, we think, by the effort put in to tighten joints, so the solar hot water panels were taken down again before everyone left to go home – to be dismantled and inspected.

Photo 5: Visiting Chateau Yaldara winery in the Barossa Valley.



Hamads

Vol. 1, No. 1 Guaranteed Circulation 25,000 February 1925

PRICE POPULAR 1¹⁰

RADIO WEEKLY

"It is in the air, it is in the air!"

WECOVALVES

Do You Enjoy Perfect Freedom from Valve Noises?

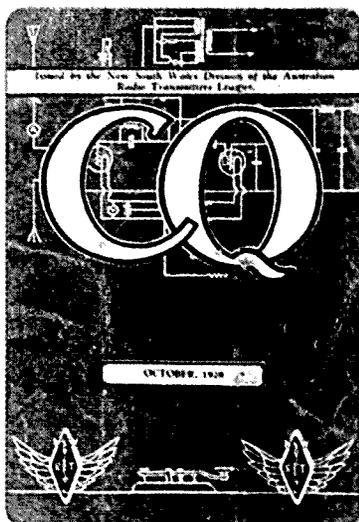
THE Weco Valve Tube is a specially constructed vacuum tube in which a special air seal is used in the neck. **WECO** has been tested on the Weco in many instances. Weco are suitable for all purposes. R.F. and A.F. amplification and detector.

OPERATING CHARACTERISTICS

Operating Voltage	250
Plate Current	100
Screen Grid Voltage	100
Control Grid Voltage	0
Detector Plate Voltage	250
Detector Plate Current	100

C. R. FOSTER,
 Western Electric Company
 222 BUNN STREET, MELBOURNE

Features
 No Leak Tube
 No Radio
 For Amplification
 Suitable for
 Experiments



Copies of *Australian CQ* magazine. See photo at top next column.

The WIA Archive is seeking early copies of the late 1920s Australian CQ for copying and/or adding to the WIA Archive's shelves.

This magazine was published by the NSW Division of The Australian Radio Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrajong Radio Museum. Collectively, we wish to build up the issues extant. The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.

FOR SALE - VIC

Mercedes Benz, 1968, white in colour. Completely overhauled new motor four years ago. New shockers, stainless exhaust, velour upholstery, cruise control.

A good amateur radio operator vehicle, with built in two metre and VHF radio installed.

The asking price is \$5,000. The locale is Tatura.

John VK3PXJ, phone 03 5824 1188

FOR SALE - QLD

One Icom cloning system suitable for Icom T-70A and T-70E. May also suit other Icom radios. Both hardware and software. Brand new, surplus to requirements. Never been used - still in box.

Contact VK4DV by phone (nights) on 07 4928 5537 or email vk4dv@yahoo.com.au

FOR SALE - SA

Kenwood TM-D710A 2 m/70 cm, 50 W dual-band, dual in-band receive, 1000 memories, has all the latest features and is an excellent performer. Current model as new in box with all supplied accessories. S/N 90800396. No modifications. The unit is in immaculate condition. Cost me \$895, sell for \$680 o.n.o.

Contact VK5OO, QTHR. Phone 0412 000 076.

WANTED - SA

Installation instructions for a Scalar SC33DX 10/15/20 metre three element beam antenna.

Contact Steve VK5SFA QTHR, phone 0418 657 658 or steve_adler@netspace.net.au

Plan ahead

25 and 26 May, 2013

WIA Annual Conference 2013 in Perth, Western Australia

More news on the event and preliminary information to help you to begin your planning will be in the August issue of *Amateur Radio*.



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

About Hamads

- Submit by email (**MUCH PREFERRED**) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

AMIDON FERROMAGNETIC CORES



tts systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttsystems.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links related to Amateur Radio and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products
Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**



JACKSON BROS

www.jacksonbrothers.com.au

Highest quality products made by UK craftsmen
Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs



CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES



HAMMOND MANUFACTURING - Large range of quality electronic enclosures for the discerning Radio Amateur. Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many APRIL projects.



Cookson Controls CHARLES I COOKSON PTY LTD

11-13 Port Rd Queenstown SA 5014

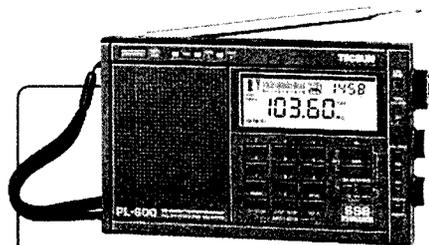
Tel: (08) 8240 3200 Fax: (08) 8240 3233

sales@jacksonbrothers.com.au

ccookson@hammfg.com

ALL MAJOR CREDIT CARDS ACCEPTED

SOLE AGENTS AUSTRALIA AND NEW ZEALAND



Tecsun PL 600 HF Receiver

Easy to use 600 memories

Large LCD display, direct frequency entry, LW, MW and continuous SW coverage to 29,999KHz, SSB, supplied with approved charger and NiMh batteries.



Easy to use
600 memories
Product of Tecsun Radio
China October 2008

**ONLY \$139 +
shipping**

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100

Tel: 02 9939 4377

Fax: 02 9939 4376

Email: info@avcomm.com.au

www.avcomm.com.au

ADVERTISERS INDEX

Av-com	63
Com-an-tena	21
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	9
TET-Emtron	41
TTS	11, 63
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Directory



National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>

The Amateur Service
... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee
Email: vk2advisory@wia.org.au
*John Bishop VK2BK
Dominic Dahl VK2YDD
*Timothy Mills VK2ZTM / VK2UJ
Gilbert Hughes VK1GH

Victorian Advisory Committee
Email: vk3advisory@wia.org.au
*Bob Tait VK3XP
Luke Steele VK3HJ
Noel Ferguson VK3FGN
Chris Chapman VK3QB

Queensland Advisory Committee
Email: vk4advisory@wia.org.au
Don Wilschefski VK4BY
Kevin Johnston VK4UH
*Michael Charteris VK4QS
Alan Shannon VK4SN

South Australian Advisory Committee
Email: vk5advisory@wia.org.au
*David Clegg VK5KC
*Peter Reichelt VK5APR
Ben Broadbent VK5BB
Trevor Quick VK5ATQ

Western Australian Advisory Committee
Email: vk6advisory@wia.org.au
*Heath Walder VK6TWO
*Craig Lamb VK6FLAM

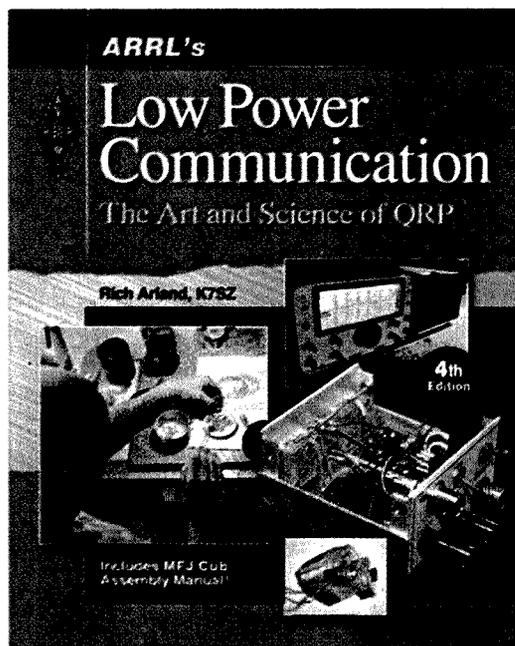
Tasmanian Advisory Committee
Email: vk7advisory@wia.org.au
Clayton Reading VK7ZCR
* Justin Giles-Clark VK7TW
Peter Rumble VK7IY

Northern Territory Advisory Committee
Email: vk8advisory@wia.org.au
*Peter Blackadder VK8HPB
Garry Woods VK8GW
*Alan Baker VK8AB
Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board
("Nominated Member")

Visit our Bookshop



Low Power Communication

ARRL's Low Power Communication is your guidebook to the fascinating world of low power QRP operating. With only 5 W or less – sometimes much less – you can enjoy conversations over hundreds and even thousands of miles.

Includes:

- Tips to get you started the right way
- An introduction to QRP operating, FAQs for newbies and tips that even experienced amateurs will appreciate.
- Equipment and Station Accessories
- Off-the-shelf commercial gear, kit building and homebrew, including an all-new homebrew photo gallery.
- Antennas for QRP – Updated and expanded!
- Wire beams, loops, dipoles, portable antennas and a look at the author's new stealth antenna design.
- Operating strategies
- Contesting, awards and advanced techniques for becoming a successful QRP operator.
- Emergency communication
- Training, planning and other factors for utilizing low-power gear during an emergency.
- HF Propagation for the QRP'er
- NEW! An authoritative look at likely propagation conditions for Solar Cycle 24.
- Plus, QRP calling frequencies, manufacturers...and much more!

MEMBER PRICE: \$32.00* RETAIL PRICE: \$40.00*

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

WIA Annual Conference

Mildura 25 - 27 May 2012



Robert VK3DN, Philip VK3JN, Michael VK3KI and Noel VK3FI having some radio fun before boarding the Mundayo. Photo courtesy the Sunraysia Daily, photographer David Sickerdick.



Ash VK3SSB with his remote control system for his IC-706MKIIIG. Regardless of location, Ash can fire up his home station, provided he has mobile phone coverage.



Gary VK3KYF and Noel VK3FI with their mementos presented by Michael VK3KI.



Dale VK1DSH receiving the Ron Wilkinson Award from Michael VK3KI.



Trent VK4TS and Robert VK3DN activating the special event station VK102WIA on the Mundayo.



The paddleboat Mundayo loading prior to the lunch cruise.



The Project Horus crew preparing Horus 27 for launch - final filling of the helium balloon.



David VK5KC receiving the Higginbotham Award from President Michael VK3KI.



Terry VK5VZ1 with the camera payload for Horus 27 ready to be added to the payload train.



Peter VK3MV is delighted after being presented with the GA Taylor Medal.

Main photo: The Horus 27 balloon and payloads in the final stages prior to launch.



Michael VK3KI in control of the Mundayo cruising the Murray River.

Terry VK5VZ1 preparing the camera payload for Horus 27.

Photographs by Dianne Ashton VK3FDIZ, Robert Broomhead VK3DN, Peter Freeman VK3PF, and John Longayroux VK3PZ.

The Evolution of D-STAR Continues



**FREE
SD CARD***



ID-31A

- Slim, Compact and Lightweight
- IPX7 Waterproof (1m Depth for 30 Minutes)
- GPS Built-In
- GPS Logging
- Micro SD Card Slot
- Pre-programmed with main worldwide repeater frequencies
- 1252 Memory Channels (500 Regular, 700 D-STAR Repeater Memories, 50 Scan Edges, 2 Call Channels)
- CS-31 Cloning Software Included (Update available from Icom Inc. website)
- D-STAR DV Mode and Analogue FM Mode
- Directional Keypad and Quick Menu Button
- Large Dot-Matrix Display

* Free 2GB SD Card available for a limited time only.



ICOM 629

To find out more about our latest products, call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

Volume 80
Number 8
August 2012
Price: \$8 incl GST

www.wia.org.au



Plan now for 2013 Annual Conference in Western Australia

- Build a 2 channel remote control system
- SOTA adventures in the Grampians
- Build a micro antenna tuner

ISSN 0002-6859



9 770002 685062

The radio... YAESU

HF/50 MHz 100 W Transceiver
FTDX 3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments



The amazing Crystal Roofing Filter performance

The Down conversion 9 MHz 1st IF frequency receiver construction, can realize narrow 300 Hz (optional), 600 Hz and 3 kHz bandwidth roofing filters.

Outstanding receiver performance, the heritage of the FTDX 5000!

The high dynamic range IP3 performance that was realized and proven in the FTDX5000.

IF DSP provides effective and optimized QRM rejection

Independent Frequency display

4.3-inch Large and wide color LCD display with high resolution

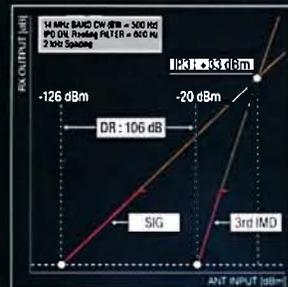
High Speed Spectrum Scope built-in

AF SCOPE display and RTTY/PSK encoder/decoder (optional)

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.



Characteristics of the Crystal Roofing Filter (300 Hz)



3rd Order Dynamic Range / IP3

YAESU
The radio

YAESU Authorized Dealer in Australia and New Zealand

Amateur Transceiver Radio Centre
Level 1, 141 Gilba Road,
Girraween NSW 2145
URL : www.atrc.com.au
Tel: +61-2-9896-2545

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street,
Greystanes NSW 2145
URL : www.andrewscom.com.au
Tel: +61-2-9636-9060

Strictly HAM Pty. Ltd.
14 Church Street,
Bayswater Vic, 3153
URL : www.strictlyham.com.au
Tel: +61-3-9729-7656

GEOPLEX DISTRIBUTION LTD
Level 1, 60 Cook Street,
Auckland 1010, New Zealand
Tel: +64-21 434342

YAESU Authorized Service Center in Australia and New Zealand

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
Tel: +61-2-9636-9060, Fax: +61-2-9688-1995
E-mail: radioandrews@hotmail.com

JNB Electronics Pty Ltd
St Kilda Rd Towers, Suite 1138, 1 Queens Rd, Melbourne, VIC 3004
Tel: +61-3-9465-9399, Fax: +61-3-8682-8748
E-mail: yaesu@jnb.com.au



Amateur Radio

Volume 80
Number 8
August 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor

Peter Freeman VK3PF
editor@wia.org.au

Technical Editor

Peter Gibson VK3AZL

Publications committee

Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters

nationaloffice@wia.org.au

How to submit material

Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor

Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising

All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office

Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia

Phone: 03 9729 0400

Fax: 03 9729 7325

Production Deadlines

All articles, columns, hamads and advertising booking by **first day of previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

ALARA International Meet – The trip from Adelaide to Darwin 12
Margaret Blight VK3FMAB

Bill Williams VK3WE, featuring explosions, floods, fire, printer's ink and RF 18
Keith Williams

The WIA Archive 21
Peter Wolfenden VK3RV

SOTA adventures in the Grampians 23
Ron Cook VK3AFW

2013 WIA AGM and Conference in VK6 26
Onno Benschop VK6FLAB

Air travel with radios - An air traveller's tale that almost ended in tears 27
Peter Ellis VK1PE

WICEN in Tasmania sets the bar at a new height 28
Roger Nichols VK7ARN

Gridsquare Standings at 15 June 2012 43
Guy Fletcher VK2KU



This month's cover

This month our cover shows the Bathurst Lighthouse, Rottnest Island, WA. Rottnest Island is a short ferry ride from Fremantle and a popular destination. See the promotional story about the 2013 WIA Annual Conference, to be held in Perth in May next year. It is time to start planning! Photo courtesy of Tourism Western Australia.

Technical

A multipurpose two channel 433 MHz remote control 6
John Hewson VK3HW

How to tune your 20 metre band antennas to the 12 metre band 8
Rainer Gruening WG2L – ex DL2PC

The 'Match 22' – a micro antenna coupler for portable use 10
Peter Parker VK3YE

The Blob Board 500 mW CW transmitter 14
Nic Chantler VK3COW and Alan Simpson VK4AAE

Columns

ALARA 61

AMSAT 59

Contests 48, 51, 52

DX - News & Views 46

Editorial 2, 5

Hamads 62, 63

Silent Key 32, 37

Spotlight On SWLing 34

VHF/UHF – An Expanding World 35

WIA Comment 3

WIA News 4, 5

News from:
VK2 56

VK3 40, 58

VK4 57

VK5 33, 42

VK6 38

VK7 31

Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road

Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mal Brooks	VK3FDSL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDIZ

Board of Directors

<i>President</i>	Michael Owen	VK3KI
<i>Vice-President</i>	Phil Walt	VK2ASD
<i>Directors</i>	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Platt	VK5CP
	Trent Sampson	VK4TS
<i>Secretary</i>	David Williams	VK3RU
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Platt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
<i>NTAC</i>	John Martin	VK3KM
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Platt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV
<i>International Travel Host</i>	John Miller	VK3DJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
<i>OSL Curator</i>	National Office	
<i>Repeater</i>	Peter Mill	VK3ZPP
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Walt	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

Any plans for May 2013?

Yes, it is still a long way off as far as time is concerned, but the 2013 WIA Annual Conference planning is underway. I am sure that we will have more details later in the year as the planning continues. Readers should be aware that the venue has been announced as Perth in Western Australia.

Onno VK6FLAB whets your appetite this month and urges you to consider making plans early. For many, the long trip to the western shores of our continent may be made worthwhile by planning other trips and activities before and/or after the conference. Start thinking now!

GippsTech 2012 a success

The Eastern Zone Amateur Radio Club Inc. has recently held their fifteenth annual amateur radio technical conference at Churchill in Gippsland, Victoria. Over 100 amateurs and several partners attended and all thoroughly enjoyed the weekend. The event is based around the sharing of information concerning weak signal communications, with an emphasis on the VHF, UHF and microwave bands.

The technical program had 18 presentations this year. The topics can be seen at the club website – www.vk3bez.org – together with links contained within the various presentations.

The partners travelled around Gippsland in a mini bus, driven by Damian VK3CT and guided by Pauline Corrigan. From what I have heard, they had a ball.

Now that the event is over, all involved in organising the details can relax a little before they start thinking about the 2013 event next July.

A big month ahead

August is a big month in VK. In addition to all the regular activities, we have a number of very popular events.

For many, the International Lighthouse Lightship Weekend (ILLW) sees small groups travelling to a near, or not so near, lighthouse for a weekend of fellowship and radio fun. Many choose to hire accommodation at the light station and set up antennas and radio stations inside the venue, allowing for comfortable operating conditions – an important consideration in the southern parts of the country. It is not a competition, rather a friendly weekend where the aim is to work stations at other lighthouses and lightships. Will you be joining in the fun on 18/19 August? The ILLW web site shows 51 stations planning to be active, so there should be plenty of lighthouses on air locally to work.

On the contest front, we see the Remembrance Day (RD) contest on the weekend of 11/12 August and the ALARA Contest on 25/26 August. Traditionally these are both popular events in VK, perhaps due to the fact that both promote operators to have a more relaxed, friendly approach. The ALARA Rules were published in the July issue of *AR*, with the RD rules published in this issue. Good luck to all participating – don't forget to submit your log!

News

We finally have some news of the new arrangements for Yaesu equipment in Australia and New Zealand. The advertisement on the Inside Front Cover gives details of the authorised dealers and service centres.

Continued on page 5



WIA comment

Michael Owen VK3KI

The band 420 – 430 MHz

Rather than just republish the release on this topic that we placed on the WIA website, I thought it better to make this the subject of the Comment for this issue of *Amateur Radio*. That way I can add a little more information.

Internationally, the 420 – 430 MHz part of the Australian 70 cm amateur band exists by a footnote allocating the band on a secondary basis to amateurs only in the USA, Jamaica, the Philippines and Australia. The 420 – 430 MHz band is allocated throughout the world to fixed and mobile (except aeronautical mobile) as primary, with radiolocation secondary.

I do not know the history of that segment, but that allocation and the footnote were the same 30 years ago.

In fact, use of that segment 420 to 430 MHz in Australia has been restricted to Advanced licensees and further restricted by various exclusion zones in NSW, the ACT, and the Jervis Bay area, Sydney, Perth and Melbourne. This band segment is mainly used for fixed point to point links for inter-linking of amateur repeaters and an ATV input/output channel.

In April 2008 the WIA reported on the public consultation by the ACMA as part of its review of the band 403 – 520 MHz, which included the amateur 420 – 450 MHz band segment and which could obviously be affected.

Fairly early on, the band segment 430 – 450 MHz was announced to be "out of scope" for the ACMA review, though the ACMA indicated that segment 440-450 MHz may be used on a temporary basis by displaced land mobile services during a transition phase until they are relocated.

In September 2008 the WIA reported on the release of the submissions received by the ACMA

as part of its review of the 403 – 520 MHz band and in June 2010 the WIA further reported on the ACMA's announcements.

An examination of the WIA 70 cm Band Plan shows that the segment 420 – 430 MHz is largely "Restricted".

The primary users of the band 420 – 430 MHz are radiolocation and mobile.

Major mobile users are various government networks supporting the police, fire and ambulance services that provide a high social value to the community. In recent years the need for the interoperability and harmonisation of those services has been very obvious, and since 2009 a result supported by the Council of Australian Governments.

It was hardly a great surprise when a few weeks ago the ACMA advised the WIA that the 420 to 430 MHz segment of the 70 cm amateur band will be withdrawn as a secondary allocation, at least for general amateur use, from 1st January 2013.

Unfortunately the withdrawal of the segment 420 – 430 MHz of the 70 cm band does present one problem.

There are a number of repeater link assignments that will need to be moved by 1st January 2013. There are some 34 licensees affected, mainly clubs, involving at least 73 separate assignments.

In addition to those 73 amateur repeater links there are a further 33 amateur repeater links in that segment that may be able to operate beyond the 1st January 2013 date and the WIA is currently negotiating with the appropriate parties. When the matter is

clarified, the WIA will also be in contact with the relevant licensees.

Until that uncertainty is resolved, we can at least say that after 1 January 2013, the band 420 – 430 MHz will no longer be available as a secondary allocation for general amateur use.

On a worst case scenario something over 100 assignments may be required to be moved by 1 January next. However, it is expected these can be relocated to the 430 – 450 MHz region.

While the ACMA will be formally writing to the affected licensees, the WIA has undertaken to contact each licensee as soon as it is able to do so, to ascertain whether there are any special difficulties in moving and to ensure that the WIA frequency coordination service is available to assist as required.

Clearly all of this will impose a heavy load on the WIA Repeater and Beacon Coordinator, as the ACMA will not issue amended licences for new allocations without the WIA's prior amateur coordination.

Accordingly the WIA Board has decided to appoint Richard Cervený VK2AAH as Joint National Repeater and Beacon Coordinator with Peter Mill VK3APO, on the basis that Richard will take primary responsibility for the work associated with the relocation of stations in the 420 – 430 MHz segment.

I hope that by the time this issue of *Amateur Radio* is published, all the licensees affected will have been contacted, and will be planning their action in response.



Amateur Licence Fee Increase

The ACMA has increased the annual fee for an amateur licence from \$67 to \$72 this with effect from 1 July 2012.

The cost of a licence variation (a licence variation applies to an existing amateur upgrading his licence) the variation fee has jumped 20% from \$41 to \$49.

The current amateur licence renewal options available are as follows:

- 1 year = \$72.00
- 2 year = \$141.00
- 3 year = \$209.00
- 4 Year = \$277.00
- 5 year = \$346.00

High Power Trial – New LTE Exclusion Area in the Perth Area

As part of the on-going discussions with the ACMA, advice has been received that a new Long Term Evolution (LTE) trial commenced in Perth on 1 June 2012 in the 700 MHz spectrum segment.

LTE trials are authorised by the ACMA by way of a Scientific Licence to cover the trial period. The ACMA has advised that no applications from Advanced licensees for variations to their station licences to operate high power within a 40 km radius of Midland, Perth would be approved. Details of the location coordinates can be found on both the WIA and ACMA websites.

Meanwhile, advice has been received from the ACMA confirming that the LTE in the Bendigo region has ended. However, the Scientific Licence that authorises this trial does not expire until sometime in September 2012.

WIA attends ACMA Radcomms 2012 Conference

For the past five years the Australian Communications and Media Authority has held a conference related to activities and emerging issues they confront as the Commonwealth government's spectrum and media regulator. This year's conference was held in Melbourne over 6-7th June. The conference theme this year was *Spectrum beyond broadband* and was opened by the Minister for Broadband, Communications and the Digital Economy, Senator Stephen Conroy via a video link.

As the WIA is a recognised industry participant, the WIA's Government Liaison representative, Peter Young VK3MV, attended on behalf of the WIA. Attendance at events such as this affords to opportunity to speak with other spectrum users, raise awareness of amateur radio and gather information on emerging issues that may affect amateurs.

This year's keynote speaker, Dr. Compton Tucker from the NASA Goddard Space Flight Centre, delivered an interesting presentation on the "Fingerprints of Nature" and how satellites using unique areas of spectrum for passive and active sensing devices to map the earth's climate and change.

Of particular interest to the amateur community, is the ongoing work associated with the Review of 400 MHz spectrum that also includes the 70 cm metre amateur allocation. The review commenced in 1999 was aimed at providing harmonised access to 420-430 MHz for government radio particularly supporting essential and emergency networks supporting police, fire and ambulance.

Presentations were made by ACMA staff on compliance activities undertaken over the past year. In

2011 the ACMA declared mobile phone jammers to be a prohibited device and illegal to possess and to use such devices to interfere with mobile phones operating in the Public Mobile Telephone Service.

The ready access to consumer devices over the internet has seen a dramatic increase in the number of illegal mobile phone jammers coming across Australia's borders. The ACMA working with Customs Australia, postal authorities, and freight importers announced that 300 phone jammers have been seized in the past year. The ACMA said that the public needs to be aware that buying jamming devices overseas and importing them for novelty or commercial use can cause serious disruption to other consumers that need immediate access to emergency services via their mobile phones.

Another device that is causing concern is the importation and use of mobile phone repeaters used to extend phone coverage. These devices are also not authorized and owners could be subject to compliance action for possession and use.

Former ARRL General Manager and IARU President Richard Baldwin W1RU (SK)

Richard "Dick" Baldwin W1RU, of Damariscotta, Maine, passed away on Thursday, June 21, after a long struggle with Parkinson's Disease. He was 92. An ARRL Charter Life Member, Baldwin capped a long career on the ARRL staff with service as General Manager from 1975 until his retirement in 1982. He served as Secretary of the International Amateur Radio Union (IARU) from 1976-1982. After retirement, he continued his involvement as a volunteer, serving as IARU President from 1982-1999 and as ARRL International Affairs Vice President from 1982-1986.

ARRL Chief Executive Officer David Sumner K1ZZ, who succeeded Dick Baldwin as General Manager in 1982, observed that Dick is responsible for much of amateur radio's success in retaining and expanding its international frequency allocations. "Beginning in 1964, strengthening our position at the International Telecommunication Union in preparation for what

ultimately became the 1979 World Administrative Radio Conference, was a major preoccupation in Dick's life. He played a key role in developing and implementing the strategy that led to success. Sitting at Dick's elbow in the years leading up to WARC-79 was an extraordinary learning experience for which I will always be grateful."

As IARU President, Baldwin led

the development and adoption of a new IARU Constitution and oversaw the continued strengthening of the IARU as the spokesman for Amateur Radio at the ITU and in regional telecommunications organizations. In 1999, he was named IARU President Emeritus for his service to the IARU and the Amateur Radio Service.



Editorial

Continued from page 2

News of new models of radios are now filtering out, after announcements made at the large "hamfests" overseas – the Dayton Hamvention in May and Ham Radio Friedrichshafen. Some new models appear to be only mock-ups or prototypes, with the radios not slated for release until later in the year at the earliest.

As someone interested in software defined radios, it was interesting to read the details on-line from Flex Radio of the upcoming Flex 6000 series.

One project which has significant input from Australia is the High Performance Software Defined Radio (HPSDR) project, which has links with TAPR and AMSAT, with Phil VK6APH playing a leading role. The HPSDR team displayed the new Hermes single board SDR transceiver, which has been undergoing extensive beta testing. Hermes looks to be very interesting. One company in India is now advertising for expressions of interest in orders for a very neat case and 10 W amplifier designed to match Hermes. Although the system will have only 10 W output power, the performance of the rest of the transceiver looks to be excellent. TAPR are taking orders for Hermes until July 25, after which it can be ordered from Apache Labs.

Cover photos and Articles

We currently have very few photographs of adequate quality for future magazine covers. Remember

to take a camera on your radio activities and to take some photos – you might have a potential cover shot! Remember to set your camera to take the images at the highest possible resolution. In these days of predominantly digital photography, memory is cheap and it is very simple to save the high resolution file to a new name and smaller resolution if you wish to email them to friends. However, you cannot go the other way – from low resolution (small file size) to higher resolution.

Our stock of articles is also much smaller than in recent years. We have only two articles that have been in our review and production system for more than 12 months and they will probably be published in the September issue. We need both Technical and General articles, preferably with some good images.

Goodbye and Thanks

As you will read in this issue, John Bazley VK4OQ has contributed his last ***DX - News and Views*** column. John has been contributing for the last seven years. He has gathered information about the DX scene from a wide range of sources and has as a result kept readers informed and as up to date as is possible with a print publication. Today's DXer will probably be using the various electronic resources that are available, but that does not diminish the importance of the written material presented by John's

column of this extended period.

As I prepare this Editorial, we have not identified anyone to fill the hole left by John's retirement. Anyone interested in taking up the reigns can contact either myself or the Publications Committee Secretary Ernie Walls VK3FM.

Many thanks for your long service John. Hopefully you can work a little more DX now that this task is removed from your "to do" list.

Tributes

The Publications Committee has noticed that many tributes (Silent Key notices) received have tended to become major items. Whilst it can be interesting to read of past activities of deceased amateurs, we request that you try to keep these contributions to around 250 to 300 words and perhaps one photograph.

Yes, we do occasionally publish much longer tributes, but usually only for those who have made a very significant contribution to the hobby.

The Secretary of Publications Committee will return any contributions of SK notices which are too long and ask the contributor to précis the item so that it falls within the guidelines. Please do not take offence when this occurs – he is acting under instructions from the Committee. Until next month.

Cheers,
Peter VK3PF



A multipurpose two channel 433 MHz remote control

John Hewson VK3HW

With the rain here early in the year the dam went from a puddle to a lake and I was prompted to build a single channel, remote controlled model boat. The simplicity of the design then went to a two channel design for a model yacht, and the concept then led me to use it for my fox hunt antenna. It can also be used for camera control, up down, right left and other applications.

The idea developed from the use of a servo module used in model aircraft, boats and the like, readily available from model shops and the net prices for a base unit around \$10-20. The most interesting bit is the chip, on the PCB inside the easily dismantled unit, but I have found the drive transistors from these servo units vary, so my suggestion is to

Photo 2: The transmitter.

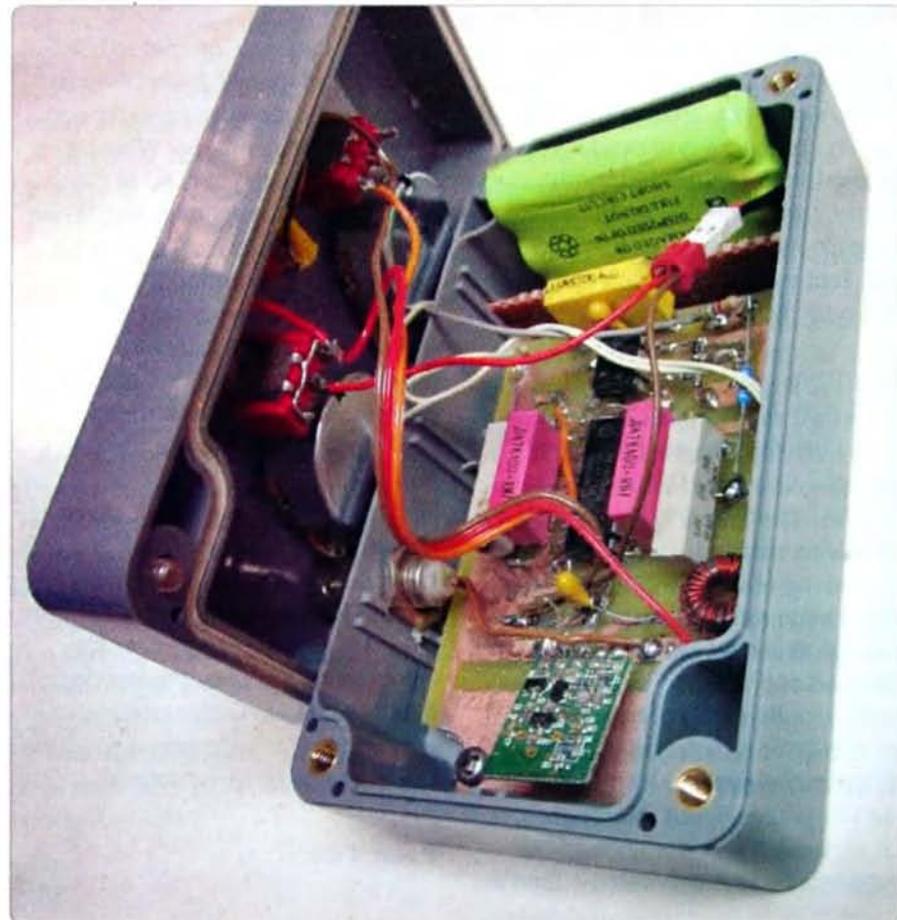


Photo 1: The receiver.

simply use the polarity sent to the motor to drive a simple relay pair to allow a 12 V motor drive from the 5 V control circuit.

I have used more powerful drive transistors for the motor in my model yacht winch, but for this article I will keep it simple.

PCM servos work on a 20 ms pulse modulated from 1 to 2 ms and a centre position of 1.5 ms. Usually this is transmitted in a chain of around seven pulses plus a sync pulse, received and decoded and distributed to around say seven servo units. For a simple two channel unit, I have found the update time better at 10 m/s so the clock runs at 100 Hz and no sync pulse is required. (Refer to reference 1)

The 555 generates a 100 Hz square wave with a form factor of 1:1; the positive going pulse will drive one half of the 4528 monostable, and the negative going pulse will drive the other half - these will produce the 1 to 2 ms signals for the position control, adjusted by VR1 and VR2. A reset on the 555 helps to set which is which on the controller, if required. The two pulses are then combined by diodes and fed to the 433 (Jaycar ZW-3100) transmitter module, transmitting at 200 Hz. I have found SMD more convenient for prototype build and the PCB will fit into a Jaycar waterproof box with a 4.8 V phone battery.

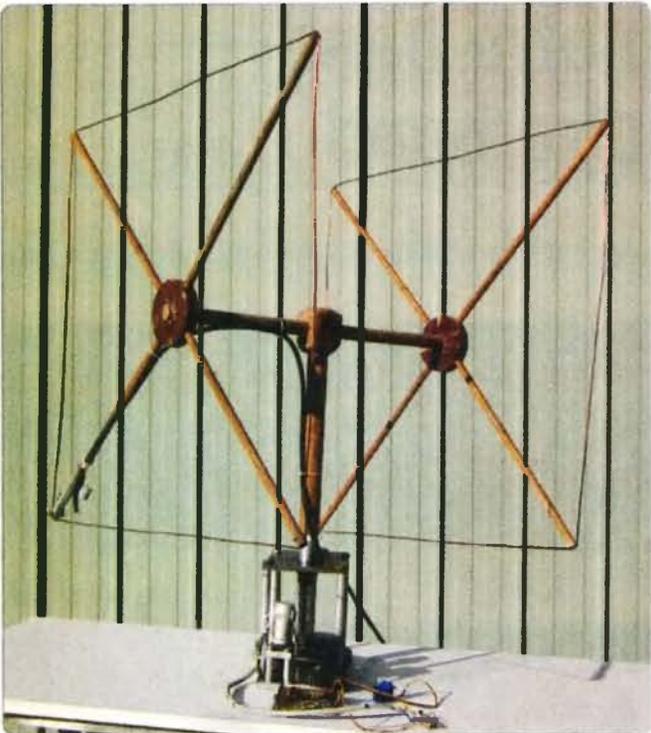


Photo 3: The antenna.

The received signal is buffered by a transistor, and A and B provide a setup time delay, this then is fed to the 4013 clock pin to divide by two to provide Q and Qbar signals. This clock signal is inverted by a transistor and with the remaining NOR gates C and D provide the 5 V pulses to the servo units.

The servo units are noisy, best to use a 5 V regulator for them and a 5 V regulator to the receiver.

The output of the servo normally drives a tiny 4.8 V motor and are not very efficient, and I have found around 100 mA motor drive current so one can drive larger 5 V motors directly from the PCB, but for larger applications, say 12 V windscreen motors, it is suggested to remove the servo motor, use the polarity of the servo drive to drive two transistors to energise two relays; also required is a feedback pot, best supplied from a 3.3 V regulator.

For single channel use, simply use just one half of the 4528, feed to the transmit module and the received signal should be enough to drive the servo; add a time delay if required.

If you want to build up this controller, I do have five new servo units that I do not need, at \$5 each plus post. I am QTHR or email me at vk3hw@wia.org.au

The two metre quad antenna fits in the roof of the car. It was cable driven, five wires and coax. Now the DC supply is fed up the coax and direction can be seen on the remote control in the car.

Reference 1: ARRL Handbook 1992, ch 21-2.

Electronics Enthusiasts

World Band AM/FM/SW PLL Radio

Great radio with lots of features. It uses a phase-locked loop (PLL) for rock solid frequency stability and has an AM band, FM band (stereo), and three short-wave bands covering 1,711kHz to 29,999kHz. See website for full specifications and features.



\$129

- Large back lit LCD
 - Local/DX switch
 - I/F output
 - Mains or battery operated
 - Size: 310(W) x 195(H) x 100(D)mm
- AR-1748

Active Noise Cancellation Headphones with Built-in USB Rechargeable Batteries

Suitable for frequent flyers and travellers, these active noise cancellation headphones will reduce background noise by up to 16dB. The ear cups rotate for compact size and easy storage inside your hand-carry bag or seat pocket.

\$69.95



- High quality digital stereo sound
 - Built-in rechargeable battery
 - Airplane adaptor
- AA-2088

0 to 30VDC/0 to 3 Amp Regulated Variable Laboratory Power Supply



Provides a stable voltage and current with a regulated output voltage which is adjustable from 0 to 30VDC. Output current is adjustable from 0 to 3 amps. The unit features an uncluttered control panel with LCD, voltage and current adjustment knobs. See our website or catalogue for full specifications

\$199

- Backlit LCD
 - Weight: 6.5kg
 - Size: 130(W) x 160(H) x 320(D)mm
- MP-3086

Polyurethane Potting Compound

Composed of a polyurethane base designed to electrically insulate and protect against dust and moisture.

- Allow 15 minutes for setting time
 - Cures in around 4-5 hours
 - 70ml
- NM-2016



\$9.95

Speed Control Kit for Induction Motors

Refer Silicon Chip Magazine May 2012
Control induction motors* up to 2kW (2HP) to run machinery at different speeds or controlling a pool pump to save money. Also works with 3-phase motors. Full form kit includes case, PCB, hardware and electronics. Soldering and construction required.
KC-5509



\$229

*Does not work for motors with centrifugal switch
NOTE: May vary to one shown

To order call 1800 022 888
www.jaycar.com.au



How to tune your 20 metre band antennas to the 12 metre band

Rainer Gruening WG2L – ex DL2PC
e reks4g@verizon.net

It is widely known that a 2 x 20 m double-Zepp antenna can successfully be tuned to the 30 m and 17 m band without additional tuning equipment, match box etc. using just, for example, a Kenwood TS-830S, and that resonance may be achievable with reasonable SWR ratio. Numerous DX QSOs confirmed this again during the recent gradual band openings. How to tune a 20 m ground plane or even a two element beam for 20, 15 and 10 m for the 12 m band with good resonance operation is perhaps not well known. The following are simple tips on how to do it from the shack level without changing the installed antennas.

After the last ice storm when spring finally arrived, I was able to reinstall the broken coax-cable of the 20 m ground plane. After all was hooked up corrosion-free again, I checked the antenna with the panorama position of my Winradio G303 and a noise bridge as a precautionary measure and found the corresponding resonance point in the 20 m band as was expected – refer Figure 1. The frequency scale is given in MHz on the horizontal axis. The vertical axis shows dB in the 10 dB grid. The peaks pointing upwards result from shortwave radio stations, since the broadcasting bands were open during the time of measurement.

While routinely using a homemade L-match box to improve the SWR and tuning the ground plane on 14.1 MHz, the scan suddenly showed an unexpected additional resonance at about 25.7 MHz – refer Figure 2, obviously a $5/8 \lambda$ harmonic resonance. The original SWR without the match box turned out to be 1:3.



Figure 1: 20 m ground plane without L-Match.

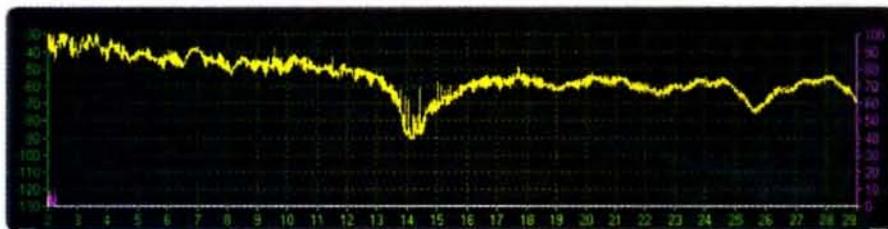


Figure 2: 20 m ground plane with L-Match tuned to 14.1 MHz showing additional resonance at 25.7 MHz.

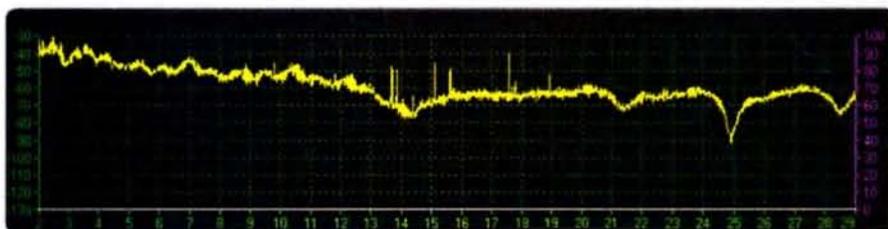


Figure 3: 20 m ground plane with L-Match tuned to 12 m band.



Figure 4: 2-el beam for 20/15/10 m with L-Match tuned to 12 m band.

As can be seen after L-match tuning of the antennas in Figures 2, 3 and 4, two important aspects stick out. First, the resonance quality factor of the antenna as an open electromagnetic circuit increases using the L-match. Without the L-match, the resonance absorption peak for the ground plane is about

20 dB at its intended frequency. With the L-match, however, the Q-factor is over 30 dB. The second point is the clear identification of an additional antenna resonance.

Immediately I tried to see if the second antenna resonance identified at 25.7 MHz could be pulled down into the 12 m band

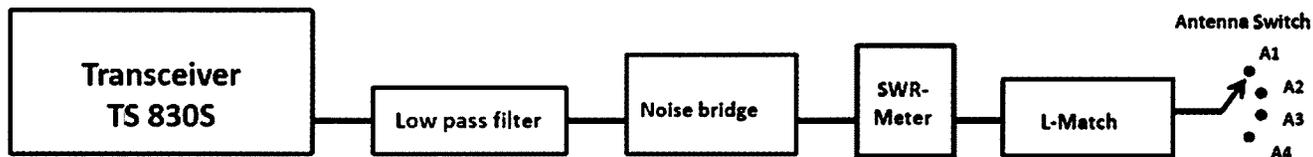


Diagram 1: Control and measuring units between transceiver and antenna.

with the L-match and achieve reasonable SWR. Figure 3 shows that not only is it possible, but that I even obtained a sharp resonance point with an absorption depth of about 25 dB.

The following successful QSOs on 24.96 MHz in SSB across the Atlantic then confirmed the functioning of the 20 m ground plane on the 12 m band. This tuning system I applied with great hope to the available 2-el triband Fritzelbeam. Figure 4 shows a sharp resonance point for the tuned frequency in the 12 m band with over 30 dB. Obviously, the beam can also be tuned to the 12 m band.

All the following SSB DX QSOs across the Atlantic with this antenna confirmed again that a beam can be tuned effectively to this band. Certainly, one should not claim to have a 2-el beam for 12 m. It might need further investigation. The block diagram shows how to hook up control and diagnosis units with the match box and coaxial switch as well as the corresponding antennas for resonance tuning and impedance transformation. Note, that the noise bridge for inline operation must have a by-pass switch; otherwise the HF will destroy the bridge. It was designed with a preset of 50 Ω to accommodate the output impedance of the transceiver.

With an actual 100 watts, the 20 m ground plane as well as the 2-el triband beam for 20, 15 and

10 m can be tuned across the entire 12 m band according to this tuning principle, without physical modification of the antenna. On this contest-free band one can most likely in this way enjoy nice additional QSOs with already installed 20 m antennas. A simple 20 m dipole should also be suitable for tuning in on the 12 m band with the L-match. During the routine tuning process, certainly the RX-S-meter can be used to find the minimum from the noise bridge when tuning with the L-match. Should you still find a soldering iron in your shack, then a simple L-match box according to the diagram can be easily and cheaply homebrewed from surplus parts. In the diagram, the switch is drawn for the antenna connector in the low ohm position, <50 Ω, for example, ground plane. Turning the switch to the right, selects the high ohm option, >50 Ω antennas.

The variable coil does not need to be larger than four to five μH but must be dimensioned to handle 100 watts. A one mm wire diameter is

sufficient. As a compromise, a 2 x 12 independently tapped coil with ceramic rotary switches will do. The variable capacitor with ceramic insulation from former ham gear can be bought from flea markets for a reasonable price. In case a noise bridge is not at hand, I recommend investing in one. The handy amateur will find plenty of suggestions on the internet for how to homebrew a noise bridge. However, if you cannot wait to get a noise bridge, you might be able to manage the tuning using the match box without the noise bridge. Just tune the box on maximum noise in the 12 m band, then fine tune with low power for best SWR, and finally tune with higher power once more and trim for optimum SWR. If you want to run a 500 watt final amp with it, you must have a coil of about 2 mm silver plated wire and a variable capacitor with plate distance of around one mm. Enjoy the soldering project and good DX in the 24th sunspot cycle.

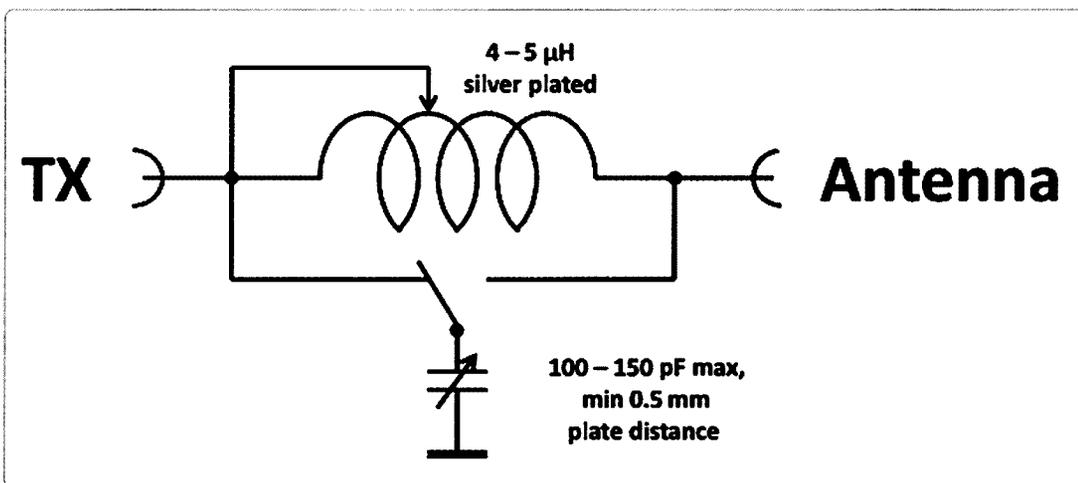


Diagram 2: Simple L-Match with high/low impedance switch.

The 'Match 22' – a micro antenna coupler for portable use

Peter Parker VK3YE

Possibly the lightest wire antenna for portable use is an end-fed half wavelength of wire. Performance is similar to a dipole, there is no heavy feedline and several bands can be covered. And only a short counterpoise is required for efficient operation due to the antenna's high impedance on most bands.

Because I am often at the beach with no natural antenna support, a favourite mast is a nine metre squid pole. An exact half wavelength of 20 metres is slightly too short to open up the apex to a satisfactory angle. For that reason I use a little more, approximately 22 metres. It is this length that gives this unit its name, since it can match a 22 metre wire on all HF bands between 40 and 10 metres.

The usual portable antenna coupler contains a variable capacitor and rotary switch housed in a metal box. The coil may be air or toroidal wound. Rotary switches take up valuable space and the cheap plastic types are unreliable. Protruding knobs, sockets and patch leads often foil attempts to make the station smaller.

The 'Match 22' is the author's attempt to build a small L-match antenna coupler for portable use. It is particularly suitable for QRP transceivers like the FT-817, so would make an excellent Foundation licensee project.

All parts are mounted on circuit board material on the back of an RCA plug. Instead of wasting weight on a metal case, a crush-proof food storage case houses the unit. While pocket sized, there is still ample room for accessories such as field strength meters, earphones, coax adapters and counterpoise wires inside the case.

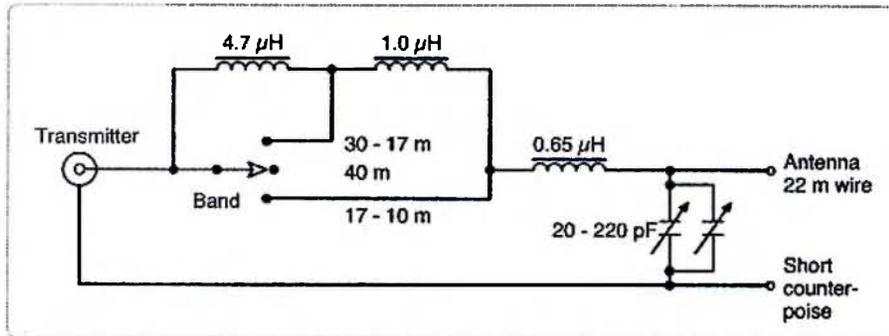


Figure 1: Circuit diagram of the end fed L-match 'Match 22'.



Photo 1: The 'Match 22'.



Photo 2: The completed 'Match 22'.

With small size there are, naturally, compromises. The plastic tuning capacitor and RF choke coils have limited power handling capacity but no problems have occurred with five watts.

Without a rotary switch there is a smaller inductance range. The unit will not cover 80 or 160 metres, for example. Instead there is a toggle switch with a centre off position. The coils are wired in series with the switch shorting out none, one or two of them, depending on the range selected.

Parts should be generally available, with the variable capacitor and two of the three RF chokes stocked by Jaycar. The 0.68 uH choke is not a stock item. If left out the unit will still work but will not tune higher bands like 15, 12 and 10 metres. Experiment with making your own, from enamelled copper

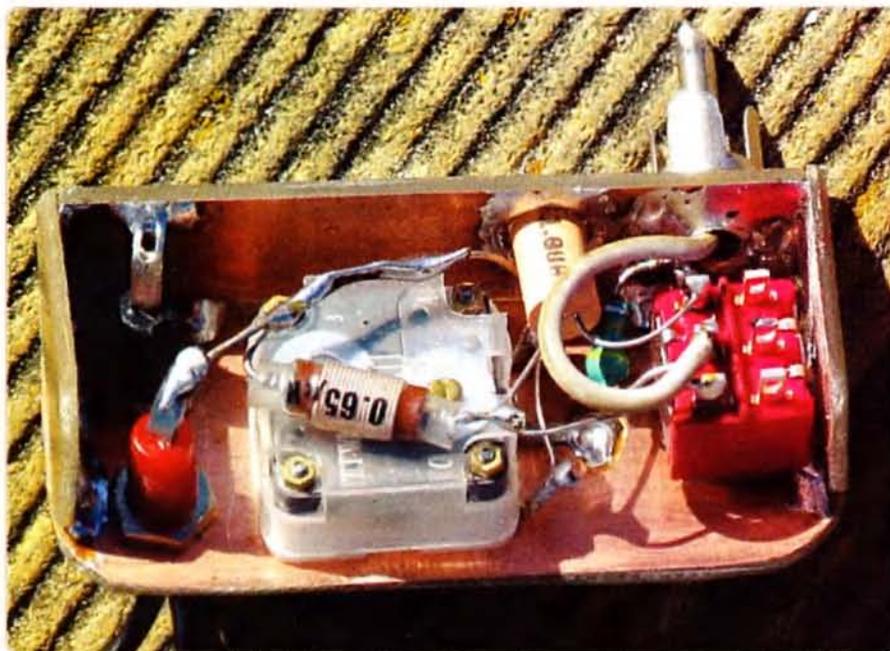
wire, if these bands are important.

Construction should be fairly self-explanatory from the circuit diagram and photos. Keep leads short to minimise stray inductance. Wiring the switch is most fiddly, if you get it wrong you may not be able to cover all bands. The centre connection of the 60/160 pF variable capacitor is grounded, soldered to the circuit board chassis, while the two outer terminals are wired in parallel to increase the maximum capacitance available.

Five watts to an end-fed wire will not bust too many pile-ups. Nevertheless it can produce surprising results, such as to the VK6 on 20 metres who quipped I had a 6 element Yagi on the beach. With reasonable conditions DX is also quite workable.



Photo 3: The internals of the 'Match 22'.



Don't forget

Sunday 5 August - VK6

2012 Hamfest Northern Corridor Radio Group

Location is Cyril Jackson Community Hall in Ashfield, Bassendean, 8 km from the City Centre.

More details on: www.ncrq.org.au

COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$265
20 m confined space beam 3 el.	\$481
20 m 5 el. Yagi 12.2 m 1 boom	\$995
M B vert 6, 10, 12, 15, 17, 20, 30, 40 and 80 m Auto switch between bands	\$436
40 m lin load 2 el. cap hats	\$705
6 m 5 el. beam	\$326
23 cm 36 el. 2 m 1 boom n-con	\$249
70 cm hi/gain Yagi 3 m boom	\$170
2 m 10 el. hi/gain Yagi beam	\$207
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$330
Log-periodic 7 el. 7.6 m boom	\$949
Tri band 10/15/20 5 el.	\$860
M.B. Vert 10 to 80 m 5 bands	\$370

Guyed masts
13 or 21 metres

Winch up, tilt-over, aluminium and stainless steel three sided construction. Auto brake winches.

**115 John Street
Glenroy VIC 3046**

Phone
0419 542 437

ALARA International Meet – The trip from Adelaide to Darwin

Margaret Blight VK3FMAB

On the Tuesday following the ALARA International Meet in Adelaide, 26 of the participants were collected from their accommodation and taken to Adelaide Airport to fly to Alice Springs. This tour was an option organised by Tina VK5TMC for those who wanted to see more of Australia. Most of the travellers were from overseas but there were five or six Aussies as well. In the original plans for this tour we were to have travelled from Adelaide to Darwin on the Ghan train. Unfortunately this was not to be, as previous travel arrangements were unavailable at the last minute. A hasty rescheduling meant there would be an extra day and night spent in Alice Springs. An additional tour was booked and this turned out to be one of the highlights of the whole trip.

After arriving at Alice Springs and checking in, they were taken by bus from their hotel to a disused quarry on the other side of the McDonnell Ranges where the lights of Alice Springs were almost invisible. Here they were given a demonstration of the use of different shaped boomerangs by a very knowledgeable young man.

They were then shown how the make a real damper from plain flour, salt and water. The end result was



Photo 2: Approaching the Valley of the Winds.



Photo 1: At the old telegraph station – some of the equipment.

absolutely delicious served with butter and honey. They were then given a serenade, and there was plenty of audience participation in providing an accompaniment with a variety of bush instruments. After a delicious meal of steak and salad, the evening ended with all the lights out and then they were given a talk about the brilliant stars which stretched out above us.

On Thursday all travelled west from the Alice beside the McDonnell Ranges. The group stopped at the memorial to John Flynn, the founder of the Flying Doctor Service, visited Stanley Chasm, the Ormiston Gorge and Simpson's Gap, at each of which everyone had a chance to walk in the bush and to see the red earth of the Centre. Every guide they had in this part of the tour emphasised that they were seeing an unusual Red Centre. Like Adelaide itself, the Centre has had two years of exceptional rains, so the growth everywhere was much more lush than normal at this time of the year. The group finished

the day at the Desert Wild Life Park.

Next morning they were taken on a tour of the Alice itself, starting at Anzac Hill so they could see the whole town spread out below us. Then a visit to the School of the Air where there was a film shown of the way the School operates now and how it used to operate.

At the Flying Doctor Centre they heard about Alf Traeger and his

invention of the pedal radio and the enormous difference this made to the people living in the outback. The Mantle of Safety was immediately obvious. They also visited the Old Telegraph Station, part of which is still set up as it was when it was functioning. It was interesting to hear that the need for the telegraph station disappeared with the advent of radio teletype etc.

Next morning the group set off for Uluru (Ayers Rock). After leaving cases and other effects at the motel where they would be for the next couple of nights they travelled on to Kata Tjuta (The Olgas) where there was an opportunity to walk through the Valley of the Winds.



Photo 3: The group enjoying sunset at Uluru.

In the late afternoon they travelled back to see the sun set over Uluru accompanied by champagne and nibbles, of course.

The following day everyone was up at 5.30 am to be taken to the Sunrise strip at Uluru. After breakfast back at the hotel, they were taken on a base tour of the Rock. The bus guide told the stories of the different sections of this incredible place. Everyone was allowed to walk in to Mutitjulu Waterhole, which used to be called Maggie Springs.

Again, because of the unusual rains over the past two years, there was a lot of water here. Later there was a visit to a cultural centre so all could hear more about Aboriginal lore and buy some locally made items; then to Kings Canyon Resort for our overnight stay.

Back on the Ghan for the last part of our trip to Darwin, most of us were in the same carriage and were allotted the first sitting for dinner. The meal was great and the service was all one could ask, and so eventually to bed. When all met in the morning the talk was mostly about how well or badly everyone had slept, as the Ghan rattled its way through the night. Most did not try the shower. It was very squeezey. Tony WA1ENO did brave it and said the water was hot and strong. Once he had worked out how to turn around in the space.

The closer the train got to Darwin the more fires we saw. Once the wet season has finished the undergrowth is burned off. This has two benefits, it allows the growth of some plants that need to be overheated to germinate in the soil and it controls the amount of material there is in the event of a bushfire started by lightning.



Photo 4: Mutitjulu Waterhole.

As they approached Katherine everyone went to the buffet car to book the tour they intended to take. There is a four hour halt in Katherine to allow passengers to visit the town or to take a boat on the beautiful Katherine Gorge. On the boat the guides had many stories to tell about particular formations. When one left the first boat to get into a second one in the next gorge they were shown some Aboriginal wall paintings and told more stories. At this time of the year, at the start of the dry season, no one was allowed to swim or canoe in the river. There were several crocodile traps set to catch any animals that had managed to get into the river during the wet season.

Finally, arrival at Darwin an hour late and the bus was allowed to drive right alongside the train carriage to load luggage. The bus then took everyone to the hotel where all found the staff a little flustered to have 26 people arrive on Tuesday, when they somehow expected the group on Wednesday. However, they coped very well.

Spud VK8ZWM and several other members of the Darwin Amateur Radio Club had come

to the hotel to greet us, which was great. As it happened Chae HL1KD from Korea recognised one of the OMs. She had met him at a SEANET Conference a few years ago. Again everyone marvelled that it was a small world, especially among radio amateurs.

The group had a free morning on the Wednesday and in the afternoon they were taken for a tour of Darwin. After a stop at the Botanical Gardens where there were many new species of birds to see, they were taken to the museum where, among other interesting exhibits, most watched a film about Cyclone Tracy.

There was a final Gala Dinner that night. However, it started with a visit to the Darwin Radio Club (DARC) rooms where they had prepared a proper Aussie barbecue as a last memory of Australia for the overseas visitors. As it happened, that day was Norway's Independence Day, the day when they celebrate their final separation from Denmark. Unni LA6RHA had brought along champagne for everyone to toast her home country, and she presented the DARC with a banner to hang on their wall.

A fitting end to a great two weeks. Everyone then prepared for a final return to their various homes on the morrow.

Margaret Blight VK3FMAB compiled this report from information provided by Christine Taylor VK5CTY.



WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

www.wia.org.au/members/contests/about

The Blob Board 500 mW CW transmitter

Nic Chantler VK3COW and Alan Simpson VK4AAE

Hey mate... do you want to learn by doing... and earn some fair dinkum bragging rights? Then, have we got a great project for you! It's simple... it's great... and just right for Foundation licensees, Old Timers and radio clubs as well! (Whilst it may be suitable for Foundation licensees to build, their licence conditions do not permit them to operate this transmitter. Ed.)

It's as simple as shelling peas... it's as cheap as they come...and it works like a beauty! It is... 'The Blob Board 500mW CW transmitter'.

Ed Knoll W3FQJ first designed and Tom Jurgens KY8I later developed the 'Michigan Mighty Mite' circuit, which we have used as the basis for the 'Blob Board 500 mW CW transmitter'... it was 'whacked together' and completed on a Sunday afternoon! Just read the article fully, follow the diagrams and the pictures and... WHAM! BAM, a few hours later you too could be 'On Air' with a very respectable QRP signal!

You will remember that quadrupling, or quartering, your RF output, will add, or reduce, the received signal by only one 'S' point. So, for example, if an 64 watt transmitted signal is being received at 'S9' then 16 watts output will produce a 'S8' signal, a eight watt output an 'S7' signal, two watt output an 'S6' signal... and a 500 mW output... a surprising 'S5' signal.

Blob Board construction

1. You need a clean piece of single-sided, printed circuit board 36 mm x 48 mm, some suitable screws, a few small pieces of wood, a hacksaw with the blade strongly tensioned, a power drill, a pair of side-cutters, a screwdriver, some solder and a soldering iron.

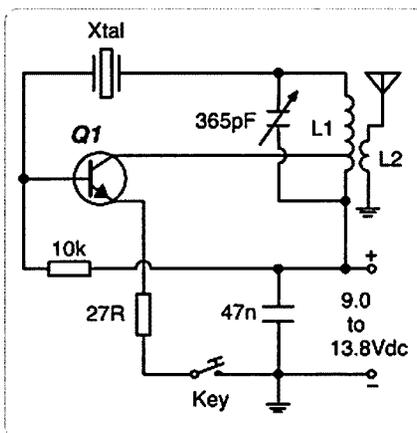


Figure 1: The Blob Board circuit.

2. With a fine-point marking pen and a ruler, divide the short side of the PC board into three equal parts and the long side into four equal parts. At those marks, draw a grid of parallel lines on the copper foil to produce twelve equal sized squares on your PC board.

3. Spend a few moments making a small wooden jig so the hacksaw-cuts along the lines are controllable and neat. Clamp your PC board in the little jig, together with a small 'waste' piece of PC board on either side, and using a fine toothed (32) hacksaw (with the blade strongly tensioned), carefully cut along all the scribed lines to remove the thin layer of copper foil. Inspect the cut after each stroke and modify the next stroke if needed. Do not be heavy-handed and stop when the copper foil has been removed along the line. There are three separate boards in Photo 1. One board is marked out ready for cutting, one is clamped and being cut and one is finished ready for mounting components.

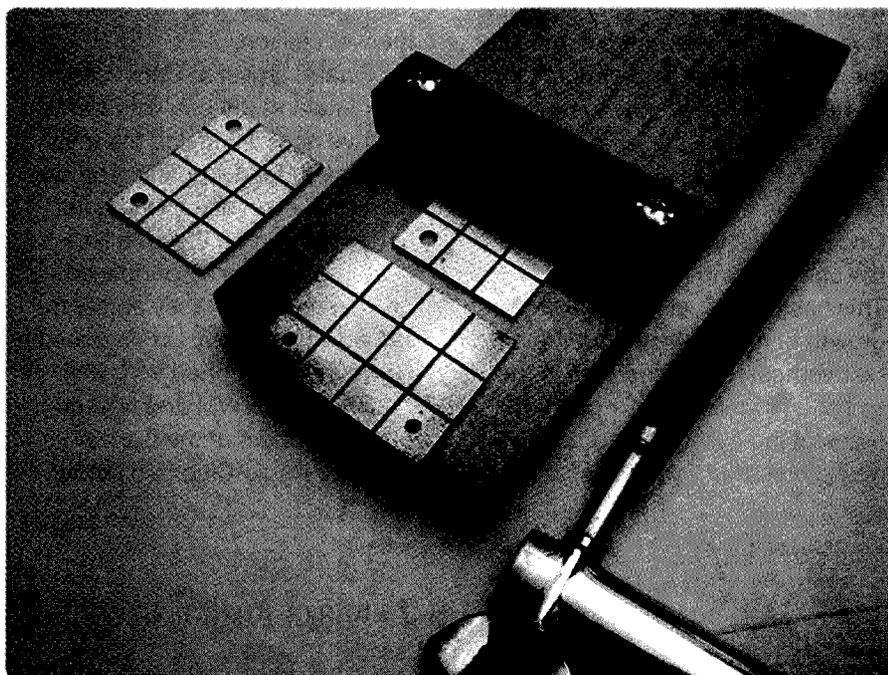


Photo 1: The 'Blob Board' early in the construction stage, showing the three separate PC boards described in the text.

5. Drill holes for two fixing screws in two of the unused copper squares.
6. Clean the copper surface and any ragged edges with a piece of fine steel wool in preparation for soldering. Check for and remove any steel wool 'left-overs'.

Refer to Photo 1 to check your progress on each of the above six steps.

Component details

7. Nic has tested the rig with the following NPN transistors - BFY50, BFY51, 2N3053, 2N3055, 2N2222 and SK2365. Do not forget to use a heat-sink though - in an emergency, a crocodile clip works well. Locating a small variable capacitor, approximately 365 pF, may require a little effort if you do not have a good junk box, but like the coil, it is mounted separately from the 'Blob Board'. Miniature tuning capacitors generally are unsuitable. If the variable capacitor does not tune the circuit to resonance, you can put a fixed capacitor in parallel with the variable capacitor to increase the total capacitance, or in series to lower it. Refer Photo 2.



Photo 2: The variable capacitor showing the fixed capacitor mounted in parallel with the variable capacitor to increase total capacitance.

8. Generally, QRP clubs use crystal frequencies of 1.815, 3.530, 7.028, 10.106, 14.060, 21.060, and 28.060 MHz. If you have others which are similar, use them but if in doubt please refer to the WIA Band Plan for CW operation. Nic and I used FT-243 crystals and holders. Refer Photo 3.

9. I used metal film resistors, 1% 27 ohm and 10% 10 k ohm as I already had them but others of close value will work. Nic, for example, used a 33 ohm resistor instead of the 27 ohm resistor. Incidentally, we both used the 0.047 μF capacitor as it is the closest preferred value to the much older 0.050 μF , which may be hard to obtain.

Construction

10. Cut a small piece of wood the same size as your 'Blob Board' to elevate it above a wooden base of your choice. Using two long screws in the holes in your 'Blob Board' mount and hold your 'Blob Board' and wooden spacer firmly in place.
11. Study Nic's schematic circuit in Figure 2 (next page) and use it to locate and solder all the 'Blob Board' components first, and then finish by soldering the coil, coax, power and Morse key connections last. Start by soldering the crystal holder near the edge of the 'Blob Board' to make room for the transistor and its heat sink. Some heat-sinks totally enclose the transistor

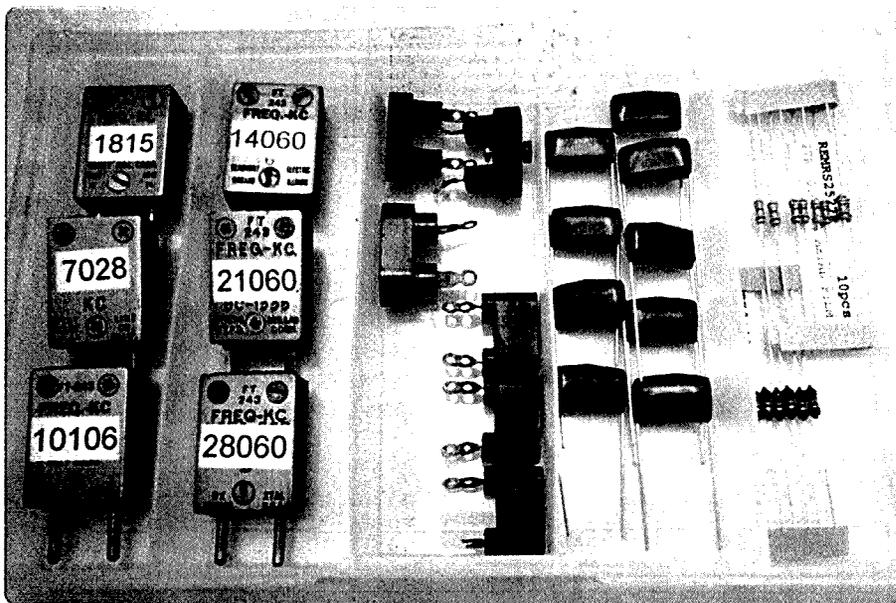


Photo 3: The various components; note the commonly used QRP crystal frequencies used.

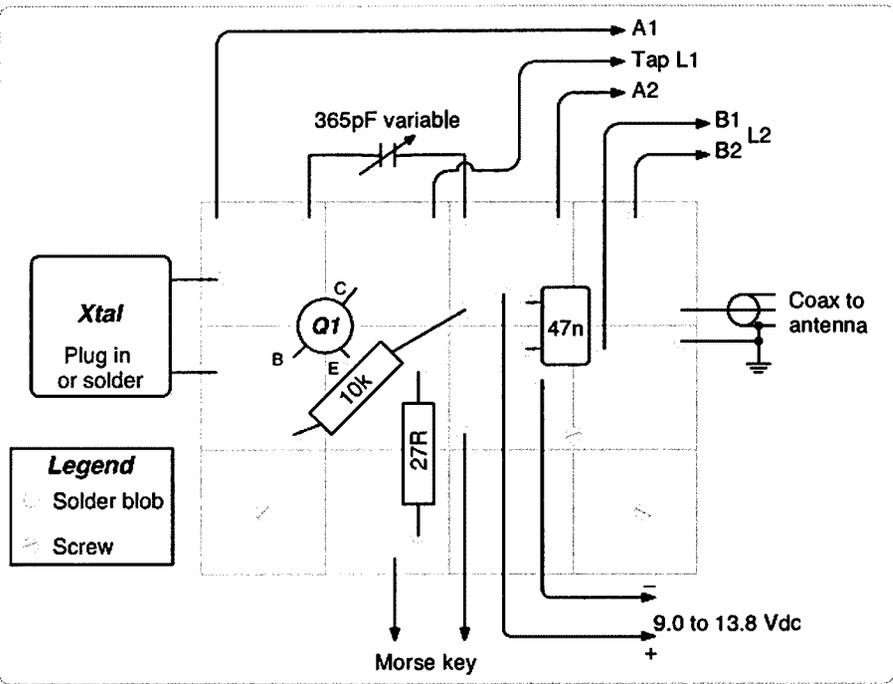


Figure 2: The 'Blob Board' layout.

so be careful to identify the collector, emitter and base before attaching the heat-sink. That done, bend the tips of the transistor legs and adjust them so that each leg sits nicely at the corners of three copper squares before soldering them in place.

12. After positioning your two resistors and capacitor on the 'Blob Board' neatly bend the pig-tails and solder them in place. Similarly, holding your coil in position beside your 'Blob Board', identify the coil connections, cut each wire to length, scrape the enamel off the ends, re-position the coil and solder each wire to the correct 'Blob Board' square. After completing all connections, carefully and methodically check all your connections against Figure 2.

Coil Winding Construction

13. Before choosing the band you are going to operate on make sure you are licenced for that band and then refer to the details in Nic's schematic for your coil winding details. See Figure 3.

14. Nic's coils for 160 and 80 metres are slightly different to mine but they all worked well. You can, as Nic did, use an inverted, plastic vitamin container with a push-on lid as your coil former. He fixed

the lid to the mounting board with a screw, wound L1 and L2 on the container and then pushed the container on to the lid. The dimensions of his coil former were approximately 9 cm long x 4 cm diameter but similar dimensions also seem to work. We both used 20 swg enamelled wire and have also used 21 and 22 swg.

16. If you use a different diameter coil former, you may want to work with the lengths of wire shown in Figure 3 rather than with the number of turns. It worked for us! Do not forget to add extra lengths on each end for connecting to the 'Blob Board'.

17. To tap L1 at the right place, make a small loop 25-30 mm in the wire, scrape off the enamel insulation, twist tightly together, and then finish winding L1. Wind some electrical tape around the middle of L1 before winding L2 on L1 and remember that L2 is wound in the same direction

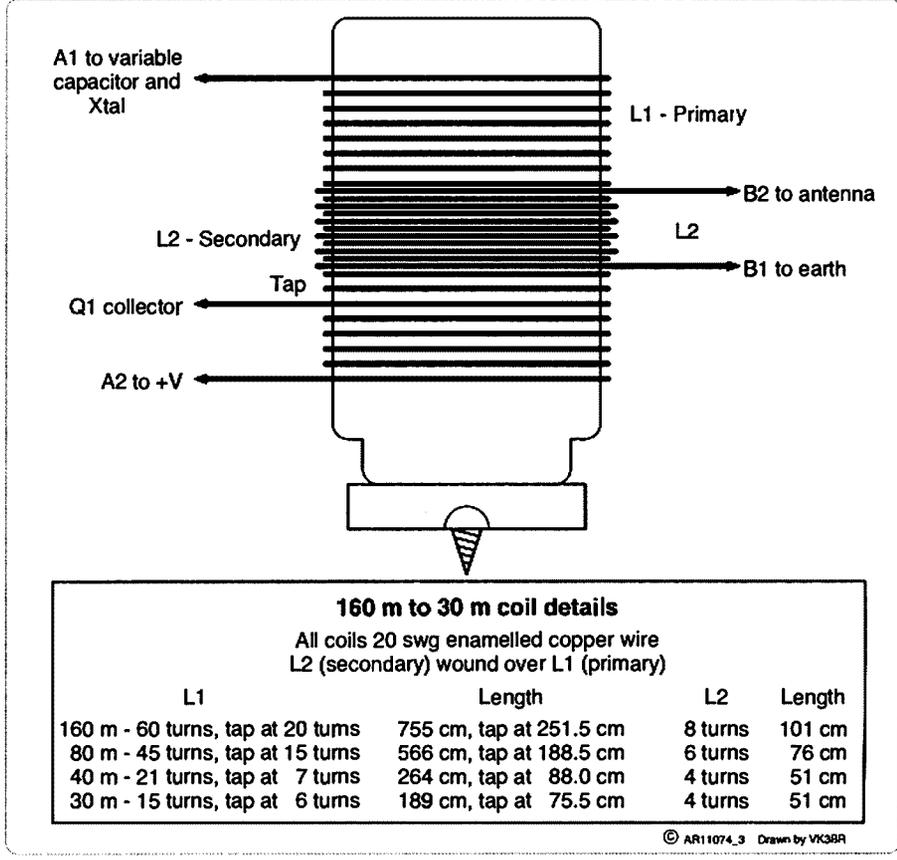


Figure 3: The 80 metre coil details.

as L1. See Photo 4. I used Super Glue to hold the first and the last turn in place on L2, leaving extra lengths for connection to the 'Blob Board'. Normally, the antenna coupling coil L2 should be positioned towards the 'hot end' (+ve) of L1, but we both found that it did not seem to make much difference in this case. To experiment with an adjustable L2 refer to Photo 5.

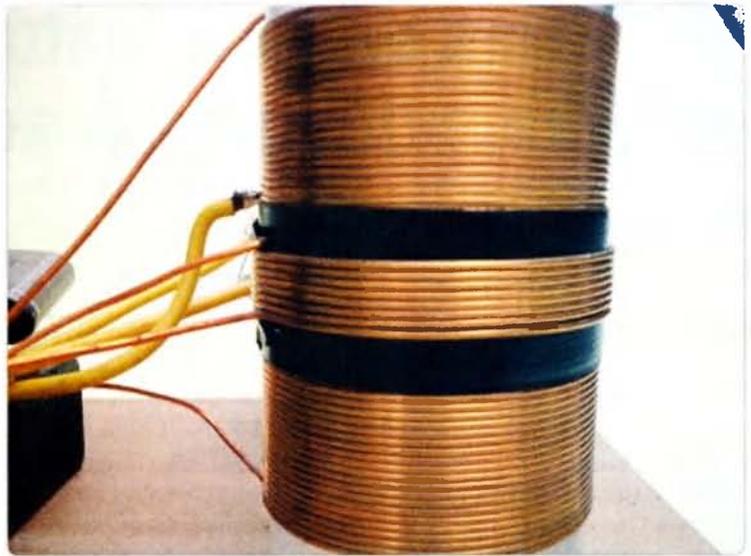


Photo 4: Showing the winding of L1 on top of L2.

Testing and Operation

18. It is very important to ensure you have a good earth connection. Likewise, it is highly recommended that you use a resonant, half-wave dipole at your crystal frequency with the feed-point approximately a half wavelength above ground. As it is very important to minimise losses when using low-power transmitters, do not use an antenna tuner and avoid using old or lossy coax. RG-8X coax is superior to RG-58 and if possible do use an antenna analyser when adjusting your antenna system. Plug in your crystal, apply 12 volts DC, close the Morse key and check the output with a simple field strength meter or with an HF receiver which has adjustable front-end attenuation. The usual procedure is to tune the variable capacitor of your 'Blob Board' transmitter to produce the cleanest signal with the greatest power output and you only need to switch the antenna between the transmitter and the receiver. So, *by next Sunday night...* see Photo 6.

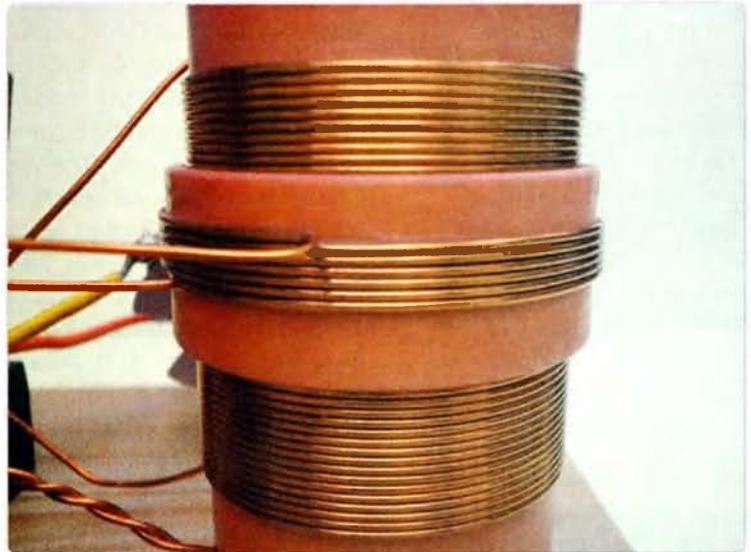


Photo 5: Experimenting for an adjustable L2.

If you need additional Information

19. On crystals go to: <http://www.users.on.net/~zietz/qrp/webxtals/catalogue.htm>
or: <http://www.s88932719.onlinehome.us/crystals.htm>
On a simple field strength meter log on to: The website of Peter Parker VK3YE.
On a resonant dipole antenna: Length (in feet) = $486/\text{frequency in MHz}$.
On CW use the SAR-MAJOR Edition of 'Are you having trouble... passing the CW Exam?'

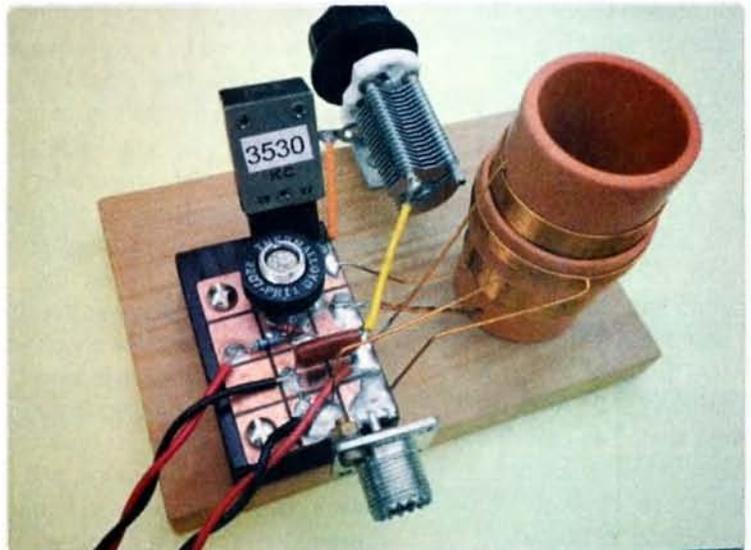


Photo 6: The completed 'Blob Board 500 mW CW transmitter'.

Bill Williams VK3WE, featuring explosions, floods, fire, printer's ink and RF

Keith Williams
e keith.williams4@bigpond.com

This story is of a hunt, a quest for information, and the fantastic results attained. However some questions are still not answered. Hopefully you may be able to help and will agree that it is fitting to publish the story in *Amateur Radio*. My father was Archdale Robert (Bill) Williams who was VK3WE between about 1932 and 1958. I was 15 when he died in 1958 and my younger brother 10, our mother already dead for six years. No one told us of father's story; he had never spoken to us of his life or the wars and was always busy with the business. As a teenager, I slept in the radio room near his tall black transmitter rack with the Bakelite panels. I remember that a large receiver with a perforated orange metal cover sat upon a table in the corner. But that was 50 plus years ago.

WW1

We have a lot of ground to cover; I will not dwell on the details. Now retired after working in engineering at television station GTV9 for 30 years, I began by obtaining my father's WW1 records from the National Archives. They showed that he had been apprenticed at the "Lilydale Express" newspaper for three years and was nineteen years old when he enlisted in the AIF. This on 17 August, 1914, three days after recruiting had started. The 8th Battalion sailed just two months later on the "HMT Benalla" to Egypt. In the early morning of 25 April, 1915, the Battalion landed as part of the second wave of the attack at what is now "Anzac Cove" Gallipoli. Through the Lilydale Historical Society I discovered that he was the first to enlist from Lilydale, and that father's

letters home about the voyage to Egypt, training in the desert and about life and death at Gallipoli were published in the "Lilydale Express". The "Express" also notes, below the heading "Lilydale's First Anzac", that the Lilydale band played "Home Sweet Home" when he was welcomed back at the railway station in December 1918, by a crowd including the Shire Councillors.

I purchased Ron Austin's book "Cobbers in Khaki", the history of the 8th Battalion and discovered that Ron was quoting from "The Wallaby Chronicle", a souvenir newsletter for "B" Company. Printed whilst the Battalion sailed on the "HMT Megantic" from Egypt to France in 1916, the newsletter was published by father, "Lc. Cpl. A. R. William Editor". I obtained a photocopy of "The Wallaby Chronicle" from the Australian War Memorial on Ron Austin's suggestion.

Father was wounded near Messines in Belgium in late June 1916 and hospitalized in England. The 8th Battalion diary indicates that he was likely wounded by a "minenwerfer" mortar bombardment that killed five and wounded twenty-five. In his book "The Anzacs", Dr Peter Pederson writes that: - *"the minenwerfer's canister-like projectile turned over and over with a 'woof, woof' sound as it arced through the air. The explosion caused a crater the size of a large room and the shock wave was felt in shelters a mile away"*. Bill worked in the Australian Army Post Office in England whilst recovering before returning to France, and more wounds. Was he exposed to radio or even Morse code at this time?

I have now identified father in the excellent War Memorial group

photograph of G Company 8th Battalion that was taken in 1914 at the Broadmeadows camp before they left Australia. You can find it on the web as DAX2564 with his position and as the only person identified; my purchased copy is clearer. The War Memorial now has my transcripts of father's letters found in the "Lilydale Express".

Okay, that was not about wireless but I could not leave it out!

Newspapers and Radio

I then had no idea where father had been next. However he had married in 1917 whilst in England and returned to Australia to be shortly followed by wife Winifred and son Robert. Archdale and Winifred were divorced in 1941 and I photographed the Supreme Court divorce records. I discovered that father had been in Yarrawonga, Daylesford, Charlton, Birchip and then Omeo with some dates given. I had lived in Omeo from age two and knew that father had worked as a journalist, printer and editor. I returned to the Victorian State Library, having already investigated the "Lilydale Express" there, and searched further. I found father's trails in The "Charlton Tribune", the "Birchip Advertiser" and the "Omeo Standard". He had the position of Editor at least with these newspapers, with some ability to affect the content. To date I have not found anything earlier. I searched every issue of these papers for the relevant periods and photographed or scanned many instances in which he wrote about himself, radio and sometimes the family.

The first find at the "Tribune" is an article "Progress in wireless at Charlton" that appeared on 30 October, 1926. It is about the beginning of wireless broadcasting services and of a (unnamed) pioneer amateur wireless enthusiast in Charlton. Readers were invited to send in their DX reception reports to the Editor. "Our Wireless Editor 'Megohm'" now began to contribute articles.

On 30 March, 1927, under the heading "Radio", The Associated Radio Co. of Australia, (3AR) had appointed Mr. AR Williams of the "Tribune" staff as their local agent and an advertisement showed that receivers could be obtained from AR Williams at the "Tribune" office. In May, a "3AR" receiver was set up in the Charlton Victoria Hall by Bill, with an invitation given to hear the broadcast of the Duke and Duchess of York opening Parliament in Canberra. A radio club had been formed by 11 May, with W. Blanchard as the President, WA Lundy and F Kruger as Vice-Presidents and with AR Williams as the Secretary and Treasurer. An aim of the radio club was to provide a service for townspeople to adjust radios that oscillated and caused interference to other listeners.

The "Wireless Perfection" article of 24 October contained a suggestion to contact the "Charlton Radio Service" for your receiver, one model, the "Sympladyne" "wholly constructed in Charlton by A. R. Williams". This issue also carried an advertisement from "Williams and Blanchard" of "Charlton Radio Service".

The "Birchip Advertiser" is the next newspaper on the list and its editorial for 8 March, 1929 included: "With the installation of the new machinery, Mr A. R. Williams has taken charge of the "Advertiser" office. Coming to us from the daily paper at the Federal Capital, the "Canberra Times", Mr Williams has had over 20 years' practical experience on provincial journals, and readers have no doubt noted

the improvement that has taken place in this journal, both in layout and general tone since he took over control a few weeks ago. He has, during the same period, directed the installation of the new plant, and completely reorganised the whole office."

Father was not reticent when writing about himself; the 20 years' experience included his apprenticeship and not subtracting time for WW1. However he was also promoting the newspaper. The "Birchip Advertiser" covered the "First Country Conference of the WIA" conducted in Birchip in January, 1934. Interested persons were called to a meeting at the home of AR Williams, for the purpose of forming a radio club which was to be sponsored by Messrs. James, Williams and Harris, the three Birchip "Transmitting" amateurs, 3LH, 3WE and 3CH.

Amateur radio, flood and fire

I failed to discover at the WIA National Office (at the old location) when Bill's amateur radio call sign "VK3WE" was first granted, and am still chasing a date. I did discover there some of his entries from the 1930s era *Amateur Radio* journals (AR). Purchasing an issue of AR revealed that the WIA Historian, Will McGhie VK6UU, had created a CD of scanned monthly issues of AR from its inception in 1933 until 1940. The CD contains 3WE's article for February 1934 about the first Victorian Country WIA Conference, held in Birchip, also a photo of Bill with other participants. Many issues of AR contained the "Mallee Notes" written by Bill Williams VK3WE. Details of Gippsland activities appeared following his move to Omeo in 1935.

In June 1936, the Omeo district received four inches of snow then very heavy rains, resulting in severe flooding. The phone lines were down and police requested Bill to contact Melbourne via his transmitter, asking that a message be given to the residents of the

Mitta River valley warning of impending floods. Subsequently VK3WE was congratulated in the August issue of AR for handling 'Civil Emergency' messages. The Melbourne "Argus" and "Sun" newspapers of 26 June stated that a message had been received from an amateur radio operator in Omeo asking for a warning to be broadcast by the national stations.

In July Bill wrote in the "Omeo Standard" that he would trial the use of his transmitter, re-tuned to the broadcast band, to broadcast within the district during any emergency. He transmitted records (music) when broadcast stations were closed down and asked for reception reports. The "Diary of Keith Scott" (see later) tells that Keith Scott and Bill discussed and built powerful systems because of the likelihood of floods isolating Maffra and Sale and especially Omeo. Later an advertisement appeared in the "Omeo Standard" suggesting that the records broadcast could be ordered through the "Standard" office. Remember this was 1936. The "Argus" and the "Hobart Mercury" has Mr. A Williams of Omeo and his amateur radio involved with floods again in July, 1949.

The township of Omeo was part destroyed on "Black Friday" during the January, 1939 bush fires. The Omeo Hospital, the Golden Age Hotel, 20 houses and 11 shops were destroyed, including the house lived in by my brother Robert Williams and his wife May. Bill had helped to fight the fires for three days until communication was lost on Friday; he then spent 40 hours virtually continuously handling appeals for medical supplies, police messages and personal telegrams. It had been 3.30 am on Saturday before the sections of the Omeo electricity supply to burnt areas were isolated allowing power for his transmitter. Amateurs near Melbourne received and relayed the messages with the assistance of the Post Master General's Department.

The WIA organised amateurs to attend other fire affected areas with radio equipment. An article in the February *AR* states that the VK3WE Omeo system had worked effectively and was retained unchanged. A letter on behalf of the Omeo Relief Committee from VK3WE "Bill" printed in the March *AR* thanked amateurs for their assistance and stated that 731 messages had been passed.

An article "Stockman dies ... Omeo Destruction" appeared in the "Melbourne Argus" newspaper of 16 January, 1939. Likely sourced from Bill, it highlights VK3WE's amateur radio efforts.

I initially found the "Argus" newspaper article of 21 January, 1939 reprinted in the July, 1997 "WICEN News", itself reproduced on the internet. Featuring Bill and about the success of amateur radio assistance during the fires, the article had been reprinted (then 1997) 58 years after the event as part of WICEN history.

Bill had been elected inaugural President of the WIA Victorian Eastern Zone at a Warragul meeting in 1938. He held this position until 1940 and was elected again when the Eastern Zone reformed post war in 1948. Chris Morley VK3CJK, the current Eastern Zone Secretary, has provided entries from the first minute book and a photo of amateurs at the 1953 Amateur Conference in Omeo. The photo was taken in our lounge room, with VK3WE in the foreground.

Googling "VK3WE" on the Internet found me "The Diary of Keith Scott" (VK3SS, Silent Key), who was Bill's close amateur friend from Maffra. Keith tells that he was pleased to share a tent with his friend Bill at "Headquarters Heavy Wireless" during World War 2 and of their common interests. Keith's son David Scott VK3DY was also an amateur at the 1953 Omeo Conference and he has provided copies from his first log book showing his initial amateur contacts (including with VK3WE) and a photo

of my brother and I posed in front of all the amateurs in Omeo, myself ten and Royce five years old. I am likely named Keith after Keith Scott.

WW2

Bill was asked to enlist in the CMF Signals in August, 1940 because of his wireless experience. He was 45 years of age and perhaps not of good health. He spent WW2 as an "Instructor" with the "Land Headquarters Heavy Wireless", which was based at Park Orchards Chalet, Ringwood Victoria. Investigating this unit has gained us three War Memorial photos of Sergeant AR Williams V5539, at Park Orchards supervising the construction of transmitters and at the attached transmitter installation at Coldstream inspecting antenna feeders. The Coldstream transmitting site is now St Hubert's Winery. Necessity and the staffs' abilities meant that they initially designed and built their own equipment, including the links to the transmitters at Coldstream, and later, equipment for Rockbank and Diggers Rest. You can find the photos on the web at the War Memorial.

The "Keith Scott's Diary" tells that Park Orchards communicated with London and all capital cities and theatres of war. Later in the war, the Rockbank and Diggers Rest installations took most of the traffic. Keith Scott helped build the antennas at Rockbank. I previously knew nothing of the Park Orchards Chalet history, even after taking my daughter there for a year eleven school social. It is now tired and empty, awaiting development decisions.

Bill and Winifred were divorced during WW2 and he married my mother, Gladys Dorothy "Mollie" (Hoggins) on 26 December, 1941; I was born in 1943.

The "Omeo Standard"

Bill had been the manager and editor of the "Omeo Standard" newspaper from November, 1935 until joining the CMF in August,

1940 and he re-started the "Standard" as proprietor and editor on release from "Heavy Wireless". The pre-war proprietor's estate (Mr. LDE Du Ve) had closed the business in 1942 due to the lack of skilled manpower. After Bill had left there had been four editors. A Mr. JO Holston had purchased the plant, hoping the newspaper could restart for the benefit of the district. Father welcomed back my brother Robert (Bob), post war, to be co-proprietor of the paper but Bob had been a prisoner of war since the 2/2nd Pioneers were captured in Java in March, 1942. The "Standard" had welcomed his return stating that he weighed a little over six stone when rescued in September, 1945. His Army records show that he had been finally at Fukuoka-22 prison camp and coal mine at Honami, Japan. Bob was later advised that he should work outdoors, and left the "Standard" and Omeo in March, 1949. He died in 1975.

On 6 October 1955, Bill wrote about himself in the "Standard" when reporting on the RSL meeting:

"Life Membership. Some months ago the District branch decided to recognise the 36 years membership and of service to the League (the last 19 years in the Omeo Sub-branch) of Mr. A. R. Williams by conferring on him the honour of being the first Life Member sponsored by it. The framed certificate" etc.

The "Omeo Standard" records that Bill had also been an office bearer or on committees for the Omeo Football Club, District Football League, Omeo Agricultural Society, Omeo Hospital, Ambulance Service, Omeo Swimming Club and the Church of England. He had attended and reported on all Shire Council meetings and promoted the district charities and endeavours. Also recorded was that my brother Bob Williams had won swimming and Fire Brigade competitions and that I had visited my grandmothers, my dog had been poisoned, our pipes had burst in a minus 9.5

degree C frost and that I had good school results.

AM Pearson MBE, in his book "Echoes from the Mountains", writes that Mr. AR Williams attended the September, 1958 Omeo Council meeting and stated that he was unable to continue publishing the "Omeo Standard". *"The president and councillors spoke highly of his service to the community and recorded a minute of appreciation for his efforts in the community."* *"Mr Williams had been associated with the paper for 23 years and to produce a paper single-handed was no mean effort."*

Father died on 12 September, 1958. Obituaries appeared in

the "Bairnsdale Advertiser" of 15 September and in the first issue of the restarted "Omeo Standard" of 4 February, 1959.

Help wanted

Helpful amateurs have assisted me with father's story. Lately I have been asking questions again, hoping that the WIA Centenary excitement would turn up more; particularly callsign lists for the period 1929 until 1933. So far we can find the VK3WE call first in the 1933 publication "What Station is that" from the Victorian State Library. Peter Wolfenden VK3RV has now found me several exciting QSL cards from the WIA archive that

give information about father's rigs and his addresses. The pinecone border on a QSL card reminds me of the tall pine trees that supported VK3WE's antennas in Omeo.

I have now learnt more about WW1 and of early Amateur Radio. I researched a 6v6 Tritet crystal oscillator that was mentioned on a QSL card and have more than only the wedding photo of my father. My own interests spur me to discover more of father's early radio games and it is all an enlightening story. I will be very grateful for further clues that you might give.



The WIA Archive

Peter Wolfenden VK3RV

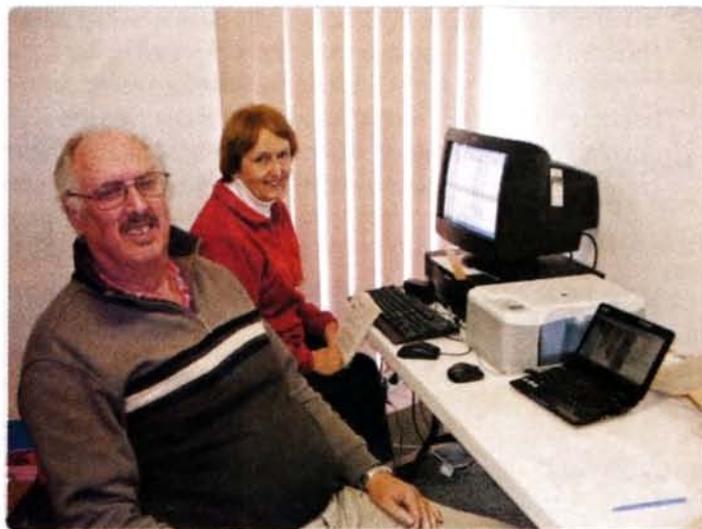


Photo 1: Jenny VK5ANW and Ian VK3IFM in the Archive office.

Not long after the WIA moved to its new premises in Bayswater, Victoria, the opportunity to bring historical material together presented itself. Material had been previously kept both in a commercial store and several individual's houses for many years. This coincided with initial planning for the Centenary

of Amateur Radio celebrations and, with it, the need to confirm aspects of the Institute's history. Two previous Federal Presidents, David Wardlaw VK3ADW and Peter Wolfenden VK3RV, commenced the initial document sorting, seeking historical clues necessary to help to prepare for the forthcoming WIA Centenary celebrations. It quickly became apparent that there was a massive amount of information locked away in the numerous boxes and that some sort of indexing and filing

of Amateur Radio celebrations and, with it, the need to confirm aspects of the Institute's history.

Two previous Federal Presidents, David Wardlaw VK3ADW and Peter Wolfenden VK3RV,

was necessary. Jenny VK5ANW "volunteered" to help out with inputting data into an embryonic data base, which has now grown significantly.

The sorting and cataloguing helped immensely in the preparation of "An Arena of Wonder", published in serialised form in *Amateur Radio*. Many photographs were also "discovered" which not only helped support the magazine article, but were also useful for publicity material and the WIA Centenary celebrations in Canberra.

The National Office frequently receives enquiries about early amateurs, their call signs, locations etc., so it was decided to commence scanning the earliest call books, commencing with the 1914 call book, "Wireless in Australia", a copy of which, in almost mint condition, was found in one of the long sealed boxes. Reference to entries in the call book within the *Amateur Radio* article generated a number of responses and brought

about further historical information from both amateurs and members of the public (courtesy of browsing facilities at the local newsagent).

Recently Ian VK3IFM has offered to help the Archive in a number of areas including the scanning of later editions of the call book. Most scanned copies are searchable PDF files which will speed up searching processes. The collection of scanned call books is now steadily growing.

So where are we at with the development of the WIA Archive?

The short answer is that we still have much work to do – and will for many more years! Many single sheets of paper still have to be read and assessed. A question which needs to be answered at every turn is, “why did someone originally decide to keep this particular piece of paper?” At times the answer is obvious, but frequently it is more obscure and requires knowledge of the history of the subject matter.



Photo 2: Some of the many boxes still to be sorted and, eventually, catalogued.



Photo 3: The shelving – soon to be well stocked with historical information – appropriately catalogued.

The risk, of course is that something important to our history may be inadvertently disposed of! But a positive start has been made and our shelves are starting to fill with “ordered” material.

During the “100th year”, many documents and articles were received as a result of the “Call for Articles” column in *AR*. Some submissions have been, or will be published in the magazine, but all will be kept in the archives to assist those researching at some later date. Thank you again to all who submitted material.

You may be able to help preserve our history by forwarding historical information, particularly relating to activities within Australia. If you were an office bearer of the Institute, or one of the more active clubs, you may have copies of official correspondence with the

old PMG Department relating to early special permits, for example, for modes like RTTY, ATV, Moon Bounce or early repeaters. Even copies of OT’s licences and permits are worth preserving. Please consider forwarding them to the WIA Archive.

The archive is also seeking suitable second-hand computer equipment, such as a large format scanner suitable for foolscap (or even larger). Many of our early documents are on foolscap and we wish to digitise as much as practicable. If you can help, please contact the National Office or Peter at vk3rv@wia.org.au

The Institute’s Archive is rapidly developing into not only a source of historical material relating to the development of amateur radio in Australia, but also radio communication in this part of the world generally.



Photo 4: Some of the shelving already with sorted information in place.

SOTA adventures in the Grampians

Ron Cook VK3AFW

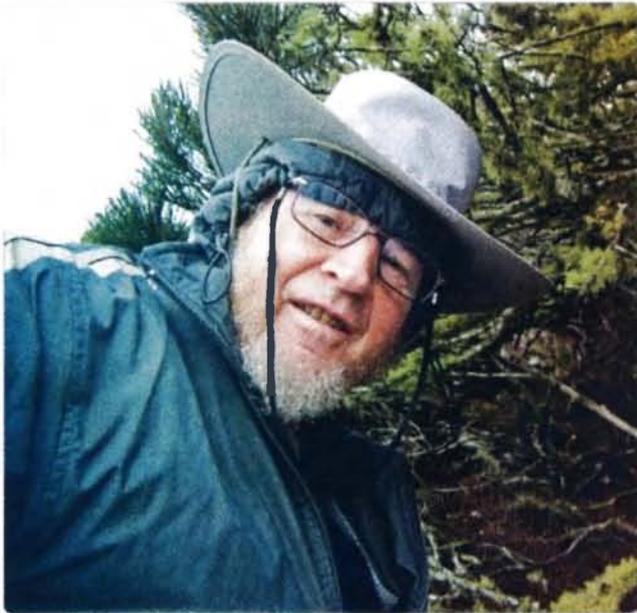


Photo 1: The author on site at Mt William.

What is SOTA?

I have qualified for my Keith Roget Memorial National Parks award (application submitted) so the next challenge is the Summits on the Air (SOTA) activity. SOTA is an activity that originated in the UK and is now up and running throughout the world with Australia becoming part of the activity earlier this year.

Amateur radio operators climb or walk to the top of prominent summits and operate on various radio bands thereby activating that summit. Points are awarded for each activation, with higher summits scoring more points. It is not a competition as such, there being no set times of operation and you set your own goals. If you are interested in radio, mountains, adventure and the outdoors SOTA might be the ideal radio activity for you.

The main SOTA web site can be found at <http://www.sota.org.uk/>

The first Australian registered activity is based in VK3 but other states are not far behind. Details are at <http://www.sota.org.uk/Associations/viewAssociation/prefix/VK3>

Certificates are available for totals of 100, 250, 500 and 1000 points, with 1,000 points earning the Mountain Goat Award for activators and the Shack Sloth Award for contacts with activators.

While much of the travel to the peak can be by vehicle, the final ascent must be made on foot or other non-motorised means and the station

must be clearly independent of any transport. There are over 600 peaks registered in Victoria and with other states making progress with their lists the chances are that soon there will be a SOTA peak near you.

The first ascent

I had worked a number of people participating in SOTA over the prior month and decided to take the opportunity to activate a couple of my favourite peaks, Mt William and the Sundial peak in the Grampians. We were travelling back from Adelaide on a Friday, so a 24 hour break at Stawell was taken to allow visiting the Grampians. I had packed my back-pack station which is currently based on an FT-817ND, G5RV antenna held up by a seven metre squid pole and a tuner. Power is either the FT-817's internal batteries or an external gel cell.

Saturday morning was clear with a nice blue sky at sunrise. An ascent of Mt William, the highest point in the Grampians at 1,167 metres was declared 'go'. I had charged up my 12 AH gel cell (too heavy really but

guarantees no lack of power) and packed my 50 year old canvas and leather haversack the night before. A good breakfast was devoured and then the haversack and a cut lunch loaded into the car.

It had turned cloudy as I left the motel and the weather forecast was 60% probability of rain but not until late in the day. The Victorian Alps are unpredictable weather-wise, so it was no surprise when I drove into cloud part way up the Mt William Road. The walk to the summit from the car park is two km of mostly steep grade rising 200 metres to the summit but it is a sealed road which makes it easier.

I donned my parka, hat and haversack and grasping the squid pole antenna mast plodded up the mountain. Although I normally walk a fair number of kilometres each week, the previous week had seen more wine and dine than exercise and I quickly came to a halt gasping for breath under the load on my back and the effect of the altitude. After 45 minutes I staggered onto the summit ridge. It was no more than four degrees, very windy with 30 knot gusts and of course very foggy on the summit of Mt William.

After a swig of water from a plastic bottle, a quick recce established that there was a thicket which would shelter me from the wind and enough adjacent open ground to run out the G5RV antenna. I soon discovered that my method of rolling up the antenna wire had resulted in some tangles, delaying the assembly. The rocks were covered in moss and were VERY slippery. The bushes were spiny and spiky and inflicted a few irritating scratches. Making mental notes to not break a leg I pressed on.

The fog was condensing on some of the leaves and care had to be taken to avoid the drips falling



Photo 2: The FT-817 protected by the log book and cardboard box. The haversack with tools is on the left.

onto the rig or log book. My hands were very cold by the time the mast was up and the G5RV wires tied off to the security fence surrounding the broadcast site and a small tree. I ignored the alarming bending of the mast under the wind gusts and was ready to go at the planned time of 1100.

In trying to 'fire up' on 40 metres I discovered the ATU was not responding. The four AA alkaline cells had given up in the cold. So, hoping I wasn't risking blown finals, I connected the coax directly to the FT-817ND and made a point of not reading the VSWR.

I immediately made contact on 7090 kHz with Wayne VK3WAM/p on Mt Richie, a registered SOTA summit, so it was a SOTA summit to summit QSO to start with! Twelve further QSOs were completed on 7095 kHz in the next hour, three VK5s and the rest VK3s. A good result for maybe two to three watts radiated.

Rain started as I packed up. A strap broke on my haversack. Neither dampened my spirit and

a repair with some of the light cord I carried got me ready for the descent. It took me 20 minutes to retrace my steps to the car by which time my jeans were wet although the parka kept my head and trunk dry. My broad brimmed sun hat also deflected some of the rain.

The second ascent

The original plan was to do the slightly easier ascent of the Sundial Peak in the afternoon. It is also two kilometres from its car park but requires only about a 100 metre vertical climb. However, before attempting it I returned to Halls Gap and bought new batteries for the ATU and ate my lunch.

It kept raining. Clearly it was too wet for the rig on the Sundial Peak. A small tent could have protected the rig and mike from the rain but I had not brought one.

It was time for a Plan B. I drove to Boroka Lookout thinking that it might be dryer being in the north of the Grampians and some 20 km from Mt William. No, it wasn't. I sat

in the car with a hot coffee enjoying passing showers.

I tested my laptop and Telstra mobile USB internet set-up which worked well. What to do next? I decided to wait for Wayne VK3WAM/P to come up on his second SOTA peak for the day, Mt Donna Buang, and give him a contact from the car using the mobile whip and the FT-857D. It was still definitely too wet to take another rig out although by now my parka and wet trousers were drying out. The question was would it fine up in the next hour and let me activate the summit near the Boroka lookout?

At 1520 I managed a scratchy contact with Wayne on his second SOTA peak for the day and 10 minutes later the rain cleared. Would it stay dry? I had the feeling it would so the haversack was hauled out and I set off with squid pole in hand.

There is a short track from the car park to a set of toilets. From there I bush bashed up the hill until a rock cliff was reached. A short diversion got me to a place where I could scramble up. The scrub opened up a bit onto a broad ridge. Walking east on rising ground led to an area where the mast could be raised and the two wires run out. A large nearby rock made a handy table to place the set on. The highest point was a few metres further on but I was within the activation zone and time was of the essence.

The ATU with new batteries quickly tuned and there was Wayne again on 7090 kHz but this time with a good signal.

In half an hour I worked another ten stations in VK1, VK2 and VK3. This was in addition to the second SOTA peak to peak QSO and a National Park to National Park QSO with Wayne. By 1630 the light was starting to fade so I shut down and packed up. The return trip was the reverse of the ascent, a slippery scramble over the rocks and down through the scrub before the car park was reached.

The wrap

Two SOTA peaks activated in the one day! My haversack was in need of serious repair and my jeans were streaked with green (from the mosses) and black (char from the bush fires a few years ago) but I was pretty happy with my first SOTA outing.

It went well thanks to Wayne and the others worked. The little FT-817 performed flawlessly.

And while travelling to and from the Boroka Lookout I worked Peter VK3ZPF in the Mt Richmond and Mt Eccles National Parks, another plus for the outing.

Next time? I will change the antenna to the VK3ZPF multi dipole design so that if the ATU fails the dipole will present an acceptable SWR on at least part of the band. I might look at getting a lighter battery or take the IC-706 to make more use of the battery capacity.

I felt I deserved my steak and glass of red wine that night.



Photo 3: The seven metre squid pole mast and 300 ohm feeder at the site near Boroka Lookout. The low cloud is evident.



TET-EMTRON



New HFTW Tapped Whip. New designing allows this whip to be separated in the centre for easy and clean storage in its own bag inside your car.

- Coated with thick, tough waterproof glue lined heatshrink.
 - Covers amateur bands 80-6 m, as well as most popular 4WD and RFDS.
 - Covers 160 metres with our new extension.
 - Covers the long talked about 60 m band.
 - Comes with its own drawstring storage bag.
 - Large easy to read writing.
- Does not include IIF base and spring.

Autotunes, Baluns, Beams, Stainless Whips, Insulators, Aluminium, Copper Wire, Co-ax, Connectors, Home Brew Parts, U-Bolts, Ladder Line Spreaders, Traps, Codan and Barrett Parts, Verticals, CB and much more...



Large Corona Tip.



Handy Centre Joint.

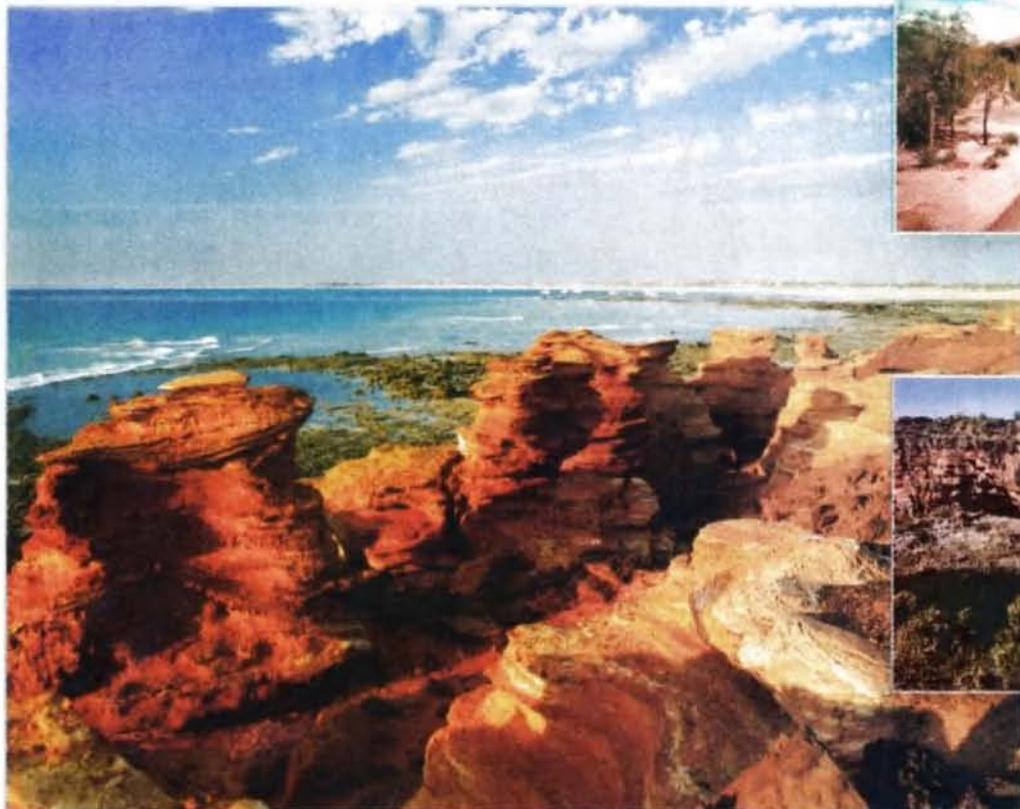


160 m Extension.

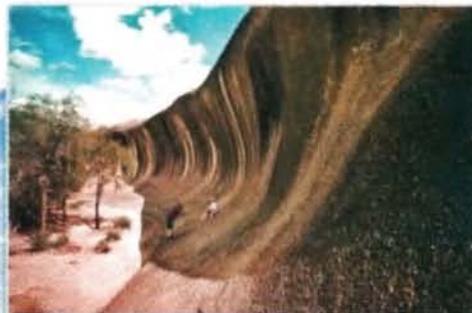
www.tet-emtron.com
TET-Emtron
80 Stock Road, IERNE HILL. WA 6056
Phone: 08 9296 3224

2013 WIA AGM and Conference in VK6

Onno Benschop VK6FLAB



Gantheaume Point, Broome. Tourism Western Australia.



Wave Rock, in Hyden. Tourism Western Australia.



View of Mitchell River National Park. Tourism Western Australia.

On the weekend of 25 and 26 May, 2013 amateurs from around the world will converge on the City of Perth in Western Australia to participate in the 103rd Annual Wireless Institute of Australia Amateur Radio exchange of ideas.

Preparations are being made and plans are being hatched. 2013 marks the Centenary of amateur radio in Western Australia and we are expecting to take the opportunity to showcase our hobby as an integral part of society.

From an amateur radio perspective, we are a year from the AGM and Conference, so at this point we cannot give you too much specific information. Activities are likely to include a visit to the Neil Penfold State Amateur Radio Centre, hosted by the Northern

Corridor Radio Group. We will likely see activities organised by clubs around the state, including the West Australian Repeater Group, the Hills Amateur Radio Group, the WA VHF Group, the Bunbury Radio Club, the Peel Amateur Radio Group and others.

Under the guiding hand of Bob Bristow VK6POP we are having planning meetings and making all this possible. During our announcement at this year's conference in Mildura we described some of the other activities we might undertake, a visit to the Fremantle Maritime Museum, to Wireless Hill, perhaps some fish and chips at the fishing boat harbour or a ferry to Rottnest.

In the coming weeks we will announce a call for expressions

of interest to talk at the technical sessions and we have some ideas on break-out groups that might give you that missing bit of information or a contact you were looking for.

For some of our guests the journey will be counted in minutes, where others will travel from the other side of the earth to participate. It's to those who come from a distance that I'd like to say, when you come, stay for a little while, I promise you, it will be worth it.

Travelling can be costly, but I recommend that you keep an eye on airfares as they regularly bounce around. Of course you could drive across the Nullarbor with a friend and share the journey. Having driven that stretch of road at least half a dozen times I can tell you that there is always something to see – even

if you might have to pay special attention to see it.

If this is your first visit to the Sunset Coast, or if you have been before, but only been around Perth, you should know that this is a big place. It is hard to fathom quite how

large Western Australia is unless you have been before and had a look around. Statistics tell you that it is 10 times the size of New Zealand, four times the size of Texas, covers a third of the Australian mainland and has over 20,000 km of coastline.

It is over a million square miles of country. This is not a place you can see in two days, nor should you.

So, if you take the time to come, I recommend you take the time to stay and look.



Air travel with radios - An air traveller's tale that almost ended in tears

Peter Ellis VK1PE

In April 2012, my wife and I set off on a trip to France and Italy with a stop-over in Dubai. I bought an inexpensive Chinese 2 m/70 cm FM handheld that would allow me to hopefully 'hit' some repeaters even with four watts.

I carried the radio through the X-ray scanners at Canberra and then Sydney Airport. We landed in Dubai, and enjoyed several days in the United Arab Emirates before our departure for France.

For some reason (the duty-free shopping area), we decided to spend an extra hour at the airport, so immediately checked our luggage at the self-check station and went to the X-ray lines, where my radio was seen and the carry-on bag opened. The radio was removed and I then began two hours of 'hell-on-a-stick'.

After my initial discussions with airport security, I was taken to a police supervisor who (1) asked 'Where is the other one?', and (2) pointed out an A4 sized poster showing prohibited items including 'walkie-talkies'. It was apparent that the UAE (unlike Australia) is of the opinion that terrorists use walkie-talkies. However, no amount of my polite talking would convince this police officer that this was an amateur radio device, and so was okay. He seized the device, and added that I could claim it back during my return journey from Europe (wrong: see below).

I then spent around 90 minutes going between my airline's counters and the police office, saying at times 'please look at the web site of the Emirates Amateur Radio Society <http://ears.ae>', to finally be told that (1) the device would NOT be returned to fly with me; (2) that there was now not enough time to reclaim my luggage, get back the radio and put it in the bag, and re-check the bag; (3) that I should have had it in the checked luggage (good advice); and, (4) that there was no way to collect items after the date of seizure (true).

Boarding time was approaching. I did not want to give up, but did not want to miss the flight. The radio had cost well under \$100 including postage, so the real loss would be some possible contacts in France and Italy.

It was at this point that the detective at the police office called in an Emirates Airlines supervisor, who listened, gave me his business card, and told us to proceed directly to the departure gate where I'd be given more information. A long jog through the duty-free shops later and we were told we were among the last 10 to board. My wife was, by this time, almost in tears. Then, with her already checked in, an Emirates employee arrived with an envelope that obviously contained my radio. I gave my information and this was laboriously written on the outside.

We went to the aircraft via a bus, and the envelope went with the driver and was given to the purser. While still on the ground, the purser came to my seat; the pilot had not allowed the radio to travel in the cabin, and it was now in the hold.

On the ground in Nice, France, I approached the purser and was pointed to the Emirates supervisor, who later handed me the envelope as I was retrieving the luggage. She told me that this system of handling 'suspect' goods had been discontinued several months before and that 'someone was being really good to you', to which I agreed. (I sent the supervisor in Dubai an email thanking him for his efforts).

I had several interesting contacts using repeaters in France and Italy, but not as many as I expected. On the return trip, the radio was in my checked luggage.

Lessons to learn: Even if you know what can and cannot fly in Australia, *do not assume* what is okay elsewhere. The listing of Dangerous Goods at your airline's or an airport's web site may not be the end of the story ('walkie-talkie' is not mentioned; see <http://www.airport.ae/prohibited-items.html>) It pays to be polite when talking to officials, and 'know your stuff' (as opposed to 'knowing your rights'). You have to 'know when to hold them, and when to fold them'; and... nothing is worth seeing your other half in tears.



WICEN in Tasmania sets the bar at a new height

Roger Nichols VK7ARN

The 2012 Tom Quilty Gold Cup national equine endurance championships were held at St Helens on the east coast of Tasmania on 9 June 2012.

WICEN provided checkpoint crews and communications between checkpoints and base. Handheld and mobile radio communications between ride officials was also supplied. Other support included track mapping and web based distribution of competitor tracking information.

Endurance riding has been an organised sport in Australia since 1966. One person inspired by the concept of a long distance competitive horse ride was R M Williams. An invitation was extended through his magazine for people interested in conducting Australia's own 160 km (100 mile) in one day ride. It was decided if the Americans could do it, so could the Aussies! The venue would be in the Hawkesbury district, near Sydney, New South Wales.

R M Williams wrote to his friend Tom Quilty, a great horseman and cattleman in the Kimberly area of Western Australia. Williams asked for his support for the 160 km (100 mile) ride, and Quilty donated \$1,000. This was used to make a gold cup, the prize for the winner of the event. This is a perpetual trophy, and the ride was named the Tom Quilty Gold Cup in his honour. The original Gold Cup now resides in the Stockman's Hall of Fame, in Longreach, Queensland.

Cash prizes were originally offered as an incentive for competitors, however at the last minute it was pointed out that local by-laws prohibited racing for money over public roads. A meeting of riders and officials was held, and all resolved to ride for the satisfaction of simply participating, and for the



Figure 1: The full arrowed course map.

honour of wearing the handsome silver Quilty buckle. The Quilty buckle is still a highly regarded prize in endurance with those who earn one treasuring it as equivalent to an Olympic Gold Medal.

The sport grew over the next several years, with fifty mile rides being conducted in all the states, and the annual Tom Quilty Gold Cup 160 km (100 mile) ride in NSW. Endurance riding began to be accepted as part of the horse scene, with Williams's Hoofs and Horns magazine giving the sport coverage.

The Quilty was considered as the National endurance ride, with its location being fairly central for riders, except for those in Western Australia. In 1986, a referendum of all endurance riders in Australia resulted in the decision to move the Quilty from state to state in rotation. This gave endurance riders in each of the six states the chance to compete in the Quilty in their home state, and not have to travel large distances to compete. The rest is history and St Helens was the venue for the 2012 Tom Quilty Gold Cup!



Photo 1: The Tasman checkpoint at night.

Due to Bass Strait transport difficulties and expense, the field this year was low at 114, compared to the more normal two to three hundred.

The 160 km ride is in five legs of decreasing length, roughly of 43, 40, 35, 24 and 18 km at St Helens. The front runners completed the course in a little over 12 hours, including compulsory rest breaks, whilst the tailenders got home in 21 hours. The ride slogan is 'To complete is to win'. Those who did were awarded a Tom Quilty silver belt buckle, and 54% of the riders completed the course. The actual winner was awarded the Tom Quilty Gold Cup.

The ride is a test of the riders' and horses' fitness but horse welfare is paramount. The mounts are checked by a vet at the end of each leg and must meet set requirements. So, if a rider pushes too hard he or she will be 'vetted out'.

Our team included 17 from or with WICEN South, four from the Cradle Coast and six from the northern Tasmania amateur radio clubs. Local volunteers assisted as time recorders and runners. In all, almost 40 people were involved in our direct tasking. In addition, a further ten ride officials were provided with radio communications on commercial VHF and UHF frequencies licensed to WICEN.

Our advance party arrived in St Helens on Wednesday 6th June, being joined by the others between then and the ride start at midnight on the Friday night. Our primary task was to

look after 13 checkpoints at six different locations in the country around St Helens, plus our base station in town. This job included establishing and maintaining radio communications between the checkpoints and base, recording and transmitting to base the time of passing of each rider, calling for any assistance needed, for example a float for a lame horse, and making sure water troughs were topped up. In addition, self preservation in the close to, or sub zero night time temperatures needed some attention. Video evidence from at least one checkpoint location indicated that entertaining weary riders was also a focus.

The checkpoint radio network on two metres was initially via a repeater at one of the checkpoints. Though not totally necessary, the repeater ensured excellent comms throughout. Later, when the more difficult checkpoints were

TOID	TIME	20:11	Leg 1				Leg 2				Leg 3				Leg 4				Leg 5				Miles																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Rider	Station	Start	LCK1	LCK2	LCK3	LCK4	LCK5	LCK6	LCK7	LCK8	LCK9	LCK10	LCK11	LCK12	LCK13	LCK14	LCK15	LCK16	LCK17	LCK18	LCK19	LCK20	LCK21	LCK22	LCK23	LCK24	LCK25	LCK26	LCK27	LCK28	LCK29	LCK30	LCK31	LCK32	LCK33	LCK34	LCK35	LCK36	LCK37	LCK38	LCK39	LCK40	LCK41	LCK42	LCK43	LCK44	LCK45	LCK46	LCK47	LCK48	LCK49	LCK50	LCK51	LCK52	LCK53	LCK54	LCK55	LCK56	LCK57	LCK58	LCK59	LCK60	LCK61	LCK62	LCK63	LCK64	LCK65	LCK66	LCK67	LCK68	LCK69	LCK70	LCK71	LCK72	LCK73	LCK74	LCK75	LCK76	LCK77	LCK78	LCK79	LCK80	LCK81	LCK82	LCK83	LCK84	LCK85	LCK86	LCK87	LCK88	LCK89	LCK90	LCK91	LCK92	LCK93	LCK94	LCK95	LCK96	LCK97	LCK98	LCK99	LCK100	LCK101	LCK102	LCK103	LCK104	LCK105	LCK106	LCK107	LCK108	LCK109	LCK110	LCK111	LCK112	LCK113	LCK114	LCK115	LCK116	LCK117	LCK118	LCK119	LCK120	LCK121	LCK122	LCK123	LCK124	LCK125	LCK126	LCK127	LCK128	LCK129	LCK130	LCK131	LCK132	LCK133	LCK134	LCK135	LCK136	LCK137	LCK138	LCK139	LCK140	LCK141	LCK142	LCK143	LCK144	LCK145	LCK146	LCK147	LCK148	LCK149	LCK150	LCK151	LCK152	LCK153	LCK154	LCK155	LCK156	LCK157	LCK158	LCK159	LCK160	LCK161	LCK162	LCK163	LCK164	LCK165	LCK166	LCK167	LCK168	LCK169	LCK170	LCK171	LCK172	LCK173	LCK174	LCK175	LCK176	LCK177	LCK178	LCK179	LCK180	LCK181	LCK182	LCK183	LCK184	LCK185	LCK186	LCK187	LCK188	LCK189	LCK190	LCK191	LCK192	LCK193	LCK194	LCK195	LCK196	LCK197	LCK198	LCK199	LCK200	LCK201	LCK202	LCK203	LCK204	LCK205	LCK206	LCK207	LCK208	LCK209	LCK210	LCK211	LCK212	LCK213	LCK214	LCK215	LCK216	LCK217	LCK218	LCK219	LCK220	LCK221	LCK222	LCK223	LCK224	LCK225	LCK226	LCK227	LCK228	LCK229	LCK230	LCK231	LCK232	LCK233	LCK234	LCK235	LCK236	LCK237	LCK238	LCK239	LCK240	LCK241	LCK242	LCK243	LCK244	LCK245	LCK246	LCK247	LCK248	LCK249	LCK250	LCK251	LCK252	LCK253	LCK254	LCK255	LCK256	LCK257	LCK258	LCK259	LCK260	LCK261	LCK262	LCK263	LCK264	LCK265	LCK266	LCK267	LCK268	LCK269	LCK270	LCK271	LCK272	LCK273	LCK274	LCK275	LCK276	LCK277	LCK278	LCK279	LCK280	LCK281	LCK282	LCK283	LCK284	LCK285	LCK286	LCK287	LCK288	LCK289	LCK290	LCK291	LCK292	LCK293	LCK294	LCK295	LCK296	LCK297	LCK298	LCK299	LCK300	LCK301	LCK302	LCK303	LCK304	LCK305	LCK306	LCK307	LCK308	LCK309	LCK310	LCK311	LCK312	LCK313	LCK314	LCK315	LCK316	LCK317	LCK318	LCK319	LCK320	LCK321	LCK322	LCK323	LCK324	LCK325	LCK326	LCK327	LCK328	LCK329	LCK330	LCK331	LCK332	LCK333	LCK334	LCK335	LCK336	LCK337	LCK338	LCK339	LCK340	LCK341	LCK342	LCK343	LCK344	LCK345	LCK346	LCK347	LCK348	LCK349	LCK350	LCK351	LCK352	LCK353	LCK354	LCK355	LCK356	LCK357	LCK358	LCK359	LCK360	LCK361	LCK362	LCK363	LCK364	LCK365	LCK366	LCK367	LCK368	LCK369	LCK370	LCK371	LCK372	LCK373	LCK374	LCK375	LCK376	LCK377	LCK378	LCK379	LCK380	LCK381	LCK382	LCK383	LCK384	LCK385	LCK386	LCK387	LCK388	LCK389	LCK390	LCK391	LCK392	LCK393	LCK394	LCK395	LCK396	LCK397	LCK398	LCK399	LCK400	LCK401	LCK402	LCK403	LCK404	LCK405	LCK406	LCK407	LCK408	LCK409	LCK410	LCK411	LCK412	LCK413	LCK414	LCK415	LCK416	LCK417	LCK418	LCK419	LCK420	LCK421	LCK422	LCK423	LCK424	LCK425	LCK426	LCK427	LCK428	LCK429	LCK430	LCK431	LCK432	LCK433	LCK434	LCK435	LCK436	LCK437	LCK438	LCK439	LCK440	LCK441	LCK442	LCK443	LCK444	LCK445	LCK446	LCK447	LCK448	LCK449	LCK450	LCK451	LCK452	LCK453	LCK454	LCK455	LCK456	LCK457	LCK458	LCK459	LCK460	LCK461	LCK462	LCK463	LCK464	LCK465	LCK466	LCK467	LCK468	LCK469	LCK470	LCK471	LCK472	LCK473	LCK474	LCK475	LCK476	LCK477	LCK478	LCK479	LCK480	LCK481	LCK482	LCK483	LCK484	LCK485	LCK486	LCK487	LCK488	LCK489	LCK490	LCK491	LCK492	LCK493	LCK494	LCK495	LCK496	LCK497	LCK498	LCK499	LCK500	LCK501	LCK502	LCK503	LCK504	LCK505	LCK506	LCK507	LCK508	LCK509	LCK510	LCK511	LCK512	LCK513	LCK514	LCK515	LCK516	LCK517	LCK518	LCK519	LCK520	LCK521	LCK522	LCK523	LCK524	LCK525	LCK526	LCK527	LCK528	LCK529	LCK530	LCK531	LCK532	LCK533	LCK534	LCK535	LCK536	LCK537	LCK538	LCK539	LCK540	LCK541	LCK542	LCK543	LCK544	LCK545	LCK546	LCK547	LCK548	LCK549	LCK550	LCK551	LCK552	LCK553	LCK554	LCK555	LCK556	LCK557	LCK558	LCK559	LCK560	LCK561	LCK562	LCK563	LCK564	LCK565	LCK566	LCK567	LCK568	LCK569	LCK570	LCK571	LCK572	LCK573	LCK574	LCK575	LCK576	LCK577	LCK578	LCK579	LCK580	LCK581	LCK582	LCK583	LCK584	LCK585	LCK586	LCK587	LCK588	LCK589	LCK590	LCK591	LCK592	LCK593	LCK594	LCK595	LCK596	LCK597	LCK598	LCK599	LCK600	LCK601	LCK602	LCK603	LCK604	LCK605	LCK606	LCK607	LCK608	LCK609	LCK610	LCK611	LCK612	LCK613	LCK614	LCK615	LCK616	LCK617	LCK618	LCK619	LCK620	LCK621	LCK622	LCK623	LCK624	LCK625	LCK626	LCK627	LCK628	LCK629	LCK630	LCK631	LCK632	LCK633	LCK634	LCK635	LCK636	LCK637	LCK638	LCK639	LCK640	LCK641	LCK642	LCK643	LCK644	LCK645	LCK646	LCK647	LCK648	LCK649	LCK650	LCK651	LCK652	LCK653	LCK654	LCK655	LCK656	LCK657	LCK658	LCK659	LCK660	LCK661	LCK662	LCK663	LCK664	LCK665	LCK666	LCK667	LCK668	LCK669	LCK670	LCK671	LCK672	LCK673	LCK674	LCK675	LCK676	LCK677	LCK678	LCK679	LCK680	LCK681	LCK682	LCK683	LCK684	LCK685	LCK686	LCK687	LCK688	LCK689	LCK690	LCK691	LCK692	LCK693	LCK694	LCK695	LCK696	LCK697	LCK698	LCK699	LCK700	LCK701	LCK702	LCK703	LCK704	LCK705	LCK706	LCK707	LCK708	LCK709	LCK710	LCK711	LCK712	LCK713	LCK714	LCK715	LCK716	LCK717	LCK718	LCK719	LCK720	LCK721	LCK722	LCK723	LCK724	LCK725	LCK726	LCK727	LCK728	LCK729	LCK730	LCK731	LCK732	LCK733	LCK734	LCK735	LCK736	LCK737	LCK738	LCK739	LCK740	LCK741	LCK742	LCK743	LCK744	LCK745	LCK746	LCK747	LCK748	LCK749	LCK750	LCK751	LCK752	LCK753	LCK754	LCK755	LCK756	LCK757	LCK758	LCK759	LCK760	LCK761	LCK762	LCK763	LCK764	LCK765	LCK766	LCK767	LCK768	LCK769	LCK770	LCK771	LCK772	LCK773	LCK774	LCK775	LCK776	LCK777	LCK778	LCK779	LCK780	LCK781	LCK782	LCK783	LCK784	LCK785	LCK786	LCK787	LCK788	LCK789	LCK790	LCK791	LCK792	LCK793	LCK794	LCK795	LCK796	LCK797	LCK798	LCK799	LCK800	LCK801	LCK802	LCK803	LCK804	LCK805	LCK806	LCK807	LCK808	LCK809	LCK810	LCK811	LCK812	LCK813	LCK814	LCK815	LCK816	LCK817	LCK818	LCK819	LCK820	LCK821	LCK822	LCK823	LCK824	LCK825	LCK826	LCK827	LCK828	LCK829	LCK830	LCK831	LCK832	LCK833	LCK834	LCK835	LCK836	LCK837	LCK838	LCK839	LCK840	LCK841	LCK842	LCK843	LCK844	LCK845	LCK846	LCK847	LCK848	LCK849	LCK850	LCK851	LCK852	LCK853	LCK854	LCK855	LCK856	LCK857	LCK858	LCK859	LCK860	LCK861	LCK862	LCK863	LCK864	LCK865	LCK866	LCK867	LCK868	LCK869	LCK870	LCK871	LCK872	LCK873	LCK874	LCK875	LCK876	LCK877	LCK878	LCK879	LCK880	LCK881	LCK882	LCK883	LCK884	LCK885	LCK886	LCK887	LCK888	LCK889	LCK890	LCK891	LCK892	LCK893	LCK894	LCK895	LCK896	LCK897	LCK898	LCK899	LCK900	LCK901	LCK902	LCK903	LCK904	LCK905	LCK906	LCK907	LCK908	LCK909	LCK910	LCK911	LCK912	LCK913	LCK914	LCK915	LCK916	LCK917	LCK918	LCK919	LCK920	LCK921	LCK922	LCK923	LCK924	LCK925	LCK926	LCK927	LCK928	LCK929	LCK930	LCK931	LCK932	LCK933	LCK934	LCK935	LCK936	LCK937	LCK938	LCK939	LCK940	LCK941	LCK942	LCK943	LCK944	LCK945	LCK946	LCK947	LCK948	LCK949	LCK950	LCK951	LCK952	LCK953	LCK954	LCK955	LCK956	LCK957	LCK958	LCK959	LCK960	LCK961	LCK962	LCK963	LCK964	LCK965	LCK966	LCK967	LCK968	LCK969	LCK970	LCK971	LCK972	LCK973	LCK974	LCK975	LCK976	LCK977	LCK978	LCK979	LCK980	LCK981	LCK982	LCK983	LCK984	LCK985	LCK986	LCK987	LCK988	LCK989	LCK990	LCK991	LCK992	LCK993	LCK994	LCK995	LCK996	LCK997	LCK998	LCK999	LCK1000
1		0000	C	0125	0221	0235	0417	0515	0537	0542	0720	0745	0811	0833	0825	0853	1122	1200	1212	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
2		0000	C	0130	0242	0303	0504	0444	0719	0742	0924	0915	1105	1140	1202	1357	1440	1504	1800	1812	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
3	V	0000	C	0130	0242	0303															3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
4	V	0000	C	0110	0214	0228	0421	0522	0545	0600	0810	0834	0895	1011	1035						4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
5		0000	C	0130	0237	0251	0435	0534	0559	0615	0821	0857	0942	1025	1048	1307	1430	1458	1700	1712	5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
6		0000	C	0113	0202	0213	0251	0442	0523	0515	0699	0724	0754	0813	0823	1003	1034	1104	1220	1232	6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
8		0000	C	0136	0236	0303	0500	0483	0652	0716	0932	0925	1117	1051	1110	1322	1400	1454	1711	1723	8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
9	V		C	0130	0240	0303	0500	0418	0657																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

completed and closed, the network was switched to simplex. Stations were varied in equipment with various mobile rigs and antennae ranging from vehicle whips to collinears on six to nine metre masts. The repeater was an Icom FR3000 with 1.8 MHz offset

We had worked the area several times before so little prior testing and survey was needed. These earlier rides had included APRS and simple GPS rider tracking. This enabled WICEN to supply the maps and elevation profiles used on the Tom Quilty web site and in ride literature.

A secondary function was to make the tracking data as widely available as possible, in the shortest possible time. This was achieved in three ways. First, as a rider passed through the final checkpoint on each leg, details were transmitted to base and the rider number was announced on the PA system, enabling the appropriate 'strapper' to prepare.

For the wider availability of tracking data, a web based system was developed and used, with great success. We have used a spreadsheet based recording system for a few years, usually displayed on an additional monitor so the base radio operator can keep an eye on the data entry and interested parties can 'sticky beak' without breathing down the neck of the data entry operator. Using the Excel facility of simultaneous saving the Excel file as an html file and frequent uploading to a web server, the data was available worldwide and rarely more than a couple of minutes old.

Many supporters, and some competitors, monitored progress using internet connected smart phones, iPads, PCs or the like. We also understand supporters 'back home' monitored progress, including, that we know of, in England and in Italy!

For those not suitably equipped, an additional 1200 x 1920 monitor, in portrait orientation, was placed



Photo 2: AR promo at base with Stu VK7NXX in the background.

in the window of the base HQ. The monitor was attached to its own web connected 28 cm (11 inch) Macbook and displaying a scripted version of the uploaded file, so as to refresh every minute and page scroll every 20 seconds to cover the full field, which needed more than one screen page to display fully at a legible size.

Telstra's 3G network was used for upload and download and performed well. Two independent systems were used. The main data entry Toshiba Tecra PC using a Telstra Elite USB 'dongle'. The additional in the window display used a Telstra Elite Network Gateway (Netcomm 3G21WB). As the file size increased, reaching 536 KB, downloads did sometimes hesitate, causing some breath holding, but overall was quite satisfactory. The event, including

our first ever live tracking system, was judged a huge success.

The opportunity was taken to promote amateur radio with strategically placed signage. The organisers gave WICEN and amateur radio in general a good write up in a half page piece included in the full colour ride handbook.

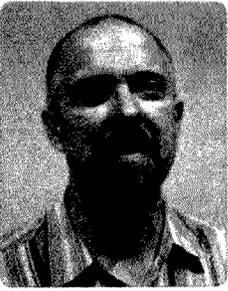
Those taking part were VK7s ARN, CL, DC, FLAK, FMRS, FNJS, FRIK, FROO, FTAZ, GW, KPC, KTN, JGD, MGW, MX, NXX, TPE, TRF, TW, VAO and VKV, with Allan, Dave, Jess, Maureen, Terry and Wayne. Thanks also to the supporting XYLs not listed and to WICEN Victoria for passing on their Tom Quilty communications handbook, developed for the 2009 Tom Quilty held at Tonimbuk in Victoria.

VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/



The dynamic duo of Rex VK7MO and David VK3HZ have been at it again with an aircraft scatter contact of 462 km on 24 GHz from VK1 to VK3 and a troposcatter contact at 260 km. Congratulations to Rex and David.

VK7 Regional News Broadcast

A short five minute online tick and flick survey has been created to ensure the VK7 Regional News is meeting our VK7 amateur radio needs. There are only 10 questions covering listeners, listening, content, length, style and advertising. It will help the broadcast team to improve and to shape future VK7 Regional News Broadcasts. The survey will be available until the end of August at <http://www.surveymonkey.com/s/N52VG8Y>

VK7 Repeater News

VK7RRR is the first public VK7 D-STAR repeater compliments of Don VK7YXX. It is located at Richmond in southern Tasmania and is on 70 cm. VK7RRR uses a DV-RPTR DSP GMSK modem in combination with the DV-RPTR repeater controller and ircDDB gateway software and this allows linking with D-Plus/REF, DExtra/XRF and x-Net/DCS reflectors worldwide. Frequencies are TX on 438.125 MHz with 50 watts output and RX on 432.725 MHz. For more information take a look at <http://www.vk7rrr.info> Thanks to Don for this information.

VK7RBH on Ben Lomond featured in last month's AR magazine with a new antenna and it has been found that it may be VK's highest repeater at 1570 metres. On 16 June, Peter VK7PD put

the WIA and VK7 Regional News broadcasts out on VK7RBH. There were six call-backs from all over the state including Burnie, Hobart, Launceston, Deloraine, Arthur's Lake, St Mary's and the Midlands Highway. VK7PD let the author know that RBH has an interesting property, reported by Ken VK3NW. It can often be accessed from the Geelong area when no other VK7 repeater is audible on VHF or UHF, except for the VK7RAE beacons!

VK7RAC on Table Cape has a new Diamond V-2000 vertical tri-band six, two and 70 cm antenna on the highest part of the tower. It has been reported that the coverage of the 70 cm repeater has certainly improved. Thanks to David VK7DC who is the custodian of the Table Cape repeater for this information.

Northern Tasmania Amateur Radio Club

NTARC's June meeting was a show and tell session and uncovered some interesting projects going on in the club. Included was Peter VK7PD's homebrew 10 GHz equipment and Vice-President

Lewis VK3FLPL's college HF receiver project which Lewis supervised while in East Timor in 2002. From reports this was a great example of ingenious use of salvaged material and components and was inspiring.

Radio and Electronics Association of Southern Tasmania

Our four newest Foundation licensees reported last month have received their callsigns: Lee VK7FAAI, James VK7FAAL, Tony VK7FTNY and Andrew VK7FAAJ. Congratulations and if you hear them on air give them a shout and welcome them to the hobby.

REAST's June visit was a very entertaining tour of the new Ambulance Tasmania Communications Centre hosted by Roger Woolley (formerly VK7HRW). Roger is the supervisor at the centre and started with a great historical overview then went into the very modern and well equipped new centre. This modern area houses the patient transport and main communications operation with

operators for the NW, north and south of Tasmania. Operators sit at ergonomic surround desks with multiple touch screens connected seamlessly to modern trunked communications and internet enabled equipment. The ambulances are fitted with Simoco PRM9000 GPS enabled radios.



Ambulance Tasmania Communication Training Centre – Roger Woolley (centre) taking the attendees through a medical emergency scenario. Photo courtesy VK7TW.

Roger described and demonstrated the Computer Assisted Dispatch (CAD) system and the questions that the operators run through when there is a person with a medical emergency on the phone to determine the help required and its urgency. A great night and a big thank you to Roger who, the author understands, is currently studying for his Advanced licence – on ya Roger!

The DATV Experimenters Nights have seen some big nights of show and tell with a Raspberry Pi theme, crystal sets, 1918 valves, Enigma memorabilia, Morse keys, naked CCTV cameras, USB Stick digital TV receivers converted into software defined radios covering 54-1800

MHz and Patrick VK7FPJB took the audience through his campaign to start a hackerspace in Hobart. Our videos have included the Tom Quilty Equine Endurance event at St Helens, Dick Smith VK2DIK's talk at the WIA Centenary weekend, Richard VK7RO on the history of the Queen's Domain Marine Wireless Station including its early use with the 1911-1913 Mawson Expedition to Antarctica and a fascinating talk and film given by Des Whayman, a retired cray fisherman. When does this all happen? On Wednesday nights at 7:30 pm in the Queens Domain DATV studio and we stream the content via batc.tv – member stream – VK7QTC.

Silent Key

Robert Milne VK7ZAL
and **AX2TAR**

Robert died on 21 June, 2012. He was 71 years old.

Robert gained his amateur license in 1959 and was a keen experimenter and homebrew builder. His interests included operation on 10 GHz and amateur television on 70 cm.

In 1994 he obtained an experimental license AX2TAR and for the last 11 years of his active radio life he concentrated on transmitting and receiving on 176 kHz.

Vale Robert.

Submitted by Ric Rogers VK7RO.



SUNFEST 2012

Sunshine Coast Amateur Radio Club

Doors Open at 0900 hrs Saturday 8 September 2012
(Sellers from 0700 hrs)

at **Woombye School of Arts**
Blackall Street, Woombye (UBD Map 66 F12)

The **Sunshine Coast Amateur Radio Club's** annual **HAMFEST** is an event for Amateur Radio Operators, CB Radio users, Radio and Electronics enthusiasts, Computer bits and pieces.

New gear as well as pre-loved bits of everything on sale.

Reservations for table space contact:
Glenn Campbell VK4FSCC - 07 5437 2183
or mobile: **0415 662 577**
Email: sunfest@vk4wis.org

Tables \$20 each
(includes 2 persons)
Entry fee \$5

Participate

August 11 - 12 **Remembrance Day Contest - CW/SSB/FM**
August 25 - 26 **ALARA Contest - CW/SSB**

VK5news Home brew at the SERG Convention

John Drew VK5DJ

The SERG Convention is held each year in Mount Gambier over the June, Queen's Birthday weekend. The two most important events are the Australian Fox-Hunting Championship and the home brew competition. Usually there are one or two entries in the home brew competition that are direct spinoffs from the fox hunting. This year it was no exception but the *pièce de resistance* was Greg VK5ZGY's 'Confusing Fox'.

It has become clear that the skills of the hounds are becoming more and more finely tuned, so this year Greg thought it was time we (the fox) started making things more difficult. Greg built a rotating stage which housed a 12 V car battery, an FM92 FM transceiver, an MP3 player with a simple TX timer and a windscreen wiper motor and gears. At the top of the platform was a single folded dipole for two metres. The whole show rotated about once per second and using the directional properties of a horizontal dipole Greg created a signal that oscillated in strength and hopefully caused varying reflections too. The fox hunters were nonplussed but you can't keep good hounds down and ultimately they all found the fox. What will Greg or others come up

with next year to make things hard? Greg's 'Confusing Fox' gained second prize in the homebrew competition.

First prize went to Lou VK3ALB's crystal set. It was a unique design that made use of two basket weave coils. It is not very often that the judges see these coils and they were beautifully home wound by Lou. The Q must have been very high. The two units, enclosed in nicely made wooden boxes, formed the crystal set. One was the antenna tuning unit and the other the detector unit. The ATU was an independently tuned component placed for minimum coupling and maximum Q up to a metre from the crystal set. This was possible because of the extremely low loss construction of the two lightly coupled basket weave coils. For those who build crystal sets that often hear two stations at once due to the loading of the diodes on the coils it was amazing to see the list of separated stations that Lou had heard on his crystal set. Well done Lou.

Third prize went to Colin VK5HCF for his build of a kitset digital L/C meter. It was Colin's first attempt at a project and he did an excellent job of it; his soldering was very good and instructions had been carefully followed resulting in a valuable piece of test gear for his shack. The judges commented that kits were an excellent way of getting started with home brew and encouraged others who haven't yet wielded a



Photo 2: Spinning fox antenna by Greg VK5ZGY, a rotating dipole for two metres to confuse the hounds. On the left are two of the modified TV amplifiers by Gary VK5JR.

soldering iron to have a go; it's a very rewarding thing to do.

Bob VK3ZL is a master builder. The judges always look forward to seeing Bob's amplifier builds. He knows exactly what to do to make an efficient and safe high power amplifier. This year Bob displayed a 20/15/10 three band, water cooled, 400 watt amplifier and a two metre, high powered amplifier and for this he was awarded fourth prize.



Photo 1: Two high power amplifiers from Bob VK3ZL. On the left is a full power water cooled amplifier for 20, 15 and 10 while on the right a legal limit amplifier for two metres.



Photo 3: Winners of the Australian Fox Hunting Championship, the VK3BLN team from left: Graham VK3ZKM, Adam (no call), Marta VK3FTZL and David VK3XAJ.

Others to receive prizes included Colin VK5DK's 5.7 GHz home station built using the VK3XDK boards and WB5LUA RX preamp with a modified commercial pre-amp; Bruce VK3TJN presented a direction finding compact two element six metre beam that proved itself during the six metre foxhunts; Gary VK5JR's successful modifications of ex TV transmitter modules to provide legal limit amplifiers for six metres, two metres and 70 cm – a very impressive set of three

amplifiers easily driven by a standard transceiver; Chris VK5MC showed a 50 W 1296 MHz PA based on VK3PY's article in *AR* and a home brew combiner board on an ex commercial heatsink. This unit has successfully completed many EME contacts. Lastly John VK5DJ showed his beam control unit which had to undergo urgent maintenance when a wire fell off a pot used to simulate an encoder – well soldered Greg.

The South East Radio Group was again supported by a generous

anonymous donor who provided the money for the prizes. Thank you whoever you may be.

The club was pleased with the number of entries. Judges, Chris VK5MC and John VK5DJ emphasised that the homebrew competition is there for everyone to enter; no matter how simple the project there is a good chance it can win a prize, but more importantly give the builder a great sense of achievement in the doing.



Spotlight on SWLing

Robin L Harwood VK7RH
e vk7rh@wia.org.au

As I am writing this on Friday June 29, I have been witnessing the final shortwave broadcasts from three major international broadcasters, namely Radio Netherlands, Radio Canada International and the Vatican Radio. All these happened during the final week of June. The Canadians were the first, ending their shortwave presence with highly emotional good-byes from their staff. This caused panic though various international stations that had entered into co-operative agreements to share the Sackville site to reach audiences in the Americas. This also caused the Vatican to decide to cease MW and shortwave broadcasts to Europe and accelerate their plans to go over to an Internet platform. I believe that the Papal See has applied for the *.catholic* header from the ICANN who are responsible for Internet domains.

At present, Sackville is still being used by NHK and South

Korea for broadcast to the Americas but at a reduced capacity. The Canadians are apparently keen to dismantle the site and sell it, possibly as the site for a wind farm. The only transmission emanating from Hilversum now is a Spanish program in support of press freedom in Cuba, Mexico and Venezuela. The Vatican Radio will continue with shortwave programming to Africa and Asia. I also believe that the court case brought by a local council over the effects of electromagnetic radiation on public health about a decade ago may have also contributed to the decision to dramatically curtail the use of the Vatican Radio's extra-territorial site, due to the rapid urban sprawl nearby.

I have previously reported that the BBC World Service was leaving their home for 80 years, Bush House, which is quite close to Australia House on the Strand. This has now happened and they are

now located in a new Broadcasting House in Portland Place, which has been the site for domestic programming for a similar amount of time. Incidentally the last program from Bush House was an English news bulletin at 1100 on July 12. Truly an era has ended.

Propagation was severely disturbed throughout June and there were no Europeans present as in previous years around my local midday. Signals were always there with a pronounced auroral flutter, especially on six and seven MHz but now there was absolutely nothing. In fact band occupancy has dramatically shrunk compared to even a year ago. When this cycle does peak, only the amateurs and utilities will be there to take advantage of the solar highs.

Spring is just around the corner so let us hope that there will finally be some decent propagation.



VHF/UHF - An Expanding World

David Smith VK3HZ

e vk3hz@wia.org.au



Weak Signal

The Winter VHF/UHF Field Day was held over the weekend of 23/24 June and was, predictably, a rather cold experience for many. In VK3, rain threatened for much of the time, reducing the numbers out on the hilltops. Activity further north seemed somewhat subdued also, judging by reports received. As at the end of June, the following had submitted logs for the day:

VK1 MT
VK2 HZ MB XN ACL BOZ WFD
VK3 GL HY KH WT ZHQ FASW
FEZZ
VK4 CZ ADC AMG KLC TGL VDX
VK5 KC MK OQ ZD GRC FDCA
FMLB

Geoff VK2MIA reports:

The Manly Warringah Radio Society (VK2MB) activated QF56OH for around four hours on Saturday afternoon from the corner of a sports oval on top of a hill. We had contacts on six metres, two metres, 70 cm and 23 cm and a great day - even suffering a little sunburn (not bad for the 3rd shortest day of the year!). As soon as it got dark, we packed up as we weren't keen enough to try and operate overnight.

Justin VK2CU managed to activate seven gridsquares: Sunday morning was rather cold. The Falcon's thermometer said it was -10, and everything was covered in ice. This was 30 km east of Guyra, NSW. Ford Australia's new injected LPG system started with no problems, though it took me a bit to fire up.

Once the sun came up, things warmed up nicely. Went to the hill south of Guyra to try SW.OLD - not much happening though. A LSD and traction control was required to



Photo 1: The crew from VK2MB enjoying the winter sun.

climb this icy grassed hill, complete with lots of sump smashing boulders (who needs a 4WD?).

Then it was off to Ben Lomond QG50 - a truck rest area along the New England Highway.

Matt VK2DAG reports: *Did someone say cold! Holy snapping duck poo it was COLD!*



Photo 2: VK2CU's microwave setup.

Woke up 5:30 am Sunday morning sitting in the driver's seat with five layers on, inside a -5° sleeping bag with my Russian hat on and it was still cold enough to wake me up. Brrrrrr... I need a better sleeping bag. I haven't suffered that bad from the cold since I was wearing green stuff. Never again without better/warmer gear!



Photo 3: VK2DAG warming up.

Big setup at QF48 near the entrance of Coolah Tops NP. The farmer whose land I was on came over for a chat. He asked how I made out the night before because it was so brutally cold! That's saying something coming from a local...

There weren't many on, that's for sure. And the very small tropo and AE openings made it hard when I hear guys chatting about the weather and stuff and then the opening's gone - cry. Overnight in QF47 I could hear the Dural beacon all night at 579 and not a voice to be heard. Sitting in the ute tray with frost settling on me would be a bit more interesting if there was someone to talk to.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au

Digital DX Modes

Rex Moncur
VK7MO



24 GHz Tests

On 13 June Rex VK7MO (see Photo 4) assisted by Ian VK3AXH climbed the fire tower at Mt Buninyong near Ballarat to check out Rex's 24 GHz system with David VK3HZ and Alan VK3XPD operating from their home stations. After David sorted out some problems with his GPS locking, signals reached 5-9 plus both ways over a 106 km path. Alan could see Rex's signal on SpecJT but was blocked by trees and was unable to complete a two way contact.

24 GHz aircraft scatter

On 17 June, Rex VK7MO (portable at the QTH of Chris VK1DO) worked David VK3HZ on 24 GHz via aircraft scatter using JT65c over a distance of 462 km, establishing a new 24 GHz digital mode distance record. Many aircraft did not produce useful decodes and it took some five hours and around 30 aircraft to complete

the QSO. A detailed report is at: <http://www.vk3hz.net/microwave/462km-24GHz-Aircraft-Scatter-QSO.pdf>

24 GHz tropo-scatter

Between 26 and 29 June, Rex VK7MO and David VK3HZ conducted a series of tests over non-line of sight paths to gauge the usefulness of tropo-scatter on 24 GHz. The best distance achieved was 176 km on SSB and 268 km on JT65c. A detailed report is at: <http://www.vk3hz.net/microwave/24GHz-Troposcatter.pdf>

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au



The Magic Band – 6 m DX

Brian Cleland
VK5BC

Scott VK4CZ summed up June as follows 'With the movement of the sun to the northern hemisphere, and the associated demise of the F2 and TEP propagation we'd experienced from January through to May, the

doldrums of winter Es are now firmly installed! The last of the northern hemisphere TV video was received via TEP on June 12, 2012.' After a quiet May winter E's began in the first week of June. Most openings were down the eastern seaboard with an occasional opening from VK2, 4 and 7 to VK5 and ZL. Unfortunately southern VK6 missed out with no openings/contacts recorded to the east.

1st June Frank VK7DX reported ZL beacons and worked Peter ZL4LV and again on the 3rd June Frank reported ZL2WHO/b and ZL3SIX/b and this time worked Neil ZL3ADC. Norm VK3DUT reported ZL beacons on the 4th June but no contacts.

5th June band livened up with good openings from VK4 to VK3, 5 and 7. Brian VK5BC and Rob VK3XQ worked Scott VK4CZ and Les VK4ALH, Rob also completing with Brian VK4EK in Sapphire while Jack VK2XQ reported hearing ZL beacons.

Frank VK7DX was back in the action again on the 6th June working several VK4's while John VK4TL near Cairns reported evening TEP into JA and completing with JA2DDN and JA2OGB.

VK4s between Hervey Bay and Brisbane were again in the action on the 7th June working into VK3, 5 and 7 while later in the day VK4FP and VK4FNQ from far north VK4 worked into southern VK2 and VK3. Leigh VK2KRR also reported Derek VK6DZ on WSPR.

Again on the 8th June, VK4s again worked into the southern states but the band also opened from VK2 to VK5 and western VK3 with strong backscatter signals between Brian VK5BC and Steve VK3ZAZ.

10th June saw more Es down the eastern seaboard but of interest was the reporting of the VK6RSX beacon from NW VK6 by Frank VK7DX, Steve VK3ZAZ and Brian VK5BC. Frank and Steve completed with Rod VK6KP in Karratha.

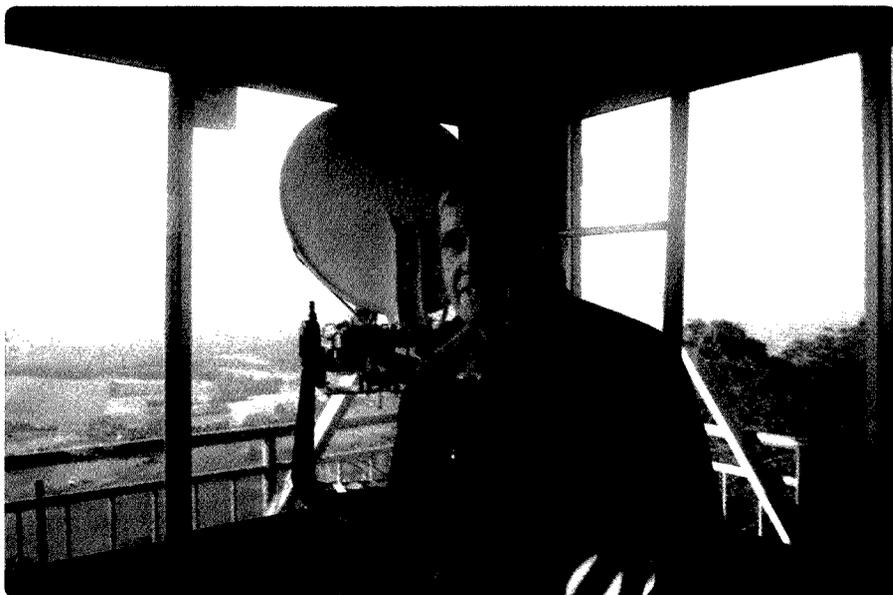


Photo 4: Rex VK7MO with his 24 GHz set-up on the Mt Buninyong fire tower. Photo by Ian VK3AXH.

Frank VK7DX completed with Peter ZL4LV on the 12th June and Ken ZL3OZ on the 13th. Scott VK4CZ also reported ZL beacons on the 13th and worked ZL4AX/m and heard ZL1NX while Colin VK2BCC worked ZL2, 3 and 4.

Frank continued to work in to ZL again on the 14th and the 19th, this time ZL3OZ and ZL3JT. Good opening between VK4 and VK5 on the 18th with Jeff VK5GF and Brian VK5BC working several VK4 with S9+ signals.

25th June good openings again

around midday down eastern seaboard with Scott VK4CZ and Mike VK2ZQ working Bob ZL1RS. Later the band opened from VK2 Wollongong area to VK5 with Brian VK5BC working John VK2FAD, John VK2BHO, Mike VK2ZQ with conditions then moving to VK7 with good contacts completed with Dave VK7DD and Frank VK7DX.

27th June more Es down the eastern seaboard with Scott VK4CZ working Dave VK7DD and Frank VK7DX. Frank as usual worked into ZL and along with Norm VK3DUT.

worked Peter ZL4LV. 29th Scott VK4CZ worked Ross ZL3ADT.

Hopefully July provides further E's to keep the shacks warm in winter and allow some experimenting with rigs, antennas and so on, to be ready for the next equinox period when hopefully there is a little more activity on the sun and we see some improvement in the solar numbers.

Please send any 6 m information to Brian VK5BC at briancleland@bigpond.com



Silent Key

Matthew Stuart Millowick VK5MS

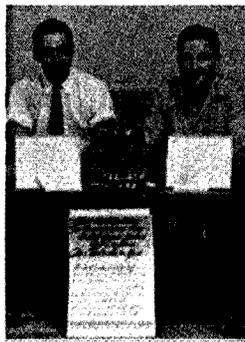
June 11, 2012 marks the anniversary of the passing of Stuart Millowick VK5MS. Stuart passed away on June 11, 2011 after complications during surgery.

Stuart's first introduction to radio was while attending secondary school in Hamilton, Victoria where he started an apprenticeship as an electrician and radio technician. He met George Chandler, then VK3AC, and helped build several shortwave receivers enabling him to listen to overseas broadcasts. Stuart himself credits time spent with Stan Zeunert VK3SZ, George Wells VK3TW and Mort Riley VK3TN in 1937-1938 as sparking his interest in obtaining an amateur licence.

Stuart obtained his AOCPL in 1947 and was on air in September of the same year. He describes his first home transmitter as a crystal controlled eight watt input home built five valve superhet. It was supplied from a 12 volt battery and a vibrator supply.

Stuart's interest in radio grew and, according to his daughter Maxine, it took precedence over everything. Homes were built on hill tops to provide better take-off and signal reception. At one house he built a wooden tower in the backyard and had the radio equipment on a table in the lounge room.

Stuart did some experimenting with 7193 tubes on two metres with a local amateur John Sheard VK5JA in 1949. 'It was quite a job to hand carry the batteries to the top of the hill. We were trying to get through to an amateur in the Melbourne area. Unfortunately we were about 10 MHz off frequency. Measurements were not very accurate in those days', John remembers.



Stuart VK5MS, on the left, and Erg VK5KU showing their 1954 RD contest trophy.

In 1949 Stuart used a 12 volt generator and a petrol engine to power his radio equipment for about a year until 240VAC power was available. At this time antennas were mostly dipoles and in 1950 he built his first 20 metre three element

beam supported by a wooden tower.

Stuart was a keen contester, and one of his documented results was in the 1954 RD contest. This coincided with the Mount Gambier City celebration. Stuart as VK5MS won the telephony section, with Erg Von Stanke VK5KU winning the telegraphy section of the contest.

During the late 1950s, after work he would come home and fire up the shack. Some afternoons a number of high school kids would join him to watch him 'work the world'. Many of these kids went on to obtain their amateur licence and become founding members of the South East Radio Group.

Trevor Niven VK5NC was one of those students and recalls visiting Stuart's shack after school and watching the intensity of glow of the tubes varying with the modulation of the transmission. 'I knew from that moment that one day I would be an amateur radio operator. I was totally inspired', Trevor recalls.

In 1963 Stuart was the first VK to confirm 300 countries on AM phone and in November

of 1966 he was made a member of the ARRL Honour Roll with 330 countries. By June 1991 Stuart had confirmed 323/373 countries and reportedly had more deleted countries than any other VK amateur.

In retirement he built separate linear amplifiers for each band, 160 m, 80 m, 40 m, 20 m, 15 m and 10 m. His station consisted of a Drake transmitter, separate receiver, amplifier and five element yagis at 30 metres for each band.

As part of an article for the Federal Awards Manager in 2002 Stuart wrote this paragraph-'I would like to suggest to those who wish to achieve a high standard in the DX field to set a goal. Don't be in too much of a hurry. Spend a lot of time listening. Build what equipment you can and double the satisfaction of achieving. Try working often in contests to obtain operating skills. Make sure you have good reliable equipment and antenna system. Remember your family responsibilities and keep within your finances'.

Stuart's epitaph is probably just as valid now as it would have been during his amateur life- 'VK5MS - DXing from Down Under'.

This memorial notice was submitted by the South East radio Group (SERG), and information was obtained from his eulogy by daughter Maxine Shephard, and an article penned by Stuart in 2002 for the Federal Awards Manager (although it is unsure if it was ever published). The photo and comments were from Trevor Niven VK5NC, David Stacpoole VK5ZOO and John Sheard VK5JA.



VK6news

John Ferrington VK6HZ

G'day from WA! Its busy times here in VK6! Not only do we have a mining boom but some of our Perth clubs are experiencing growth!

Hello. This is Bill VK6WJ with news from HARG - The Hills Amateur Radio Group.

At our last social meeting on 9 June, Ray VK6ZRW brought along some very sophisticated test gear for checking the calibration of members' transceivers and SWR meters. Quite a few members brought transceivers and meters along and now know how good or bad they are. Thanks Ray for a very interesting session.

At our meeting on 30 June we asked members to suggest the activities, talks and equipment they would like to have at the club during the next twelve months. We are now organising talks on magnetic loops, D-STAR, Jamboree On The Air, APRS, radio astronomy, the SKA, EchoLink and IRLP, satellite and ISS communication and ATV. Other activities planned are to participate in Jamboree on the Air, the RD and John Moyle contests and National Field Day. We are also arranging a visit to a nearby TV transmitter and a fox hunt at a local park.

At this meeting we welcomed back two new members, Jon Guy VK6MAD and Steve Hyland VK6ST. That's seven new members in two months! The club is definitely going from strength to strength.

Our Annual General Meeting and election of office bearers for the next year is on Saturday, 28 July, and as this article is being written on 30 June I will have to let you know the results in the September edition of *Amateur Radio* magazine.

We now have a midday sausage sizzle before every meeting and meetings then start at 2.00 pm. Social meetings on the second Saturday of the month and General meetings on the last Saturday.



Photo 1: The test set up of Ray VK6ZRW, for frequency, power and SWR.

For more information go to www.harg.org.au 73 until next time from Bill VK6WJ.

Now over to the NCRG crew for an update.

Hello again from NCRG. We recently were lucky enough to obtain the mast and antennas from the estate of the late Don Graham VK6HK. This setup was, as readers would expect, designed and built by Don with his usual attention to detail and unquestioned technical skills.

The mast consisted of two, 10 metre crank-up sections with a very nice tilt over base. When fully extended the antennas mounted on top were at a height exceeding 18 metres and the tilt over system was

built in such a way that Don, and his wife Pat, could easily lay the structure over in their garden to enable work to be done on the antennas.

Antennas were a HF tri-band three element Yagi, multi element six metre, two metre and 70 cm Yagis and a four band dish for Don's No.1 love, microwaves.

Several members gathered at Don's home on a recent Saturday morning and under the direction of Don's long-time friend Wally VK6KZ helped with the disassembly and removal of the installation and with some quick modification of his boat trailer, Brian VK6FONC was able to transport the parts to Whiteman Park.

Thanks to all those who assisted

and especially Don's XYL Pat, and Wally VK6KZ, and thanks Wally for the photos. Readers can see more photos and a short video by visiting the NCRG web site <http://ncrg.info/2012/06/28/removal-of-dons-tower/>.

This tower and associated VHF and UHF Yagis are

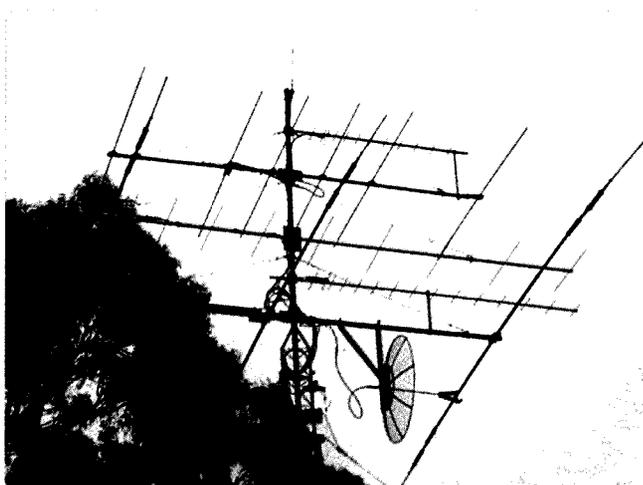


Photo 2: The VK6HK tower, the subject of the NCRG relocation effort.

destined to be erected in the now vacant site where the old windmill tower stood; we also have plans to mount a dual band 18 and 24MHz beam to give access to those bands.

Arthur VK6CY is busy again in the early planning stage of a four square phased vertical array for 80 metres; this will be four verticals with elevated feed and radials and associated phasing sections to allow switching to any of four directions. The site has been pegged out and the excavation for the footings where the verticals will stand is due to start.

Readers may recall Arthur's last project, a flat top 80 metre dipole at 18 metres with Delta match feed and a 150 metre long open wire feed line. This antenna needed to be located some distance away from the club rooms, hence the low loss feeder and is used for the 80 metre news broadcast from the NCRG.

There is also a long term plan for a complete rebuild of our 160 metre antenna, most likely a dual 'V' beam arrangement with its tower shifted to accommodate the extended layout. We are fortunate to have Arthur's experience with large wire array antennas and the 'real estate' to deploy these monsters.

In recent times our antenna farm has undergone substantial re-arrangement under the guidance of Andrew VK6IA, Keith VK6RK and Steve VK6IR. It was found that a significant improvement to co-station interference when operating in Multi 2 contests or when both stations were in use at the same time could be had by re-siting some antennas while raising or lowering others and with the erection of our 'G' tower on which the three element Hy-Gain 40 metre beam has been installed and the planned re-siting of the TET Emtron 20 metre monobander, this phase of work is well underway.

Keith VK6RK has been busy in the background working on the VK6RIO beacon project. Readers will recall that we had a WIA Grant some years ago to help with the

cost of this project and although this is a long term project, work is proceeding. Aside from the technical aspects, it involves liaising with like minded enthusiasts on both Reunion Island and in South Africa.

Here is an update on the VK6RIO two metre chirp beacon project that Keith sent me for inclusion in this article:

1. Antennas. The four beams are now completed and ready for testing. A combiner was purchased at Friedrichshafen last weekend to speed up the process. Coax matching leads need to be constructed and the individual antennas tested before fitting to the H frame and installing on the mast.
2. The Tentec 6n2 transceiver has been modified by Phil VK6APH with the GPS locking, the amplifier modifications and the associated work on the equipment now complete.
3. The software has been written and the hardware tested for the Perth end of the project.
4. Reunion Island have a few problems at present due to a lack of funds to buy some of the necessary components for the SDR hardware; any financial donations will be gratefully received! We are working on this.
5. I met Phil's Norwegian compatriot in crime LA2NI at Friedrichshafen and was brought up to date on the hardware side of the SDR project.

6. Reunion is the first target area. If that is successful then we can concentrate on reaching ZS.
7. As the radio is both a two metre and six metre transceiver the option for a future modification to provide a six metre chirp beacon piggybacked on the same system is still open, subject to funding etc. So that is the latest on the NCRG VK6RIO beacon project. More to follow as it progresses.

Thanks Keith.

Another long term member, Ian VK6ZIC has spent a lot of time of late cleaning out one of the sheds on our site; he has also built some nice steel shelving to store field day equipment and so on, but the primary use for this is to establish our very own "Men's Shed". Lighting and power outlets have been installed and this will give members a place to do work on their own or club projects with the help and advice from the rather diverse membership.

Well folks, that's a wrap for this month. Why not visit us, the Sunday morning sausage sizzle is a good time to call, all welcome. All the best and 73 from NCRG. Wayne VK6EH.

Thanks all for the input. If anyone is interested in getting a two metre repeater up and running in the Port Hedland area, can you please contact me. If you have anything for the VK6 Notes column, please email me john.ferrington@gmail.com



Photo 3: The NCRG guys involved in the VK6HK tower and antenna re-location.

VK3 news Amateur Radio Victoria

Barry Robinson VK3PV,
e arv@amateurradio.com.au
w www.amateurradio.com.au

Amateur Radio Victoria will activate VK3WI for the ILLW

It is only a few weeks to the annual International Lighthouse/Lightship Weekend. Lighthouses from all over the world will be participating. This year the event will be held on the 18th and 19th of August 2012 starting at 0001 UTC on Saturday and finishing at 2400 UTC on Sunday.

Amateurs activate a lighthouse/lightship by setting up an amateur station in, at or adjacent to the lighthouse/lightship and the aim is to contact as many lighthouses/lightships as they can. It also gives other amateurs the opportunity to contact the lighthouses as well. Permission to set up an amateur station at a lighthouse/lightship must be obtained from the owner or controlling body first. So far, over 230 lighthouses have already registered and will be active over the weekend.

The event is not a contest and its basic objective is to promote public awareness of lighthouses/lightships and their need for preservation and restoration, to promote amateur radio and to foster International goodwill. Amateur Radio Victoria will be participating, as it has done each year since 2005, by activating the Time Ball Tower at Point Gellibrand in Williamstown using the callsign VK3WI. Point Gellibrand is located in the Hobsons Bay council area, so if you are chasing the Victorian Local Government Award, give VK3WI a call.

Guidelines, participant list and operating times can be found on the web site <http://illw.net/> Be part of the fun and join us on the air. Amateur Radio Victoria members

are welcome to come and assist in the operation of the station.

Bogong High Plains trek

The annual Bogong High Plains trek this month will use solar powered QRP gear on HF into the evening and two metre or 70 cm simplex and local repeaters at other times. Leading a team of cross-country skiers on the expedition are Stephen Warrillow VK3SN and Gerard Warrillow VK3GT, who will be operating during the trip. The skiers will be some 1,800 metres above sea level exploring the icy beauty of the Australian Alps in north-east Victoria where the snow is looking promising.

Stephen and Gerard mentored another brother about amateur radio during previous snow trips. He was inspired so much that he got his own ticket and Michael Warrillow VK3FMAW joins the trek with his own Foundation licence. The group

has visited the area for a number of years. During their rest breaks they are settled in huts, caves and igloos. The ultra-light amateur radio gear is powered by solar panels and batteries fed into simple wire antennas, plus hand-held VHF/UHF transceivers.

Do listen for them calling CQ on the 40 metre and 80 metre bands well into the evening and at other times on the higher bands, for four days from 6th August.

ATV QSO Party, 24-26 August, 2012.

Peter Cossins VK3BFG is again organizing an amateur television QSL party, liaising with Don Hill KE6BXT for our link into the Southern Californian ATV network. Peter is also contacting the British Amateur TV Club to see if we can get some 'G' calls involved.

This will involve the Melbourne VK3RTV repeater on Mt Dandenong



Stephen VK3SN and Michael VK3FMAW outside Roper's Hut during a snow trip.

VK3RSG	Bass Hill OK.
VK3RWZ	Mt William is suffering intermod and we are awaiting an isolator to be fitted.
VK3RWU	Mt William. Possibly hit by lightning. Awaiting repair.
VK3RMM	Mt Macedon two metres OK.
VK3RMM	Mt Macedon 70 cm. A new frequency 439.825 MHz with 91.5 Hz tone access.
VK3RPU	Arthur's Seat A new frequency 439.850 MHz with 91.5 Hz tone access.
VK3RML	OK.
VK3RWM	Mt Arapiles. Currently de-sensing and awaiting solution from pager owners.
VK3RNU	Mt Stanley. Building works should commence shortly. Expected to be completed mid-year.
VK3RCV	Strong winds damaged the top co-linear antenna and riggers have replaced this antenna. Transmitter now has a 91.5 Hz tone on output.
VK3RBO	OK.
VK3RTV	OK.
VK3RMK	OK. Base station has been upgraded. Some pager interference.
VK3BWI	Broadcast now automated and the 8 pm service has resumed. The callback on Macedon after the morning broadcast has been reinstated. HF service should be reinstated mid-year. We apologise for teething problems with the broadcast upgrade and this has now been fixed.
VK3RMS	Olinda 6 metre – OK.
VK3RGL	Mt Anakie. VHF and UHF currently OK with no issues.
VK3RGC	Montpellier. VHF - some minor works to be done, change power supply and reprogram the repeater to reduce tail length.
VK3ROW	Beech Forest. Suffering de-sense from pager transmitter near-by.

along with Skype for the overseas contacts. Those that cannot receive VK3RTV can go to the BATC TV Digital Television website to view the event. For further information contact Peter Cossins at pcossins@bigpond.com

Repeater update

A list of current and planned repeater maintenance projects around the state being undertaken by Amateur Radio Victoria includes information shown in the table at left.

Please remember the bulk of repeater works is carried out by our dedicated volunteers who all have full time jobs and families, so please be patient.

Important notice to our members

When upgrading your callsign or email address please remember to advise ARV so we can keep your details current.

Repeater update



Shepparton and District Amateur Radio Club

PO Box 692 Shepparton 3630

HAMFEST 2012

Sunday 9th SEPTEMBER

Venue: St. Augustines Hall Orr St. Shepparton
Vic Roads Directory Map 273 Ref. M8

First class catering

Entry Ticket includes Door Prize Raffle

Sales New: Importers and Suppliers Of Amateur Equipment/Accessories

Used: Preloved amateur gear

All inside undercover

Table bookings: John VK3XPJ

Email glengordon@bigpond.com.au Phone: 03 5824 1188
ransleya@gmail.com Mobile: 0400 289 671

Entry Only \$5.00

Doors open to Traders at 8 am

Public at 10 am

Tables Available \$10.00 each

VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

The AHARS meeting in June was a Show and Tell meeting. The range of articles made by or modified by members was most impressive. Norm VK5GI had made up a Bitex TRX kit for 80 metres. A number of the members had tried the same kits, so were interested in his finished product. Lyle VK5WL showed off an antenna that could be and is being used indoors, in a retirement village where visible antennas are not allowed. Wolf VK5HWL had made up a triode valve tester as such a device is no longer available, although there are amateurs who like to experiment with valve equipment. He has tested it on a wide range of valves among which were a number that recalled earlier days.

Graham VK5ZFZ had been experimenting with making his own inductors for an amplifier he is interested in, as he had been finding it difficult or expensive to access the right sized ones. Darryl VK5JDS had made up a QRP transmitter from scratch. While Rob VK5RG has two old Command receivers, one of which he had refurbished with valves and so on; with the other he had replaced all the high voltage components with solid state, low voltage ones. It demonstrated what could be done with old units.

Jim VK5TR showed us a voltage multiplier that does not use a stepper motor from a computer, as most of these devices do. Gerard VK5ZQV showed off a microwave demonstration that can be used to show the propagation and the properties of electromagnetic waves, particularly in bare copper wire. He also had many of the well-known names associated with the very early days of the discovery of electromagnetic waves. And some not so well-known ones as well. This being all part of some research he is doing, and was very interesting and informative. Eric VK5HSE had

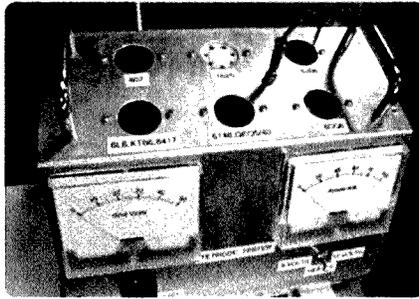


Photo 1: The valve tester built by Wolf VK5HWL.

an iambic keyer he had made. It was unusual in that it could be programmed to send a piece of text or read text sent to it, and showed the letters as they were sent, on an LED display.

Last but not least was a high voltage generator made by Barry VK5BW that is used in the starting procedure of one or more of the aircraft engines at the aviation museum. Those of us who have been to see an 'engine run' will be disappointed not to see Barry disappear in a cloud of smoke at the next 'engine run'. Much of the smoke came from the old, original magneto starting system.

Altogether it was a very interesting and informative evening.

Regular meetings are held on the third Thursday of the month at the Senior Citizens premises in Blackwood. For more information contact the President David VK5KC QTHR.

During the business meeting several important awards were shown or presented. David VK5KC, had been presented with the Higginbottom Award at the AGM in Mildura for his services to amateur radio over many years.

An award certificate was presented on the night to Jim VK5TR for the best technical article in AR during the year.

Kevin VK5AKZ was asked to show off the plaque he had been presented with in absentia to acknowledge his admittance to the QRP Hall of Fame. Unfortunately due to other commitments in Australia he was not able to go to Dallas for the actual induction.

The Club's congratulations were expressed to these people by all the members. It is a credit to the club to have members who earn such prestigious awards.



Photo 2: The iambic keyer built by Eric VK5HSE, in 'demonstration mode'.

Gridsquare Standings at 15 June 2012

Guy Fletcher VK2KU

144 MHz	Terrestrial	
VK2FLR	Mike	120
VK3NX	Charlie	107
VK2KU	Guy	102
VK3HZ	David	92
VK3PF	Peter	90
VK2ZT	Steve	86 SSB
VK5AKK	Phil	84 SSB
VK3PY	Chas	80 SSB
VK2ZAB	Gordon	78 SSB
VK2DVZ	Ross	77 SSB
VK3BDL	Mike	73 SSB
VK3BJM	Barry	70 SSB
VK2AMS	Mark	68 SSB
VK7MO	Rex	67
VK3II	Jim	66
VK3QM	David	66 SSB
VK2EI	Neil	65
VK2TK	John	62
VK3II	Jim	62 SSB
VK2MER	Kirk	61 SSB
VK3WRE	Ralph	60 SSB
VK4FNQ	John	59
VK4FNQ	John	58 SSB
VK3PF	Peter	56 SSB
VK3AKK	Ken	55 SSB
VK5BC/p	Brian	55 SSB
VK5BC	Brian	53 SSB
VK3KH	Michael	52 SSB
VK3ZLS	Les	51 SSB
VK4CDI	Phil	51
VK3HY	Gavin	49
VK4CDI	Phil	47 SSB
VK7MO	Rex	47 SSB
VK3VG	Trevor	46 SSB
VK7MO	Rex	46 Digi
VK4KZR	Rod	43
ZL3TY	Bob	42
VK4TJ	John	41 SSB
VK3EJ	Gordon	40 SSB
VK3PF	Peter	40 Digi
VK2TG	Bob	39 SSB
VK3UH	Ken	38
VK2TK	John	35 SSB
VK2KOL	Colin	34 SSB
VK3II	Jim	33 Digi
VK3ZUX	Denis	33 SSB
VK1DA/p	Andrew	31

VK3DXE	Alan	30
VK3DXE	Alan	30 SSB
VK1WJ	Waldis	29
VK4KSY	David	28 SSB
VK2TK	John	27 Digi
VK1WJ	Waldis	25 Digi
VK4CDI	Phil	25 Digi
VK3TLW	Mark	24 SSB
VK4EME	Allan	23
VK3ALB/p	GARC Team	22 SSB
VK3BG	Ed	22 SSB
VK3KH	Michael	21 Digi
VK3ECH	Rob	20 SSB
VK6KZ	Wally	20
VK2ZT	Steve	19 Digi
VK4EME	Allan	19 SSB
VK3AL	Alan	18 SSB
VK6KZ/p	Wally	16
ZL3TY	Bob	15 Digi
VK5APN	Wayne	13
VK2DVZ	Ross	12 Digi
VK2EI	Neil	12 Digi
VK4EME	Allan	12 Digi
VK2AMS	Mark	10 Digi
VK2KOL	Colin	9 Digi
VK4AE	Denis	9 SSB
VK1WJ	Waldis	7 SSB
VK5APN	Wayne	7 Digi
VK5APN	Wayne	7 SSB
ZL3TY	Bob	7 CW
VK1WJ	Waldis	5 CW
VK4KSY	David	5 Digi
VK4JAZ	Grant	4 FM
VK2GG	Dan	3
VK3DXE	Alan	2 Digi
VK3DXE	Alan	2 CW
VK3QM	David	1 Digi
VK4FNQ	John	1 FM

144 MHz	EME	
VK2KU	Guy	472
VK2KU	Guy	458 Digi
ZL3TY	Bob	403
VK3AXH	Ian	343 Digi
VK4CDI	Phil	270 Digi
VK5APN	Wayne	245
VK5APN	Wayne	240 Digi
VK7MO	Rex	157 Digi

VK2FLR	Mike	120
VK2DVZ	Ross	119 Digi
VK3II	Jim	87 Digi
VK2AWD	David	82 Digi
VK3KH	Michael	50 Digi
VK2KU	Guy	44 CW
VK3DDU	Paul	39 Digi
VK2ZT	Steve	28 Digi
VK3HZ	David	19
VK5APN	Wayne	17 CW
VK3DXE	Alan	15 Digi
VK3NX	Charlie	5 CW
VK4EME	Allan	5 Digi
VK3AXH	Ian	3 CW
VK2DVZ	Ross	2 CW
VK3AXH	Ian	1 SSB
VK3BJM	Barry	1 Digi

432 MHz	Terrestrial	
VK2ZAB	Gordon	57 SSB
VK3PY	Chas	51 SSB
VK3NX	Charlie	50 SSB
VK3QM	David	50 SSB
VK3HZ	David	42
VK3ZLS	Les	40 SSB
VK3BJM	Barry	39 SSB
VK5AKK	Phil	39 SSB
VK2KU	Guy	38
VK2DVZ	Ross	35 SSB
VK2ZT	Steve	35 SSB
VK3BDL	Mike	35 SSB
VK3WRE	Ralph	33 SSB
VK3PF	Peter	32
VK3PF	Peter	30 SSB
VK3AKK	Ken	26 SSB
VK5BC	Brian	26 SSB
VK1DA/p	Andrew	24
VK2MER	Kirk	24 SSB
VK3KH	Michael	22 SSB
VK7MO	Rex	21
VK3VG	Trevor	20 SSB
VK5BC/p	Brian	20 SSB
VK2AMS	Mark	19 SSB
VK7MO	Rex	19 SSB
VK2TK	John	18
VK3ALB/p	GARC Team	18 SSB
VK2TK	John	17 SSB
VK3BG	Ed	15 SSB

VK3TLW	Mark	15 SSB
VK3ZUX	Denis	15 SSB
VK4CDI	Phil	15
VK4CDI	Phil	15 SSB
VK4KZR	Rod	15
VK6KZ	Wally	13
VK2EI	Neil	12 SSB
VK2KOL	Colin	12 SSB
VK2TG	Bob	11 SSB
VK4TJ	John	11 SSB
VK3AL	Alan	10 SSB
VK3ECH	Rob	10 SSB
VK4FNQ	John	10 SSB
VK3UH	Ken	8
VK6KZ/p	Wally	8
VK3KH	Michael	7 Digi
VK4AE	Denis	7 SSB
VK7MO	Rex	7 Digi
ZL3TY	Bob	7
VK4CDI	Phil	6 Digi
VK4EME	Allan	6 SSB
VK1WJ	Waldis	5 SSB
VK2DVZ	Ross	4 Digi
VK2ZT	Steve	4 Digi
VK3PF	Peter	4 Digi
VK3PY	Chas	4 Digi
VK3QM	David	4 Digi
VK2AMS	Mark	3 Digi
VK3DXE	Alan	3 SSB
VK4JAZ	Grant	3 FM
VK2GG	Dan	2
VK2KOL	Colin	1 Digi
VK2TK	John	1 Digi

432 MHz	EME	
VK4EME	Allan	62
VK4EME	Allan	57 Digi
VK4CDI	Phil	44
VK4CDI	Phil	43 Digi
VK7MO	Rex	10
VK4EME	Allan	9 CW
VK7MO	Rex	9 Digi
VK3NX	Charlie	5 CW
VK3AXH	Ian	4 Digi
VK3HZ	David	4
VK3KH	Michael	3 Digi
VK3NX	Charlie	3 Digi
VK2ZT	Steve	2 Digi
VK4CDI	Phil	1 CW
VK5BC	Brian	1
ZL3TY	Bob	1

1296 MHz	Terrestrial	
VK3PY	Chas	42 SSB
VK3QM	David	42 SSB
VK3NX	Charlie	40 SSB
VK2ZAB	Gordon	29 SSB
VK2DVZ	Ross	26 SSB
VK3ZLS	Les	26 SSB
VK5AKK	Phil	26 SSB
VK2KU	Guy	25
VK3BJM	Barry	22 SSB
VK3PF	Peter	22
VK3BDL	Mike	21 SSB
VK3WRE	Ralph	21 SSB
VK3PF	Peter	20 SSB
VK3HZ	David	19
VK3KWA	John	19
VK3KH	Michael	17 SSB
VK3ALB/p	GARC Team	16 SSB
VK3AKK	Ken	14 SSB
VK2ZT	Steve	13 SSB
VK3VG	Trevor	12 SSB
VK4KZR	Rod	12
VK7MO	Rex	12 SSB
VK3BG	Ed	11 SSB
VK5BC	Brian	11 SSB
VK1DA/p	Andrew	10
VK2TK	John	10 SSB
VK2AMS	Mark	9 SSB
VK5BC/p	Brian	9 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3UH	Ken	7
VK2MER	Kirk	6
VK3ECH	Rob	6 SSB
VK3ZUX	Denis	5 SSB
VK4CDI	Phil	5
VK4CDI	Phil	5 SSB
VK4TJ	John	5 SSB
VK6KZ/p	Wally	5
VK3KH	Michael	4 Digi
VK6KZ	Wally	4
VK4AE	Denis	3 SSB
VK4EME	Allan	3 SSB
VK7MO	Rex	3 Digi
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK2TG	Bob	2 SSB
VK3PF	Peter	2 Digi
VK3QM	David	2 Digi
VK4CDI	Phil	2 Digi
VK4FNQ	John	2 SSB
VK2DVZ	Ross	1 Digi
VK2ZT	Steve	1 Digi
ZL3TY	Bob	1 SSB

1296 MHz	EME	
VK4CDI	Phil	83
VK4CDI	Phil	69 Digi
VK3NX	Charlie	63 CW
VK7MO	Rex	41
VK7MO	Rex	36 Digi
VK4CDI	Phil	31 CW
VK2AMS	Mark	23 Digi
VK3AXH	Ian	14 Digi
VK2DVZ	Ross	11 Digi
VK4CDI	Phil	4 SSB
VK2AMS	Mark	1 SSB
VK2DVZ	Ross	1 SSB

2.4 GHz	Terrestrial	
VK3PY	Chas	24 SSB
VK3NX	Charlie	23 SSB
VK3QM	David	23 SSB
VK3AKK	Ken	21 SSB
VK3WRE	Ralph	12 SSB
VK3ALB/p	GARC Team	7 SSB
VK3BJM	Barry	7 SSB
VK3PF	Peter	7 SSB
VK3KH	Michael	6 SSB
VK3HZ	David	5
VK4KZR	Rod	4
VK6KZ	Wally	4
VK2EI	Neil	3 SSB
VK3KH	Michael	3 Digi
VK3ZUX	Denis	3 SSB
VK1DA/p	Andrew	2
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK3PF	Peter	2 Digi
VK2DVZ	Ross	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB

2.4 GHz	EME	
VK3NX	Charlie	44 CW
VK7MO	Rex	14
VK7MO	Rex	10 Digi

3.4 GHz	Terrestrial	
VK3NX	Charlie	21 SSB
VK3QM	David	21 SSB
VK3PY	Chas	14 SSB
VK3AKK	Ken	13 SSB
VK3WRE	Ralph	8 SSB
VK3PF	Peter	6 SSB
VK6KZ	Wally	4
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK2AMS	Mark	1 Digi
VK2EI	Neil	1 SSB
VK2EI	Neil	1 Digi

3.4 GHz	EME	
VK3NX	Charlie	20 CW

5.7 GHz	Terrestrial	
VK3NX	Charlie	21 SSB
VK3QM	David	19 SSB
VK3PY	Chas	17 SSB
VK3AKK	Ken	14 SSB
VK3WRE	Ralph	9 SSB
VK3PF	Peter	7 SSB
VK3ALB/p	GARC Team	6 SSB
VK6KZ	Wally	4
VK2GG	Dan	3
VK3BJM	Barry	2 SSB
VK3PF	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK2AMS	Mark	1 SSB
VK2EI	Neil	1 SSB
VK3ZUX	Denis	1 SSB

5.7 GHz	EME	
VK3NX	Charlie	27 CW

10 GHz	EME	
VK3NX	Charlie	21 CW
VK7MO	Rex	1 Digi

10 GHz	Terrestrial	
VK3HZ	David	72
VK3HZ	David	30 SSB
VK3NX	Charlie	25 SSB
VK3PY	Chas	25 SSB
VK3QM	David	24 SSB
VK3AKK	Ken	23 SSB
VK3PF	Peter	13 SSB
VK3WRE	Ralph	12 SSB
VK6BHT	Neil	9 SSB
VK3ALB/p	GARC Team	7 SSB
VK2EI	Neil	6
VK7MO	Rex	6
VK6KZ	Wally	5
VK7MO	Rex	5 SSB
VK2AMS	Mark	3 SSB
VK2EI	Neil	3 Digi
VK2EM	Bruce	3 SSB
VK3KH	Michael	3 SSB
VK3KH	Michael	3 Digi
VK3TLW	Mark	3 SSB
VK2GG	Dan	2
VK3BJM	Barry	2 SSB
VK3UH	Ken	2
VK3ZUX	Denis	2 SSB
VK4KZR	Rod	2
VK1DA/p	Andrew	1
VK3BG	Ed	1 SSB
VK3NX	Charlie	1 Digi
VK7MO	Rex	1 Digi

Additions, updates and requests for the guidelines to Guy VK2KU.

The guidelines (and the latest League Table) are also available on the VK VHF DX Site at <http://vhfdx.radiocorner.net> - click on Gridsquares.

24 GHz	Terrestrial	
VK3AKK	Ken	5 SSB
VK3NX	Charlie	5 SSB
VK3QM	David	5 SSB
VK3HZ	David	3
VK6BHT	Neil	3 SSB
VK7MO	Rex	3 SSB
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK6KZ	Wally	2
VK3WRE	Ralph	1 SSB

47 GHz	Terrestrial	
VK3NX	Charlie	4 SSB
VK3QM	David	4 SSB
VK2GG	Dan	2

76 GHz	Terrestrial	
VK3KH	Michael	1 SSB

122 GHz	Terrestrial	
VK3KH	Michael	1 SSB

474 THz		
VK3WRE	Ralph	3 AM
VK3HZ	David	2
VK7MO	Rex	2
VK7MO	Rex	2 Digi
VK7TW	Justin	2
VK7TW	Justin	1 Digi

Next update of this table will close on or about 19 October 2012.

Stations who do not confirm their status for more than 12 months may be dropped from the table.



D-STAR QSO Party 2012

After the success of the D-STAR QSO party in 2011, Icom is proud to announce that it will be running it again in 2012.

This year, it will commence on the **21st of September at 0000 (UTC), and will finish on the 23rd of September at 2400 (UTC).**

Like last year, the goal will be to communicate with other D-STAR operators in as many different countries as possible.

More information, including prize details, will be available on the Icom Inc. website: <http://www.icom.co.jp/world> closer to the date.

DX-News & Views

John Bazley VK4OQ
e john.bazley@bigpond.com



There has been a lot written recently about the cost of some of the bigger DXpeditions and the various methods of collecting contributions. There is no doubt that the rare spots are becoming very costly to activate, stating the obvious, which is why they are rare!

Typical is the recently announced operation to **Heard Island** planned for 2014. This will be led by Dr. Bob Schmieler KK6EK, with co-organizers ON6TT, DL1MGB and N6MZ. The operation includes operators DJ9ZB, NP4IW, AD6E, N4GRN, DJ5IW, N6PSE, W3WL, W0GJ and AA7XT. Additional support personnel are W6OP, N7XG and KY6R. A Clipperton Island operation for March, 2013 is 'being designed as a test/development project for Heard Island'. Some of the ops will be part of both operations, which Bob is strongly encouraging. Additional operators are being sought. www.cordell.org/CI and www.heardisland.org

It is good to see another DXpedition to **St Pauls Island**, from July 26 to August 1. This on the 'most wanted list' for OC is rated at #18. Let us hope that this trip will take a standby occasionally for OC. The last operation, about five years ago, was usually found working Europe when the path was open to OC!

Now to other DX News.

A tantalizing note from Pierre Tromp ZS1HF/ZS8M! He sent a copy of the latest **Marion Island** newsletter to Daily DX with a short titbit about the proposed **ZS8** DXpedition. He says 'the South African Radio League will resume discussion in August' and 'We are busy formulating a discussion

document'. No word on Rory Meyer ZS6RGV, the island deputy and radiotech, who has been on the island since April.

R11FJ, **Franz Josef Land**, will be put on the air during the next two years when Eugeny Chepur UA4RX goes there. UA2FM is working on renewing the R11FJ licence for Eugeny and will be sending a copy to the DXCC Desk when it comes through. UA4RX will likely arrive on the island in July when the ship MV Somov takes the Arctic Island crews from the embarkation point, Archangelsk, dropping them off at their destinations, and picking up the departing crews.

Eugeny plans to have his 200 watt IC-775DX2 along, and a three element SteppIR that is already installed at the base, put up by R11FJA and R11FJL. There is also a 500 watt amplifier and some wire antennas. Victor UA2FM is the R11FJ QSL manager. Victor says Eugeny is a devoted CW operator and prefers that mode. He also 'likes some RTTY/PSK and sometimes [does] a bit of SSB'. QSL direct only to UA2FM, 'no bureau'. Do not send cards to Eugeny's home address 'as all QSL activity comes from Kaliningrad', says Victor. 'Japanese stations (as well as others) do not send IBRS please. This service is not recognized by the Russian Post'."

The R11FJ 2010-2011 log was uploaded to LoTW a few weeks ago. Victor adds 'We will try to use HF nets to send logs and small messages. Hopefully I will upload his log onto LoTW more often'.

Mike FP/VE2XB will be QRV from *St. Pierre et Miquelon Islands*,

IOTA NA- 032, from August 10-20. It will be all bands, emphasizing six metres. Mike will have his 500 watt THP amplifier 'so signals should be good with a Hexbeam'. QSL via the VE2XB info on QRZ.COM, <http://fp-ve2xb.jimdo.com/>

V31WH, V31MX and V31MO in **Belize** by W5HNS, K0BCN and W5MRM will be on Cay Caulker, NA-073, from July 23-31. They will be on 40-10 with a five band Hexbeam and 40 metre dipole, CW and SSB. They're still considering digital modes. They will have just one station operational and will be in the IOTA contest July 28-29 with the V31MX callsign, alternating between SSB and CW. QSL on LoTW or to their home calls.

Oleg UA1PBA/ZS1ANF is now working from the Bellinghousen Base on **King George Island**, AN-010, in the South Shetland Islands. Listen for either R11ANF or ZS7ANF/A with an emphasis on the low bands, 1.8 through 7 MHz. QSL via ZS1ANF or RK1PWA.

Colin KH9/WA2YUN has recently been active again on 20 metres from **Wake Island**, says Luke VK3HJ. Colin has been checking into the ANZA DX Net, which meets daily on 14183 beginning at 0515Z.

Radio Amateurs of Canada (RAC) are anticipating 'a public consultation through the Canada Gazette' for VE amateur radio operators to gain authorization to use 5 MHz on 'a secondary basis' by the summer of 2012. RAC's goal 'is to ensure that Canadian amateurs have the 60 metre allocation available to all amateurs as part of their amateur radio certification, that is, without licence

applications, licence fees or special call signs'.

Ralph VK3FRNB is now on a volunteer assignment in Honiara, **Solomon Islands** for the next two years. He is currently able to operate on 20, 15 and 10 metres and soon hopes to be on 40 metres, as H44RK. As for QSLing, Ralph says 'At the moment only eQSL until I organize a mailing address and some QSL cards'.

Ralph HH2/9A7GAE is working at the Red Cross Mission in Leogane, **Haiti** for at least the next five months. He will be QRV on 80, 40, 20, 17, 10 and 6 metres on SSB and the digital modes, in his spare time. QSL via 9A7GAE and eventually LoTW.

Eric T6MO (K9GY) says 'It's official now' he will be in **Afghanistan** until April or May of next year.

Luigi OD5/IV3XNF will be on a UN Interim Force mission in **Lebanon** between May and October. He will be on a military base but plans to operate in his free time. He will have an FT-817ND (QRP) and wire antennas. He prefers CW/digital modes. QSL direct to home call. At the time of writing he has not been reported on the Cluster.

A combined Irish and Polish group plans an operation to **Little Saltee**, EU-103, for the RSGB IOTA contest, July 28-29. The ops are EI5JQ, EI7KD, SP9UUC, EI9KC, EI3JZ, EI6KD and SQ7NNM.

V47JA, **St. Kitts and Nevis**, is by W5JON, July 12-August 2. He will be at Calypso Bay on St. Kitts, planning to operate on 80-6 metres, including 60 metres, SSB. QSL via W5JON or LoTW. He plans to be active in the RSGB IOTA contest. W5HAM will also operate, using the V47HAM callsign, occasionally.

GB1HF is a special event station for the **2012 Olympic Games**, July 27- August 23. This operation is being run by the South Essex Amateur Radio Society. They plan to be on various bands and modes,

with an apparent special emphasis on an operation from a cross-country cycling venue.

<http://www.southsex-ars.co.uk/olympic2012.html>

Over the next year or so Ivor ZS1WY will be working in **Mozambique**. He works in the country for eight weeks then two weeks at home in South Africa. Currently Ivor has a 40 metre inverted vee on the roof and operates as C91IW. 'As soon as it gets warmer I will set up a field station for a weekend and see if 160 metres will work, I have a 1 kW linear and can obtain a generator but don't have an ATU up here' says Ivor. QSL via ZS1WY.

Andy AB7FS will be in Muri, Rarotonga, **South Cooks** from July 2 to August 25 and QRV in his spare time as E51AND.

The D64K team has announced the dates of their August DXpedition to the **Comoros Islands**. They will be in Ngazidja Island (aka Grande Comore Island) from August 8 to 20. More plans are expected to be announced in the coming days. As a reminder their website is <http://www.d64k.com/>

Josep EA3AKY has joined the D64K team, which plan to be QRV from the Comoros Islands and, despite it being a 'bad month for F2' he will be QRV on 50 MHz and will do his best 'to work as many as possible stations'. They will also be on six metres EME. 'UKSMG and InnovAntennas are looking to sponsor them with a seven element LFA Yagi' says Peter G3ZSS.

Ron DL4ME plans to be QRV as 5H3ME from **Tanzania** between August 14 and September 3. Activity will be on 3.5 through 50 MHz on CW and the digital modes. QSL via DL4ME.

SV5/I2RNJ and SV5/IK2IHY will be 'holiday style' from Rhodes, **Dodecanese Islands**, EU-001, August 4-11, HF SSB only. Roberto and Piero are equipped with an IC-706, 100 watts, to a multiband dipole. QSL through the bureau.

D2SG is back on the air from **Angola**. After an extended stay in Scotland, Craig MM3YNP (ex-MM0SSG) is back in Africa, probably for about a year. QSL via GM4FDM.

TA1HZ plans to be in Durrës, **Albania** from August 1 to 7. He will be operating as ZA1TC, including the European HF Championship. QSL either direct to TCSWAT, POB 73 Karakoy, 34421 Istanbul, Turkey or via the Turkish QSL bureau.

Operator Juan Manuel is now active from the Argentine Marambio station LU4ZS located on **Seymour Island**, AN-013, in Antarctica. So far activity has been reported on 80 and 40 SSB. QSL via Henry LU4DXU.

To celebrate the 500th anniversary of the birth of Gerhard Mercator, the cartographer named for the Mercator projection world map, special event station **ON500MERCATOR** will be QRV until the end of this year. QSL via ON7KO.

Phil F4EGS is back again in **Chad** and plans to be there for the next two months and QRV as TT8PK. Listen for activity on CW, SSB and possibly RTTY on 7 through 28 MHz. He is now using a Flex 3000 running 100 watts and two verticals. QSL via F4EGS with complete details on QRZ.COM

Finally, as this will be my last issue of DX News & Views, I would like to thank all the many people who have over the past seven years sent me news and photographs. All were very much appreciated.

Good luck in the pileups and good DXing.

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (I1JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from www.dailydx.com/trial.htm

Contests

Phil Smeaton VK4BAA
e vk4baa@wia.org.au

Welcome to this month's Contest column.

A few results and claimed scores to kick-off with this month.

2012 ARRL International DX CW contest scores

The results for the CW leg of the ARRL DX contest are out. The VK logs are shown in Table 1. Well done to all participants for putting VK on the contesting map once again!

CQ WPX CW 2012 claimed scores

The claimed scores for the 2012 CQ WPX CW contest are now available for all to see. VK logs featured in the listing are shown on Table 2.

Looks like another fiercely contested battle for WRTC points between Vlad and John.

Getting Started on EME

Some constructive criticism of this column could be levelled at the proliferation of HF results featured from month to month. Other areas and bands of interest are featured elsewhere in this magazine, but contesting on a world-wide basis does take place above 28 MHz.

EME (Earth Moon Earth, aka Moonbounce) has been described as 'the ultimate long path DX'. It is an exciting mode and allows you to literally work the world on VHF and UHF. It is not as difficult as you may think. Here is a brief overview on how to get started on this mode and possibly enter the world of EME contesting from VK.

Not too long ago, EME may have been beyond the reach of many hams. This is not necessarily the case any longer. There are plenty of active stations working EME on all bands from 50 MHz to 10 GHz all around the planet. It really does not take a lot to get started. For example, a number of stations have worked around the

Contest Calendar for August 2012 – October 2012

Month	Date	Contest Name	Mode
August	4	TARA Grid Dip	PSK/RTTY
	4	Waitakere (NZART) Sprint	CW
	4/5	10-10 International QSO Party	SSB
	11/12	Worked All Europe	CW
	11/12	Remembrance Day Contest	CW/SSB/FM
	25/26	ALARA Contest	CW/SSB
September	1/2	All Asian DX Contest	SSB
	1/2	Region 1 Field Day	SSB
	8/9	Worked All Europe DX Contest	SSB
	29/30	CQWW RTTY DX Contest	RTTY
October	6/7	Oceania DX Contest	SSB
	13/14	Oceania DX Contest	CW
	20/21	Worked All Germany Contest	CW/SSB
	24/25	CQWW DX Contest	SSB
	24/25	ARRL International EME Competition	CW/SSB
	24/25	CQWW SWL Challenge	SSB

Note: Always check contest dates prior to the contest as they are often subject to change.

#	Call	Score	QSOs	Mult	Class	Power	1-Band	DXCC Entity
1	VK2IM	1,059,000	1,787	200	S	C		VK
2	VK7GN	184,842	501	126	S	C		VK
3	VK4IU	89,040	281	112	S	C		VK
4	VK3FM	22,713	115	67	S	B		VK
5	VK3TDX	22,644	111	68	S	C		VK
6	VK6HG	10,476	100	36	S		40	VK
7	VK8AV	5,628	67	28	S		40	VK
8	VK4IMX	1,173	23	17	S		40	VK

Table 1

Single Op High Power		Single Op Low Power	
VK4CT	8,353,800 (VK4EMM)	VK3FM	161,655
VK2IM	5,882,880	VK4TT	105,168
VK6DXI	4,946,055		
VK3TDX	2,688,196		
Assisted Low Power 15 m		Multi Op Single Transmitter	
VK4FJ	100,536	VK9PN	3,467,520

Table 2

world on two metre EME with a single Yagi, a brick amp putting out less than 200 watts, and a good preamp. With a single Yagi system and high power, it is possible to work a lot more, but do not let tales of huge antenna systems and large amplifiers put you off. Digital modes

also allow smaller stations to get on to EME with superb results.

The following discussion has a bias toward two metres, but other bands are similar, although having their own requirements for equipment, slight variations in conditions, operating techniques, and so on.

What do I need?

To participate in EME, you will need an antenna with a reasonable amount of gain, at least 150 watts, and a good low noise preamplifier. Of course, more is better – more output power and a larger antenna will net more fish. You do not have to elevate the antenna to get started in EME. Many contacts can be found at moonrise and moonset with the antenna aimed at the horizon. It helps to have the preamplifier mounted at or near the antenna to minimise losses, but is not absolutely necessary. With modern GaAsFET devices, really good preamplifiers are easily available on the market if you don't fancy warming up the soldering iron.

Using the best feedline that you can get your hands on is only common sense, but using a high quality low loss feedline is essential so as to not lose weak signals within the noise. Don't cut corners with the antenna. Take the time to get all the elements perfectly aligned, and if you are fortunate to have stacked or bayed antennas, get all the booms lined up properly too. EME is very weak signal work and little things can make a profound difference to the end result. If you are choosing an antenna or building an array for EME, give some thought to the pattern as well as the gain. Side and rear lobes often pick up noise and this can seriously detract from your ability to hear weak signals off the moon.

Filtering is an area that is best left to the individual. Some people listen with an SSB bandwidth filter and do very well. Others like to have a narrow IF filter and/or outboard AF filtering. DSP filters are also common and some swear by them. SDR might also lend a helping hand, but the bottom line with filtering is *experiment*. Find what works for you.

The nature of EME

EME signals fade in and out for a number of reasons. Sometimes you hear nothing for long periods

of time, other times you will be amazed what you can hear. Don't become discouraged if it takes several attempts to hear your first signals, make your first contact, or to work a particular station.

The polarization of EME signals is constantly changing. Except for a few stations who can rotate or electrically switch the polarization of their antennas, this causes very deep QSB that can last from several minutes to several hours or even days. There is also such a thing as true one-way propagation on EME, largely due to polarization shifting, so do not become discouraged if you experience this. Just keep trying.

The moon follows many cycles and the distance between the Earth and the moon is not constant. It varies, and generally there will be a *perigee* (moon closest to Earth) and an *apogee* (moon furthest from Earth) each month. Path loss to the moon and back is roughly 2 dB less at perigee than at apogee. This can make a very noticeable difference for small stations. Also, the sky behind the moon can be very noisy at certain times. All planets and stars emit noise across the radio spectrum, and most EME systems are sensitive enough to hear this noise. *Sky noise* is generally at its worst when the moon is crossing the galactic plane (moon appears in the Milky Way), which occurs twice each month. Practically all software intended for EME use includes this data. On two metres, sky noise varies between a low of about 175 degrees Kelvin (rare) to over 3000 degrees Kelvin. The lower the better, and if it is much over 400 the smaller stations can run into trouble.

Signals also tend to exhibit a rapid, almost fluttery fading known as *libration fading*. This is caused by the irregular surface of the moon, which 'rocks back and forth' slightly as viewed from Earth. Libration can cause signals to go both above and below the average level. Libration peaks, which can last up to a couple of seconds at two metres,

can actually help the small station make contacts they would not be able to otherwise. A bit like meteor pings in their nature.

Another phenomenon not specifically relating to the moon which should be mentioned is *ground gain*. Simply put, reflections from the ground in front of an antenna cause peaks and nulls at certain elevation angles when the antenna is pointed at the horizon. The peaks can theoretically be six dB over the gain of the antenna alone over perfectly conducting, flat ground. In practice, it is somewhat less than that but can still make the difference between working a station and not working a station. How high you can work the moon without elevating the antenna and at what elevation angle the peaks occur, depends on several factors, including the height of the antenna. Generally, 15 degrees or so is the upper limit and it may be much lower in some cases. Ground gain does not work as well with really high antennas as it does with lower ones.

Because the moon moves in relation to Earth, there is a slight *Doppler shift* on EME signals. At moon rise, a two metre EME signal may be shifted up in frequency by as much as 350 Hz. The Doppler slowly comes down, reaching zero when the moon is passing your longitude (due south or due north azimuth heading), then starts to shift in a negative direction, going as much as 350 Hz down by moonset. Always tune slightly with the RIT when looking for a station on random.

Because the round trip distance is nearly half a million miles, it takes over two seconds for a signal to travel from Earth to the moon and back to Earth again. Well-equipped stations can actually hear their own signals echoed back from the moon when conditions are favourable.

EME operating techniques

EME is weak signal work and almost all contacts are made with CW.

Some of the well-equipped stations occasionally try SSB just for fun, but it's the exception not the rule. As for CW speed, most operators are comfortable somewhere between 10 to 20 wpm. Fast CW tends to be difficult to copy when signals are very weak, and too slow CW gets chopped up by libration fading, so there has to be a compromise somewhere between the two extremes. Good clean sending is an advantage, and many operators recommend increasing the length of the 'dits' (increase the weight) slightly to make them stand out more. A 'dit' length of 1.2 times normal seems to work well for most operators, but you'll find your own way. Computer generated CW can aid in the process also.

Random operation (calling CQ or answering CQs) is common, but for very small stations better success will be had on prearranged schedules. Schedules are generally run for 30 minutes, but may vary. Random operation is often at the low end of the band, with scheduled QSOs taking place slightly higher in the band.

Because signals are weak and not always out of the noise, almost all contacts are made with accurately timed transmit and receive sequencing. One minute sequencing is common on random, and two minutes is the norm for skeds (on two metres), although some operators prefer two minutes on random as well.

Setting your frequency correctly is very important. For schedules, set your transmit frequency to the prearranged schedule frequency and then do not move it. Let your schedule partner find you. During receive you should be tuning +/- 500 Hz or so with your RIT, second VFO, or whatever means you have available. What to do if you find your schedule partner more than a few hundred Hz off frequency is a dilemma. It is best not to move early in the schedule, as he may have already located your signal.

Sometimes it is worth moving late in a schedule if you are not receiving reports from the other station but this is a risky move. If calling a station on random, try to set your transmit frequency so that you hear your echoes on top of his echoes. This is easy if you can hear your own echoes. If not, do the best you can by looking at the calculated Doppler shift of your own echoes and setting your transmit frequency accordingly.

Some time ago the so-called TMOR signal reporting system was used on EME. T meant traces of signal heard, M partial calls, O full calls, and R full calls plus report had been copied. These days the T and M are seldom used as most operators wait until they have copied complete calls before sending any report at all. For a valid contact, complete calls, signal report and acknowledgement must be received by both stations.

When and where to listen

If you want to try listening for EME signals, you really should get a moon tracking program that helps you identify the best times, or check into the EME Net for advice on when to listen or to make a sked with a big station. If you can elevate the antennas, try listening when the moon is visible in wherever your target area is and the sky temperature is below 400 degrees K, and preferably when the moon is near perigee. All of this information is given by the various moon tracking programs.

Moonbouncers are often also contesters

Most likely the majority of readers of this column will tend to define VK contesting as generally confined to HF bands, with a few contests set up for VHF and above. I tend to have a broader view on contesting and would claim that moonbouncers are often also contesters. Far more technically advanced than most appliance operators (especially me), they are patient and systematic,

thorough in assembling their intricate stations, adjusting and refining noise figures, tracking the Moon, sometimes spending hours for one QSO. Homebrewing is the name of the game, experimenting, learning, exchanging information and experience.

Nowadays, top moonbouncers make hundreds of contacts during a contest weekend and the number of stations with EME (Earth-Moon-Earth) capability is growing rapidly. Many moonbouncers have been and still are ardent HF contesters. EME is often considered to be more challenging as it demands experience, a good understanding of the theory of antennas, and a hint of astronomy.

QSO rates are not high by HF-contesting standards but one has to have good ears to dig the weak signals out of the sea of noise. The upside is that the distances are much, much greater than in any HF contest. An average EME QSO spans 800,000 km. I wonder if the WIA will introduce points per kilometre.

Well, that was a short overview of EME, drawn from personal experience and a bit of trawling through the net to fill in my many gaps.

Ed.: Another possible operation mode for EME is to use one of the JT65 modes from the WSJT suite. But that is another story, and some traditional EME operators may contend that such contacts may not be valid in their eyes. Readers should note that the WSJT modes do allow for smaller stations to have contacts via the moon.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk4baa@wia.org.au

See you on the bands. 73.



Harry Angel Memorial Sprint - Results 2012

Dr. Kevin Johnston VK4UH - Contest Manager Harry Angel Memorial Sprint

A grand total of 46 entries were received, with points claimed ranging from two to 62. Thirty six entries (78%) were in the PHONE section, two entries (4%) were in the MIXED section and eight entries (18%) were in the CW section.

Entries by State

VK1 - 0 (0%); VK2 - 4 (2%); VK3 - 6 (3%); VK4 - 30 (65%); VK5 - 2 (5%); VK6 - 1 (2%); VK7 - 3 (7%); VK8 - 0 (0%); ZL/other - 0 (0%). A few states somewhat 'under-represented' perhaps?

Three log entries were received by post, the remaining majority were received electronically. One handwritten log was gratefully received! It was particularly gratifying to receive logs from three Foundation licensees; well done to VK3FJEN, VK4FDHS and VK4FAAD.

The high level of participation this year, including on CW, has guaranteed the survival of this iconic Australian sprint contest for the future. Thanks to all who came on air and operated and particular thanks to all who entered and submitted logs even where only a few contacts were made. Mark the date in your calendar for 2013!

Phone Section			
Callsign	Points	Position	Certificate
VK4YZ	62	1st	@
VK3SSB	61	2nd	@
VK4QH	60	3rd	@
VK4VDX	53	4th	
VK3PDG	46	5th	
Mixed Section			
Callsign	Points	Position	Certificate
VK4WM	42	1st	@
VK4NP	41	2nd	@
CW Section			
Callsign	Points	Position	Certificate
VK4XY	28	1st	@
VK4SN	26	2nd	@
VK2IG	24	3rd	@
VK3HY	22	4th	
VK3TX	22	4th	

Northern Corridor Radio Group

VK6ANC

2012 Hamfest

VK6NC

Sunday 5th August 2012

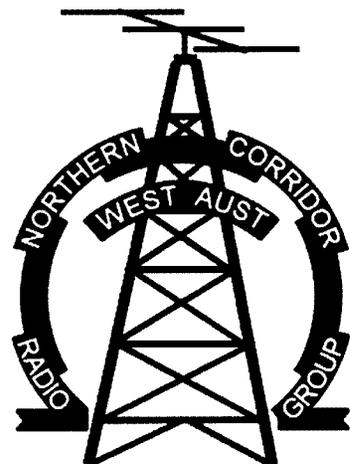
The Northern Corridor Radio Group are holding the 26th annual 'Hamfest' on **Sunday 5th August 2012**. Come along and enjoy the largest radio event in WA and exhibit your products or sell whatever amateur radio equipment you may have as surplus. Or even just socialise and enjoy the food and drink. Last year there were nearly 45 tables taken so please let us know if you would like one allocated. There is no charge for the table, just an entrance fee of only \$5 for every person - NCRG - members included.

The location of Hamfest is the Cyril Jackson Community Hall in Ashfield, Bassendean, 8 km from the City Centre, in a large air conditioned hall with ample space for several hundred people and supplier stands, and lots of parking. Hamfest starts at 9:00 am and the finish is around 2:00 pm. Suppliers can set up from 7:30 am.

To book a table you can:

- visit our web page for additional information www.ncrg.org.au
- email us at hamfest@ncrg.info
- contact Keith Bainbridge VK6RK on 0488 228 088

Raffle prizes include an Icom IC 2820



Affiliated to the WIA

PO Box 244
North Beach
WA 6920

Remembrance Day Contest

Alan Shannon VK4SN

Hi, I'm Alan, your newly appointed Remembrance Day contest manager.

I was nominated to the WIA board by our outgoing contest manager, Peter Harding, and had several supporters who were aware of my background. I grew up with amateur radio around me as my Grandfather was a keen ham from the halcyon days. I am ex RAAF signals and have been licenced since 1984. Contesting is one of my passions of the hobby, gaining over 45 placings in the last ten years and I always participate in VK contests when I can.

The new rules have been a combination of suggestions from me, other clubs, full time and part time testers - and you. It has been this feedback over the last month that has shaped the rules as they now exist.

The rules are simplified and will make it easier for the casual tester to enjoy the weekend.

In brief, the changes to the rules were as follows.

1. Bring forward the start and finish times
2. Move the repeat contacts time from 2 to 3 hours
3. Working your own state is now allowed
4. Amalgamate all the phone modes into one
5. Amalgamate all bands
6. Allow only ONE callsign per operator for the contest period.
7. Introduce Teams
8. A new exchange is introduced
9. QRP section introduced.
10. Andrew VK1DA put forward a more even scoring formula which is now included for working out the state scores.

The proposed changes saw many emails change hands, but in general it was agreed that the RD Contest

needed an overhaul and most of the changes were good. Hottest topics were the number exchange, how the teams work, and combining all phone modes into a singular phone category.

The number exchange method had several very strong supporters for either a non-sequential or serial number, but neither side had more supporters than the other.

Almost everyone was in favour of bringing forward the start and finish times to allow those who went portable to get home by night. Only two responses against this were received as one's wife wanted to go shopping and the other couldn't get out of bed in time.

The amalgamation of the bands and the phone modes will most certainly have a significant impact on the final score. One's approach to the contest will need careful consideration if you plan to be amongst winners. HF diehards will have to visit VHF/UHF and vice-versa. It will be good strategy to change bands as the 3 hours repeat contact time is an hour more than previous years. The 3 hour repeat time now falls in line with other VK contests.

A proposal to change to a non-sequential exchange numbering system was accepted as it was noted that operators who joined in later in the contest felt at a disadvantage and sometimes embarrassment when giving out small numbers and receiving huge ones in return. This is by no means a new idea, as some of the world's number one contests use a non-sequential number exchange.

Teams are not a new concept, but are a hot topic on whether it should have been included in the new rules or not. I like to think of the 'teams' as your platoon or similar,

working alongside your mates. It is intended to enhance camaraderie and, as no one likes letting the team down, performance is better and longer time is spent on air. Please read the Team scenarios in the rules for a full explanation. Team scores do not affect the state score.

I am sure that we have reached the happy medium with the majority of people being happy with the new changes. My sincere thanks to everyone who submitted feedback to assist in the overhaul and simplification of the Remembrance Day Contest.

Alan VK4SN

The new rules are as follows:

1. Contest introduction

This contest commemorates the Amateurs who died during World War II and is designed to encourage friendly participation and help improve the operating skills of participants. It is held on the weekend closest to the 15th August, the date on which hostilities ceased in the southwest Pacific area.

It is preceded by a short opening address by a Guest Speaker transmitted on various WIA frequencies during the few minutes prior to the contest. During this ceremony, a roll call of amateurs who paid the supreme sacrifice during WWII is read.

The perpetual trophy is ordinarily held by the WIA at its national office and is inscribed annually with the name of the winning State or Territory.

2. Objective

Amateurs in VK, ZL and P2 will endeavour to contact other amateurs in VK, ZL and P2.

- VK, ZL, and P2 mean any station operating within Australia, New Zealand or Papua New Guinea and their external territories.

- Points are only awarded for valid contacts between VK, ZL and P2 stations.

3. Contest date & time

Sat 11th August 2012, 0300 UTC to 0259 UTC Sun 12th August 2012.

As a mark of respect, stations are asked to observe 15 minutes silence prior to the start of the contest, during which the opening ceremony will be broadcast.

4. Categories

1. Single Operator
2. Single Operator - QRP
3. Multi-Operator – Single Transmitter (Multi-Single)
4. Multi-Operator – Unlimited (Multi-Multi)

5. Sub-Category modes for single operators

1. Phone (AM, FM & SSB)
2. CW (CW & RTTY)
3. Mixed

6. Permitted bands

1. Contacts may be made on MF (160 m), HF and VHF & above bands except for WARC bands (10, 18 & 24 MHz) which are excluded by IARU agreement from all contest operations.

7. Multi-operator Stations

1. Multi-operator single transmitter stations
 - a. Are only allowed one transmitted signal on air at any time.
2. Multi-operator Unlimited stations
 - a. Are only allowed two transmitted signals on any band, one per Phone and one per CW as per rule 5.1 and 5.2.
 - b. Simultaneous transmissions on different bands are permitted.
3. Multi-operator stations are mixed mode only.

8. Teams

Team scenario 1

A station and two of their friends operate in the contest from their respective home QTH and participate in the contest and submit their logs in the normal

manner. They are eligible for any awards in the category they entered as single operators. The contest manager was notified that these three stations want to form a team.

Their scores are tallied together and that is the team score.

Team scenario 2

A multi-single club has 2 operators who wish to work from their home QTH. The two single operators and the multi-single club contest and submit logs in the normal manner. They are eligible for any awards in the category they entered. The contest manager was notified that these 3 stations want to form a team. The two single operators and the club multi-single stations scores are tallied together and that is the team score.

1. A team can consist of only one of the following two options.
 - a. Three single operator stations
 - b. Two single operator stations and one multi-single station
2. A team can consist of stations located anywhere in VK, ZL, or P2.
3. An operator can only be included in one team.
4. Clubs may enter multiple teams of three call-signs.
5. The 'Team Leader' MUST nominate his team to the Contest Manager before the start of the contest.

Email to vk4sn@wia.org.au with the subject "RD Team Submission".

 - a. Nominations must include the Callsigns and Operator's Name. Where multiple teams from one club are submitted, it is suggested to use Team Names, example: Tazzie Devils
 - b. The Team leader must supply postal details for receipt of any awards.
 - c. Once the contest has started, team members cannot be changed.
6. The winner of the team initiative will be the highest combined score from any one team.
7. Team scores are not included in the determination of the winning state.

9. Contacts

1. Suggested Call: "CO RD", "CO Contest", or "CQ Test"
2. Exchange: A valid exchange consists of RS(T) followed by a three figure number as follows:
 - a. For a single operator, the number of years you have been a licenced Ham. For example, if this is your 1st year as a ham then you will sign RS(T) 001. Round off to the nearest whole number. All zeros are not accepted.
 - b. For a multi-op or club station, the number of years of the longest licenced Amateur.
3. On all bands, stations may be contacted at intervals of not less than THREE hours since the previous contact on that band and mode.
 - a. FM & SSB count as one mode, as does CW & RTTY count for the CW mode. Therefore one cannot QSO with a station in FM and work them on SSB on the same band before the three hours is up.
4. No cross band contacts are allowed.
5. Exchange of contact information via satellites, telephones, repeaters, EchoLink, IRLP, or the internet is not in the spirit of the contest and is banned.
6. Contacts via satellites are not allowed for scoring purposes.
7. Contacts within the same call area are permitted.

10. Scoring

1. On 160 metres two points per completed valid contact.
2. On 23 cm or higher bands two points per completed valid contact.
3. On all other bands one point (no WARC bands allowed).
4. On CW and RTTY, irrespective of band, double points.
5. All scores obtained by the transmitting station between 0100 and 0600 LOCAL time, are tripled.

11. General Rules

1. WIA General Rules for All Contests apply unless otherwise specified.
2. All operators of single operator stations must perform all operating and logging without assistance.
 - a. Use of public clusters only, is allowed on 50 MHz and above.
 - b. Use of skimmer like technology with a bandwidth greater than 3 kHz is not allowed.
3. Holders of more than one licence or callsign MUST use only ONE callsign for the contest duration.
4. Automated operation is not permitted.
5. Computers can be used for logging and CW or RTTY reception and/or keying.
6. All operations must be in accordance with the band plan for the band in use, as published in the current edition of the WIA Callbook.
7. Any station observed as departing from the generally accepted codes of operating ethics or licence conditions may be disqualified.

12. WW2 ex Military equipment

1. Operators using Ex WW2 equipment will be awarded with a special certificate acknowledging their participation and use of such.
2. A declaration with the heading of WW2 Equipment will operate said units within the "ORIGINAL manufactures specified operating conditions", e.g. no mods to boost the output power etc. A copy of the preferred Certificate is available on the on the WIA website at <http://www.wia.org.au/members/contests/rdcontest/documents/WWII%20Declaration%202012.pdf>
3. Please include the declaration with your log submission.

13. Log Submission

1. Electronic Logging
 - a. Use of logging software is preferred as the output file will be in Cabrillo format which suits our log checking software. See below for logger links.
 - b. Logging software will automatically print a summary in the Cabrillo header.
 - c. Email Logs to rdlogs@wia.org.au with your callsign in the subject.
 - d. On receipt of your log, the robot will send an acknowledgement email to you. Just to be sure, it is advised that you flag your email for "confirmation of receipt", in which case you will receive two emails acknowledging receipt of the log.
2. Paper Logs
 - a. Hand written logs are not preferred, however if sent must be legible and contain no more than 100 contacts.
 - b. Entrants are encouraged to enter the paper logs into a logger after the contest and email the Cabrillo log as indicated above.
 - c. Paper logs should be accompanied by a Summary Sheet showing all the details as per the log example below and nominated team name if used.
 - d. Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest; signed & dated. Please supply a contact telephone number and email address.
 - e. Send paper logs and summary sheets to:
RD Contest Manager
43 Jahn Drive,
Glenore Grove, OLD 4342.
3. If you genuinely have problems with the above, then acceptance of .xls, .csv, .mdb, or similar

files will be considered for processing. A PDF or .doc(x) word file will be considered a paper log.

4. Emailed Logs are to be received by the contest manager no later than 30 days after the contest ends.
5. Paper logs are to be postmarked no later than 30 days after the contest.
6. All logs will be receipted by email or phone if no email exists for the operator.
7. Logs received after the closing date will not be eligible for processing.
8. Paper logs will not be returned unless a SASE is forwarded requesting return of the log.
9. VK entrants temporarily operating outside their allocated call area, including those outside continental Australia as defined for DXCC, can elect to have their points credited to their home State by making a statement to that effect on their summary sheet or in the 'soapbox' field in the Cabrillo file.

14. Contest Results

1. Determination of Winning State or Territory.
State score = (Total points from logs submitted) divided by (number of licensees in the state or Territory), excluding beacons and repeaters as published in the WIA Callbook for that year.
2. Unless otherwise elected by the entrant concerned, the scores of VK0 stations will be credited to VK7, and the scores of VK9 to the mainland call area which is geographically closest. Scores of P2, or ZL will not be included in these calculations, although entrants in those areas are eligible for all certificate awards.
3. Results will be published 90 days after the close of the contest on the W.I.A. website and winners announced in AR magazine as soon as practical.

15. Contest Awards

- Entrants must make at least 25 contacts to be eligible for awards.
- Overall 1st, 2nd and 3rd place certificates will be posted to recipients.
 - Single Operator Phone
 - Single Operator CW
 - Single Operator Mixed
 - Single Operator QRP Phone
 - Single Operator QRP CW
 - Single Operator QRP Mixed
 - Multi-operator – Single Transmitter
 - Multi-operator – Multi Transmitter
 - Team
 - The top three foundation scorers regardless of category.
- Certificates will be awarded to 1st, 2nd, and 3rd placegetters for each VK call area, and ZL & P2.
 - Categories “a” through “i” as above.
- Participants using WW2 ex-military equipment will receive a special acknowledgement certificate as well as any certificates gained in winning any section.

16. Example Log

- Paper logs should be written to resemble the format for Cabrillo, as indicated below.
- Every effort to retype paper logs into logging programs, or Excel is encouraged.

CALLSIGN: VK4SN

CLUB: Lockyer Valley Amateur Radio Club Inc

CONTEST: Remembrance Day

CATEGORY: SINGLE-OP ALL

MIXED CLAIMED-SCORE: 10

OPERATORS: VK4SN

ADDRESS: NR

STREET ADDRESS:

SUBURB

ADDRESS: STATE, POST CODE

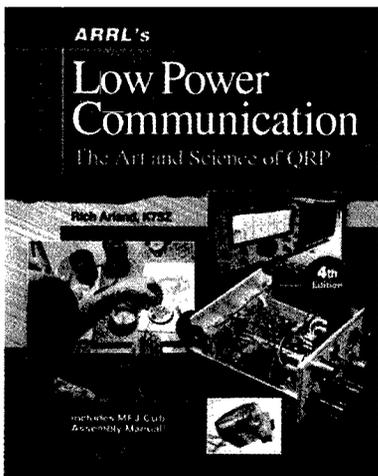
17. Logging Software

- Downloads
 - VK Contest Log (VKCL) by Mike Subocz VK3AVV <http://www.mnds.com.au/vkcl/>
 - John Drew VK5DJ RD logging program http://vk5dj.mountgambier.org/Amateur_radio.html
 - WinRD+ logging program by James McBride VK6FJA <http://www.rjmb.net/rd/index.htm>
 - SD logging program by Paul EI5DI <http://www.ei5di.com/>
- Remember to check for updates immediately prior to contests to make sure you have the latest software that will contain up to date scoring and rule changes.

Freq (kHz)	Mode	Date	Time (UTC)	Call	RST Sent	NR	RST Rcvd	NR	Pts
7087	PH	2012-8-11	0200	VK1ABC	59	038	59	002	1
7087	PH	2012-8-11	0201	VK1DEF	59	038	59	012	1
7005	CW	2012-8-11	0205	VK4ABC	599	038	599	020	2
1825	CW	2012-8-11	0210	VK2ABC	599	038	599	003	4
1855	PH	2012-8-11	0215	VK3ABC	59	038	59	040	2

END-OF-LOG

Visit our Bookshop



MEMBER PRICE: \$32.00*

RETAIL PRICE: \$40.00*

* Plus Postage and Packaging

Low Power Communication

ARRL's *Low Power Communication* is your guidebook to the fascinating world of low power QRP operating. With only 5 W or less – sometimes much less – you can enjoy conversations over hundreds and even thousands of miles.

Includes:

- Tips to get you started the right way
- An introduction to QRP operating, FAQs for newbies and tips that even experienced amateurs will appreciate.
- Equipment and Station Accessories
- Off-the-shelf commercial gear, kit building and homebrew, including an all-new homebrew photo gallery.
- Antennas for QRP – Updated and expanded!
- Wire beams, loops, dipoles, portable antennas and a look at the author's new stealth antenna design.
- Operating strategies
- Contesting, awards and advanced techniques for becoming a successful QRP operator.
- Emergency communication
- Training, planning and other factors for utilizing low-power gear during an emergency.
- HF Propagation for the QRP'er
- NEW! An authoritative look at likely propagation conditions for Solar Cycle 24.
- Plus, QRP calling frequencies, manufacturers...and much more!

Order your copy today! Visit our online bookshop for details <http://www.wia.org.au/members/bookshop/about/>



VK2news

Tim Mills VK2ZTM
e tim.ztm@wia.or.au

Quite a bit of club activity this month. The Orange & District ARC have their AGM planned for Friday, 3 August. For the past few months the club has been in caretaker mode. The Oxley Region ARC will have their AGM on Saturday the 4th. The Mid South Coast ARC has their quarterly meeting at Milton on Saturday the 11th. On Sunday the 12th, Summerland ARC has the annual SARCFEST at the Richmond Hill club rooms. The weekend 11/12 is also the RD Contest with the new starting time. VK2WI will be transmitting the opening address.

The following weekend is the Lighthouse and Lightship operation which includes HADARC at the Maritime Museum in Darling Harbour. Waverley ARS will go to Macquarie Lighthouse at South Head. Manly Warringah RS to the Barranjoey Lighthouse at Palm Beach. Central Coast ARC will team with Hellenic ARA to again activate Newcastle's Nobby's Head Lighthouse. Oxley Region ARC will go to the Tacking Point Lighthouse in Port Macquarie and Summerland ARC to some of the far north coast lighthouses. Who else has a lighthouse? Advise VK2WI News at news@arnsw.org.au so that your group gets some publicity.

At month's end the Blue Mountains ARC have WINTERFEST at their new club rooms, 4 Moore Street, Glenbrook, on Sunday the 26th. WICEN has the week long Shahzada horse enduro 27th to 31st August.

The St. George ARS VK2RLE 6800 Heathcote repeater has moved from its home of many decades. It is now at a lesser location within the same region. The move was necessitated by on-going difficult access and requirements at the host site.

In September Waverley ARS has a Foundation weekend on the 8th and 9th. Westlakes ARC have their annual field day on Sunday the 16th at the Teralba club rooms. Westlakes have the monthly meeting on the first Saturday afternoon. They are also open every Saturday from noon. Tamworth Radio Club meet on the first Friday evening at the rear of the Tamworth Hospital. Manly Warringah RS had their AGM last month. They again have available a Youth Grant for a young person to undertake getting an amateur licence. Check them out at www.mwrs.org.au

The Oxley Region ARC conducted another successful annual field day across two days of the June long weekend. 84 registrations were logged including Peter VK8ZPB who was returning home after attending the WIA AGM in Mildura. This was the second year that the Tacking Point Life Saving Club Hall had been used and it was enjoyed by all attending. This venue had been used for some past field days and then they had been held at the Sea Scouts hall near the CBD where parking and crowds had become difficult. At least this year the rain held off until

the event was over. The ORARC in late June commissioned their second APRS site located to the north of Port Macquarie with VK2RCN-1. This system fills the gaps not being covered by VK2RPM-1 located to the south. The region now has full APRS coverage.

Earlier in the year Amateur Radio NSW put out a request for back copies of Silicon Chip for the library. Two almost complete sets were donated. From one set the only issue missing is November 1989. If anyone happens to have this issue, and it is no longer required, we would be most grateful to have same. Please advise by an email to office@arnsw.org.au. Callbacks are again being taken on the VK2WI news bulletins on 20 metres, conditions permitting. The frequency is 14.170 MHz. This is in addition to those taken on all other frequencies in use. The photos in the June issue of Jeff VK4XJJ were provided by Erik VK2EJH. The next Foundation course and assessment days at VK2WI will be next month on Sunday the 23rd and 30th respectively. The Trash and Treasure for September will also be on the 30th. The mobile number to reach ARNSW has been terminated for the moment. Telephone contact is via the office number 02 9651 1490 which goes to a message bank.

73. Tim VK2ZTM.



FROM THE WIA BOOKSHOP!

The ARRL Antenna Compendium - Volume 8

Proven HF and VHF designs from the pages of QST

View this book and order online at: <http://www.wia.org.au/members/bookshop/about/>

VK4news Bundaberg Amateur Radio Club (BARC)

Gail Lidden-Sandford VK4ION - Secretary, BARC
e secretary@barc.asn.au

BARC puts WICEN on display - Proving HF communications between isolated Queensland districts

On June 7 exercise 'Contact 2012', organised by the Disaster Management Groups within Bundaberg and North Burnett Regional Councils was held to test WICEN's capability to establish radio contact between regional centres in the event of a breakdown in phone and internet communications during a disaster.

The exercise scenario was that a Category 4 cyclone had destroyed normal telecommunications between the regional centres so Bundaberg WICEN members set up both HF and VHF stations at Bundaberg and Gayndah, a distance of 120 km and normally within the 'skip zone' which inhibits communications between these regions.

The away team at Gayndah, Gail VK4ION, Kevin VK4FKEV, Linda Sullivan and Mark Sandford and the Bundaberg home team of Ross VK4JRO, Margaret VK4FHAM and Rusty VK4JM deployed ENVIS HF dipoles and set up their stations.

The exercise was coordinated by Queensland Police and was evaluated by Emergency Management Queensland observers who reported against the following criteria:

- Ability of WICEN to identify suitable locations and establish portable radio transmission stations within close proximity to regional council offices at both Bundaberg and Gayndah.
- The effectiveness of WICEN to establish two portable radio transmitting stations in a timely manner.
- Effectiveness of messages to be communicated between Bundaberg and Gayndah utilizing WICEN resources.

Contact was established within seventy five minutes, which included erecting

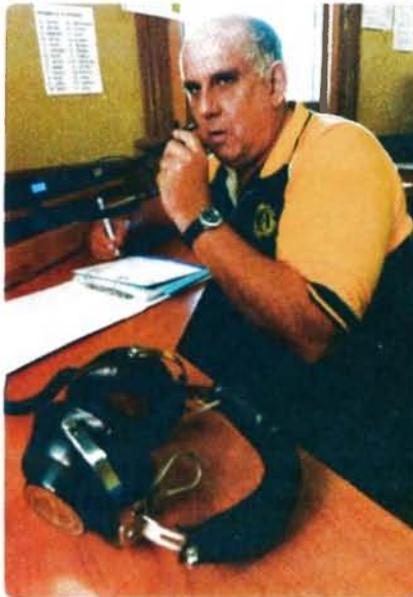


Photo 1: Ross Orpin VK4JRO operating during the exercise, as displayed in the Bundaberg NewsMail. Photo courtesy of Mike Knott, Bundaberg NewsMail.

antennas and setting up the stations. Message handling commenced using standard WICEN message forms and procedure. The messages were not previously seen by the operators and were deliberately long and involved with sitreps, obscure items and requests which provided a real-world environment for the scenario.

At the conclusion of the exercise WICEN members were confident while the evaluators, together with observers from Councils, EMQ, Police, Rural Fire, Ambulance and SES gave their assessment and all were wholeheartedly impressed with the demonstration.

In his report to Bundaberg Regional Council Local Disaster Management Group on 12 June Senior Sergeant Grantley Marcus said 'Conducted WICEN exercise on 7 June to test communications with North Burnett Regional Council and BRC. The system worked very well, however the main learning is to condense messages. WICEN will be incorporated into DDMG communications plan as

a backup in the event Telstra cannot restore communications'.

The exercise proved that effective communications were possible between geographically isolated councils and we hope provided inspiration for remote councils to pursue similar communications models. Their support personnel are tasked with drawing the communities together after a disaster and restoring communications is seen as a vital step.

The day also provided real time testing of the new WICEN portable stations which Bundaberg have built. The ENVIS dipole antennas worked brilliantly into the zone required and the whole exercise provided excellent publicity for the hobby of amateur radio.

There was a story on Channel 7 local news which included interviews with club members, disaster managers and the SES controller and this was followed by a print article with photo in the Bundaberg News-Mail.

The next big thing for members is a field day in October where teams will deploy to the far corners of the district to establish a five-station WICEN HF net.

Hervey Bay Club will field one of the stations in the exercise as six of their members attend the Bundaberg bi-monthly training and they are hoping to build a similar group to be of service within their Fraser Coast region.



Photo 2: WICEN portable station. BARC has three such stations ready to be deployed wherever and whenever required.



VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC

Sir Douglas Mawson Antarctic Exhibition (1911 – 1914)

The GARC manned the Radio Room part of a centenary exhibition of Douglas Mawson's expedition to Commonwealth Bay, held at Osborne House in Geelong, where vintage radio equipment such as the R1155 and teleprinters, donated by the club, were on display. Below are some of the 60 children from the Roslyn Primary School who came to view the exploits of the Mawson Expeditions to Antarctica. Whilst amateur radio was not a primary topic, the two exhibits that attracted the most interest in the Radio Room were the Morse key with a tone generator that they used to spell out their names and a vintage teleprinter both of which were deemed to be 'cool'. The three component crystal set, with headphones, aroused considerable interest when identified to them as an actual radio.

2012 Solstice Dinner

This year the Annual Solstice Dinner was held at the Belmont club rooms of the Geelong Radio and Electronics Society (GRES) and was well attended by members from both the GRES and the GARC.



Photo 1: Students from the Roslyn Primary School in the Exhibition Radio Room.

The guest speaker, Ivan Hawthorn, was in 1975 and again in 1978-79 the Officer in Charge of the 28th and 32nd Australian National Antarctic Research Expeditions wintering on Macquarie Island in the sub-Antarctic for 24 months.

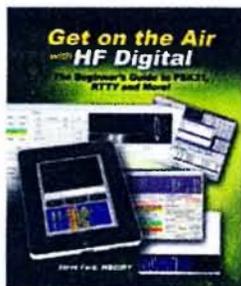


Photo 2: Guest speaker Ivan G Hawthorn BEM JP

Ivan recounted that in 1912 Douglas Mawson was having problems struggling back to his base at Commonwealth Bay after the deaths of his two companions, Ninnis and Mertz. He missed the ship that could have taken him home, by just a few hours, and had to winter again at Cape Denison. But at least he had the consolation of radio contact with Australia. Sending Morse code signals via a radio mast and repeater station built on Macquarie Island, Mawson's party could send out weather reports and receive and transmit messages when atmospheric conditions allowed.

These were the first radio transmissions ever made from Antarctica to the outside world. It was not till the late 1980s that the Morse key was abandoned as the primary communication system.

The presentation was followed by a film showing graphically the extent of the conditions that these expeditions still have to endure.



Get on the Air with HF Digital

WIA Member Price: \$30.00
Retail: \$35.00

It is a step-by-step guide that will get you started in the fascinating world of HF digital technology. Written in an easy to understand, conversational style, this book will show you how to set up and operate your own HF digital station.

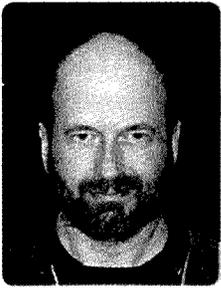
The text includes instructions for configuring software programs for popular modes such as RTTY, PSK31 and JT65.

You'll also learn about other digital communication modes such as MFSK, Olivia and PACTOR.



AMSAT

David Giles VK5DG
e vk5dg@amsat.org



KiwiSAT ready for launch

It was announced in June that KiwiSAT's hardware is flight ready and the launch campaign has been started to get it in orbit by mid-2013. KiwiSAT is a satellite project by AMSAT-ZL with strong ties to Massey University in Auckland. Similarities with AO-51 will no doubt be made as they are of similar size and have multiple transponders.

History

The project's genesis came as an idea during the NZART conference in 1999. Two of KiwiSAT's team are Ian Ashley ZL1AOX and Fred Kennedy ZL1BYP. Ian has been a command station for several amateur satellites including all of the P3 series (P3A, AO-10, AO-13 and AO-40) as well as involved in other satellite projects (UO-11, NO-44 and PCSAT-2). Fred has been involved in amateur satellites since 1986 and used his engineering abilities to fabricate parts for AO-40. Due to this Fred became the KiwiSAT team leader.

In 2001 a feasibility study determined that a microsat size satellite could be developed by New Zealand amateurs. Microsats were popular during the 1990s and cubesats were only just being developed at the time (the first standard cubesats were launched in 2003). By 2002 a basic mockup structure was completed and the transponder types determined. During 2005 prototypes for the linear transponder and integrated housekeeping unit (IHU) were being tested. The software for the IHU would prove to be a major issue because using the same operating system as previous satellites (such as

AO-16) would not be allowed due to ITAR regulations. The FM transponder prototype was also completed. Fred and Ian gave a comprehensive presentation to the 2006 AMSAT-NA symposium describing KiwiSAT and progress made so far. They showed the engineering mock-up, final design model and the current versions of transmitter, receiver and sensor hardware.

In 2008 suitable solar panels were purchased (off eBay). They had organised solar panels from the USA but could not purchase them due to ITAR regulations in 2005. The 70 cm beacon was a late addition and a prototype was constructed in 2009 which replaced another experiment that measured ozone. During 2009 the entire satellite prototype was assembled as a 'flatsat' where all components were connected and laid out flat on a bench. The U/V linear transponder was connected to outdoor antennas for on-air testing. An updated presentation was delivered by Bill Ress N6GHZ at the 2009 AMSAT-NA symposium. Now in 2012 all the hardware has been finished to flight ready standard. From now until launch KiwiSAT will still undergo testing and software development.

Design

Using a similar mechanical design that has been used since AO-16, KiwiSAT is based around five aluminium 'trays' mounted in an aluminium frame. Tray 1 holds the transmitters. Both are on two metres with a two watt PEP linear and one watt FM. Each has its own beacon input with the linear transmitter sending CW telemetry and the FM transmitter for voice, 9k6 and 1k2 data downlinks.

Tray 1 also has a sun sensor and the 70 cm experiment beacon. Tray 2 holds the battery charger regulator. Tray 3 holds the ten 4.5 Ah NiMH batteries as well as the drivers for the magnetorquing coils. Tray 4 holds the IHU and data modems. Based on an 80C188 CPU with a large RAM disk it has the computing power similar to an old IBM XT. IHU designs of this type have been used since the early 1990s and have proven their reliability. It was meant to use the same operating system as previous satellites but this was also stopped due to ITAR regulations. Since then all software has had to be developed by the team. Tray 5 houses the three 70 cm receivers – one for the linear transponder, one for the FM transponder and one for the command uplink. Above the trays is the 'Attic'. This holds the antennas, sensors, 23 cm downconverter, and GPS module.

KiwiSAT has a horizon sensor (or Earth sensor), magnetometer, two sun sensors, a small colour camera and a GPS receiver. From all this information it will determine its position and which way it is facing. To adjust its orientation and rotation it will use magnetorquing coils to react with Earth's magnetic field. The camera is similar to the one flown on the University of Tokyo cubesat XI-IV (CO-57). There is also a 100 mW 70 cm beacon for use in an experiment to measure Faraday rotation and ionospheric propagation. This beacon will transmit 9k6 baud data in phase with the two metre FM transmitter. A suitably equipped ground station will receive and decode both signals simultaneously as part of the experiment. To minimise interaction

the antenna is on the opposite face to the antenna used by the 70 cm receivers. Many years ago UoSat Oscar 9 had a glitch that commanded its 70 cm and two metre transmitters on together. This desensed the 70 cm command receiver so much that huge efforts had to be made using EME stations to get it to switch its transmitters off. Antenna placement and filtering will minimise the risk of this happening again.

Operation

The proposed frequencies are available on the KiwiSAT website but in summary it will have a linear transponder with a 70 cm or 23 cm receiver feeding a two metre transmitter. The transponder has a bandwidth of 30 kHz and an output power of two watts PEP. This will have a CW telemetry beacon. A second transponder with a 70 cm or 23 cm receiver feeding a one watt two metre transmitter can be used for FM voice or data at 9k6

or 1k2 baud. This also transmits telemetry data. A separate 70 cm beacon can operate in conjunction with these data transmissions for the Faraday rotation experiment. The 70 cm antennas are quarter wave whips, the 23 cm antenna is made up of four dipoles and the two metre antenna is made up of four 'measuring tape' quarter wave whips.

Where to from here

KiwiSAT is planned to be launched from a Russian DNEPR rocket into an 800 km low Earth orbit. Negotiations are already happening with ISC Kosmotras and the requirements for the rocket interface have been met. The DNEPR rockets are decommissioned SS-18 intercontinental ballistic missiles that are now used for launching satellites instead of nuclear warheads. Among the OSCAR series successfully launched by DNEPR rockets are UO-36, SO-41,

SO-42, AO-49, SO-50, AO-51, CO-55, CO-57, and RS-22.

Final pass

While Fox-1 is seen by many to be the successor of AO-51, KiwiSAT may prove to be a more popular choice with its multiple transponders and modes. The launch will be the most expensive part of the project and they are looking for sponsorship.

References

Ashley I. and Kennedy F., 'KiwiSAT: A communications satellite for New Zealand', Proceedings of the AMSAT-NA 2006 space symposium

Kennedy F. and Ress B., 'KiwiSAT: A communications satellite for New Zealand', Proceedings of the AMSAT-NA 2009 space symposium

<http://www.kiwisat.org/index.html>

<http://www.kosmotras.ru/en/>



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT

email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU

email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz

VK2RIS Saddleback repeater: 146.975 MHz

VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz

VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz

VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124

VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

ALARA

Margaret Blight VK3FMAB – Publicity Officer



Tina VK5TMC, President at the time of the YL International Meet, Marilyn VK3DMS, Maria VK5BMT, Jean VK3VIP, our current President, Jenny VK5ANW/VK3WQ, Christine VK5CTY and Norma VK2YL, front row centre.

As the year steadily progresses it may be time to look back and reflect on some of the important events that have occurred so far. They may be at a club level, state and/or national level and even, especially this year, at an international level.

We had the opportunity of meeting with our international

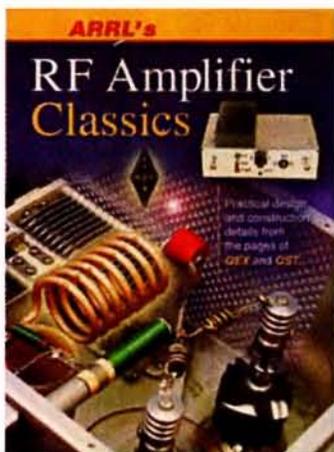
peers at the ALARA International Meet earlier this year at Glenelg, a beautiful seaside suburb of Adelaide. There was an opportunity to learn about what may be occurring for 'women in radio' overseas by taking out a sponsorship of someone living in another country and who

is a member of an equivalent organization to ALARA. Several new sponsorships did occur as a result of meeting interested operators in Adelaide and a number of participants returned to their home country to enquire about others who may wish to have an Australian sponsor. This creates a great opportunity to communicate with someone from a different background and learn how they participate in our mutual hobby in their own country.

The gathering at the International Meet also provided an opportunity for ALARA Presidents, past and present, to participate and we had the unique opportunity to take a photo of them all together, as the accompanying photo shows. The original ALARA president Norma VK2YL, previously VK3AYL, seated centre front, was our first President. It was through her efforts to link up the YL radio operators so they had an opportunity to meet and communicate with each other that ALARA came into being in 1975.



Visit our Bookshop



RF Amplifier Classics

Includes two-dozen projects and articles from the pages of QST and QEX, published between 1980 and 2003. There are amps for HF, MF, VHF and microwave. These are high quality works from respected authors such as Gary Breed, K9AY; Jerry Pittenger, K8RA; Bill Sabin, WO1YH; Al Ward, W5LUA; Dave Meacham, W6EMD and others.

Use this book and:

- Shorten your discovery work.
- Find practical designs and construction details for classic tube and solid-state amplifiers at power levels from 5 W to 1.5 kW.
- Build safe and reliable amplifiers.
- Produce loud and clean signals.

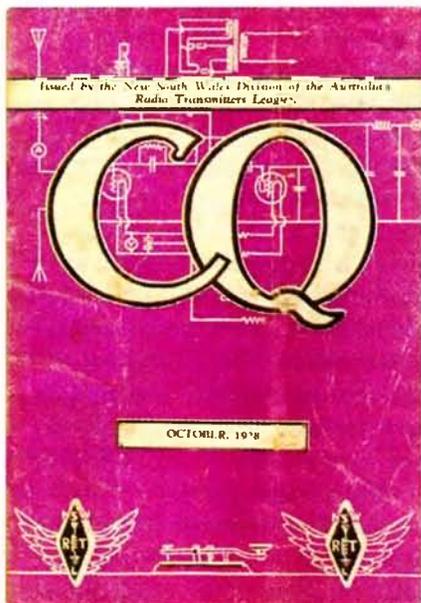
176 pages. Second printing 2005, © 2004-2005. Published by American Radio Relay League (ARRL).

MEMBER PRICE: \$35.00* RETAIL PRICE: \$42.00*

Order your copy today! Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

Hamads

WANTED - NATIONAL



Copies of *Australian CQ* magazine.

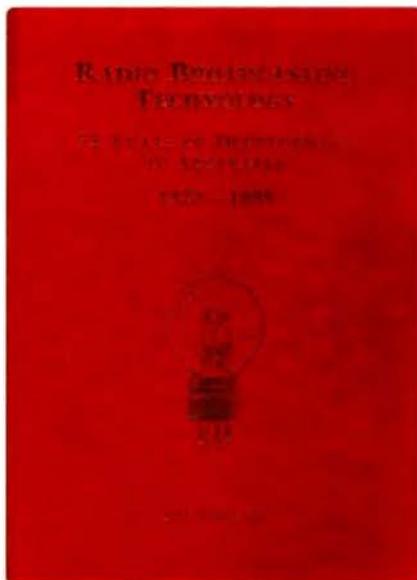
The WIA Archive is seeking early copies of the late 1920s Australian CQ for copying and/or adding to the WIA Archive's shelves.

This magazine was published by the NSW Division of The Australian Radio Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrajong Radio Museum. Collectively, we wish to build up the issues extant.

The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.

WANTED - NATIONAL



The WIA Archive is seeking a copy of **Radio Broadcasting Technology** by John F. Ross.

This book covers 75 years of Radio Broadcasting History in Australia between 1923 and 1998. It primarily covers Commercial and ABC broadcasting, but also contains some information about activities of early amateur broadcasters.

This is a hard covered, substantial book, approximately A4 page size and has 600 pages. It was privately published and so had very limited circulation. The WIA Archive would like to obtain a copy to complement other books held by the institute covering early Australian broadcasting and communications.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate a copy of this important book.

WANTED - SA

Installation instructions for a Scalar SC33DX 10/15/20 metre three element beam antenna.

Contact Steve VK5SFA QTHR, phone 0418 657 658 or steve_adler@netspace.net.au

“Hey, Old Timer...”

If you have been licensed for more than 25 years you are invited to join the



Radio Amateurs Old Timers Club Australia

Or if you have been licensed for less than 25 but more than ten years, you are invited to become an Associate Member of the RAOTC.

In either case a \$5.00 joining fee plus \$8.00 for one year or \$15.00 for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to **RAOTC**
PO Box 107, Mentone
VIC 3194

Ron Cook 03 9579 5600

or Bill VK3BR on 03 9584 9512,
email raotc@raotc.org.au
for an application form.

WANTED - ACT

Loop aerial type 3 or 4 as used in Lancaster aircraft installations for use with the direction finding circuit of Receiver type R1155.

QTHR VK1CPK (02) 6231 1790



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

AMIDON FERROMAGNETIC CORES



tt systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystems.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links related to Amateur Radio and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products
Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**

About Hamads

- Submit by email (**MUCH PREFERRED**) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'

PO Box 2042

BAYSWATER VIC 3153

hamads@wia.org.au



DEGEN 1103 HF Receiver

Pocket sized, 100 kHz - 29,999 kHz

LCD display, SSB, AM wide/narrow FM Stereo, DX/Local, 10 m long wire NiMH batteries & charger
Earphone & Carrycase included
Full review Silicon Chip Jan 2007



**ONLY \$99
with 12 month
warranty**

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100

Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au

www.avcomm.com.au

ADVERTISERS INDEX

Av-com	63
Com-an-tena	11
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	7
TET-Emtron	25
TTS	63
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

JACKSON BROS
www.jacksonbrothers.com.au
Highest quality products made by UK craftsmen
Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES
HAMMOND MANUFACTURING - Large range of quality electronic enclosures for the discerning Radio Amateur. Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many APR projects.

Cookson Controls CHARLES I COOKSON PTY LTD
11-13 Port Rd Queenstown SA 5014
Tel: (08) 8240 3200 Fax: (08) 8240 3233
sales@jacksonbrothers.com.au
ccookson@hammfg.com
ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND

Directory



National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>

The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au

- * John Bishop VK2BK
- Dominic Dahl VK2YDD
- * Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- * Bob Tait VK3XP
- Luke Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- * Michael Charteris VK4QS
- Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- * David Clegg VK5KC
- * Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- * Heath Walder VK6TWO
- * Craig Lamb VK6FLAM

Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- * Justin Giles-Clark VK7TW
- Peter Rumble VK7IY

Northern Territory Advisory Committee

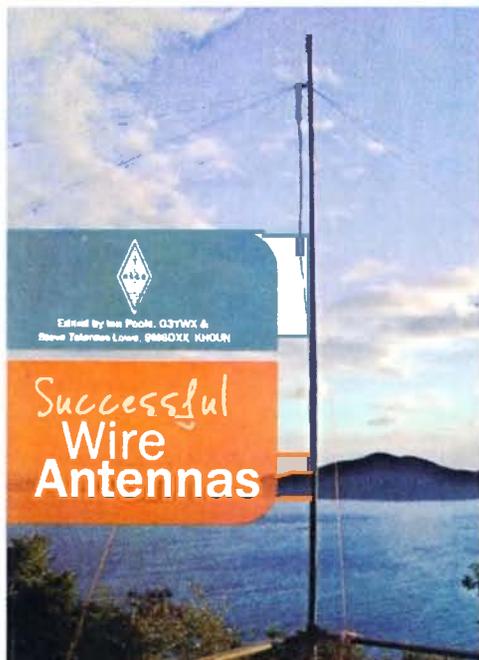
Email: vk8advisory@wia.org.au

- * Peter Blackadder VK8HPB
- Garry Woods VK8GW
- * Alan Baker VK8AB
- Mark Sellers VK8MS

* Denotes Committee Chairman

* Denotes nominated by the WIA Board ("Nominated Member")

Visit our Bookshop



Successful Wire Antennas

Edited by Ian Poole, G3YWX and Steve Telenius-Lowe, 9M6DXX/ KH0UN

Successful Wire Antennas is part of the widely popular family of Practical Wire Antenna books published by Radio Society of Great Britain (RSGB). Packed with the very latest wire antenna designs and developments from around the world, this book is a must-have for wire enthusiasts of all levels, from expert to beginner. It's full of clear diagrams, easy-to-read text, and free from any difficult mathematics.

Includes:

- Antenna Basics
- Feeders
- Dipoles
- Doublets
- Verticals
- Loops
- End-fed wires
- Impedance Matching and Baluns
- Antenna Masts and Rigging
- ... and more!

Product Details

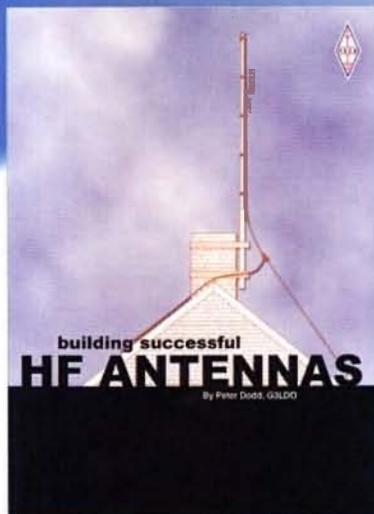
Softcover: 240 pages Publisher: Radio Society of Great Britain (RSGB); (2011)

MEMBER PRICE: \$35.00* RETAIL PRICE: \$42.00*

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

Visit our **Bookshop**



Building Successful HF Antennas

Written by a well-known antenna expert, you'll learn what makes an effective HF antenna, how to build one, and how to measure its performance. This book uses real places, so you'll be able to obtain optimum performance at any location!

Includes:

- › Single and multi-band antennas
- › Simple wire antennas
- › Loops alongside beams such as Quads and Yagis
- › Feeding, matching, and tuning
- › Hardware, construction, and masts

... and more!

Members: \$70.00 * Retail: \$80.00 *

Practical Antenna Handbook

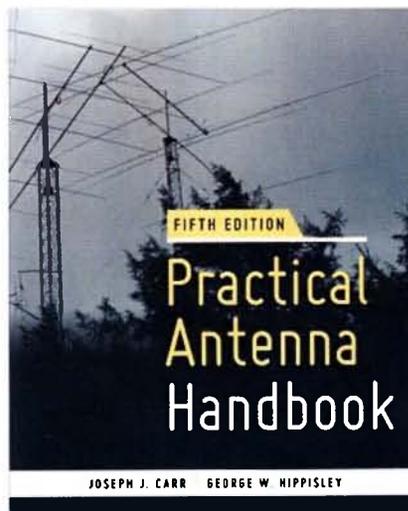
Reorganized to flow logically from broad physical principles to specific antenna design and construction techniques, the book begins by covering the fundamentals.

Then the half-wave dipole is discussed both as an excellent antenna in its own right and as a conceptual tool for predicting the performance of other designs. Transmission line impedance matching techniques—and a companion Smith chart tutorial—lead into "must have" accessories for tuning, monitoring, and troubleshooting antenna system performance.

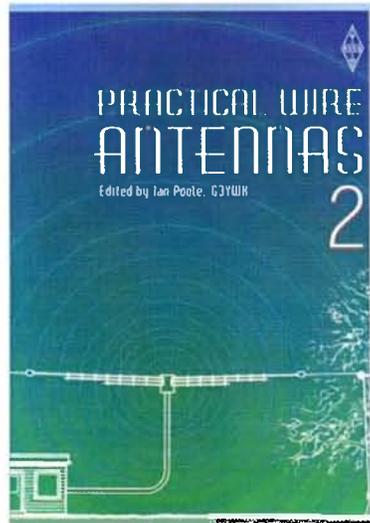
Other tools, such as antenna modeling software and network analyzer add-ons for PCs and Macs, are addressed, and concluding chapters offer fresh insights into support structures and installation techniques.

Antenna topics covered include:

- › Dipoles and inverted-Vs
- › Quads, delta, and NVIS loops
- › Wire arrays (bobtail curtain, half-square, rhombic)
- › Verticals and shunt-fed towers
- › Rotatable Yagi beams
- › MF/HF receiving antennas (flag, pennant, K9AY, Beverage)
- › Mobile and portable antennas
- › VHF/UHF/microwave antennas
- ...and many more!



Members: \$55.00 * Retail: \$65.00 *



Practical Wire Antennas 2

Nearly doubling in size with even more practical, complete and easy to understand designs for a wide range of wire antennas.

Practical Wire Antennas 2 contains just about every type of wire antenna imaginable including plenty of original designs that you simply won't find in other publications. You're sure to find one that is ideal for your own particular set of circumstances. Some will fit small urban gardens and others are best deployed by those lucky enough to have plenty of available space. Theory is kept to a minimum throughout the book, and only a few formulas are given where they are necessary to allow the reader to calculate the lengths of various antennas. Practical Wire Antennas 2 has chapters covering feed lines, dipoles, antennas with tuned feeders, loop antennas, end-fed wires and verticals. The book also provides a wealth of information and 'know how' on the mechanics of antenna building and includes designs for ATUs for almost every type of antenna.

176 pages, © 2005. Published by Radio Society of Great Britain (RSGB).

Members: \$58.00 * Retail: \$63.00 *

**Plus Postage & Packaging*

Order your copy today!

Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

Experience Icom technology in analogue & digital



ID-31A



IC-2820H



IC-RX7



IC-7700



IC-80AD

IC-92AD



IC-9100

ICOM

ICOM 657

To find out more about our latest products,
call Icom on 03 9549 7500 or visit www.icom.net.au

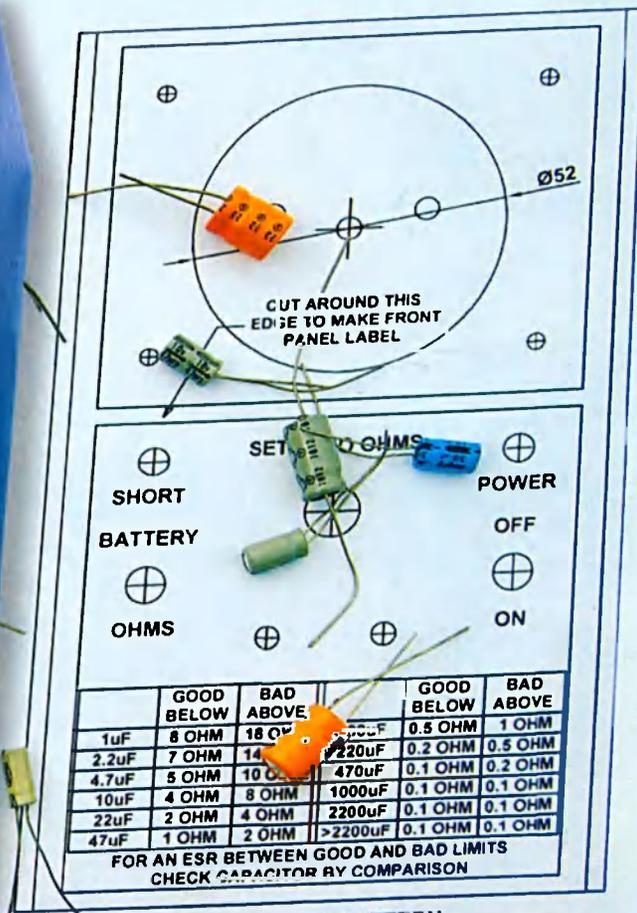
Amateur Radio

Volume 80
 Number 9
 September 2012
 Price: \$8 incl GST

www.wia.org.au



COMPONENT OVERLAY AND WIRING FOR ESR TESTER



FRONT PANEL PATTERN

USE TO MARK OUT BOX AND TO MAKE FRONT PANEL LABEL

VK&JST SEPT. 2011

Useful test equipment to build:
An ESR meter for electrolytic capacitors

The RF Porta-Test

ISSN 0002-6859



9 770002 685062

The radio... YAESU

HF/50 MHz 100 W Transceiver
FTDX 3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments



The amazing Crystal Roofing Filter performance

The Down conversion 9 MHz 1st IF frequency receiver construction, can realize narrow 300 Hz (optional), 600 Hz and 3 kHz bandwidth roofing filters.

Outstanding receiver performance, the heritage of the FTDX 5000!

The high dynamic range IP3 performance that was realized and proven in the FTDX5000.

IF DSP provides effective and optimized QRM rejection

Independent Frequency display

4.3-inch Large and wide color LCD display with high resolution

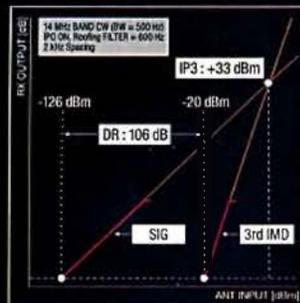
High Speed Spectrum Scope built-in

AF SCOPE display and RTTY/PSK encoder/decoder (optional)

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.



Characteristics of the Crystal Roofing Filter (300 Hz)



3rd Order Dynamic Range / IP3

YAESU
The radio

YAESU Authorized Dealer in Australia and New Zealand

Amateur Transceiver Radio Centre
Level 1, 141 Gilba Road,
Girraween NSW 2145
URL : www.atrc.com.au
Tel: +61-2-9896-2545

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street,
Greystanes NSW 2145
URL : www.andrewscom.com.au
Tel: +61-2-9636-9060

Strictly HAM Pty. Ltd.
14 Church Street,
Bayswater Vic. 3153
URL : www.strictlyham.com.au
Tel: +61-3-9729-7656

GEOPLEX DISTRIBUTION LTD
Level 1, 60 Cook Street,
Auckland 1010, New Zealand
Tel: +64-21 434342

YAESU Authorized Service Center in Australia and New Zealand

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
Tel: +61-2-9636-9060. Fax: +61-2-9688-1995
E-mail: radioandrews@hotmail.com

JNB Electronics Pty Ltd
St Kilda Rd Towers, Suite 1138, 1 Queens Rd, Melbourne, VIC 3004
Tel: +61-3-9465-9399. Fax: +61-3-8662-8748
E-mail: yaesu@jnb.com.au



AR

The Journal of the Wireless Institute of Australia

Editorial

Editor
Peter Freeman VK3PF
editor@wia.org.au

Technical Editor
Peter Gibson VK3AZL

Publications committee
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters
nationaloffice@wia.org.au

How to submit material
Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor
Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads
'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising
All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

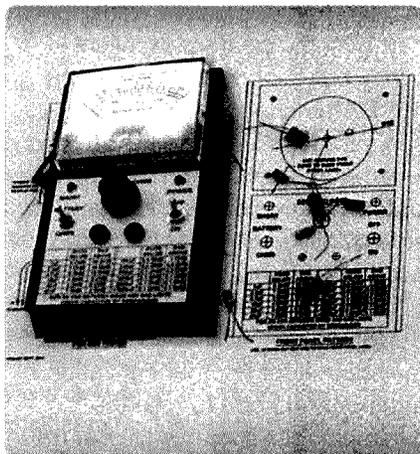
Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines
All articles, columns, hamads and
advertising booking by **first day of
previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

GippsTech 2012 review	6
Roger Harrison VK2ZRH	
The vee beam antenna	14
Rob Norman VK5SW	
Fatal foil	16
Steve Mahony VK5AIM	
Why an amateur radio club station... in your school?	17
Peter Allen VK4H0Y	
Friedrichshafen 2012	28
Keith Bainbridge VK6RK	
Flying high with ALARA	33
John Fisher VK3DQ	
Wally Hannam: First Secretary of the WI of NSW	34
Tim Mills VK2ZTM	



This month's cover
*In this issue we have two useful items of test
equipment that you can build. The cover features
one of these projects – an ESR meter by Jim
Tregellas VK5JST. See the story starting on page 18.*
*Background photo by Peter Freeman VK3PF, photo
of the completed ESR meter by Jim Tregellas
VK5JST, composite image compiled by Sergio
Fontana VK3SFG.*

Technical

76 GHz and 122 GHz in a single transverter	10
Alan Devlin VK3XPD	
An ESR meter for electrolytic capacitors	18
Jim Tregellas VK5JST	
The RF Porta-Test – a portable tester for the radio experimenter	24
Peter Parker VK3YE	

Columns

ALARA	45
AMSAT	59
Contests	49, 52, 53, 54
DX - News & Views	47
Editorial	2, 5
Hamads	62
Over To You	46
Silent Key	39, 48, 58
Spotlight On SWLing	40
VHF/UHF – An Expanding World	41
WIA Comment	3
WIA News	4, 5
News from:	
VK2	39
VK3	58, 61
VK5	44
VK7	56

Contributions to Amateur Radio



Amateur Radio is a forum for
WIA members' amateur radio
experiments, experiences,
opinions and news. Manuscripts
with drawings and/or photos are
welcome and will be considered
for publication. Articles attached to
email are especially welcome. The

WIA cannot be responsible for loss or damage to any material.
Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage
within Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are
available to members at \$2.50 each (plus an additional \$2 for
each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily
reflect the official view of the WIA and the WIA cannot be held
responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road
Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mal Brooks	VK3FOSL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDIZ

Board of Directors

<i>President</i>	Michael Owen	VK3KI
<i>Vice-President</i>	Phil Wait	VK2ASD
<i>Directors</i>	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Platt	VK5CP
	Trent Sampson	VK4TS
<i>Secretary</i>	David Williams	VK3RU
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Platt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
<i>NTAC</i>	John Martin	VK3KM
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Platt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV
<i>International Travel Host</i>	John Miller	VK3OJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
<i>QSL Curator</i>	National Office	
<i>Repeater</i>	Peter Mill	VK3ZPP
	Richard Cerveny	VK2AAH
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Wait	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

Winter activity

The weather in the past month has definitely been very wintery, especially here in VK3. The lawns are like water-soaked sponges. There has been little progress on the many projects on the to-do list. I have been keeping an ear out for the few SOTA expeditions around Victoria, with mixed success. A combination of propagation conditions and high noise levels experienced on the HF vertical antenna has meant that I have missed more summit activations than I have worked. I had a chance to head to the hills on a week day, with the weather excellent – sunny but cool, with only a gentle wind. After a long walk to the summit of choice, the antenna was erected and the station set up. Unfortunately, propagation was against me and I only completed two contacts over about 90 minutes of calling and searching. So no SOTA points – I will need to revisit the summit for another activation attempt and hope to gain the minimum four contacts to gain the points.

I have been undertaking some planning with regards to revising some of the microwave equipment: building a more modern 10 GHz transverter is high on the list, as is finally completing some kits and integrating the various modules for a 24 GHz transverter. And of course, to chase the neighbours for some paperwork for Council approval to erect a mast or two in the yard and to finally erect some Yagis for the VHF and UHF bands for operations at home!

Welcome aboard

I am delighted to welcome Chris Chapman VK3QB and Luke Steele VK3HJ to the *Amateur Radio* team. Chris and Luke have jointly volunteered to undertake the collation of the **DX News & Views** column following the retirement of John VK4OQ. I am reliably informed that both amateurs are active in the DX scene and are held in high regard. Luke has been part of the AR proofing team since April, playing an important role in our quality control processes. Both serve on the WIA VK3 Advisory Committee. The Publications Committee (PubCom) is allowing them a “trial” run, so that the contributors can become familiar with the workload of assembling the column with its monthly deadlines and the Committee can observe their progress. I am confident that PubCom will find their work up to the mark, based on my reading of their first column.

Chris and Luke have their first column appearing in this issue and I expect that they will tell all readers a little more about themselves in upcoming issues. The trial allows Chris and Luke to opt out – I trust that do not find the task too onerous.

New columns?

Are you involved in an aspect of our hobby which does not receive regular coverage in *Amateur Radio*? Do you have enough expertise to contribute an occasional column on a regular basis – not necessarily monthly?

Continued on page 5

WIA comment

Michael Owen VK3KI

The WIA and Clubs



During the week I write this Comment the WIA office will be sending to the President of each affiliated club a letter from me.

So, by the time you read this, every club should have that letter.

Why write to the clubs?

We think we have a common problem.

Over the last six to 12 months there has been a marked fall-off in the number of people seeking to enter amateur radio or at least a marked fall-off in the number of exam packs that the WIA has been asked to process.

The first Foundation licence exams were conducted in October 2005, which is almost seven years ago. It was to be expected that there would be many seeking the new Foundation licence in the first few years of its availability. There was a pent-up demand, particularly as the Novice amateur qualification was seen as quite difficult. Also, as the clubs in different parts of Australia had Assessors qualified at different times, the resource to train and qualify potential amateurs was initially restricted, so that demand could not be initially met.

But the fall-off has a rather unfortunate consequence.

The WIA is bound to follow the Commonwealth's cost recovery guidelines. Some costs associated with the examinations remain the same, whether we handle 10, 100 or 1,000 exams. The only difference is that cost is divided by either 10, 100 or 1,000 to determine the cost per exam.

So, the cost per exam of those fixed costs increases and so the cost for an exam must increase. No doubt, the more it increases the more people will argue that it all costs too much, and less people will want to be amateurs.

So, attracting new amateurs becomes important.

Promoting amateur radio and attracting new amateurs is something the clubs, particularly in regional areas, can certainly do.

But how to do it?

One of the most successful tools used during the WIA Centenary year was a Media Kit, prepared by Jim Linton. At our request Jim has updated the Kit, which now includes a basic Media Release built around any number of activities.

So, in my letter to the clubs is a hard copy of the Media Kit.

So, if a club is participating in a Field Day, or conducting an open day, or engaged in any other activity where it can seek media attention, this Kit should be very helpful.

In my letter I am telling the clubs that we will be sending a new Newsletter for clubs every two months or so. The Newsletter will have information that is of particular interest to clubs. An example, from the recent meeting of Queensland clubs in Hervey Bay is information on Scouting and amateur radio. At that meeting there was a discussion about Scouting and amateur radio. It was obvious that everyone knew a lot about amateur radio and very little about Scouting. That is the sort of information that I think will be of particular interest to clubs.

I don't know how many times I have pointed to the importance of the clubs to the WIA and the importance of the WIA to clubs (and all amateurs).

The WIA can do things the clubs cannot do individually. It is the national organisation that can represent amateur radio, national and internationally. It is the national organisation that can manage the whole examination system.

But the clubs can do what the WIA cannot do. The club can be that

social attraction that brings in potential amateurs. The club can market and promote amateur radio in its own geographic area. The club can teach and qualify the new amateur and keep and enlarge that new amateur's interest.

These are the sort of reason that led the WIA Board to seek to enhance the link with the clubs.

In reviewing all of this we looked at another thing. How many members of a club were also members of the WIA? That is an issue that arises in a number of contexts. It arises when the premium for the public liability insurance of an affiliated club is calculated. (There is additional premium for every member of a club who is not also a member of the WIA.) It arises when we look at the number of members of the WIA who are members of a club seeking a grant under the WIA's Club Grant Scheme.

What struck us was the extent of the differences. There are some clubs, even quite large clubs, where most of the club members are also WIA members. There are also clubs, even quite large clubs, where very few of the club members are also WIA members.

We believe that the WIA must work with the clubs, and support the clubs, even more than we are doing now.

In return, we ask that the clubs support the WIA.

We ask the clubs to encourage their members to also be members of the WIA.

The clubs and the WIA are not competitive. Rather they are synergistic.

And synergistic is exactly what I mean. "Synergistic used especially of drugs or muscles that work together so the total effect is greater than the sum of the two."



Hervey Bay Club hosts meeting of Queensland Clubs and amateur radio Centenary celebrations

Saturday 21 July 2012 saw a successful meeting of WIA affiliated Queensland radio clubs and the following day the host club, the Hervey Bay Amateur Radio Club conducted a barbeque celebrating the centenary of the formation of the club that ultimately became part of the WIA.

Organised amateur radio in Queensland started in 1912 at a meeting organized by Sydney Victor Colville where the Wireless Institute of Queensland was formed, later to become the Wireless Institute of Australia, Queensland Division.

The WIA's Queensland Advisory Committee had organized the special event station VK100WIQ around this weekend.

Representatives of 11 clubs, from Ipswich, Caboolture, Southside, Townsville, Hervey Bay, Bundaberg, Maryborough, Bayside, Gold Coast, Lockyer, Rockhampton and Sunshine Coast participated in the meeting, led by WIA President Michael Owen VK3KI and with WIA Directors Ewan McLeod VK4ERM and Trent Sampson VK4TS participating.

The recent and the forthcoming World Radiocommunication Conferences were discussed, as were the arrangements being made to deal with the withdrawal of the 420 to 430 MHz sub-band.

The apparent plateau in the number of new entrants seeking to qualify as radio amateurs was a major issue discussed, and in particular, the role of the clubs in attracting, training and qualifying new amateurs was seen as important.

A revised media kit with a forward looking pro forma release

adaptable for many club activities promised by the WIA was seen as very important.

Presentations included one on participating in the RD contest by Alan Shannon and one on the history of radio in Queensland by Ken Fuller.

The Hervey Bay Amateur Radio Club led by President Norm Greenaway invited Fraser Coast Regional Council Mayor Gerard O'Connell to attend the Club's barbeque on Sunday, and he listened to a number of presentations.

In responding to Norm's welcoming remarks, Councillor O'Connell said that he was pleased to learn more about amateur radio which was obviously an important part of the community.

Also participating in the weekend were Queensland Advisory Committee Chairman Michael Charteris, and members Alan Shannon and Don Wilschefski.

VK4ZZ Presented with Chris Jones Award

One important presentation took place on 21 July 2012 at the meeting of WIA affiliated Queensland radio clubs hosted by the Hervey Bay Amateur Radio Club.

Gavin Reibelt VK4ZZ from the Townsville Amateur Radio Club had been announced as the recipient of the Chris Jones Award at the WIA Annual Conference in Mildura at the end of May, but as he was not at Mildura, WIA President Michael Owen VK3KI presented Gavin with the Award during the meeting of clubs.

In doing so, Michael paid tribute to the contribution of Gavin to amateur radio in many different ways.



David Rowe VK5DGR

VK5DGR to receive ARRL Technical Innovation Award

The ARRL Board has awarded the 2012 ARRL Technical Innovation Award to David Rowe VK5DGR for his work on the amateur radio Codec2 low bit rate speech codec.

The ARRL Board minutes for July 20-21 say:

"32. On motion of Mr. Norris, seconded by Dr. Weaver, the following was ADOPTED with applause:

Whereas David Rowe, VK5DGR, has been a major leader and the primary technical author of an open-source CODEC2 protocol, designed to address the impediment to the development of amateur digital-voice posed by closed sources protocols; and Whereas the open-source nature of this work is a major step forward in the development of digital voice communications;

Therefore, the ARRL Board of Directors awards the 2012 ARRL Technical Innovation Award to David Rowe, VK5DGR."

On hearing of his award David Rowe VK5DGR said:

"When I first became interested in Ham Radio as a 12 year old in the late 70s my grandfather bought me the 1979 ARRL handbook. Quite an honour to one day be contributing back to this fine hobby that was

my start in a communications and electronics career.

That version of the handbook even had a chapter on "Narrow Band Voice Modulation" - an esoteric analogue technique to compress speech by removing chunks of audio bandwidth. Who would have thought that 30 years later I'd be contributing in the same area..... "

India Blackouts Affects Millions

In the world's worst blackout in recent times power was cut to 700

million people in India. Jayu Bhide VU2JAU reports that the North-East grid failed due to a fault in the plant and 20 states were affected by the power failure. Work to restore the power was in progress.

National Coordinator for Disaster Communication in India, Jayu VU2JAU said that New Delhi had its power cut for 12 hours. He said in the evening power was restored to some parts of Delhi and the surrounding areas.

"Hams in and around the affected areas were ready for the emergency communication required during power cuts," said Jayu VU2JAU. They provided emergency communications during the outage, all voice repeaters were in order and did not fail despite the heavy duty back-up power needed. He said, "Hams will still be on their toes until complete power is restored."



Editorial Continued from page 2

If so, then please drop me an email together with an outline of your ideas.

The Publications Committee is keen to broaden the scope of topics covered in our regular columns. The frequency of the contribution is up to whoever accepts the challenge - it could be monthly, bimonthly, quarterly or even simply an occasional contribution. Each contribution should ideally be about one or two pages, including any images. As a guide, one page in the magazine is around 750 words plus one image.

Club News

I sometimes receive comments about having more Club news in AR.

I would welcome more Club news, but please do not all send them in at once. We have many clubs around the country and we do not have sufficient page space for news items from them all. Readers will be aware that we have regular contributors from VK2, VK6 and VK7 who each collate a summary of news items from clubs around the state each month. This arrangement seems to work well, as any club simply needs to forward key news items to the regional scribe, who then collates the news items into a single state-wide news summary.

Of course, we can also publish items from individual clubs, as long as we only have a small number of such contributions each month.

So if you are from a club in either VK3 or VK4, perhaps you need to be suggesting to the relevant Advisory Committee that a scribe be sought to collate the news items for that state. Once a scribe has been found, it will then be up to the clubs in that state to provide the information to the scribe. We had a VK4 correspondent in the past, but he gave up due to the lack of incoming news! The alternate is for your own club to **occasionally** contribute a small story for publication.

Cheers,
Peter VK3PF



WIA Centenary DVD



Limited numbers of the **WIA Centenary DVD** are now available for purchase. This professionally recorded and produced three DVD boxed set includes footage from the Historic Presentations, Centenary Dinner, live VK100WIA news broadcast, plus Sundays visit to Dick Smith's property.

The boxed set of three DVDs is available for just \$25.00 plus postage.

Compiled by Ralph VK3LL, Jack VK3WWW and Robert VK3DN.

GippsTech 2012 review

Roger Harrison VK2ZRH

Held over 7-8 July this year, the annual Gippsland Technical Conference – GippsTech – should need little introduction on this forum site, but for the sake of new registrants, the event has a well-recognised reputation as the premier technical conference in VK, with its focus primarily on techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts. In addition to the Conference, a Partner's Tour . . . is . . . conducted, together with an informal social gathering for dinner on Friday and a Conference Dinner on Saturday.

That sums it up nicely.

The short story

If you didn't go, you missed another good one!

The long story

Reprising the arrangement of my GippsTech 2011 review, this year's itinerary of topics is listed below, in alphabetical order by presenters' first names. I use the word 'itinerary' deliberately, for attending the presentations at GippsTech is indeed a journey. It's a journey from anticipation to inspiration, from despair ('I'll never get around to that!') to elation ('I can do that!').

Alan Devlin VK3XPD and Michael Coleman VK3KH: 78 GHz and Up!! An alternative, simple approach to millimetre wave homebrewing.

Andrew Davis VK1DA: Publish your radio projects on the web, in three easy steps.

Andrew Martin VK3OE: Es backscatter Doppler shift measurements using CW and chirp radar techniques.

Chris Skeer VK5MC: Update on SDR in EME applications.

Colin Hutchesson VK5DK and Gary Smythe VK5JR: Converting

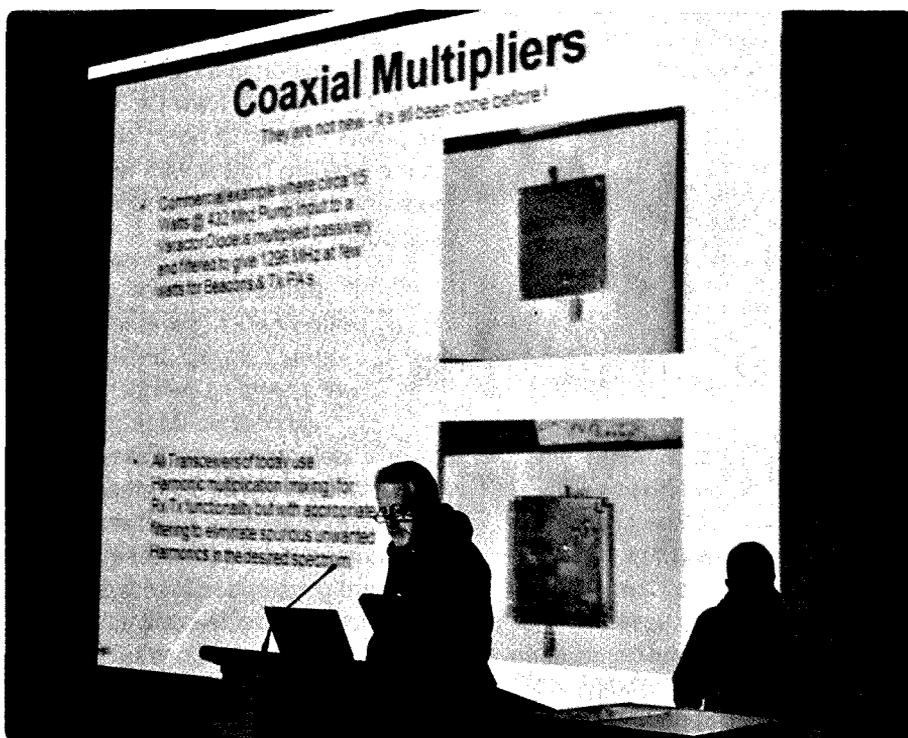


Photo 1: Michael VK3KH during the presentation on transverters on the bands 78 GHz and higher.

ex analogue TV (Tx) equipment for use on the amateur bands.

Dale Hughes VK1DSH and Peter Young VK3MV: WRC-15 issues for amateurs.

Doug McArthur VK3UM: New software from VK3UM.

Glen English VK1XX: DVSSB - A PC based digital speech mode that rivals SSB above 30 MHz.

Glen English VK1XX: A low cost GPS frequency reference for any radio.

Jim Collins VK3ZYC: Reference locking the FT817.

Michael Farrell VK2FLR: The Marconi Poldhu Station.

Neil Sandford VK2EI: Digital interface for the IC-706.

Ralph Edgar VK3WRE: Cheap preamp for 10 GHz.

Ralph Edgar VK3WRE: Microwave power amplifier construction.

Ralph Edgar VK3WRE: 10 GHz rainscatter.

Rex Moncur VK7MO: 24 GHz terrestrial propagation.

Roger Harrison VK2ZRH: Long-range ionospheric DX on 6 m and 2 m - new angles on success.

Russell Lemke VK3ZQB: Stepping in it.

Wayne Merry VK3WAM: SOTA - a new challenge.

The talks

78 GHz and up!! An alternative, simple approach to millimetre wave homebrewing: Michael VK3KH gave the presentation as Alan VK3XPD was in hospital with a serious thrombosis. A bit of a worry! Anyhow, Michael did a sterling job explaining how Alan turned many high-speed diodes into sand making millimetre wave mixers and worked out a scheme to ensure that you *know* you're tuning the correct frequency with your IF rig –

the 'frequency truth table' (that one will have to enter the microwaver's lexicon). Michael gave a detailed description of Alan and his recent record-setting contacts on the bands from 78 GHz to 324 GHz, with comprehensive pictorial views of the paths used. Inspiring! Understandably, the paths on 122 GHz, 241 GHz and 324 GHz are quite short. (Shades of 'Can you hear me?', 'Yes. But not on the radio')!

Publish your radio projects on the web, in three easy steps: In his inimitable, gently humorous style, Andrew VK1DA gave a step-by-step account of how to put your project perorations on the web without having to first learn about HTML, PHP, DNS or SQL. The secret is WordPress. Sheesh, Andrew. Why didn't I think of doing that? (Slaps forehead, utters a silent D'Oh!). And: What's more, your stuff doesn't have to look or work like a blog.

Es backscatter Doppler shift measurements using CW and chirp radar techniques: The indefatigable Andrew VK3OE has been chirping away and catching the results at his solar-powered remote site at Harcourt in central VK3. Since launching his *Bistatic Backscatter Chirp Radar for amateur radio use* in 2010, Andrew has recorded some quite remarkable, and significant, propagation on 6 m and the HF bands. He gave the audience a rundown on a 6 m sporadic E event recorded in November 2011, which played a part in non-direct path 6 m contacts from VK3/VK7 to VK6. The Es cloud responsible showed considerable turbulence, with backscatter signals having clear Doppler shift and spreading. Sorting out reflections from Doppler clutter proves to be a real art. In addition, Andrew revealed to the 100+ throng an example of 7-hop 28 MHz Es and another displaying around-the-world echoes guided by the F-layer. . . one echo at 40,000 km (once around), followed by another at 80,000 km (twice around)!

Update on SDR in EME applications: This was a short, impromptu presentation from Chris Skeer VK5MC – the man with the 'dirty great dish'. It was by way of a follow-up from the one he gave at the 2011 GippsTech. Chris showed how he has achieved VHF EME 'on a budget' based on a low-cost SDR kit. Cheap, cheerful, practical and successful!

Converting ex analogue TV (Tx) equipment for use on the amateur bands: Colin VK5DK and Gary VK5JR raided decommissioned analogue TV broadcast sites and promptly went about converting solid-state transmitter modules for use on 6 m and 2 m. One conversion involved heavy machinery to saw a module and heatsink in half. Talk about dedicated! Their presentation was not only practical, but entertaining. Naturally, the audience was regaled with DX opportunities that were missed. The finished products were available for inspection during coffee and lunch breaks and Colin and Gary were deluged with questions. Noice kit (as they say in the classics)!

WRC-15 issues for amateurs: Serious stuff. Bands from 70 cm on up are under threat. Dale VK1DSH had a clashing commitment, so Peter VK3MV gave the presentation. People paid close attention as some perspicacious

Electronics Enthusiasts



Soft Start Kit for Power Tools

Refer Silicon Chip Magazine July 2012

Stops that dangerous kick-back when you first power up an electric saw, router or other mains-powered hand tool. This helps prevent damage to the job or yourself when kickback torque jerks the power tool out of your hand. Kit supplied with PCB, silk screened case, 2m power cord and all specified electronic components. Soldering and construction required.



\$49.95

• 240VAC 10A
• PCB: 81 x 59mm
KC-5511

Speed Control Kit for Induction Motors

Refer Silicon Chip Magazine May 2012

Control induction motors* up to 1.5kW (12HP) to run machinery at different speeds or controlling a pool pump to save money. Also works with 3-phase motors. Full form kit includes case, PCB, hardware and electronics. Soldering and construction required

KC 5509

NOTE: *Does not work for motors with centrifugal switch

\$229



Bluetooth® Handsfree Car Kit with LCD

Safely dial or answer a call hands-free whilst driving. Fits unobtrusively to the visor and features a large LCD screen to display incoming caller ID and the voice dial function to make hands-free calls. Connects up to two phones simultaneously and has a 360 hour standby between charges. USB cable & 12V car charger included.

- Noise, echo and wind suppression
- Size: 185(L) x 136(W) x 65(H)mm

AR-3122



\$59.95

Father's Day Gift Ideal

IP67 Autoranging DMM with Wireless USB

A quality true RMS multimeter with a wireless USB computer interface, non-contact voltage indicator, relative zero and data hold. It's IP67 waterproof rating makes this DMM capable to withstand even the harshest conditions. Includes logging software for computer based live data logging whilst keeping your computer completely isolated and protected.

- Auto power-off
- Backlight
- 10A current range
- Size: 170(L) x 79(W) x 50(H)mm

QM-1571

\$109



Tool Box Kit

Perfect gift for Dad this Father's Day! Total package worth \$104.75.

Soldering iron starter kit

(TS-1651 \$24.95)

32-piece driver set

(TD-2106 \$17.95)

Data-hold DMM with back light

(QM-1523 \$14.95)

Tool set

(TH-1812 \$29.95)

Storage case

(HB-6302 \$16.95)



\$79.95

SAVE \$24.80

Father's Day Gift Ideal

To order call 1800 022 888
www.jaycar.com.au



questions were asked. Protecting and enhancing our bands is 'core work' of the WIA. They're onto it.

New software from VK3UM:

Doug regaled us with highlights from the latest updates to his software suite for serious VHF/UHFers and moonbouncers. It all reminds me of the petrol head and DIY car enthusiast who installed an electronic ignition and engine management system he developed to gain 17 per cent more fuel efficiency, fashioned a new exhaust manifold and extractor system to get a 10 per cent engine efficiency improvement, adjusted the overhead cams for peak acceleration performance and so on, and so on. 'How'd it go?' his mate asked. 'It's a bit of a problem' he replied. 'I went for a 10 km drive on Sunday and the petrol tank overflowed.' See it all on <http://www.vk3um.com/>

DVSSB - A PC based digital speech mode that rivals SSB above 30 MHz:

Now here was something *entirely* new. Revealed to an unsuspecting world at GippsTech 2012! Glen VK1XX has applied his noggin to the perennial problem of weak-signal speech readability. Could be something in it! Glen played some sample audio clips. OK for blokes, doesn't do as well on female's voices, yet. It'll be interesting to hear how it performs on meteor scatter, gender notwithstanding. Is this a solution looking for a problem? Glen can't abide the sound of SSB, especially the way some operators tune it in. Grates the teeth, apparently! Seems to me Glen will have to do a lot of 'selling' the concept and the practical technology if it's to succeed in displacing SSB as the most 'popular' voice mode. More power to his skinny elbow.

A low cost GPS frequency reference for any radio: Glen VK1XX described what looks like an elegant engineering solution to a common problem in GPS-locking a rig - the diversity of digital synthesizer reference oscillator frequencies among rigs. And he's



Photo 2: A view of part of the audience of just over 100 amateurs during question time in the course of one of the conference technical sessions.

appealed to the Scottish propensity for thrift that runs in all hams' veins with a design based on a versatile, low-cost chip. It will be interesting to see how this idea gets taken up among the rig-locking fraternity.

Reference locking the FT-817:

Jim VK3ZYC presented a more-or-less elegant solution by developing a system that is housed in the (cramped) FT-817 case. It sparked a lot of questions and discussion and could be on the way to becoming a widely-adopted solution (in one form or another).

The Marconi Poldhu Station: Mike VK2FLR went back to where it all began (near enough), the site of Marconi's wireless station at Poldhu in Cornwall. Judging from the short video Mike showed, it's a cold, bleak, treeless, misery-guts of a site. Popular with German and Australian tourists, apparently! Mike produced a brick shard from Marconi's station building, which the MC auctioned off, with the proceeds going to the Eastern Zone ARC. It was knocked down for \$30. History in your pocket!

Digital interface for the IC-706:

Whenever Neil VK2EI puts up a presentation at GippsTech, it's always about simple, low-cost solutions to real problems. The sort

of stuff that's endemic to fiddling with weak-signal communications on the higher bands. This was another graceful example in a long chain of such presentations. A collection of GippsTech Proceedings from past years is invaluable for these gems alone.

Cheap preamp for 10 GHz: Ralph VK3WRE must have adopted the Nike slogan before Nike was in kneepants: '*Just do it!*' He found a low-cost dual LNA PCB available from a web supplier that offers remarkably good performance and is simple to adapt to an amateur 10 GHz system. A gem.

Microwave power amplifier construction: Another gem from Ralph VK3WRE. If the microwave bands strike your fancy, even modestly, this sort of stuff is why you would go to GippsTech. Along with his 10 GHz preamp presentation, I had one of those '*I can do that!*' epiphanies.

10 GHz rainscatter: The 'proof of the pudding' goes the old aphorism, 'is in the eating'. And this was it. Ralph VK3WRE demonstrated video/audio of contacts via rainscatter, one of the reasons for mucking about on the microwave bands. Inspiring stuff, indeed.

24 GHz terrestrial propagation:

The perpetually peripatetic Rex VK7MO has tirelessly pursued his penetration of the microwave mystique. And he's always willing to share his insights and experiences. The meat, the potatoes *and* the gravy. Lap it up at GippsTech.

Stepping in it: Russell VK3ZQB

evinces the air of the professional engineer: knowledgeable, experienced and bluntly pragmatic. His presentations reflect that, and always have an edge of wry, laconic humour. Stepper motors was his subject this year. We got a taste of theory, a soupcon of high technology, and a bouillabaisse of practical experience in swinging dishes in microwave home stations. Hmmmm. Something to file away as 'going to be useful when I get up to that'.

Long-range ionospheric DX on 6 m and 2 m - new angles on success:

I presented an analysis of those magic days of 6 m and 2 m DX in January and how antenna

installations and configurations contribute to success where the elevation radiation angles of the antennas closely match the raypath elevation angles of the DX propagation. I was pleased to get feedback from Ken Jewell VK3AKK (whom I first met in the 1960s), who said, 'That was the best lecture I ever heard you give.' As I hadn't laced it with art, science, technology and tomfoolery (as is usual), I gather Ken appreciates the absence of music clips and mathematics.

SOTA - a new challenge:

Summits On The Air – for those unfamiliar with the acronym. If you like to challenge yourself in the great outdoors – *and* make some contacts on the amateur bands – SOTA is worth a close look, enthused Wayne VK3WAM. There are awards to be won, too, although SOTA is not a 'contest' in itself. Another aspect, and proof of the enormous diversity, of the great hobby of amateur radio.

And the event itself: GippsTech succeeds because the organizers look after the details as much as they look after the focus of the event. In 2011, they introduced two new things: coffee mugs for everyone and pizza for Sunday lunch. Brilliant! This year, the coffee mugs came with a GippsTech logo. Saturday lunch is best described as country roasts, with salad sides. Hearty. Basic. Does the job. Let them know your victual sensitivities when you register and they'll ensure vegetarian and gluten-free options are available for you. Looking after the details. You can find follow-up details on the Eastern Zone ARC's website at: <http://www.vk3bez.org/gippstech.html>

The Partners' Tour is a side-benefit feature of GippsTech. My wife, Val, has 'done' the partners' tour each year for the past few GippsTechs that we've attended together. She gave it a big thumbs-up for this year.

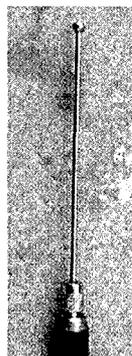
TET-EMTRON



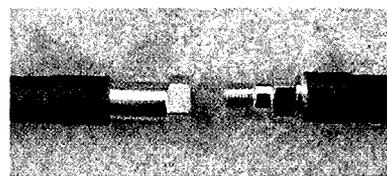
New HFTW Tapped Whip. New designing allows this whip to be separated in the centre for easy and clean storage in its own bag inside your car.

- Coated with thick, tough waterproof glue lined heatshrink.
- Covers amateur bands 80-6 m, as well as most popular 4WD and RFDS.
- Covers 160 metres with our new extension.
- Covers the long talked about 60 m band.
- Comes with its own drawstring storage bag.
- Large easy to read writing.
- Does not include HF base and spring.

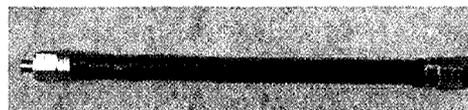
Autotunes, Baluns, Beams, Stainless Whips, Insulators, Aluminium, Copper Wire, Co-ax, Connectors, Home Brew Parts, U-Bolts, Ladder Line Spreaders, Traps, Codan and Barrett Parts, Verticals, CB and much more...



Large Corona Tip.



Handy Centre Joint.



160 m Extension.

www.tet-emtron.com
TET-Emtron
80 Stock Road, HERNE HILL, WA 6056
Phone: 08 9296 3224

76 GHz and 122 GHz in a single transverter

Alan Devlin VK3XPD

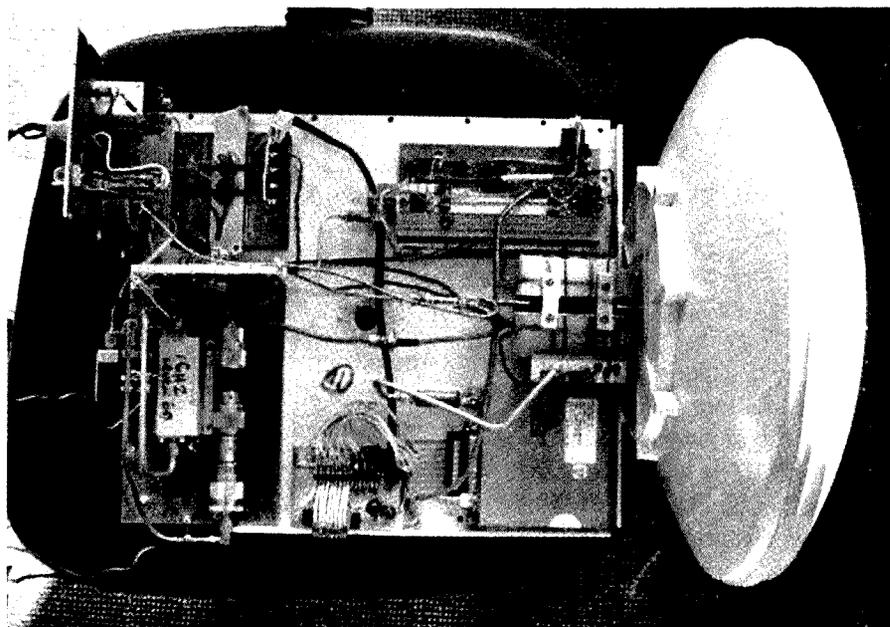


Figure 1: The homebrew prototype transverter.

Two prototype transverters, as seen in Figure 1, were designed and built all within the space of four weeks. They still look a bit rough but of greater importance to me is that they 'work' amazingly well!

Referring to the block diagram, each transverter consists of a DIP settable, Microsource 26 GHz YIG oscillator. This brick requires a 960 MHz reference which is then TCXO locked back to 10 MHz. By removing the internal passive doubler, this now 13 GHz brick delivers up to +16 dBm to drive a X3 or X4, 39/40 GHz multiplier (CMA382400AUP) delivering circa 100 milliwatts or +20 dBm. This multiplier is mounted upper right on the heatsink. Some of you will recognise this part number as the same as Philipp DL2AM has used in his 76/122/241 GHz hardware.

After tripling, this 39/40 GHz signal exits through a WR-28 port. Aside from this WR-28 to SMA(m) transition fitted on the output port of the CMA 39/40 GHz multiplier, I have not used any waveguide in my hardware. The RF is then fed coaxially to pump a pair of antiphase diodes (surplus 14 GHz mixers) mounted/soldered on the end of a piece of .141 hardline. A photo of some prototype mixers I built is included later in this article.

A small flared horn is fitted over these diodes and this feed is then slid through a rear dish mount and aimed at an integrated Cassegrain reflector in the radome of a 300 mm dish. The positioning of this horn relative to the diodes is very critical. Correctly positioned, a performance improvement of more than 15-20 dB can be expected. Signal polarisation is still an issue, so rotating one 'feed' for optimum performance is necessary. I have no idea of the feed polarisation: Horizontal

After reading an article (1) written by Kerry Banke N6IZW, I became enthused with building gear for 47 GHz. It was not long however before

I realised I had all the parts needed to build a 76/78 GHz transverter instead. This homebrew, prototype transverter is, with just one exception, all coaxial.

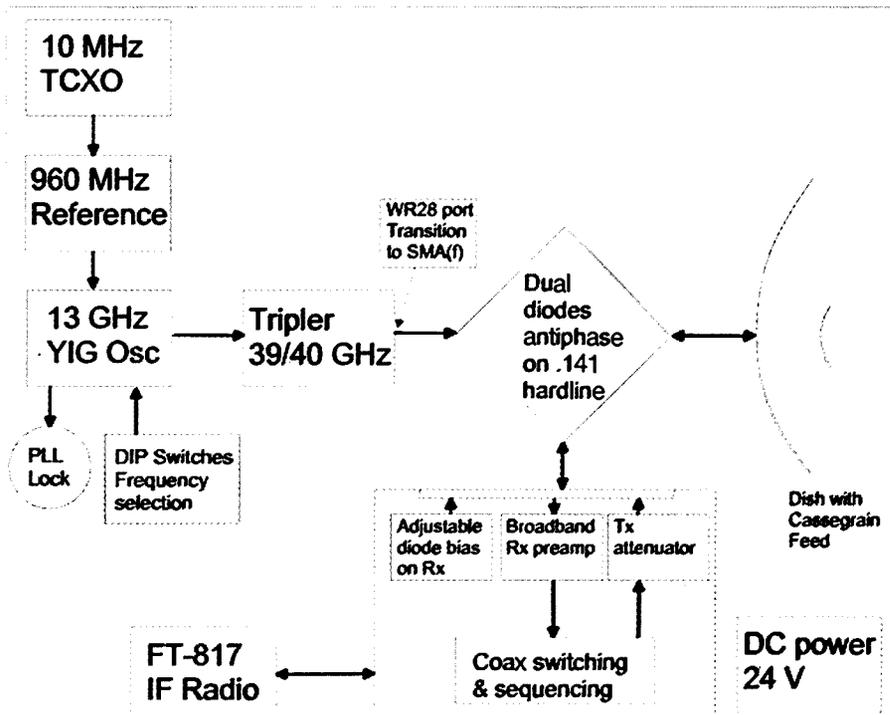


Diagram 1: The 76 GHz/122 GHz block diagram.

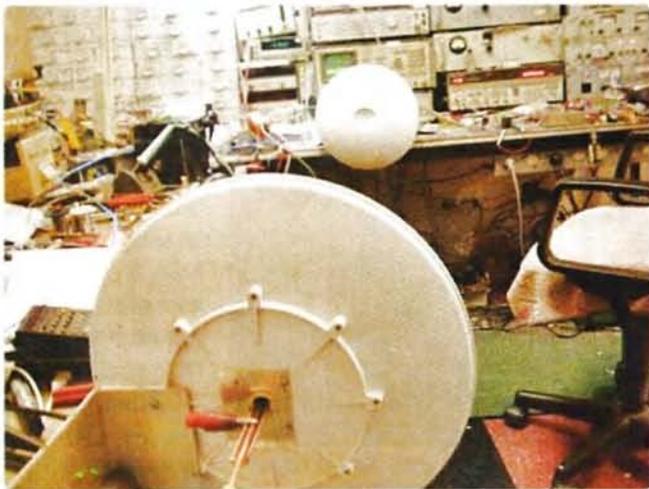


Figure 2: The Cassegrain dishes during early testing.

or vertical or offset? I would welcome comments on how I might determine the polarisation? Figure 2 shows the Cassegrain dishes during early testing.

The second harmonic of 39 GHz is, of course, 78 GHz! Figure 3 shows the unfiltered, double sideband signal; the 78 GHz centre frequency with its two sidebands, 144 MHz either side. The other signals to the right of the 78 GHz centre are 'mixer' products. They are not real!

Note: I deliberately chose to use our VK 78 GHz segment because, although the Microsource brick will function (lock) down to 12.65 GHz, I found the output of the X3 CMA382400AUP multiplier block was dropping away because it was operating at its lower frequency limit.

The IF connection for TX and RX is quite simple. Referring to Figure 4, I cut a small hole in the .141 hardline to expose the

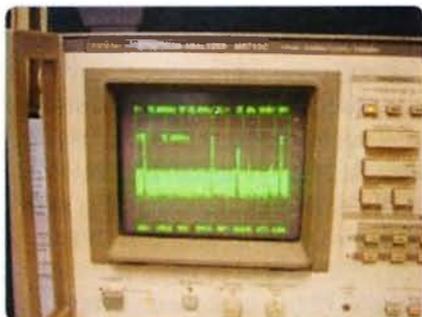


Figure 3: The unfiltered, double sideband signal.

inner conductor near the SMA connector that couples to the X3 multiplier.

I then soldered the braid of a thin flexible Teflon coax (RG-174 or similar) along the side of the .141 copper jacket with the inner conductor in line/near this 'hole'. I then

soldered a short but very fine piece of wire from the centre conductor of the .141 to the junction of a 1 nF capacitor and a 470 Ohm resistor. The 1 nF connects to the inner of the IF cable. DC isolation is necessary because the RX DC bias (see below) via the 470 Ohm resistor will be shunted. This thin IF connection forms an RF choke at 39 GHz, but it allows 144 or 432 MHz to pass with minimal attenuation. I have unsoldered the 470 Ohm resistor and the bypass capacitor from the .085 bias line for picture clarity.

DC bias for the diodes in RX

The multiplier diodes I have used to date are ordinary Schottky units.

Transverter Rx sensitivity can be optimised considerably by setting/adjusting some nominal DC bias to these diodes. In my testing, I noticed that the optimum bias voltage is somewhat temperature dependent and the diodes may also give greater efficiency (less loss) with either + or - biasing. To achieve this, I used a 5 kΩ potentiometer with both +/- 5 volts with respect to earth on either end. The lever

with the series current limiting resistor (470 Ω) connects to the centre of the antiphase diodes. Varying the pot varies the voltage plus and minus. In Figure 4, the .085 semirigid is the bias line. I also found a small decoupling capacitor on this bias line at the IF connection point to earth improves the RX signal to noise performance.

Standard coaxial relay switching is necessary

On TX, the SSB modulation from the FT-817 is switched and attenuated down to a few milliwatts. Between 0 dBm and +7 dBm works fine. I found if too much IF injection is applied, sensitivity (diode response?) is degraded giving reduced output.

On RX, a broadband RF amplifier is fitted in the RX path to improve the overall sensitivity. Figure 5 refers on next page.

Output power on 78 GHz

The absolute power level on 78 GHz is difficult to quantify. I do not think it can be measured easily.



Figure 4: The IF connection.

The 'pumped' antiphase diodes are mounted on the end of the .141 hardline and pushed into the dish at/near the focal point. Therefore, there are no coaxial or waveguide connections available.

However, with both dishes pointing at each other and separated by two metres, using my homebrew uncalibrated harmonic mixers, I have measured at best on the spectrum analyser a level of

-25 dBm on 78 GHz. Suffice to say that it is a whole lot less than one milliwatt.

The first ever VK 78 GHz QSO was conducted over a 1.5 kilometre suburban path on 3 August, 2011. The operators were Alan VK3XPD and Michael VK3KH. This record was extended a few days later to circa 12 kilometres. Signal reports over this longer path were 5+1 both ways. One significant observation was quickly identified. The 'pointing' of our small 300 mm dishes is extremely sharp on these higher frequencies.

As an investigative exercise, on the shorter path, we tuned up the band to the 3rd harmonic, to 117 GHz. Although it was a very weak signal, it was quite audible. This clearly showed good prospects for operation on 122 GHz. Now, being the 'Devil's Advocate' perhaps some of you may be thinking that this could have been a 39 GHz QSO and not 78 GHz?

In the course of developing this simple transverter, I built up multiple sets/versions of homebrew harmonic mixers to test on my spectrum analyser. A sample of my prototypes can be seen in Figure 6. All these units worked OK with some variability.

I found the 'leaded' antiphase diodes make excellent harmonic mixers. For many of us, the likelihood of owning the rather expensive HP 1197X waveguide

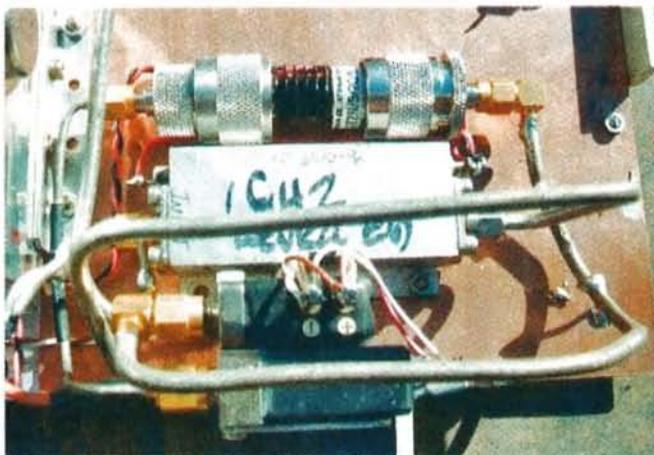


Figure 5: Showing the broadband RF amplifier in the RX path.

series of harmonic mixers for V, E or W bands is a 'dream'. The techniques I have described here make it **very** easy for almost anyone to build their own harmonic mixers that are usable well beyond 100 GHz.

With my homebrew mixers, I can now easily see these 78 and 122 GHz signals. In bench testing, I have actually seen signals up to 140 GHz, the upper frequency limit of my Anritsu MS710E spectrum analyser. Not bad for 14 GHz diodes!

The absolute conversion loss may be unknown - but who cares!

It is the ability to actually 'see' and quantify these frequencies. And best of all, these 100+ GHz harmonic mixers only cost a few dollars to make.

There is another method of determining the transverter operating frequency.

I am using 10 MHz TCXOs to 'lock' the 13 GHz oscillators. There are however slight frequency differences in the TCXO frequencies. Therefore, the 'locked' 13 GHz sources are not identical in their output frequencies. Consequently, each transverter

has a frequency 'offset' or difference due to these very small TCXO frequency differences. The result; my transverters have a circa 22 kHz difference between each 13 GHz oscillator.

After the X3 multiplication of these 'circa' 13 GHz signals, the frequency

difference between the transverters now equates to 66 kHz for the 39 GHz Signal, 132 kHz for the doubled 78 GHz signal and finally 198 kHz for the third harmonic on 117 GHz.

For our 78 GHz QSO, one of our FT-817 IFs on two metres was simply tuned 132 kHz higher (or lower for LSB) in frequency. So, with one IF rig running a CW 'ident' on 144.150 MHz, the other IF rig was tuned to 144.282 MHz where the second harmonic 78 GHz signal should be. Logically, this also means that an IF to IF contact is **not** possible!

Interestingly, this frequency difference is an advantageous situation because if I had used GPS locking on both transverters... there would have been zero frequency offset/error. For this scenario, a 39 GHz contact (strongest signal) or worse, an IF to IF contact would have been unavoidable.

The 'multiplication' technique I have used means that the fundamental 39/40 GHz 'pump' signal is also radiated. There is an obvious benefit here.

Being much louder than the desirable second harmonic, this 39/40 GHz signal can be used for initial dish alignment/sighting and then we tune up the band to the desired second or third harmonic for 78/122 GHz, defined by the TCXO differences between the transverters.



Figure 6: The several homebrew harmonic mixers.

For shorter close in distances when testing the gear in the field, using the 39/40 GHz signal is not really necessary because the 78/122 GHz signals are so much stronger - closer in. However, over the longer distances, this technique of initially optimising our dish pointing using the stronger 39/40 GHz injection signal worked **very** well for us.

After the success we had on 78 GHz, I started looking at the possibilities for 122 GHz.

Since there is no frequency limiting waveguide used in my transverter design, both bands - 78 GHz (39.0 GHz x 2) and 122 GHz (40.6 GHz x 3) are potentially achievable with one transverter by simply changing the 13 GHz oscillator frequency. This is easily done by setting the DIPs switches. There was one proviso - would the 14 GHz antiphase diodes generate enough third harmonic RF on circa 122 GHz?

In VK, the 122 GHz allocation has a lower band edge of 122.250 GHz. To achieve this, the multiplier needs to deliver 40.75 GHz to the antiphase diodes. This frequency is towards the upper performance limit of the CMA382400AUP multiplier. So, I decided to use a 435.15 MHz IF which pulls the 'drive' frequency down to a more efficient operating point of 40.605 GHz. This equates to 13.535 GHz from the brick.

Bench testing with my homebrew harmonic mixers on the spectrum analyser showed I had a 122.25015 GHz signal but it was quite weak.

I had also found the CTR960459102R01 X3 multiplier performed better delivering more RF at the higher end at 40.6 GHz than the CMA382400AUP multiplier. It also needs less RF drive than the CMA unit. Swapping the CTR unit in, I found a noticeable improvement in the 122 GHz signal strength.

In further testing on 122 GHz, I found that altering the DC bias (for RX optimisation) on the TX unit delivered a slight improvement in the RX signal strength on the other

unit. I'm not entirely sure why this bias was necessary. Normally, it would seem to indicate that I am suffering from insufficient drive at 40.6 GHz. This still needs further investigation.

My initial observations on 122 GHz were the faster frequency drift due thermal changes affecting the TCXOs. IF signal 'wobbling' (quiver) on the audible tone was also much more noticeable on this third harmonic signal. I was able to reduce the frequency drift somewhat by fitting a 'heater' and more insulation around the TCXOs.

The signal 'wobbling' is an interesting phenomenon. On the test bench, once the TCXOs are up to 'internal' temperature and therefore relatively 'stable', the 'wobbling' of a GPS locked IF signal (435.15 MHz CW carrier) from the TX unit is quite noticeable on the third harmonic of 122 GHz. It gets even more noticeable when I tuned up to the fourth harmonic of 162 GHz. Not surprisingly, I could not find a signal at the fifth harmonic of 203 GHz.

The first ever VK 122 GHz QSO was conducted over a 1.5 kilometre suburban path. Signal reports were 5+1 both ways with some QSB.

So there you have it - a description of the techniques I used to develop one transverter that will cover both 78 GHz and the 122 GHz Bands.

In concluding this article - I hope the contents inspire a few of you to have a go with homebrew 78/122 GHz gear!

Cheers.

Acknowledgements

- 1 Kerry Banke N6IZW, San Diego Microwave Group for his technical article 'A Simple Harmonic Mixer/Antenna Feed for 47 and 76 GHz Experiments'. For more information, check out this website: <http://www.ham-radio.com/sbms/sd>
- 2 Will Jensby W0EOM for supplying the 39/40 GHz multipliers.

Amateur Radio Specialist

Look forward to hearing from you



AMATEUR TRANSCIVER RADIO CENTRE

Australia's largest stockist
of Amateur Equipment

We supply these famous brands

- ALINCO • ICOM* • KENWOOD* • LDG*
- YAESU* • DIAMOND* • BUTTERNUT*
- DAIWA* • PALSTAR* • ALPHA DELTA*
- VERTEX STANDARD* • TARHEEL*
- CUSHCRAFT* • GAP*
- RADIOWAVZ* • HUSTLER*
- SUPER ANTENNAS*
- MOSLEY* • HEIL SOUND
- SGC • STARTEK*
- COMMANDER AMPLIFIERS*
- M2 ANTENNA SYSTEMS
- HI-Q-ANTENNAS* • TGM*
- COMET* • UNIDEN*
- SPIDERBEAM* • AVAIR*
- MALDOL* • AUTOTENA*
- PALOMAR AMPLIFIERS*
- BUCKMASTER*
- BUXCOMM* • ZCG SCALAR*
- SYNCRO* • MOBILE ONE*
- OUTBACKER* • BENELEC*
- RF INDUSTRIES* • CRE-ATE* • HEAR IT* • RF PARTS*
- N2VZ ENTERPRISES*
- RM ELECTRONICS*
- CHAMELEON ANTENNAS*



*Only equipment purchased from an authorised dealer carries the full manufacturer's warranty.

We have DJ-X11
(02) 9896 2545
www.atrc.com.au

Check out our Hot Specials
Level 2, 141 Gilba Road
Girraween NSW 2145

inquiries@atrc.com.au

Ask what we can do for you,
Les VK2MPZ

We Ship Anywhere

The vee beam antenna

Rob Norman VK5SW

If you are lucky enough to have the room, perhaps you may like to put up a multiband vee beam antenna for the HF bands. The dimensions of this antenna were provided by Nick VE3OWV. Each leg is 91.44 m (300 feet) in length. I used galvanised fencing wire with the ends spaced 51.82 m (170 feet) apart. This is an unterminated vee beam which can be used as a bi-directional antenna. If each end is connected to earth through a 600 ohm non inductive resistor the antenna is called a terminated Vee Beam and the front to back ratio approaches about three S points. Even so the gain is slightly less than the unterminated type. The layout of the antenna and a radiation pattern of an unterminated vee beam are shown in Figures 1 and 2.

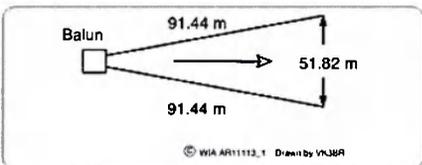


Figure 1: The layout of the vee beam.

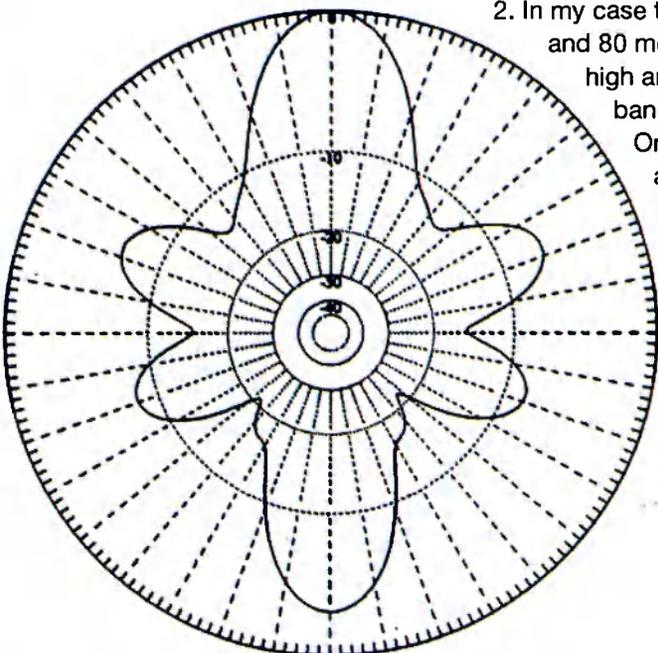


Figure 2: The radiation pattern of an unterminated vee beam.

For ease of construction, I sloped the antenna because of the height of the trees. The trees here are not very high so the antenna runs from about 8.5 metres to 1.5 metres in height. The direction in which the antenna runs must be carefully considered as it has a narrow beamwidth, especially on the higher bands. If the ends are not terminated but left open, the SWR is higher across the HF bands and an external tuner and tuned feeders may be needed to match it to the transmitter. The feedpoint impedance is about 600 ohms, so I used a 600 to 50 ohm balun (12 to 1) at the feedpoint and ran 50 ohm coax to the radio.

The tree in which the feedpoint is located is shown in Photo 1, and the 600 ohm (12 to 1) balun is shown in Photo 2. In my case the SWR on the 40 and 80 metre bands is very high and on the 30 metre band is about 4 to 1. On the 20, 17, 15, 12 and 10 metre bands the SWR of the antenna is about 2 to 1 or less and the inbuilt antenna tuner of my transceiver, an Icom IC-7600, is able to match it to the radio.

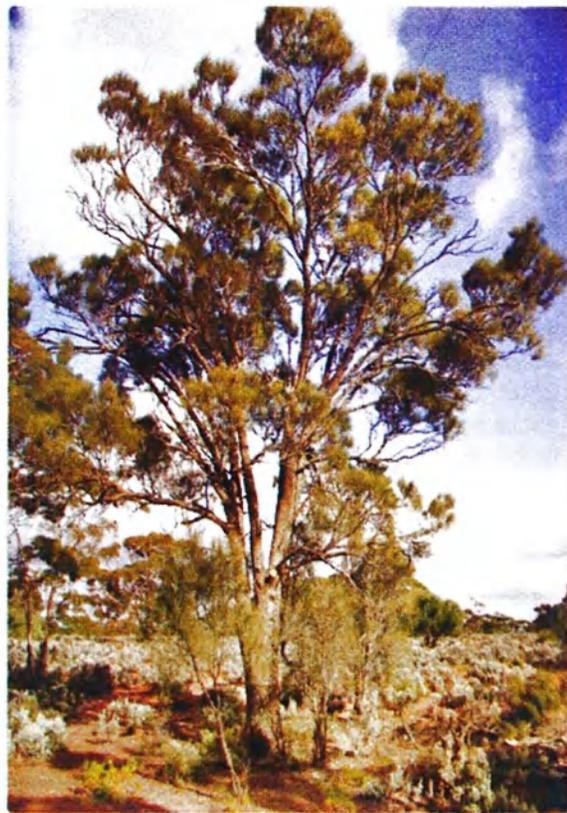


Photo 1: The vee beam feedpoint, shown from a distance.



Photo 2: A close up of the vee beam feedpoint.



Photo 3: One of the antenna support poles.



Photo 4: The second of the antenna support poles.

Even though the SWR of the antenna on the lower bands is very high, the internal ATU of the IC-7600 is still able to match it to the radio so operation on all HF bands is possible here. This may not be the case with some other radios though. For instance, my other radio, a Yaesu FT-450 with an inbuilt ATU is not able to match the antenna on the three lower bands.

As the frequency of transmission is increased the effective length of the antenna is also increased giving better performance. Construction of the antenna is straight forward. Of course the higher in the air you can get the wire the better. If you have the room it would be well worth your while giving an antenna like this a go.



Photo 5: And – the other end of the antenna wire supported by a short pole.



Photo 6: One end of the antenna wire supported by a tree.

COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$265
20 m confined space beam 3 el.	\$481
20 m 5 el. Yagi 12.2 m 1 boom	\$995
M B vert 6, 10, 12, 15, 17, 20, 30, 40 and 80 m Auto switch between bands	\$436
40 m lin load 2 el. cap hats	\$705
6 m 5 el. beam	\$326
23 cm 36 el. 2 m 1 boom n-con	\$249
70 cm hi/gain Yagi 3 m boom	\$170
2 m 10 el. hi/gain Yagi beam	\$207
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$330
Log-periodic 7 el. 7.6 m boom	\$949
Tri band 10/15/20 5 el.	\$860
M.B. Vert 10 to 80 m 5 bands	\$370

Guyed masts 13 or 21 metres

Winch up, tilt-over, aluminium and stainless steel three sided construction. Auto brake winches.

115 John Street
Glenroy VIC 3046

Phone
0419 542 437

Fatal foil

Steve Mahony VK5AIM

The Brown family of Mother, Father and two teenage boys decided to transform their garage into a rumpus room. A place where the boys and their friends could enjoy themselves and not mess up the house: The garage was ideal for this project. It was an extension of the house. With a brick wall on the house side, a brick wall on the outside, a brick wall at the back with a window and a door. A roller door faced the street. The roof was a continuation of the house roof to the guttering. It was agreed that the renovations would be a family job to all. The two boys were big enough to assist their father with the work. With a clean out of the car and garden junk all was ready.

The concrete floor was cleaned and given a coat of sealant. Next a wooden frame was tilted to take a ceiling. Insulation could be fitted later to help to keep the room cool. An electrical contractor friend agreed to fit another power circuit along with extra lights. The boys could do all the hard climbing work and he would do the final connections. With the electrical wiring in place, but not connected up, the foil insulation was stapled to the underside of the ceiling frames. There was much fun and carry on doing this. Holding the foil up with brooms while one of the boys stapled it in place. The whole family were involved. The next job was to fix the plaster board ceiling sheets in place. It was quite a job; it took them two whole weekends. Another weekend was required to paint the brick walls, a light colour, and the ceiling pale blue. Mum said the boys got more paint on themselves than the walls and ceiling. With the two power points connected up and two fluoro lights installed the rumpus room looked good. Mother made some curtains with a boys theme on them for the back window. She even acquired

some large curtains to cover the roller door on the inside to stop the heat being reradiated off the metal door. It could be pulled back and the door opened if required.

With an old fridge, some chairs and an old lounge along with a table tennis table it was a proper boy's room. Its completion was celebrated with a party with friends.

The room was constantly used. During the winter the boys and friends were hardly out of it. A portable gas powered heater made it quite cosy. It was getting close to Christmas and the boys and friends decided to dress the room up for Christmas. Festoon lights were bought along with fancy decorations. A small Christmas tree was purchased and set up in the corner.

It was decided to fit small toggle type eye bolts in each corner to support the decorations. With the aid of an aluminium step ladder and a battery drill holes were drilled in the ceiling and the toggle bolts installed. It was at the third toggle that things went wrong.

The hole was drilled by the oldest lad standing on the step ladder. He inserted the toggle bolt, pulled on it to expand the toggles, let out an unholy scream and fell off the ladder to the floor. All of the helpers rushed over to him. He had stopped breathing. One of the helpers immediately commenced mouth to mouth resuscitation and CPR but it was to no avail, he was dead. The helpers were shocked.

Dad immediately called the ambulance and police, who arrived in minutes. Meanwhile someone had opened the roller door for easy access. A medical examiner pronounced him dead. After every one had calmed down and made statements to the police Dad called his friend the electrician and asked if he could come over immediately. This he did. He found that the toggle bolt was alive with 240 volts mains.

At the coroners inquest it was found that the lad had been electrocuted. How and why the toggle bolt had become electrified was to be investigated. It happened in the following way.

When the power cable had been clipped along the side of the ceiling woodwork, as it neared the outside wall it had been allowed to run level with the lower edge of the wooden beam- not up about one to two cm from its lower edge as required. When the foil insulation had been clipped up with the staples, one staple, just one, had only gone into the wood with one leg, the other had missed the wood and gone up the side of the wood, penetrating the TNS electrical wiring. It had penetrated the active or live conductor plastic insulation but not made contact with the wire conductor at the time. By pure chance the cable had been laid with its active wire, the red wire, at the lower edge. If it had been the other way up the staple would have penetrated the neutral conductor, the black wire, and would not have been lethal. The staple leg had not made electrical contact at the time of insertion but with vibration and small building movements had made connection some time later, making that strip of foil insulation live. Contact across the foil strips must have been poor because the other toggle bolts, which had also gone through the foil insulation, would also have become live.

The coroner made the recommendation that all foil insulation should be fastened to the underside of the roof supports well away from any electrical wiring. Even placing the foil insulation on top of the ceiling beams could be hazardous as it is close to the electrical wiring. If contact could be made with conductors that have become bare or exposed, the foil would become lethal.

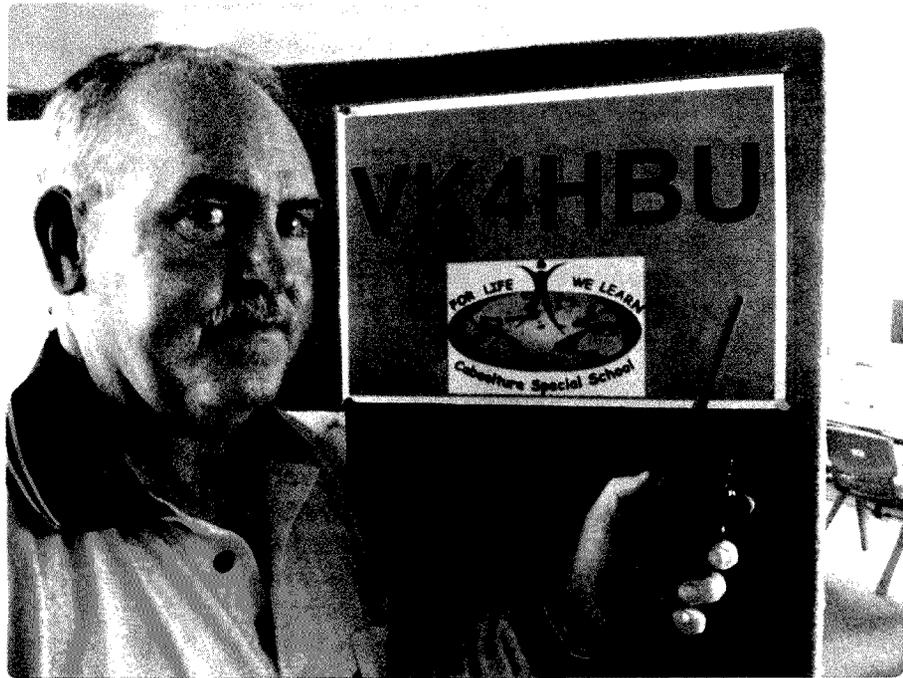
Why an amateur radio club station... in your school?

Peter Allen VK4HOY

An amateur radio club station is a vital vocational learning infrastructure that should be accessible by students at all schools throughout the world. Amateur radio has been a global learning and experimental platform for over 100 years, yet remains relevant in every sense in the 21st century. It is part of our world's leading edge, over the horizon space and spatial communications and information technologies that we use every day. The platform of global learning and experimentation is one of the key features that underlies our rapid advances in science research and technology application that has embodied humans as a highly connected species that has developed by the technologies of wireless communication - radio.

To imagine, dream, think and realise that hundreds of school students from around the world have directly spoken to astronauts by wireless communication - radio - on board the Earth orbiting International Space Station (ISS) on the station's own amateur radio station NA1SS is the reality of the 20th and 21st centuries. The largest engineering project in the history of the planet can be linked directly to individual students and their learning from all disciplines and interests.

At Caboolture Special School we took the challenge and established our very own amateur radio club station - VK4HBU. Our club is an affiliate of the Wireless Institute of Australia and is strongly supported by the many members of the Redcliffe and District Radio Club, the Caboolture Amateur Radio Club and the Sunshine Coast Amateur



Mark Pedersen VK4FMJP, a Teacher's Aide at Caboolture Special School, ready to operate the Club station using a handheld transceiver.

Radio Club. The students at our school have had access to not only school owned equipment but the opportunity to use this equipment to learn and develop safety skills, technical skills and vocational skills including skills in literacy, numeracy and communication. Team and social skills learning brings the group together and creates wellbeing and a strong sense of community for our students and our staff.

If your school setting builds and accesses the infrastructure of an amateur radio club station then you are providing the single best global learning and experimental platform that is affordable and sustainable under the most extreme and varied conditions. Amateur radio utilises the internet's capacity as its own, but is not tied to its cost, speed or reliability. The amateur radio station

can stand alone and be vital in times of natural or human evoked disasters.

The individual and community capacity combined in an amateur radio station provides an engaging, enthralling, interesting, mystifying and challenging vocational and technical learning opportunity that every educational institution should own and cherish, for the benefit of their students. So take to the task and build your school's amateur radio club station. We did and it's great!

Peter Allen VK4HOY is the Vocational Technical Education Co-ordinator at the Caboolture Special School's amateur radio club station, VK4HBU.

An ESR meter for electrolytic capacitors

Jim Tregellas VK5JST

I recently had to repair the favourite radio of VK5YL (my wife), which is an Icom IC-751A, and after much fooling about, finally discovered the problem. This was a shorted 100 μ F electrolytic in the main supply line of the VCOs. Point was that my fancy digital ESR checker did not find this faulty electrolytic, simply indicating it as OK with a very low ESR. Shorted electros are not that uncommon, and the meter described in this article will find them, and so if you have a dead transceiver, internet modem, computer motherboard, or anything else which uses electrolytic capacitors, then this is the meter to build. It is an accurate and cheap instrument that handles the complete range of electrolytic capacitors normally found in consumer equipment, which is from 1 μ F upwards.

What is ESR?

ESR is short for 'equivalent series resistance'. As the label implies, it is a resistance placed into the electrical 'equivalent circuit' of a practical capacitor to represent its losses. The ESR principally represents losses which occur in the dielectric material and in the resistance of the leads and plates.

ESR and electrolytic capacitors

Talk to anyone in the service area of electronics and you will discover that aside from idiot consumers, the majority of problems in modern equipment are caused by faulty electrolytic capacitors. There are a number of reasons for this, with cost pressures and miniaturisation being major factors. Both of these limit the amount of aluminium which is, or can be put into the can, which in turn seriously limits life because electrolytic capacitors rely for their operation on what is essentially an

electroplating action where one plate ultimately vanishes. The second driving factor is the increasing use of switch mode circuitry in consumer equipment to reduce weight and increase efficiency, in which ever higher ripple currents are used. These currents in combination with the series loss resistance of the capacitor generate heat, raising the internal temperature of the capacitor above that of the ambient.

As any chemist will tell you, there is a basic law in chemistry which says that the rate of a chemical reaction about doubles for each 10 degree Celsius rise in temperature, and so it is not surprising that these miniature capacitors, pushed ever harder in already hot environments, fail quickly. Put another way, this means that the life of an electrolytic capacitor will about roughly halve for each 10 C temperature rise, all other things being equal. In fact the design life for common electrolytics in domestic use is around 2000 hours at their maximum allowed operating temperature (either 105 or 80 degrees C). As there are just 8760 hours in a year, this is a three month life at maximum ratings! Moral - keep electronic equipment

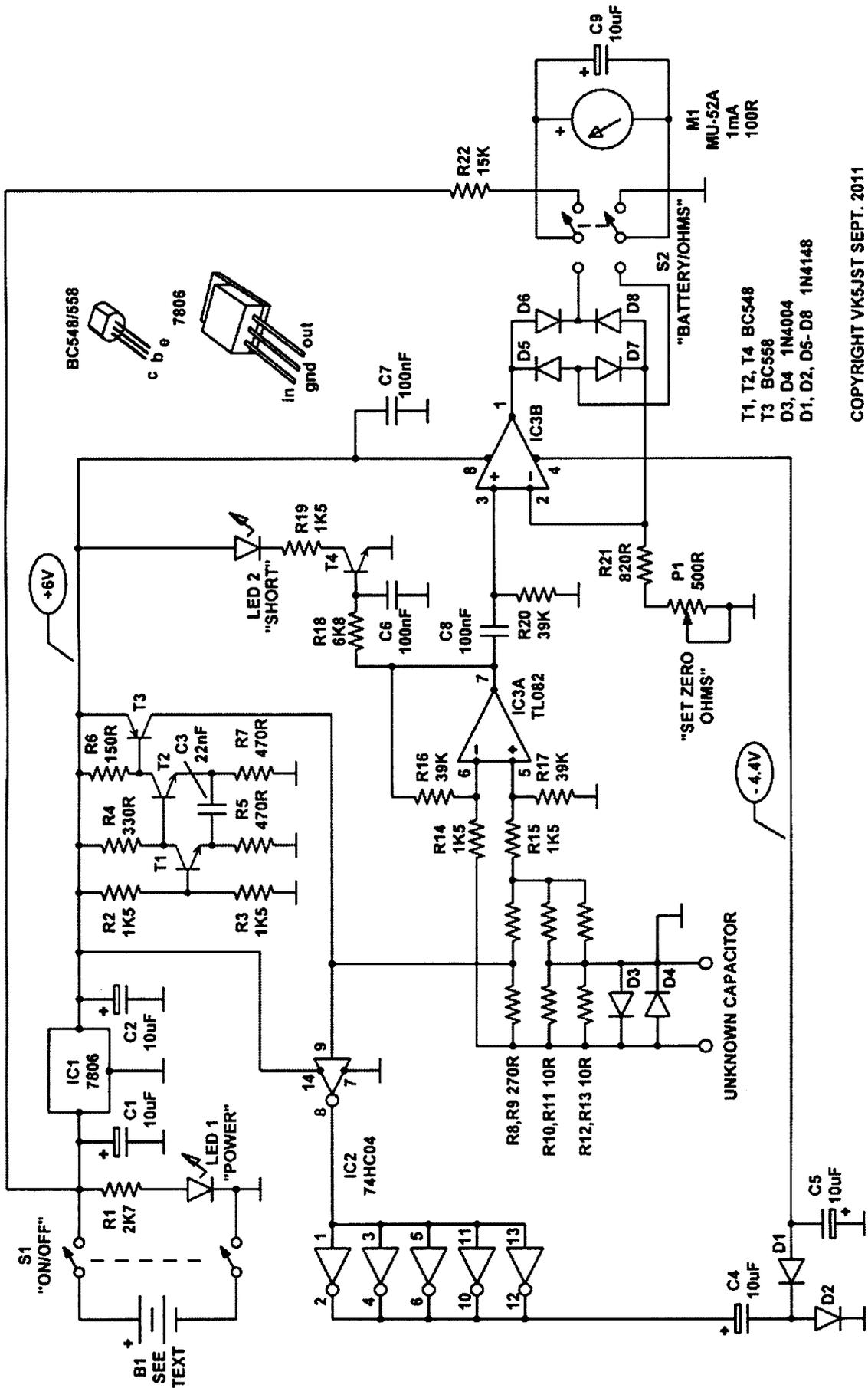
cool and underrate the components. As a last comment, this same law applies to semiconductors and should be not be forgotten by those who think overclocking their computer motherboard is clever.

Anyway, the results of all these engineering design pressures are easy to see. Have a look at any modern piece of electronics and there are often obvious visual clues of faulty capacitors. Computer motherboards with their very high on board power supply ripple currents are a case in point, and anything over 12 months old in 12 hour/day usage is likely to exhibit one of the following increasingly serious symptoms:

(a) top of the can bulging,



Photo 1: The completed ESR meter.



- T1, T2, T4 BC548
- T3 BC558
- D3, D4 1N4004
- D1, D2, D5- D8 1N4148

COPYRIGHT VK5JST SEPT. 2011

ESR TESTER CIRCUIT DIAGRAM

COPYRIGHT VK5JST SEPT. 2011

Figure 1: ESR tester circuit diagram.

- (b) top of the can bulging and the centre of the explosion safety punching cracked open with leaking electrolyte emerging, or
- (c) explosion safety punching completely open.

These are obvious visual indications of thermal runaway. The high ripple current used raises the temperature significantly, which in turn causes the capacitor to rapidly reach end of life where the ESR rises, causing ever greater internal temperature rises, and so on. Finally the enormous gas pressures generated inside the can open the explosion safety punching in the can top. The electrolyte vanishes, the capacitor goes 'dry', the capacitance falls, and the ESR rockets upwards. Ripple voltages increase dramatically, and semiconductors hanging off the supply line may fail through over-voltage.

These visual clues disappear if the capacitors are used fairly conservatively, but the ESR still ultimately goes through the roof at end of life, and this is where ESR meters are really useful.

To summarise, all this means that anyone servicing a piece of gear is not looking for changes in ESR of a few per cent, but for big changes of at least several hundred per cent. This should be kept clearly in mind when searching for faults.

Typical ESRs

And now we enter a jungle, because manufacturers are singularly reticent about publishing this most important piece of data. Probably the best advice is to use relative comparisons on any piece of electronics. Tucked away somewhere on the printed circuit board will usually be at least one electrolytic which is seriously underrated and which has survived in near new state, and thus can be used as a standard against which all the other capacitors on the board made by the same manufacturer can be checked. Another rule of thumb used by the service industry is that any physically small low

value electrolytic in the range 1 to 10 μF with an ESR under three ohms is probably OK. But you still need somewhere to start and the table included in the front panel drawing of the meter gives typical values. Bear in mind that the quality of capacitor in a particular case size can vary by several hundred per cent from manufacturer to manufacturer, so this table is not written in stone. A good guide to the quality of a capacitor in a particular case size is its weight. Heavy capacitors generally have a long life because there is a lot of aluminium inside. The ESR is also generally lower than normal because they are made for high ripple currents and there is excellent mechanical contact from the outside world to the large plates. You get what you pay for...

This table is the result of many measurements on hundreds of miniature domestic grade electrolytics in my junk box. It is for modern capacitors with working voltages between 6.3 and 63 volts and capacitances of 1 μF upwards. Use it as a guide until you develop a feel for what is right in a particular piece of equipment. It is also worth noting that ESR generally rises as working voltage increases. For 400 and 500 volt capacitors these figures can probably be multiplied by two.

How it works

The principle behind most ESR meters is that the test frequency applied to the test circuit should be so high that the capacitor under test does not have time to charge significantly during a half cycle of the test waveform.

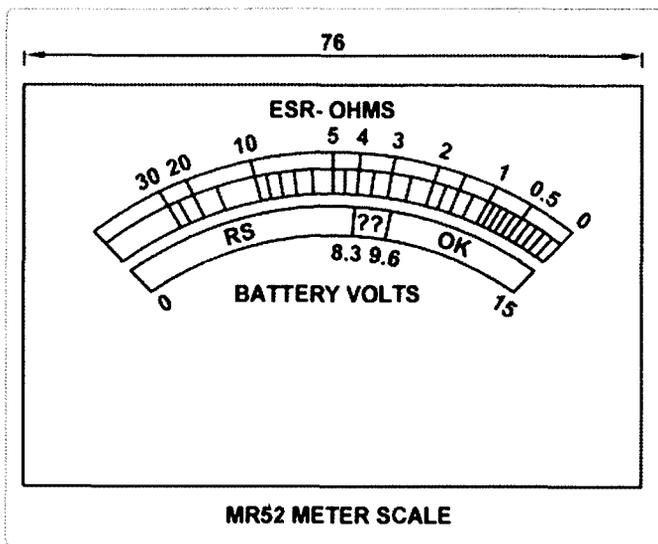


Figure 2: ESR meter scale graphics to suit MR52 meter.

Another way of putting this is that the reactance of the capacitor under test should closely approach zero, so that the only ac voltage which appears across it is due to the current which flows through its series loss resistance. This voltage is then used to drive a meter calibrated in ohms of ESR. In this circuit, the test frequency used is 100 kHz, which is unusually high and allows accurate testing of capacitors as small as 1 μF .

So circuit operation starts from a 100 kHz clock oscillator (T1 and T2) which drives T3, a saturated mode switch, to produce a square wave swinging from 0 to 6 volts at T3 collector. This square wave drives a power supply circuit to create a -4.4 volt supply for IC3. The supply consists of a 74HC04 hex inverter, D1 and D2, and C4 and C5. The 74HC04 provides a 0-6 volt voltage swing and large current sink and source capabilities to drive the rectifier system.

T3 also drives a Wheatstone bridge with 270 Ω upper arms and 5 Ω lower arms. Because a regulated 0-6 volt drive is applied to the top of the bridge, a square wave swinging from 0-110 millivolts exists across each 5 Ω resistor in the bridge when nothing is connected to the test terminals. This very small test voltage means that (a) the

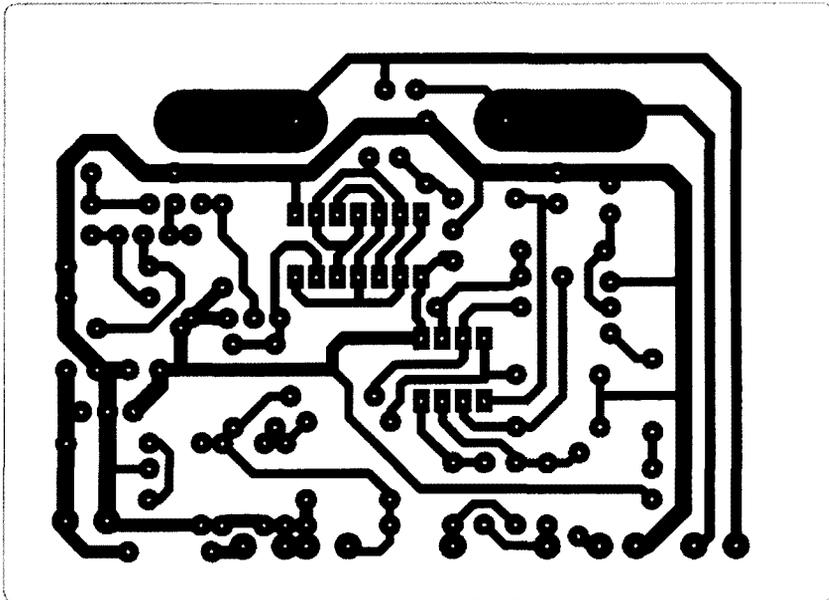


Figure 4: Printed circuit board artwork for the ESR meter.

polarity of the electrolytic does not matter when it is connected to the instrument and (b) the ESR meter can be used for accurate in circuit testing of capacitors because no semiconductor junctions will be turned on.

So with nothing connected to the test terminals, the bridge will be in balance and the 110 mV voltage swings applied to the inverting and non-inverting op amp input terminals (IC3A) via R14 and R15 will be the same. When these input voltages are added together by this differential amplifier, they cancel out with the result that the amplifier output sits at zero volts. As there is no ac input to the precision rectifier circuit (IC3B) via the ac coupling circuit C8 and R20, the meter will read zero (infinite resistance). As there is no dc applied to the base of T4 via the integrating circuit R18 and C6, LED 2 remains off.

If we now connect a perfect capacitor to the test terminals (zero reactance, and zero ESR), there will be a perfect ac short circuit across R10 and R12. The current which flows through these resistors normally produces a 0-110 mV swing across them, and so the capacitor will charge to the average value of these two levels which is 55 mV dc. The other side of the

bridge will continue to supply 0-110 millivolts to the amplifier. So we have 0-110 millivolts ac (average dc level 55 mV) applied to the non-inverting terminal of the amplifier, and 55 millivolts dc applied to the inverting terminal. The bridge is thus in dc balance, but out of balance for ac. As IC3A has a gain of 26, the result of this is a swing of 2.8 volts peak to peak at the output of IC3A, swinging symmetrically around zero volts. This ac voltage is passed to the precision rectifier to deflect the meter to full scale (zero ohms) but note that if we integrate this swinging voltage over time with R18 and C6 (a low pass filter) the result is an average voltage of zero volts, so T4 and LED 2 stay off.

With a practical capacitor which has loss, a small ac voltage will develop across its ESR and this ac voltage will be subtracted from the 110 mV swing at the other bridge output terminal, leading to a reading on the meter of less than full scale deflection.

Now if the capacitor being tested is a short circuit, one arm of the bridge will be completely shorted to ground and the bridge is thus unbalanced in both an ac and dc sense. The only input to IC3A is a 0-110 millivolt swing (55mV average) from the right hand side of the bridge, and when this is

amplified, the result will be a swing at the output of IC3A of 0-2.8 volts dc. This is the same ac swing which occurs with the perfect capacitor but this time with a dc offset. So the meter still shows full scale (zero ohms) due to the ac component, but this time the dc offset (1.4 volts average) turns on T4 and LED 2 indicating a short circuit.

And that is it. In summary, unless the capacitor is shorted, only the ESR is displayed. With a short circuited capacitor or a low value resistor connected to the test terminals, the 'short' led turns on, and in the case of a resistor, the resistance is displayed.

Building the unit

Start with the case. Mark out where to drill on the BACK of the UB1 box (used as the front panel) by accurately pricking through a photocopy of the front panel drawing at the hole centres. Now drill small pilot holes, say 1.5 mm, and then open out all holes to suit your potentiometer, LEDs and switches. Drill slowly and gently and clamp firmly, as the plastic used in these boxes is famous for 'grabbing' and tearing the box out of whatever is holding it. Grinding the leading edges of your drill so that they have zero rake angle makes drilling these sorts of plastics safe.

Prepare and apply your front panel label which is cut out of another photocopy of the front panel drawing. (Use 150-200 gsm paper for this copying.). Cut around the label edges, and laminate it for long life. With the point of a very sharp knife exactly cut out the two 5 mm holes for the LEDs. Use these holes and a couple of 5 mm LEDs placed into the case holes to guide the label into position when you stick it to the case with double sided adhesive tape. Once the label is stuck down, use the sharp point of your hobby knife to cut the remaining holes in the label using the case holes as a guide.

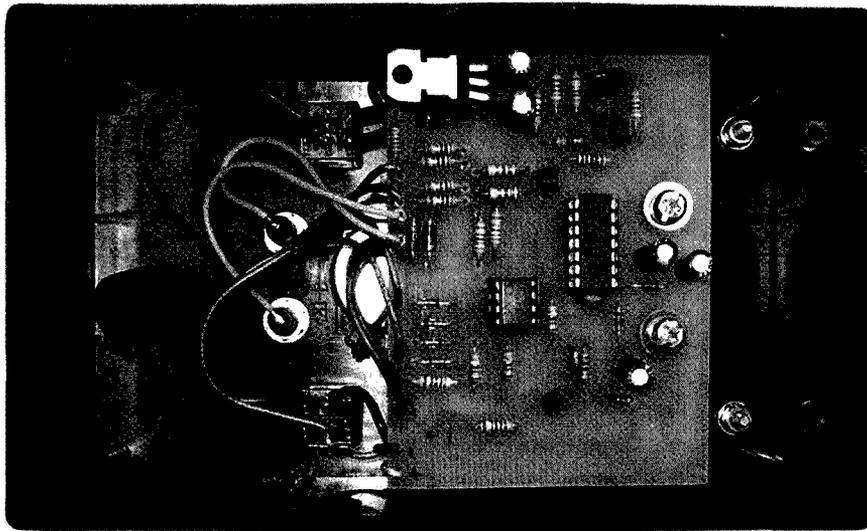


Photo 2: A view of the inside of the completed ESR meter prior to adding the batteries.

In a very clean environment, disassemble the meter. Remove the aluminium scale. Photocopy the meter pattern, cut around its borders, and stick it to the back of the scale with double sided tape. The double sided tape should be applied to the back of the scale and totally cover it. Align the top of the meter pattern exactly with the top of the aluminium scale. Trim up with a sharp knife and reassemble the meter. Now mount the meter, switches, potentiometer and terminals to complete all case work.

Make and drill the printed circuit board. The printed circuit pattern shown is an industry standard TOP view and generates a board with outside dimensions of 63.5 x 86.4 mm (2.5 x 3.4 inches). Assemble all components to the PCB using sockets for the ICs. Double check the polarity of all diodes and electrolytics. Solder 125 mm lengths of colour coded wire into the wiring holes along the board edge. Screw the PCB to the meter terminals and complete all wiring. Your tester is now finished.

Other meters

Other meters can be used and will make the instrument very cheap to put together if you have one lying about. Here are the modifications. For a 50 μ A movement change R21 to 15K, P1 to 10K and R22 to 300K

(150+150K). For a 100 μ A movement these values are respectively 8K2, 5K, and 150K, while for 200 μ A they are 3K9, 2K and 75K (2@150K in parallel). For a 500 μ A meter, use 1K5, 1K and 30K. (15+15K). Note that the printed circuit board has extended contact pads so that holes can be drilled to match your meter.

If you need to draw a new scale for the meter you select, the calibration line for a particular resistance R ohms occurs at an angle given by $45 + ((990R)/(11R+54))$ degrees (Cartesian coordinates). Zero ohms occurs at 45 degrees and infinity at 135 degrees. This data is useful in a package such as AutoCad.

Batteries

A worst case 7806 regulator needs at least 8.3 volts of input to operate correctly. Possible power sources include plug packs with an output voltage in the range 9-15 volts, 6 @ AA or AAA zinc carbon 'cheapies' which will give $6 \times 1.8 \text{ volts} = 10.8 \text{ volts}$ when new and nine volts near end of life, and 8 @ 1.2 volt rechargeables which will give $8 \times 1.5 \text{ volts} = 12 \text{ volts}$ shortly after a recharge, and 9.6 volts under normal conditions. Take your pick. Normal instrument current drain is 50 mA, which means you get eight hours life out of cheap AA 400 mAh zinc carbon cells, and a lot more out of high capacity rechargeables.

ESR Meter - Parts list

Resistors (all 0.25 W 5%)

- 4 @ 10R
- 1 @ 150R
- 2 @ 270R
- 1 @ 330R
- 2 @ 470R
- 1 @ 820R
- 5 @ 1K5
- 1 @ 2K7
- 1 @ 6K8
- 1 @ 15K
- 3 @ 39K

Pots

- 1 @ 500R linear 24 mm diameter with knob

Capacitors

- 5 @ 10 μ F 16 VW PCB mtg Al. electros.
- 3 @ 100 nF (0.1 μ F) 50 VW monolithic.
- 1 @ 22 nF (0.022 pF) 100 VW Greencap

Semiconductors

- 3 @ BC548 or equivalent
- 1 @ BC558 or equivalent
- 6 @ 1N4148 or equivalent
- 2 @ 1N4004 or equivalent
- 1 @ 7806 regulator
- 1 @ 74HC04
- 1 @ TL082 (or TL072)
- 2 @ 5 mm diameter 2000 mcd red LEDs

Switches

- 2 @ C&K 7201 DPDT or equiv.

Hardware

- 8 @ AA battery holder
- 1 @ MU52A 1 mA 100 ohm meter
- 1 @ meter scale
- 1 @ UB1 box
- 2 @ 4 mm test terminals
- 1 @ front panel label
- 1 @ printed circuit board

Finally

Good building. Save yourself dollars and save the environment by repairing/recycling with this instrument. Our 'cheap' throwaway electronics is eventually going to cost us and our children a real bundle.

Build your own ESR meter?

ESR Meter parts – complete parts kit, \$69.95 plus postage. Order on-line from Aztronics Pty Ltd, 170 Sturt Street, Adelaide, SA. 5000. Phone 08 8212 6212 or at www.aztronics.com.au PCB only, \$10.00 plus postage. Order on line from VK5JST, www.users.on.net/~endsodds

The RF Porta-Test – a portable tester for the radio experimenter

Peter Parker VK3YE



Photo 1: The completed Porta-Test.

The pocket multimeter is the most used piece of test equipment for people in electronics. It's small, cheap and measures many things, sometimes including frequency. Unfortunately they miss other common RF tests such as output power, field strength and transmission monitoring.

Different test equipment does different things, but inside there are similar shared stages, such as oscillators, amplifiers, detectors and meter movements. Build several in the one box and you have a multi-purpose instrument with some creative switching. And because the dearest parts are switches,

daunted by the switching should build function by function, connecting the switches in later.

Functions and circuit description

The RF Porta-Test has the following functions:

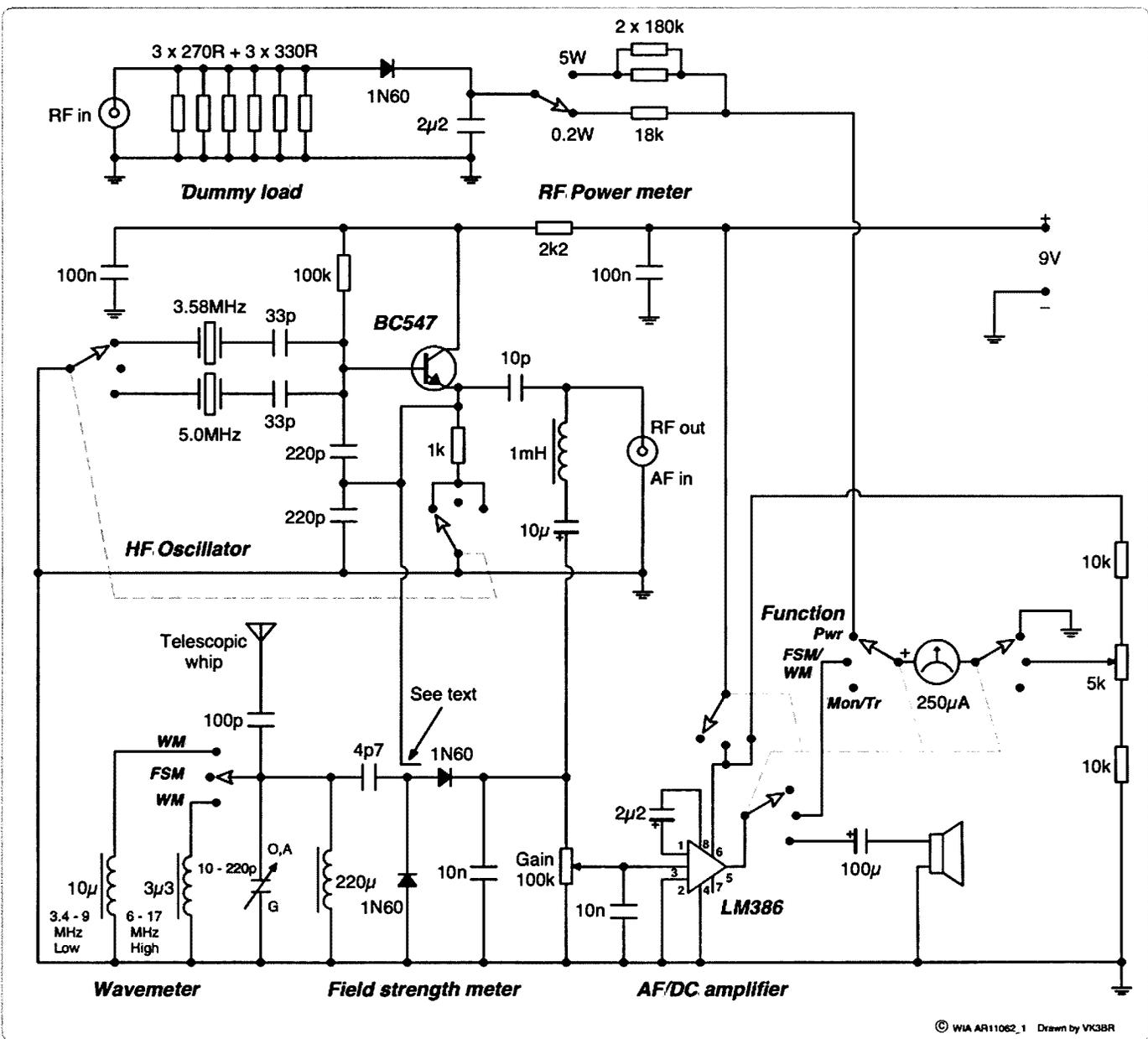
- RF power meter. RF is applied across a 50 ohm dummy load formed by parallel resistors. The AC voltage produced is rectified and fed to the meter movement via a dropping resistor. This resistor is set for 100% meter deflection at the desired maximum power range.

cases and meter movements, you get an instrument with eight or more functions for little more than the cost of one alone.

Designing this 'Swiss army knife' of RF instruments is sure to involve compromise, especially with a hand-held unit like this. However nothing like it is commercially available for the price and the numerous functions provide unbeatable convenience.

Construction is a snap for those who've made a few projects. Only common parts are used and substitutions are easy. Beginners

- Amplified field strength meter. RF power is sensed by the telescopic whip and rectified in a two-diode voltage doubler circuit. The resultant DC is amplified by an LM386 before being fed to the meter. This unit is broad band, responding to signals of all frequencies.
- Amplified absorption wavemeter. Works much like the field strength meter but has a tuned circuit, adjustable over 0.7 – 1.9 and 3.4 – 17 MHz so that it only responds to signals of a set frequency.
- Audio signal tracer. Again, it uses the LM386 but as an audio amplifier circuit. It is also handy as an accessory amplifier for projects.
- AM transmission monitor. Connecting the absorption wavemeter to the audio signal tracer forms a receiver suitable for testing AM transmitters on 160, 80, 40, 30 and 20 metres. It also picks up local AM broadcast stations and 160 metre AM operators within about 5 – 10 km.
- SSB/CW transmission monitor. This is similar to the AM transmission monitor but with a local oscillator to test amateur transmitters operating on 3.58, 7.16, 14.32 or 28.64 MHz.
- WWV receiver. When connected to a full-sized antenna the SSB/CW transmission monitor is sensitive enough to receive WWV on 5 MHz at night. Amateurs on 3.580 MHz can also be heard.
- Fixed frequency RF signal generator/band marker. Switchable 3.58 and 5 MHz crystal oscillator with harmonics allows testing of receivers on 3.58, 5, 7.16, 10, 10.74, 14.32, 15, 17.9, 20, 21.48, 25 or 28.64 MHz.



© WIA AR11062_1 Drawn by VK3BR

Figure 1: The Porta-Test circuit diagram.

Only a handful of parts are needed to perform all these functions. The most important are (i) an analogue meter movement, (ii) LM386 audio or DC amplifier, (iii) tuning capacitor and coils for the wavemeter, (iv) NPN transistor for the crystal oscillator and (v) resistors for the dummy load. In addition rotary and toggle switches allow these stages to be switched in or out as required.

Obtaining components

Only fairly common parts are used. Salvaging switches, the speaker, meter movement, telescopic aerial, knobs and case can halve the

cost. Germanium signal diodes are common in discarded radios and are identifiable by their clear glass cases with two bands near one end. Any type is suitable for this circuit.

Though they look like rotary switches in the circuit diagram, the switches in the HF oscillator and field strength meter/wavemeter stages are actually toggle switches with a centre off position. The 'neutral' position reduces wiring and saves panel space. A pair of standard double throw switches can be substituted for each switch if desired.

Any enclosure with a panel large enough for the speaker, meter

movement, switches and sockets will suffice. Don't go too thin, otherwise there won't be clearance for the telescopic whip, battery and circuitry. If in doubt use a bigger box to allow room for a proper tuning dial, larger meter or switches for more functions.

My meter movement is 250 µA but other values can be used with different series resistors for the power meter function. The series resistor values are calculated by determining the peak RF voltage needed for each range and using a value that provides full-scale deflection. More detail is provided in the panel.

Construction

The larger components are screwed or glued to the front panel. Some smaller parts are mounted point to point behind the front panel. This looks messy but provides for short leads – important for RF equipment. The LM386 stage, which operates at DC and audio frequencies only, is on its own small board mounted behind the speaker. Unclad perforated board is used here.

A good plan is to build and test one or two stages at a time as successful completion provides motivation to carry on. The RF power meter uses the fewest parts and can be built first. The RF-carrying parts, that is, the six dummy load resistors, diode and capacitor, should be mounted on the rear of the antenna socket to minimise lead length. You may wish to test this before wiring up the switch – temporarily connect the meter negative terminal to earth and the positive terminal to the power meter's two resistors.

Applying RF should make the meter move. Calibrate by applying various DC voltage across the dummy load, calculating what power each voltage represents, and noting the scale reading. Tape a calibration chart to the case if desired.

The field strength meter's front-end can be tackled next. Leave out both RF chokes, the variable capacitor and all circuitry to the right of the gain control. Temporarily connect the meter's positive terminal to the wiper of the gain control and set to maximum. Applying a few watts of RF near the meter should cause a deflection.

The RF choke in the field strength meter is not critical and you could use 1 mH if you have one at hand. However 220 μ H is preferred as it provides an extra wavemeter band, 0.7 – 1.9 MHz. This is useful for checking field strength and AM modulation quality on 160 metres. Local AM broadcast signals can also be heard if connected to an external antenna.

Construct the wavemeter portion by adding the variable capacitor. Set the trimmers on the back to minimum and bridge the oscillator and aerial tabs to place both sections in parallel and maximise capacitance. Add the switch and inductors, which are actually RF chokes available for about \$2 each.

With 7 MHz of RF applied near the antenna adjust the variable capacitor for peak meter reading. This should appear somewhere near the clockwise end on the low frequency range with the 10 μ H coil switched in and the anti-clockwise end for the high frequency range, with the 3.3 μ H coil switched in. Repeat for 3.5 MHz, the low range and 14 MHz, the high range.

Several compromises were made to simplify switching between the wavemeter and field strength meter. For example the tuning capacitor is permanently wired across the 220 μ H RF choke used for the field strength meter. This should be set clockwise (minimum capacitance) to minimise its effect. However even when this is done meter sensitivity will be low at upper HF and VHF frequencies. Add an extra toggle switch to isolate the unwanted wavemeter components if this is a problem.

Once happy with the non-powered parts of the meter, start building the LM386 stage. While this chip is most familiar in its use as an audio amplifier, its main use here is as a DC amplifier for the field strength and wavemeter functions. The LM386 and related parts are mounted on unclad perforated circuit board about 3 x 4 centimetres.

Connect this stage to the field strength meter/wavemeter circuitry and the meter movement – for testing there is no need to wire in the rotary switch yet but your connections should be based on it being in centre position. Connect a nine volt battery and watch the meter needle. If the circuit is operating correctly you will see it move when you adjust the 5 k

trimmer potentiometer. Set this potentiometer so that the meter is reading zero.

Repeat the field strength and wavemeter tests, with the gain potentiometer set to maximum initially. If all is well there will be an indication on the meter when RF is applied, with greater sensitivity now with the amplifier connected. Connecting the speaker, via its coupling capacitor, instead of the meter should allow 'duck talk' to be heard if testing on SSB. Also note the click or faint hum if you insert some wire into the AF input socket – this proves the signal tracer is working.

The final active part of the circuit is the switchable crystal oscillator. Its main use is for the SSB/CW transmitter monitor since it provides the beat frequency oscillator for what is effectively a direct conversion receiver. It also provides a useful signal source for testing receivers and calibrating the wavemeter. The switch, again a centre off unit, switches between 3.58 MHz, no signal, and 5 MHz.

Varying the capacitors in series with each crystal allow a slight frequency shift. The lower the value, the higher the frequency. Aligning to an exact frequency is useful for it to be a crude frequency standard or to allow effective reception of the WWV time signal on 5 MHz. Similarly the 3.579 MHz crystal could be tweaked to 3.580 MHz as this is a popular frequency at night. Values between about 22 and 100 pF are suggested, with a trimmer suggested for more precise adjustment.

The output from the crystal oscillator is fed to the wavemeter's diode detector. There is no direct electrical connection – instead it is coupled loosely through a few turns of insulated enamelled copper wire wrapped around the junction of the diodes. Optimise this later with a low-level SSB signal on 3.58 MHz.

A few millivolts of RF available from the same socket used for the signal tracer's audio input

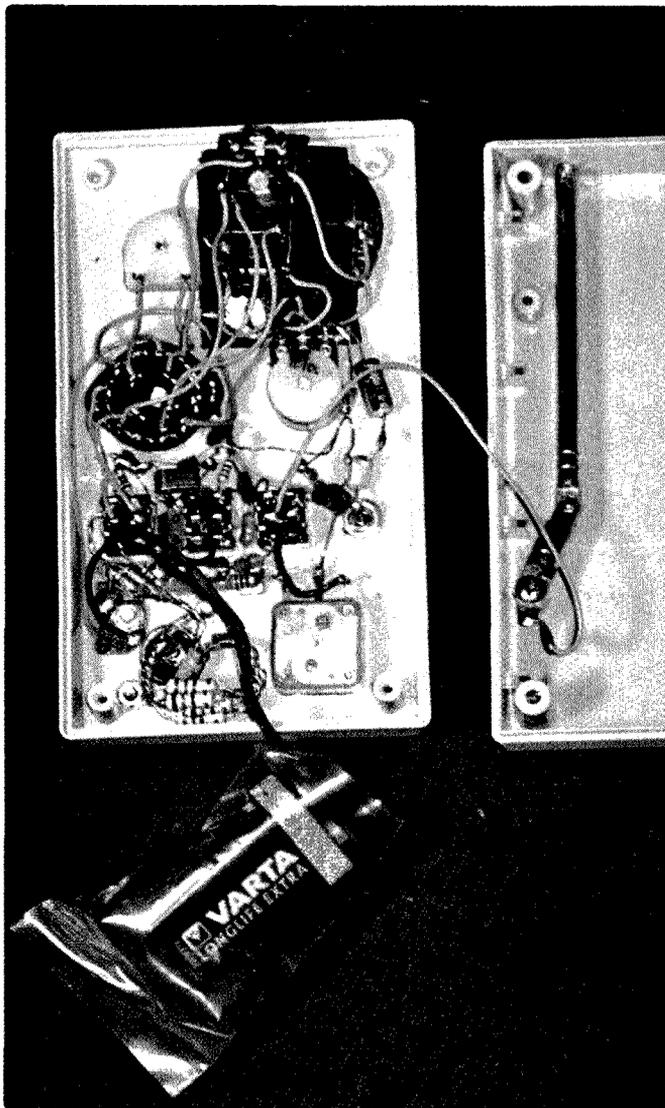


Photo 2: The Porta-Test, showing the internal construction arrangements.

is available to test or calibrate a receiver. An RF choke here blocks stray RF from entering the LM386 amplifier stage. HF outputs include 3.58, 5, 7.16, 10, 10.74, 14.32, 15, 17.9, 20, 21.48, 25, 25.06, 28.64 and 30 MHz. An unplanned benefit is that the RF oscillator helps calibrate the wavemeter as the meter needle swings when the wavemeter is adjusted near an oscillator frequency or harmonic. This helps identify the main amateur bands covered without need for a dial scale.

The wiring around the three position four pole rotary switch is the hardest part of the project. If done wrongly no function will work and there may be odd readings or sounds. Initially wire the power

meter only section of the switch, using the contacts that connect when the switch is in its clockwise-most position, and check this still works. Repeat for the field strength/wavemeter and monitor sections.

Ensure that the battery and LM386 circuit board are anchored out of harm's way and close the case. A small plastic bag over the battery can prevent shorting.

Use

The Porta-Test has many switches and controls for a small instrument. It takes a bit of getting used to as several interact for various functions. A separate on-off switch is not needed. Instead when not in

use switch to the RF power meter function and set the crystal oscillator switch to centre (off) position.

The RF power meter is the easiest – there are no controls apart from the rotary function switch.

For the field strength meter set the function switch to middle position, the FSM/WM switch to middle or neutral position and the tuning capacitor to minimum capacitance (clockwise). Switching the function switch to the monitor mode allows what's picked up to be heard on the speaker rather than displayed on the meter. The crystal oscillator should be off for this test. Stronger AM broadcast stations may be heard if an external antenna is connected and the tuning capacitor adjusted.

The wavemeter is similar to the field strength meter except one of the coils is selected and the variable capacitor adjusted for a peak reading. Again the monitor function allows reception of the AM signal. You can monitor SSB or CW signals on 3.580 MHz or harmonics by switching the oscillator to 3.58 MHz so it beats with the incoming signal. Connect a large outside antenna and you may be able to hear WWV through the monitor at night when the frequency is switched to 5 MHz and the wavemeter peaked accordingly.

The internal oscillator has other uses as well. It can be used to calibrate the wavemeter on 3.58 MHz, 5 MHz and harmonics. With both the wavemeter and oscillator on, look for meter deflection when tuning the wavemeter.

For the fixed frequency RF signal generator switch the function to RF power output to remove power from the un-needed LM386 stage. Selecting either 3.58 or 5 MHz activates the oscillator. For calibrating and testing receivers a small amount of oscillator output is available from the RF out/AF in socket.

Finally the AF signal tracer can be used with the function switch in monitor and all other functions off. But attach an external antenna and local AM broadcast stations will be audible if adjusting the tuning in field strength meter mode.

Conclusion

It's hard to know when to stop when developing projects like this. A dropping resistor and two sockets will provide a DC voltmeter function while a diode probe allows RF voltage measurements. Switching in the battery would permit resistance and continuity tests. Check crystals by adding a crystal socket on the front panel. More wavemeter coils broaden its range. And a larger dial and meter movement increases versatility but at the expense of size.

However, even as it stands this instrument is incredibly versatile. Build it and you'll never know how you coped without it!

Friedrichshafen 2012

Keith Bainbridge VK6RK



Photo 1: A view of the Main Trader's Hall at Messe Friedrichshafen, site of Ham Radio 2012.

One warm December night I was chatting on 2 metres with Andrew VK6IA, and the subject of his trip to Friedrichshafen as part of his Europe trip in 2011 came up.

"I'm thinking of going again" he said "and my dad Peter VK6PA wants to go as well, did I fancy joining them?" It was one of those moments when you lean back in the shack chair and shout to SWMBO (She who must be obeyed) "can I go to Germany with Andrew and his dad next June?"

I never thought for one minute the reply would be "if we can afford it and if you want to, that's OK with me".

Within minutes of picking the chair off the floor, all three of us had flights booked and hotel reservations made, strike while the iron is hot was the motto of the day!

We mentioned the trip to Stuie VK6LSB a few days later and after some deliberation he decided to join us as well. The only problem was it was now January and new fare structures had come in and his fare was going to be almost twice what we had paid for ours, so sadly he could not become the fourth musketeer.

Then you sort of forget about it for months, as 20 June 2012 is a long way away.

I happened to mention the trip to my long-time friend David G3UFO; now he had always wanted to go as well, especially as members of his local club WADARC (G4MGR) have been going every year for the past 20 years or so.

Next thing is he is also booked and travelling with seven members of the club (I was a member myself 25 years ago).

20 June 2012 came around and Andrew, Peter and I met at Perth airport to start the trek halfway across the world.

Perth/Singapore/Frankfurt/Friedrichshafen took a mammoth

28 hours of hard aircraft seats and absolutely no sleep until at 10 am local time we were in our rooms. Then showered, changed and we were off exploring the town of Friedrichshafen as it was Thursday and nothing happens till Friday!

After a few beers, a bite to eat and further exploring we decided we were dead on our feet and an early evening meal was on the cards before a good night's sleep and to the Neue Messe for a 9 am start. Well I am going for that meal now, more tomorrow. Good night.

Well it was an eventful night!! After eating, we decided to go to a bar on the Lakeside for a few drinks. Two beverages into the night the sky went black (remember this is Midsummers Day, the longest day of the year), the wind came up and the lightning started and in seconds every umbrella in the bar was blown down, tables turned over and the three of us hanging on to anything that was bolted down. The rain was torrential, so we paid our bill and ran the 400 metres to the hotel. Three drowned rats fell through the door, soaked to the skin, what a night.

I should also mention that Friedrichshafen is the home of the Zeppelin; they were first built there and we were lucky to see one every day flying over the lake, but not game to go in one I'm afraid, too expensive! There is an extensive museum in town dedicated to them. It is also the home of Dornier, the aircraft and now space engineering company which was the reason it was extensively bombed during WW2 and the town has a distinct "old but new" look to it.

Friday

Ham Radio 2012 proper started on the Friday morning with a free shuttle bus from outside the hotel door to the Messe. I was very impressed! It's HUGE!

I've been to many hamfests, radio rallies, etc. over the years both in the UK and here but this place is amazing. We were glad we had bought our tickets online before

coming as the queue was endless, even with advance tickets we queued about 15 minutes to get in.

One hall is filled with Commercial traders and the International Societies stands, literally hundreds of them. On passing the Italian Society stand we heard a cry of "VK6, Rare DX, come in" and a bottle of red wine was opened and glasses poured! It's 9:35 in the morning!

Many people came up to us today with a comment of "VK6 have you come all this way just for the show?" When we said "yes", the conversations were most interesting.

We met up with Phil Harman VK6APH who is giving a lecture on the latest developments in SDR technology on Saturday morning, and he had been ambushed by a group of LA amateurs and "forced" into drinking beer at 10 am!

More on Phil's lecture in tomorrow's notes.

I then met up with the guys from the Wirral club, WADARC, including my good friend David G3UFO and

others I have not seen in 25 years; compulsory pictures taken of course.

We had a chat with David K1ZZ boss of the ARRL, and with John De Voldere ON4UN and many others before spending the rest of the day going around the flea market which fill two massive halls, probably around 500 traders, I will try to find out exactly how many have attended. (NB: the fleamarket had 1000 tables and 337 traders making use of them, I never did find out how many were in the Traders and Society's Hall, but it would have been at least 100 exhibits!)

There is everything you could ever want radio wise in these halls and more.

I was looking for an amp for 10 GHz, at least 45 watts, but so far nothing in the flea market, maybe tomorrow, but I did get a four port antenna combiner for 2 metres for the princely sum of 40 Euros, that will save a lot of time and effort making one for the VK6RIO Indian Ocean beacon project.



Photo 2: The author with some friends from the Wirral and District Amateur Radio Club (UK). L-R: VK6RK, G6IIM, G3UVR, GWAOKT and G3UFO.



Photo 3: A view inside one of the flea market halls.

The Neue Messe itself is so clean and modern with many, many food outlets, restaurants, bars, toilets, creche! even a "cloakroom" where you can leave things safely while you carry on looking.

By 3:30 in the arvo we were shattered and ready for a rest, still two full days to go! So we walked out of the Messe and straight onto a shuttle bus back to the centre of the town and our hotel.

We are out to dinner with G3UFO and GW4OKT tonight, please no more storms!

Saturday

Saturday morning we were on the shuttle bus at 8:30 am, and at the Neue Messe for 8:50 and the queue was still huge to get in when the doors opened at 9 am.

We had a quick look around the Trade hall then headed off to listen

to Phil Harman's lecture, what a trek! It was at the other end of the centre and took 15 minutes of fast walking to get there; did I say this place was huge? As always, Phil's update on AGC in SDR radio was very interesting, followed by Kjell LA2NI updating us on the progress of the latest SDR tx/rx. Then it got a little heavy for the three of us as the next speaker started delving into the writing of the software so we slid away, only to bump into Ben VK6XC and his wife who were at the show as part of a European trip. So far we have only met one ZL and a VK3 whose callsign I forgot to write down but who had been part of VK9NA DXpedition recently (he was wearing the shirt to prove it!) *(That would most likely have been Alan VK3XPD. Ed.)*

We spent the rest of the day in the trade hall and a brief visit to the

flea market where I bought a ring feed for 2.4, 5.7 and 10 GHz, but I still couldn't find a 10 GHz amp®.

We had been told about the Palm Radio stand with their excellent travel keys by the Gs who had bought a couple, so we tracked the stand down and were so impressed that all three of us bought one, a Palm Radio mini paddle with a code cube attached, a beautiful piece of engineering and electronics. Andrew then said, "If I've got a good portable key I need the radio to go with it", so off we went in search of the best price on an FT-817ND. He procured a very good deal and a Miracle Whip antenna to go with it. Peter acquired himself a Heil boom, shock mount and pistol grip PTT also at a good price.

Enough she cried and we headed back to the hotel.

After dinner that evening we went for a stroll and we could not believe our eyes with the sights in the street. Every year on this Saturday a cruise sets off at 8 pm down the lake, the only thing is it's a theme cruise. Everyone on board were dressed as Dominatrix and slaves, I really can't say any more in case we have readers under 18 years of age. I just wonder how many of them were amateurs as well? I thought I recognised one or two faces from the show.

We went back to the hotel, up onto the sun lounge on the roof and played HF with Andrew's new FT-817 and a Miracle Whip. We worked about a dozen stations with 3 watts and this antenna with excellent reports received from most of Europe on 20 and 40 metres.

Bed time, last day of the show tomorrow.

Sunday

Sunday and once again a beautiful day dawned. We were a bit later heading out to the Arena as the pressure was off to grab bargains.

We were there at about 9:30 am and you could certainly see the difference in numbers.

Probably a third of attendees compared to the previous two days, but still very busy.

What it did make for is a better chance to get right up to the vendors rather than struggling looking over shoulders.

We had decided to do the traders hall first and grab the things we knew we still needed then head off to the flea market and see what bargains we could pick up.

Andrew bought a couple of mobile antennas for 2 m and 70 cm, and some more bits and pieces for his new wonder radio, the FT-817.

I bought a "stealth" 2/70 mobile to go on the new car and Peter was also filling his bag with electronic nick nacks.

We then hit the flea market for a final purging. First thing was another antenna combiner, same as I'd already bought for 40 euros, for 15 euros, then a 10 GHz, 7 watt amplifier for almost 150 euros cheaper than it had been the day before. Sometimes it does pay to be patient. We picked up a few more bits and pieces then headed back to the traders hall to buy some books from the RSGB stand, but they had already finished packing up, so a quick visit to the ARRL stand (Andrew and I are both members) and we had been given pins, CDs etc. and enjoyed a good chat with the crew there.

Our club NCRG, VK6ANC was lucky to be involved a few years ago with Spiderbeam's development of a 40 m monster Spiderbeam. Con DF4SA supplied us with the material to build a 3 element 40 m Spiderbeam, the 2nd in the world.

We built it and for eight months it was an amazing antenna, then a major storm took it out, literally destroyed it. We tracked Con down and had a very interesting discussion on the antenna and his attempts to beef it up to survive storms such as we had experienced.

One final look around the traders hall and we decided our hunger had been satisfied so we said goodbye to the Neue Messe arena and headed back to the hotel to pack and to have a rest and freshen up.

We caught up with Phil VK6APH and his LA cohorts again in the evening, enjoying a meal and a beer on the lake front, such a lovely spot.

Rain is forecast for the morning and we have the prospect of a couple of hours in Friedrichshafen airport, followed by nearly six hours in Frankfurt airport to look forward to.

The trip home

Monday morning, those Monday feelings, continuous drizzle making it very clear that it is all over! David G3UFO popped over to say goodbye and let me know he's planning a trip to VK6 again to do a bit of CW contesting this October using the NCRG venue; it is always hard to say goodbye to my "Big Brother"!

Then I spent a nervous three hours in Friedrichshafen airport while I anguished over the weight of my suitcase: Allowance 23 kg, actual mass 24.9 kg. What do you leave out? I have sleep apnoea, so I have my breathing machine with me. It weighs 2.8 kg, do I leave it behind? It is my old one brought just in case this situation arose.

The final decision was to put the CPAP machine in the suitcase and put the 10 GHz amp in my hand luggage as it weighed considerably more. So I did.

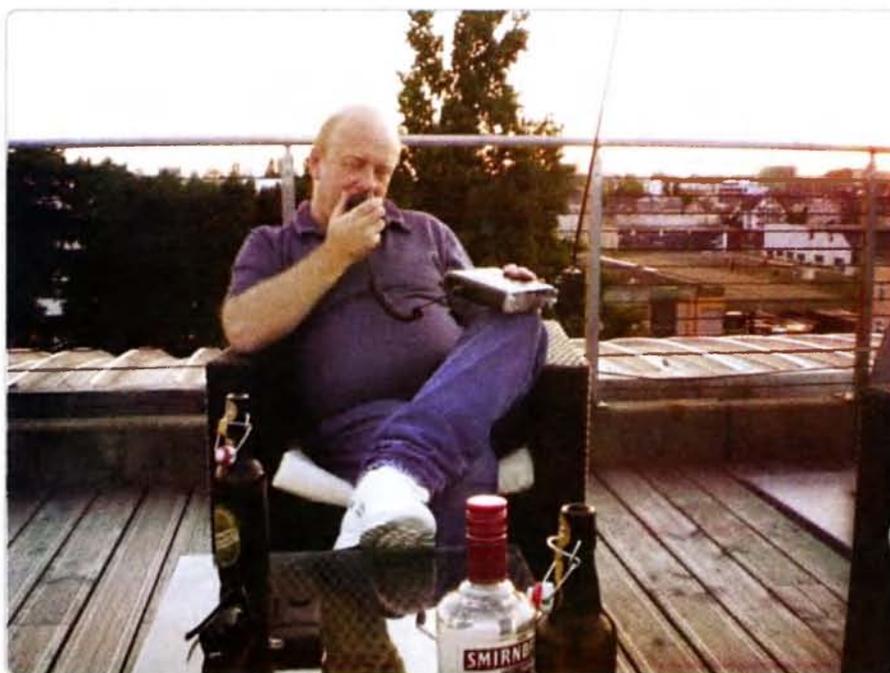


Photo 4: Andrew VK6IA playing with his new toy.

Wrong decision! Going through the scanner I was pulled to one side and asked to explain what was in my hand luggage, it was swabbed for explosives and I explained what it was. Thank my lucky stars that they were used to odd things appearing on flights out of Friedrichshafen at this time of year.

But it set me thinking, what would happen at a major airport like Frankfurt and Singapore?

I was to find out, after a 6 hour wait we went through the scanners and "Bingo" I am dragged to one side and scanned all over, as was Andrew, and then the federal police took me off to a little side room. What is it, the nice policeman asked, it is a microwave amateur radio amplifier, I said. He said I thought it was an amp, I recognised it he said, my in law is an amateur, I breathe easier. They scanned it and thanked me for my patience and I was glad they had not used the "B-B" word!

It made me worry even more about Singapore, famous for its security.

The flight from Frankfurt to Singapore was every bit as bad as the trip there, hard seats, poor food and inadequate service, never fly Lufthansa again we all agreed.

Singapore was a breeze, a bit of shopping for the XYLs and sailed through the security, told the lady on the scanner I had some radio equipment and she said, no need to worry about it, heaven!

So it's all over, would we go again, most definitely! Peter is planning for next year as a side trip from his annual visit to the UK, Andrew and I may wait a little longer. I'd go every year if I could but practicalities are that maybe 2015 is a good target.

If the good woman and I can combine it with a trip to the Le Mans 24 hour race, on to a trade (work) show in Frankfurt, then Friedrichshafen, followed by a 10

day Rhine or Danube cruise, back to Le Mans for the 24 hour Classic race, UK to see the family and back home.

Sounds expensive, but it will be my retirement trip, even SWMBO cannot disagree with that, can she??

Hopefully some of the pictures we have supplied will make it into the article and you will all have your appetites whetted for a trip yourselves, you will not be disappointed.

Thanks to Andrew VK6IA and Peter VK6PA, my travelling companions and my mates from the UK, especially David G3UFO, Keith GW4OKT and Dennis G3UVR and the others and all those amateurs who stopped us and asked had we really come all this way just for the Show for making it such an enjoyable experience.

Roll on the next time!



Photo 5: The well-equipped DARC portable station set up outside one of the exhibition halls.

Flying high with ALARA

John Fisher VK3DQ



Photo 1: Jean VK3VIP in the co-pilot's seat waiting for take-off.

An unexpected invitation found Jean VK3VIP, who is the VK3 representative for ALARA, and her OM John VK3DQ take to the air as the guests of Peter VK3BFG. A maintenance issue with one of the on-board radio systems had to be checked and this required the aircraft to be flown.

The flight plan was Moorabbin to Tooradin, where we stopped for lunch and thence to Phillip Island where we made a couple of circuits of Seal Rocks and then tracked over the Mornington Peninsula crossing the coast at Dromana. We then followed the coast back to Moorabbin for a perfect landing.

As I had flown with Peter the week before, it was decided that Jean would sit in the co-pilot's seat and I would be banished to the rear seat where I would operate on two metres and 70 cm using my FT-60 hand held.

Melbourne turned on a perfect day for flying. Cessna 182 VH-CXZ was waiting for us, and after some routine paperwork was completed Peter prepared the aircraft for flight, including checking the fuel level and engine oil level and sampling the fuel at various points in the wing tanks to ensure there was no contamination or water in the fuel.

I boarded the aircraft first and then Jean took the right hand front seat and Peter took the pilot's seat on the left. Jean and I were using headsets to monitor communications and intercom. After pre-flight checks the aircraft took off powerfully and set course for Tooradin. So, off we went into a clear blue sky.

Once airborne I called CQ aeronautical mobile via the VK3RSE repeater and made a number of contacts in the 30 minutes or so on the trip down to Tooradin. Approach to Tooradin was over Westernport Bay and in what seemed like no time we landed and taxied to the parking area; it was a lovely day with clear blue skies. It was lunchtime, so we partook of a nice lunch in the airport restaurant.

After lunch we boarded the aircraft, taxied to the end of the runway, took off and set course to Phillip Island, crossing French Island and Westernport Bay and reaching Phillip Island then making a right turn towards The Nobbies and Seal Rocks. I operated the radio and made a number of contacts using the hand held and of course kept a sharp eye out for 'Kodak Moments'. VH-CXZ then crossed the coast and followed it to Seal Rocks where we descended to make two low level circuits and where we were able to see the seals basking in the sunshine.

The course was then set to cross the Mornington Peninsula where we turned to follow the coast towards Moorabbin at Dromana. The seas were blue and the coastline sparkled as we flew up the coastline. Before long we began the approach to Moorabbin and Peter made another perfect landing, taxied to our parking spot and disembarked the aircraft. He then tied it down and carried out post flight checks. It was a wonderful day, one to remember and both Jean VK3VIP and I VK3DQ would like to thank Peter VK3BFG for his kindness in inviting us along.



Photo 2: Jean VK3VIP 'inspects' the Cessna 182 prior to boarding.

Wally Hannam: First Secretary of the WI of NSW

Tim Mills VK2ZTM



Photo 1: Walter Henry Hannam. Wireless operator and mechanic Australasian Antarctic Expedition 1911-1914. Photograph by Frank Hurley, courtesy Australian Antarctic Division.

Walter Henry Hannam appears to have come on the Australian experimental wireless scene about 1907 (perhaps earlier) – based on comments made by him – in referring to the difficulties (26) he was having in getting permission to conduct wireless experiments (1, 2). The Advertiser (SA) carried a story that a young NSW electrician – Mr. W. Hannam – had spent the previous .. *“three years in equipping a comprehensive plant at Burwood and had applied for a license to work it for experimental purposes”* *“Although one and a half years had passed since he made his first application, he had received no final answer and was in consequence unable to erect his aerial plant”* ...

Wally had been letter writing to the press with the problem which brought a response that

was published in the Sydney Morning Herald (SMH) on the 4th March 1910. Under the heading ***“An Experimenter’s Complaint – Conditions not complied with”***. The secretary of the Postal Department (Sir Robert Scott) ... said that the only condition which the department imposed on wireless investigators was that they must pay a royalty of 3 pounds 3 shillings a year. This entitled them to a licence to erect aerials. Mr. Hannam had applied for a licence, but had not paid the royalty. When he did, his request would be granted ... (28).

In 1910 he was 25, so it would be logical to assume he would have developed an interest in 1907 or earlier but may have delayed active interest until he finished his studies (13). He was based in Sydney and in early 1910 he was involved with an

exhibition which included showing this new wireless apparatus, some of which was his. Apparently it attracted such interest that he mentioned to Mr. George Taylor (27) (a gentleman of some importance in the Sydney social scene) and together they decided that it would be beneficial to call a meeting of interested experimenters. The notice of the intended meeting – of wireless people – appeared in the publication – the *“Aerial League”*. Taylor was heavily involved in the Aerial League of Australia, where he felt wireless would be of great use in aviation. The meeting was held on the 11th March 1910 (37), a Friday afternoon in the smoking room of the Hotel Australia (3) (at Martin Place and Castlereagh Street in the city of Sydney) and chaired by George Taylor. The meeting formed The Institute of Wireless Telegraphy of Australia (34). Wally Hannam was appointed Secretary at this meeting and confirmed at the second meeting held in April 1910 (8). He did not appear to have gained a callsign by this time, based on the newspaper reports in 1910 although his ‘Golden Anniversary Card of VK2AXH’ shows ‘First licensed 1908’ and ‘Founder of the Wireless Institute of Australia 1910’ (21).

Towards the end of March 1910, Hannam, Kirby and Wilkinson provided equipment and their attendance for Captain Taylor (he had military involvement) to carry out the first military test message in an exercise conducted near Heathcote to the south of Sydney. It would appear that they operated the equipment. It is unlikely that Taylor used a ‘wireless’ (7). After a weekend of difficulties a message was passed. There are indications in some reports that he (Taylor) may have made some use of ‘wireless’ in his various projects but unlikely as an experimenter in his own right.

While George Taylor chaired meetings of the new Institute it is more likely that the main mover was Wally Hannam. Taylor (27) appeared to have many interests and causes and moved in the circles of Sydney society. At various stages of his life Taylor promoted wireless broadcasting and set up various organisations such as the **Association for Developing Wireless** and the **Association for the Encouragement of Wireless in Australia**, New Zealand and Fiji. On the 16th April 1925 Mr. Taylor as President of the AEWA addressed the AGM of the NSW Division, suggesting that a special fund be established to encourage experimental work (32). It appears that he made use of various experimenters for the practical side. He also experimented with early aircraft and had a factory in Redfern. He tested some of these craft at Narrabeen on 5th December 1909. He had Kirby experiment with remote control of model aircraft. In 1911 Taylor shows up in a newspaper report as Vice President of WI of NSW. He may then have drifted into other areas of interest of which there are extensive reports but no mention of 'wireless'. In the report of his funeral in the 1920's the list of those in attendance ran to several hundred names (8). Wally Hannam was not one of those listed. There were other members of the Wireless Institute in the list.

In 1911 following representations from Hannam and Taylor to the Post Master General they were successful in having the licence fee reduced to one pound per annum (29).

On 26th January 1911 the IWT name is changed to the Wireless Institute of NSW (35).

The life span of Wally was from 1885 to 1965 (18). He was born 5th May 1885 at Burwood in Sydney. (In Hunter Branch notes in AR there is a reference that the great uncle of John VK2XQ may have been the Doctor at Wally's birth) (22). He most likely grew up at Manly (30) but by his early 20s had moved away and lived at various Sydney locations as

indicated by his call sign addresses. Noting he was born at Burwood it is interesting that he set up his wireless experiments also in Burwood. He was educated at Sydney Technical College, gaining a science diploma. One of the last records of him was as the person who opened the new hall added at the Atchison Street VK2 Headquarters in March 1962 for the NSW Division (6). A few years later (1965) a story appeared about him in a local Central Coast paper – there was a photo of him with an AR7 receiver in the background (9). Although having health problems, he attended the 1965 Central Coast Field Day. He became a Silent Key on 15th March 1965.

In researching Wally Hannam's background in the Sydney Morning Herald Archives, the name W H Hannam appears from the 1880s until about 1950. One of whom appears to have been a business man located in Sydney – manufacturing hospital equipment – Hannam's Ltd at 134 Castlereagh St. Sydney - who had involvement with Manly Hospital and lived at Manly. In the 1930s this name appears associated with sailing and fishing on Sydney Harbour. This era is confused as Wally is then living (or has an address) in Mosman, a harbour side suburb. There are Letters to the Editor (SMH) written by a W H Hannam. There are also stories of Wally in the 1920s and 30s attending reunions of the earlier Antarctic activities. Newspaper searches bring up several - W H Hannam - between 1880 and 1950. In this era it was not usual to use the christian names when reporting the activities of a person. The Australian Government Antarctic Division web site has several detailed references to Wally. His father also had the initials W.H. - William Henry - which confuses the research.

The Wireless Institute of New South Wales starts to take shape in 1910 and during this time Wally gets an invitation to take his wireless apparatus to Melbourne for use in a stage play called "By Wireless".

Apparently the local manufacturer/agent could not provide any equipment.

While in Melbourne he was approached by Douglas Mawson to go on his 1911 – 1914 Antarctic Expedition as a wireless operator and mechanic (1, 37). He is now aged 26. He took up the offer and sailing in November 1911 they went via Macquarie Island – where they set up a relay point. This had the call MQI (12) – two operators (Charles Sandell and Arthur Sawyer) (24) were left to man the Macquarie Island installation in the link back to Hobart – callsign POH (Post Office Hobart) (14). The first contact made on 4th January 1912 was between POH and MQI. It was not until either 25th September 1912 or February 1913 (*two reports differ*) that a circuit was made from the Antarctic station, Adelie Land (MAL) to Hobart (POH) via the Macquarie Island (MQI) relay point. In the early stages it appears that Macquarie Island (MQI) could hear Wally's signal but the replies were being lost in the local static noise at the Antarctic end (MAL). (*Polar sites/paths have adverse effects on signals as DX operators will confirm.*)

There is a Frank Hurley photo of the 1911 – 1914 Australian Antarctic Expedition of Wally Hannam operating a radio when stationed at Adelie Land Station. It is also titled as "Wireless Operator Cape Denison". No date is given (about 1912/13). While details of equipment and operating details are not quoted, the mode was Morse code by spark from a 2 kW Telefunken generator (20), and the frequency would have been in the long wave spectrum. In the photo there is behind Wally an electric motor or generator which was one of the methods of producing a spark signal. This could have been a spare unit as the motor shaft has no pulley on it unless it was double ended. The petrol engine and generator to produce power for the transmitter was housed in a separate building. This photo appeared in the WIA Centenary background report in 2010 (15). Other photo's show

a workshop scene where a vice is being welded. Wally's assistant was Percy Correll. In 1913 a Sydney Jeffryes came down on the final supply voyage to Cape Denison to be a new operator (24).

Just off the Antarctic main land there are three small islands in the eastern part of Commonwealth Bay, midway between Cape Denison and Cape Gray which were named - Hannam Islands - by Douglas Mawson (11). Wally also received the Polar Medal for recognition of his part in the expedition.

He appears in a 1911 list of licensed experimenters – no call is shown (4). Address is shown as Darling Point in the Eastern Suburbs of Sydney. On a 1912 list (by the Wireless Institute of NSW) the WI Secretary is shown as Malcolm Perry (At this stage Wally was in Antarctica).

In *Wireless in Australia*, a 1914 call book (published by the Wireless Institute of Victoria) - a W H Hannam appears as XQI in Stamford Queensland.

In World War 1 Wally served with the Australian Motor Transport Corps (11). As a member of the AIF he saw service in England and France, including a role with wireless (19). His war record (25) has him as a Corporal # 6946 in the 8th Company AASC AIF (Some sources have him at the rank of lieutenant (11)). He suffered some non-combat medical conditions and was hospitalized in both England and France. Also from the records at his enlistment (when he was 30 y 1 m) we learn that Wally was 170 cm tall, 107 kg, heavy build – chest 105 cm, dark complexion with hazel eyes, dark brown hair with C of E religion. He enlisted 2/6/1915, was overseas from 14/7/1915 to 27/1/1919 and was discharged on 7/11/1919.. His calling was shown as engineer and was listed as 'not married' giving his father as next of kin.

With WW1 over, the WI of NSW is the first to hold a meeting - 7th January 1919 (35). May 20th 1919 at the second meeting of the WI of Victoria a letter was received

from WI of NSW suggesting the formation of the WIA (36).

In the 1924 callsign lists and again in 1928 Wally shows up as 2YH at 449 Darling St. Balmain which has his surname spelt with an 'n' – Hannan.

In 1926 the Institute is getting ready for the third Annual Federal Convention to be held in Sydney. There is also a reference to holding an Exhibition but the date was deferred due to the closeness of the Federal Convention (10). From the minutes of a Delegates Council Meeting – 10th September 1926 – they dealt with Traffic tests, features of the upcoming Convention which was to include a motor tour of the South Coast, the Annual Dinner and a major Institute meeting and all radio clubs were urged to give these functions their fullest support. The Chairman of these Delegate meetings was Ross Hull who was to return to America in a week, leaving a vacancy. After discussion they requested Mr. Hannam to accept the appointment as Chairman. The minutes conclude with an appreciation from the Leichhardt Club re a visit to 2WI, but they regretted that one of their members attending expressed sentiments 'which were distasteful and not in accordance with the opinions of other members of the (Leichhardt) Club'. The next meeting was 8th October 1926 and the minutes were signed by W Hannam as Chairman.

In 1925, 1926, 1929 and 1930, (VK) 2YH W H Hannam address is at "Glen Osmond" 23 Prince Albert St. Mosman which is down towards Taronga Zoo. This building was still there in 2010, a large two story structure with an extensive view of Sydney Harbour to its west, including the Bridge and the CBD.

In 1927 the Waverley club celebrated its eighth anniversary with several club representatives in attendance and Wally also attends – most likely on behalf of the WIA. He proposed the health of the new club – was reported in the SMH for 11 th February 1927.

In 1931 – VK2YH: The address for Wally is shown as 15 Thompson

Street, Mosman. This is nearby to the previous Mosman address.

In 1936 – VK2YH: W H Hannam (portable) is now living at 201 Mowbray Rd. Willoughby. In 1938 the Portable has been dropped. This property was still there in 2010, a large single story building on a large corner block.

Also in this 1938 call book list there is a H W Hannam VK2IR at 109 Sale Street Orange. This person appeared in later callbooks, having moved to South Hurstville, Sydney. The Orange location in 2010 was used as medical rooms for Mid West Ophthalmology.

In May 1939 Wally's Mowbray Rd. home is burgled and he loses all his medals. In April 1941 he seeks replacement medals so he can take part in the 1941 Anzac Day (25). These were replaced in time. Also replaced were the Polar medals.

By the start of WW2 Wally is 55 years old. No records have been found of his activities in this period. Amateur radio was curtailed for the war's duration. There were some PMG lists put out after 1946 until about 1950 but there is no listing of Wally having resumed amateur radio activities or acquired a callsign. The first time he appears is in a 1954 callbook and listed as VK2AXH. This callbook was the first to be published since 1950 and was produced by the WIA as distinct from previous callbooks published by the PMG's Department. The three letter 'A's' call signs were being issued in sequence and did not reach up to the 'AX*' stage until well into the 1950s.

In 1948, his former call VK2YH was issued to C. Aston of Marrickville and who later moved to Riverstone (17).

In 1949 (24th January) Wally makes contact with the AIF Repatriation Commission. He is now approaching 65.

Sometime from about 1950 onwards Wally appears to have moved to Terrigal for the remainder of his life, where he seemed to have acquired the nickname 'The Terrigal Tiger'. In the 1954 and later

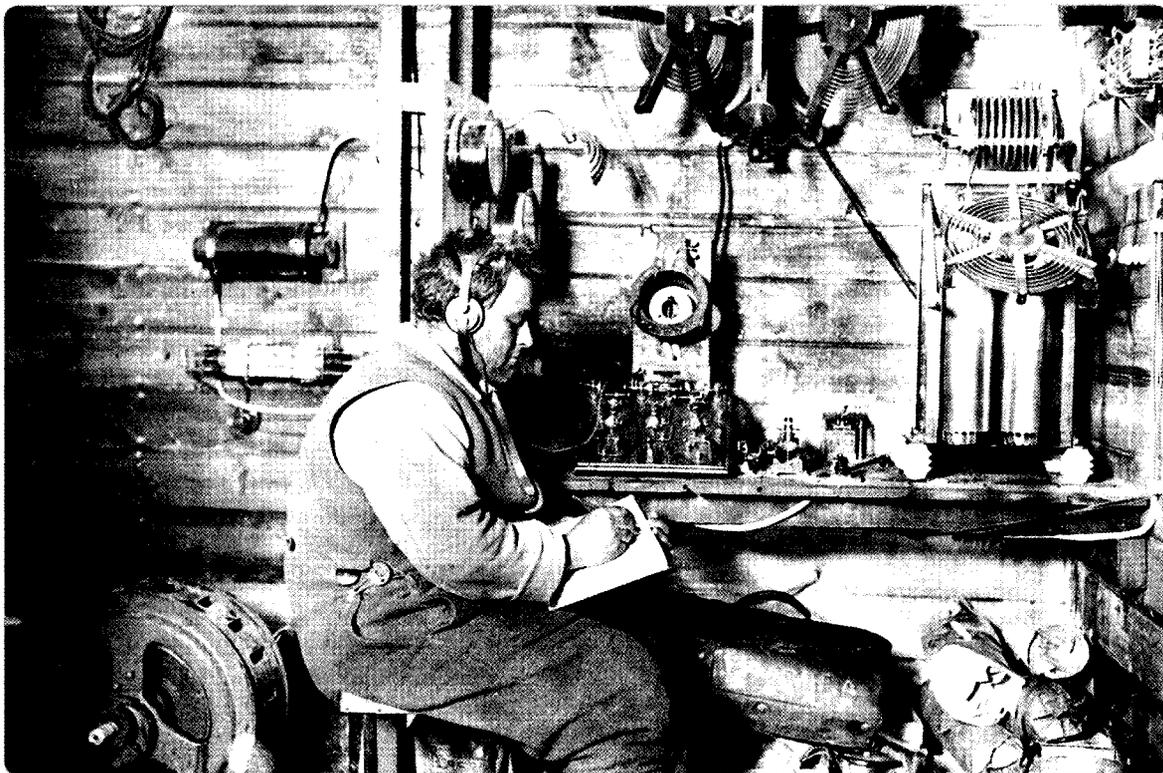


Photo 2: Walter Henry Hannam at the wireless console. Photograph by Frank Hurley, courtesy Australian Antarctic Division.

callbooks he appears as VK2AXH at 32 Hillcrest Rd. Terrigal (a small house block in a steep no through street) on the NSW Central Coast. He appears to have resumed and then maintained his amateur radio activities until the end (20). Peter Christie recalls – as a child – that his family was associated on the Central Coast with Wally via a family connection (39).

In 1955 he has a holiday in the New Zealand South Island and is interviewed by Radio NZ where he relates much of his early days (5).

In 1958 Wally is hard at work in the shack and he contributes to *AR* magazine four Hints and Kinks items which are published in August 1958, page 13. An all band RF Choke, Tuning rods for IF transformers, Flux for nichrome and nickel and making rods for chokes, etc from perspex strips.

In 1960 the ACT suburb of Mawson is developed with streets named after members of the 1911-1914 Expedition. There is a Hannam Place (31).

On the 17th March 1962 he is the guest of honour and opens the new hall at Wireless Institute Centre for the NSW Division at 14 Atchison Street, St. Leonards (6).

In 1965 he attended the Central Coast Field Day (20) and also appears as a front page story in a local NSW Central Coast paper (9).

His Silent Key and Obituary is in June 1965 *Amateur Radio*. He passed away at his Terrigal home on 15 March 1965. His funeral was held at the Sydney Northern Suburbs Crematorium on 17 March 1965 (20). This was three years to the day after he opened the Atchison Street hall.

In 1968 a Mr. D J Croll of Collaroy Plateau, in possession of his medals, seeks Wally's war records (25).

A letter in May 1984 *Amateur Radio* - from his eldest nephew (John Bathgate from near Tamworth) brings to the attention of the amateur movement that Project Blizzard was being under taken to restore Mawson's Hut. John

requested support for the project as a fitting tribute to Walter Hannam (19). There was also references (in 1986) that the Redcliffe Radio Club had many photographs from the 1911 Cape Denison radio shack. The Project Blizzard operation received a lot of support, including from Dick Smith VK2DIK who provided the Dick Smith Explorer that sailed down to the site as the Project base. Pierce Healy VK2APQ who manned the Australian end of the communication link and various radio amateurs who monitored the operation. Project Blizzard was well reported in the electronics press like *Amateur Radio* magazine and *Radio Television and Hobbies* (40).

Wally is also credited in Antarctic records with the call VK2QI (11) but this may have been a confusion with his Queensland call XQI. In these reports there is also a error in the year he died. Their record shows 1964 – it was actually in 1965.

In a tape recording (6) made toward the end of his life he had strong thoughts about the (then)

recently introduced Limited Licence – he was apparently of the ‘old school’ that you were not a real amateur unless you had qualifications in ‘Morse’.

What did he do after World War 1? There was some involvement with the Wireless Institute – at least in the 1920s (10). Another reported his activities with the “Australian Wireless Association until his death in 1964” (11). There are indications that he worked in the family business (Hannam’s Ltd) which manufactured hospital equipment and operating tables. There are many reports in the Sydney Morning Herald pre 1900 to about the start of WW2 where the name Hannam is associated with this type of manufacturing. He was one of six children (30), perhaps the eldest. There is a reference to a brother (23) and there were at least two sisters (19), Eva and Jessie (38). Few details have been found as to other close family. None were mentioned in his Obituary (20). It is understood that he married late in life. There were no children (33).

In the 25th Anniversary issue of *Amateur Radio* magazine (October 1958) there is a feature report on VK2WI and included is a list of Life Members of the NSW Division (16). While there are several members listed from the early days, Wally was not one of them. Surprising that his original efforts were not acknowledged by the organization he did so much to form.

December 2011 is the Centenary of Mawson Expedition landing on the Antarctic mainland.

A Centenary function and dinner was planned in Tasmania to which invitations were extended to descendants of the original team who were on the 1911 – 1914 operation.

Australia Post on the 2nd August 2011 made a special stamp issue to commemorate the expedition. There are five stamps in the set.

These are some of the available details. Can you contribute?

©Tim Mills VK2ZTM vk2ztm@wia.org.au

References

1. 1955 Radio New Zealand interview.
2. At this stage in his mid twenties.
3. Telegraph and Sydney Morning Herald reports of the meeting. 12th and 14th March 1910.
4. Story on Australian callsigns by VK2CZ.
5. 1955 Radio New Zealand interview, held by the Kurrjong Radio Museum.
6. Plaque and tape recording held by ARNSW.
7. Amateur Radio June 2010, Engadine News March 2010.
8. SMH archives.
9. Remembered by Ian VK2ZIO who was teaching at Narara Public School at the time.
10. WIA archives.
11. Antarctic Division archives. (Life span 1885 to 1964)
12. 1912 callsign list of the WI of NSW.
13. Mawsons Huts web site.
14. PO* stood for Post Office – later changed to VI* (4)
15. WIA Centenary report at www.wia.org.au
16. *Amateur Radio* magazine October 1958.
17. *Amateur Radio* for July 1948 – page 17.
18. June 1965 *AR* – page 23 – lists his Silent Key.
19. May 1984 *AR* – Letter from John Bathgate
20. *Amateur Radio* June 1965 – page 27.
21. *Amateur Radio* May 1986 – page 58 Letter in ‘Over to You’.
22. *Amateur Radio* April 1961 – page 21. Hunter Branch notes.
23. Tape recording of ‘the Christmas message’ with reference to having lottery tickets with his father and brother.
24. The Finger Tappers – Mawson Huts.
25. Australian Military Forces web sites.
26. The Advertiser – Adelaide Thursday 10 March 1910.
27. George Augustine Taylor 1872 – 1928 http://www.ctie.monash.edu.au/hargrave/taylor_bio.html

28. SMH 4 March 1910, page 6.

29. SMH report.

30. Report of William Hannam death 10 th January 1935. SMH 11 January 1935 – page 6. Born England 1854, died Pymble 1935. Also from Manly Daily Pictorial 15/9/31.

31. Site 493 – Low – Latitude Antarctic Gazettee.

32. SMH Friday 17 April 1925, page 12.

33. Advised by Peter VK2AQJ based on what he was told by Phil Crocker (SK).

34. *AR* January 1985 IREE.

35. VK4SS in *ARA* November 1987

36. Melbourne Herald 21 May 1919.

37. Sounds of Amateur Radio Vol 2 CD Part 1 – voice of Wally re first meeting and Antarctic.

38. From Flip (Hurley) Byrnes.

39. Peter Christie at a meeting in 2011.

40. Project Blizzard - Restoring Mawson’s Hut.

WI of NSW = Wireless Institute of New South Wales.

There are two Frank Hurley photos of Wally in the Australian Antarctic Division report on ‘Wally Hannam’ <http://www.aad.gov.au/default.asp?casid=35170>

The first is head and upper body shot of Wally in an army great coat and cap outside a snow and ice covered building. The second is ‘Hannam and the wireless instruments at Cape Denison. The one which is in the WIA report (15). These two photos appear in this report, thanks to the Australian Antarctic Division.

A photo of Wally appears in the WIA Book Vol 1 – opposite page 64.

Research by Tim Mills VK2ZTM. Thanks to various sources, including Ian VK2ZIO, Richard VK2SKY, Henry VK2ZHE and Peter VK3RV – WIA Time Line.

Additional information is always sought for this report. It can be supplied to Amateur Radio New South Wales or to the author: vk2ztm@wia.org.au



VK2news

Tim Mills VK2ZTM.
e vk2ztm@wia.or.au

Last month was AGM time with many clubs including Oxley Region ARC, Illawarra ARS and Orange and District ARC. Welcome to the new members on those committees and thanks to the old members who put their hand up again or were slow getting out the door. Last month also had a lot of activities like the RD; did you remember to submit a log? WICEN had the annual Shahzada horse enduro over the last week. There was the Lighthouse and Lightship weekend with clubs right along the coast line. Blue Mountains have just had Winterfest and Summerland ARC

had SARCFEST early in the month. At month's end the annual IPS Propagation course was held in Sydney.

This month has Waverley ARS with a two day Foundation course on the 8th and 9th. ARNSW will have a one day Foundation course on Sunday the 23rd with assessments for all licence grades on Sunday the 30th. This is also the day of the next Trash & Treasure at VK2WI Dural in the morning with the Radio and Homebrew meeting in the afternoon. WICEN has the Trek for Timor on Saturday the 15th and registration and contact by

email operation@nsw.wicen.org.au Westlakes ARC have their annual field day on Sunday the 16th at the club rooms.

Towards the end of the year NSW Police Rescue has a 70th anniversary dinner planned in early October. The Hellenic Amateur Radio Association of Australia will have a major DXpedition to Campbell Island in November under the call ZL9HR. In early December the Hunter Radio Group will have their social dinner evening.

73. Tim VK2ZTM.

Silent Key

Geoffrey Erle Switzer VK2SR

Geoff Switzer VK2SR passed away peacefully surrounded by his family on 7 March 2012 after a short illness.

Geoff was born in Grafton in 1922. He was involved with radio from an early age when he was allowed to go to the 2GF transmitter early in the morning to switch it on and warm up the tubes.

Geoff trained as an electrician and worked on government electrical contracts as part of the war effort and later joined the Army where he was drafted into searchlights with the 60th AASL Company in Newcastle. He trained for searchlight radar in Sydney and later radio physics at South Head.

Geoff started work at the Federal Match Company in Grafton in 1945 where he worked for 39 years, designing much of the machinery and managing the factory for many years until it closed in 1984.

He married Dorothy Smith in 1951 and they had four daughters Julie, Kaye, Lyndall and Heather.



Geoff's amateur radio career started officially on 27th May 1948 with issue of Experimental Licence No 7843.

His WIA Membership Certificate No S51 is dated 1st November 1948.

Geoff formed many lifelong associations through amateur radio in VK and ZL and through involvement with Rotary Youth Exchange in ZS and JA.

Dorothy told me recently that although Geoff had many long term radio acquaintances; he was disappointed that conditions did not allow contacts in recent years and that many had become SK.

Geoff was a mentor to me as a Novice and his knowledge and experience with valve transmitters was impressive. He contributed several technical articles to the WIA magazine.

In addition to his involvement in amateur radio Geoff gave commendable service to Rotary, the Grafton TAFE committee, Legacy and Prince Leopold Lodge.

Contributed by Tony Smith VK2VL.



Spotlight on SWLing

Robin L. Harwood VK7RH

✉ vk7rh@wia.org.au

September usually means that spring has arrived, although I am writing this at the end of July. Here in Launceston it has been foggy, damp and very depressing, especially for me. I am constantly fighting these on-going hearing demons which make it extremely frustrating for me to actually monitor the bands. Just when I think it is getting better, the whole cycle commences and I end up being totally deaf for a while.

July did indeed see the BBC World Service finally vacate the historic Bush House in the Strand, after occupying it for over 70 years. I was able to listen to the final news broadcast via Foxtel at 1100 on Thursday July 12th. I actually did not realise that it was covered live on the BBC World TV, until it had ended yet was able to watch it on later playback on the internet. All of the external services have now relocated to a multi-story building alongside the equally historic Portland Place site of Broadcasting House, home of the BBC's domestic radio networks. I had not realised that Bush House itself was bombed during the Second World War with the tragic loss of 41 lives. It was the target of a German V-1 doodlebug in June 1944.

Radio Canada International indeed ceased on the 24th of

June and the final rebroadcasts from Sackville for the Vatican Radio and NHK indeed ended on the 31st. There will not be any reprieve as I am informed that the Sackville site will be quickly demolished. Interestingly the small CBC domestic relays at St. John and Vancouver are continuing but I suspect for not much longer. One of them has drifted off channel causing a heterodyne for the other station as they share the same channel. Some of you may have heard the special service for the sparsely populated northern parts of the Dominion on 9625 kHz. Well this too closed as a string of low-powered repeaters on FM are due to be quickly brought online.

The Vatican also closed some services but ironically the daily Latin Mass continues at 0530 yet on fewer channels than previously. Broadcasts of the Sunday Mass also continues. I believe that it has commenced using the Montisiery site in French Guiana instead of Bonaire which is slated for closure at the end of the a-12 period. Also the Madagascar site of RNW has been purchased by former employees and will presumably operate in a similar manner to Babcock.

July also saw elections in Papua-Nuigini after a tense

constitutional crisis. This saw the reactivation of several provincial stations on shortwave plus the former senders near Port Moresby. 6040 came back on with election returns and apparently was a continuing simulcast from Kundu TV. The elections defused the constitutional crisis and as a bonus seem to become an impetus to revive the dormant shortwave outlets for the time being.

The civil war in Syria is becoming even bloodier and threatens to explode the entire Middle East. Syria does have a shortwave presence but it is barely modulated and rarely heard. I believe it is on 9330 but have not personally observed it. Under-modulation seems to be the norm as Cairo routinely does this. They broadcast to Australia apparently but are rarely heard because of the persistent under-modulation. When they do crank it up they go overboard, resulting in horrible distortion. Apparently the administrations are pouring in resources to satellite TV and ignoring shortwave.

Well that is all for this month and I do hope that this hearing hassle does cease, allowing me to get back to monitoring once more.

73 de VK7RH



WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

www.wia.org.au/members/contests/about

VHF/UHF - An Expanding World

David Smith VK3HZ
e vk3hz@wia.org.au



Weak Signal

It can sometimes be forgotten that, as radio amateurs, we are very privileged. Looking at all the discussions, manoeuvres and talks of mega-dollar auctions that are going on with regard to the slabs of RF spectrum that will be freed up as the analogue TV system is closed down, we should remind ourselves that we have use of a very valuable resource in the form of the frequency allocations set aside for amateur radio. Commercial pressures on the ACMA for access to these frequency bands must be enormous.

In recent times, we have been generously granted even greater spectrum portions in LF, MF and HF regions. We should treat them and all of our other allocations as precious objects.

Loss of 420-430 MHz

Unfortunately there are also some losses. For several years, use of the 420 to 430 MHz segment of the 70 cm amateur band has been restricted to Advanced licensees and further restricted by various exclusion zones in NSW, the ACT, Sydney, Perth and Melbourne. Recently, the ACMA has advised the WIA that this segment will be withdrawn from general amateur use from 1st January 2013. There are a number of repeater links within this segment that are affected. The WIA is currently negotiating with the appropriate parties as to whether the links may continue to operate within this segment or whether the licensees affected – mainly clubs – will be required to relocate them into the 430 to 450 MHz region.

In addition, as part of the re-organization of the land mobile service, the ACMA has indicated that the segment 440 to 450 MHz may be used on a temporary basis by displaced land mobile services until they are relocated during a transition phase. We should be active and vigilant in ensuring that this segment does not also go the way of the lowest 10 MHz of the 70 cm band.

Threat to 10 GHz

One of the most popular microwave bands would have to be 10 GHz. We are privileged with 500 MHz of spectrum from 10.0 to 10.5 GHz with amateur radio as a secondary service. Most weak signal operation occurs around 10.368 MHz, being an exact multiple of 144 MHz.

On this band, homebrewing of equipment is still practical without the need for exotic test equipment. As well, there is a lot of ex-commercial microwave link equipment originally operating on 10.5 GHz and 14 GHz that can be easily modified to work in our area of the spectrum – Mitec, Qualcomm and the MaCom “Whitebox” being just a few.

At the recent WRC conference, one of the activities undertaken was the setting of the agenda for the next conference in 2015. Of particular note is the following item:

Agenda item 1.12 to consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9 900-10 500 MHz, in accordance with Resolution 651 (WRC-12).

Active remote sensing satellites gather topographical data of the Earth's surface using synthetic aperture radars (SARs). The frequencies around 9 GHz are ideal for such applications. While there was no action taken with respect to the existing allocation of the 9.3 to 9.9 GHz band to the Earth exploration-satellite service, the Conference agreed to Agenda item 1.12 for WRC-15 which will consider the possible expansion of the existing X-band allocation by up to 600 MHz.

Given that there appear to be several options, if we can make our voice heard and demonstrate our need for this band, then the hope is that any decision will favour leaving our segment alone.

Threat to 76 GHz

The amateur service has 5 GHz of spectrum allocation from 76 to 81 GHz, with the portion from 77.5 to 78 GHz as a primary allocation (the remainder as secondary). While some may say that the 76 GHz band is getting into the realms of the esoteric, the same thing was thought of 10 GHz not so many years ago. At the recent GippsTech conference, Alan VK3XPD and Michael VK3KH showed that operation on the 76 GHz band was possible with relatively simple equipment.

At the recent WRC conference, another Agenda item for the WRC-15 conference is of concern: *Agenda item 1.18 to consider a primary allocation to the radiolocation service for automotive applications in the 77.5-78.0 GHz frequency band in accordance with Resolution 654 (WRC-12)*

- *An allocation of spectrum that is compatible worldwide would be beneficial in terms of efficient use of spectrum and economies of scale*
- *The 77-81 GHz frequency band is considered to be a possible suitable band for automotive radars*
- *ITU-R will conduct the appropriate technical, operational and regulatory studies to consider a primary allocation to the radiolocation service in the 77.5-78 GHz frequency band*

Our primary allocation in the 76 GHz band is under threat for use by vehicle active cruise control radars. One could imagine the chaos as the Mercedes, on full autopilot, pulls into the mountaintop car park where you are operating. A burst of CW on 78 GHz causes the Merc to lunge into the rear of the Volvo that arrived during the last over, causing massive interference to your reception.

Even though this re-allocation is probably already a done deal given that vehicles are already being made with these radars, we should not just roll over, but negotiate something in exchange for our loss of privilege.

Ironically, the advent of 76 GHz radar systems in the consumer segment (albeit high-end) may result longer-term in a source of surplus equipment for conversion to amateur use. Keep an eye out for a late-model Merc in the wrecker's yard.

Publicising activity

All this demonstrates that we should be active about protecting our frequency allocations. By active, I mean that we should get out and use the bands and publicise the activity. It's important that all those stations active on any microwave bands, and particularly 10 GHz, should post Spots on the VK Logger and write about their activities on the Logger forum, and VK-VHF and VK-Microwave mail lists.

As well, I welcome any submissions on your activities, even if they are just benchtop developments. There is much going on in the amateur microwave regions and we urgently need to tell everyone about it.

VK3 microwave tune up day

Discussions have recently started about having a microwave tune up day in the Melbourne area late in the year. The idea is that people can set up their systems and check the sensitivity, output power, dish efficiency, frequency accuracy and stability. Date and venue have yet to be determined, but take this as an early warning so that you can have your system ready in time.

Vale Steve Powlishen K1FO

It was sad to hear recently that Steve K1FO passed away at the young age of 60 years. Anyone who has dabbled in the VHF/UHF area will have heard of K1FO. His Yagi antenna designs were the standard in ARRL publications for many years. He produced many VHF/UHF RF power amplifier designs that were built by amateurs around the world. He was also an avid EME operator himself using, of course, Yagis and amplifiers of his own design. His presence and expertise will be greatly missed.

Winter VHF/UHF Field Day results

Congratulations must go to those hardy souls who participated in the recent Winter VHF/UHF Field Day. For the first time, VK2 stations have won three sections - and also for the first time, VK3 stations won nothing.

Congratulations to the section winners:

- Matt VK2DAG – Single Operator, 24 Hours
- Steven VK2XDE – Single Operator, 8 Hours
- Sunshine Coast Amateur Radio Club VK4WIS – Multi Operator, 24 Hours
- Redcliffe and Districts Radio Club VK4IZ - Multi Operator, 8 Hours

- Keith VK5AKM – Home Station, 24 Hours
- Justin VK2CU – Rover Station, 24 Hours

The next VHF/UHF Field Day is the Spring event on the weekend of 24-25 November.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au



Digital DX Modes

Rex Moncur
VK7MO

Tropo-Scatter on 24 GHz

To date most contacts on 24 GHz in VK have been over line of sight paths or due to occasional ducting. Rex VK7MO and Dave VK3HZ have been exploring the use of tropo-scatter on 24 GHz to complete grid squares where a line of sight path is not available. The equipment used is 1.5 and 3 watts and 40 cm dishes. With SSB, tropo-scatter paths of up to 170 km have been completed when absorption is low but the additional sensitivity of JT65c has allowed tropo-scatter contacts of up to 268 km. A key issue on 24 GHz is absorption due to water vapour and it has been found that forecasts of Precipitable Water (PW) give a good indication of this loss. PW is defined as the amount of water that would be found if all the water vapour and any liquid water in a column from the surface to the top of the atmosphere were condensed. In Australia PW is typically in the range 5 to 50 mm resulting in losses of 15 to 150 dB on a 250 km tropo-scatter path. As a rough guide it is found that absorption losses on tropo-scatter paths can be approximated by:

Absorption Loss (dB) = 0.012 * PW (mm) * distance (km)

Thus for PW of 10 mm over a 250 km path the absorption loss will be around 30 dB reducing to 15 dB on

the few occasions each year that PW is down as low as 5 mm.

Forecasts of Precipitable Water up to six days in advance are available at:

<http://wxmaps.org/pix/aus.pw.html>

Table 1 shows the JT65c signal levels that have been achieved (and failures) over various tropo-scatter paths with generally close to zero take-off angles. All QSOs or attempts listed were back to Mt Macedon in QF22.

The use of a single 1270 Hz tone on JT65 is a useful way to find a very weak signal on the waterfall display and gives around 4 dB improvement. 1270 Hz is chosen to coincide with the normal sync tone frequency of JT65 so that when one moves to send messages one knows exactly where to look on the waterfall. To transmit a 1270 Hz tone, insert '@1270' in any message box. On very weak signals it is also useful to use single tone messages to transmit RRR and 73 and take advantage of the 4 dB improvement. RRR is transmitted with the single tone '@1595' and 73 with '@1700'.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au



The Magic Band – 6 m DX

Brian Cleland
VK5BC

July was another quiet month on 6 m with only a few winter 'E' openings and some evening TEP openings in northern VK late in the month.

The 3rd of July saw many reports of contacts down the east coast from VK4 to VK2, 3 and 7 with Phil VK4FIL reporting contacts with VK1KW, VK2ZQ, VK2ZM, VK3BBB, VK3DUT, VK3AJN and VK7DX. The band also opened from southern VK2 and VK3 to northern VK4 with Leigh VK2KRR reporting

Grid Locator	Distance (km)	Average PW (mm)	Signal to Noise (dB) on WSJT scale
QF15	268	6	-29
QF01	244	9	-30
QF03	242	18	Nil
QF03	242	14	Nil
QF03	242	10	-27
QF02*	233	9	-30
QF34	220	9	-17
QF24	197	9	-18

Table 1. * Take-off angle of +0.7 degrees costing around 7 dB

Lloyd VK4FP in Townsville at +9 on WSPR.

On 8th July the band opened from VK2 to ZL and VK2 to northern VK4. Mark ZL2WHO worked several VK2's including John VK2BHO, Mike VK2ZQ, Brett VK2FZR as well as Frank VK7DX.

Bob ZL1RS worked several VK2 and 4s from Sydney to Townsville on the 10th July and the band again opened from ZL to VK2 and 3 on 13th July with ZL3ADT, ZL2TPY, ZL2WHO and ZL3NW also in the action.

Good opening on the 18th July from VK5 to VK2 and 4 with Col VK5DK in Mt Gambier completing several contacts including VK4AQF, AFL and AMG. Brian VK5BC/p Corny Point also completed with VK2BXT, VK2TS, VK4EK, VK4AMG and VK4WTN.

The 27th July produced the best opening for the winter with the band opening over most of VK including NW VK6. The VK6RSX beacon in Dampier was audible in VK3, 5 and 7 for 2-3 hours with Michael VK6BHY in Karratha working Steve VK3ZAZ, Norm VK3DUT and Frank VK7DX. In VK5 stations could be heard from VK2, 3, 4, 6 and throughout the afternoon with several short skip contacts into VK3 completed. Brian VK5BC worked Kevin VK3AKC, Norm VK3DUT, David VK3ANP and Oly VK3XDX. Frank VK7DX worked VK5KAA, Jeff VK5GF and Brian VK5BC as well as Trevor VK4AFL and Ross VK4QM.

The band again opened from VK5 to VK6 on the 28th July.

Both the Perth VK6RPH and Bunbury VK6RBU beacons were audible for over two hours but only two VK6 stations were heard and worked. Peter VK6KXW worked Peter VK5PJ in three modes,

SSB, CW and RTTY and VK5BC in SSB. Wayne VK6JR near Bunbury worked Garry VK5ZK and Brian VK5BC.

On 29th July Frank VK7DX had a good opening to ZL3 working ZL3ADT 58/58, ZL3NW 59/59 and ZL3AAU 59/59.

Gary VK8AW in Darwin reports hearing JA beacons in the evening of the 23rd July and Hiro JR2HCN reported hearing both the Darwin VK8VF and Townsville VK4RTL beacons in the evening of 31st July.

Meanwhile in Exmouth NW VK6, Rex VK6ARW has been busy building a Loop Fed Array Yagi for 6 m and hopes to have it in the air shortly.



Photo 1: Rex VK6ARW with his new LFA Yagi.

If you are interested in trying to figure out the vagaries of 6 m propagation, an interesting paper can be found at this site; http://www.ham-radio.com/n6ca/50MHz/K6MIO_50MHz_F2Prop.pdf

Please send any 6 m information to Brian VK5BC at briancleland@bigpond.com



VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

The most recent meeting was a little different to most. We had David VK5FDAL bring along the beautiful drilling rig he has devised with which to drill circuit boards to an incredible degree of precision.

He started off with three stepper motors, took them apart and machined the parts to a level of accuracy not normally needed in stepper motors. He mounted the motors in a solid frame so one motor controlled each of the x, y, and z axis. The need for the x and y axis is obvious but by adding the z axis David can etch a board as well as drill it.

He brought along a number of items to pass around, including a three coloured array of LEDs that he has programmed to switch through a sequence. He also started the drilling process required for this board, using a 0.8 mm drill and drilling holes about 1.5 mm apart. To even drill holes this diameter you can expect to break a number for each project but David's 'drill press' is so accurate that he only has to change a drill bit when it becomes blunt.

To demonstrate the etching ability David passed around a number of 'fun' items, a dinosaur, a 'name tag', a conrod, and a model for a casting, all in 3D. To

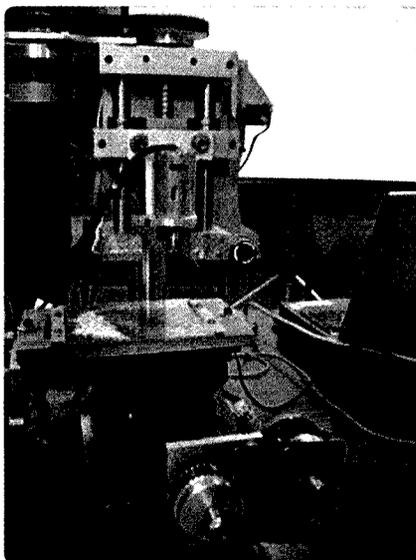


Photo 1: The precision drilling rig of David VK5FDAL.

demonstrate that he can etch onto a curved surface he scribed 'SAPUG' onto a piece of plastic. Altogether it was a very interesting and convincing demonstration.

In his employment David was dealing with supercomputers but he has put much simpler computers to work for this machine. All the drawings and instructions are made through a program like 'Protel' with which many amateurs would be familiar.

After supper Rob VK5RG spoke about the 5 MHz band and the possibility that this may become

available to amateurs in the future. He also pointed out that it is being used by ARNSW in NSW for the Sunday morning broadcast (from VK2WI on 5.425 MHz, as well as on a number of other frequencies).

Although we may not transmit in this band we can listen to it. He suggested that it would be worthwhile listening on 5 MHz when the 3.5 MHz band 'dies', for example, during a contest, and before the 7 MHz band opens as the ionospheric conditions change, simply as a means of being able to predict the 'opening' you are waiting for.

AHARS has a regular meeting in the Blackwood Senior Citizens hall on the third Thursday of each month to which all visitors are welcome.

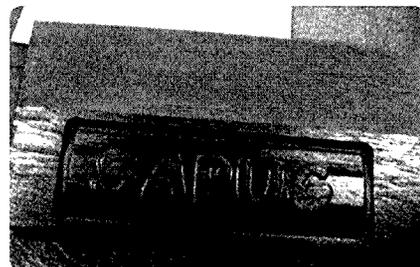
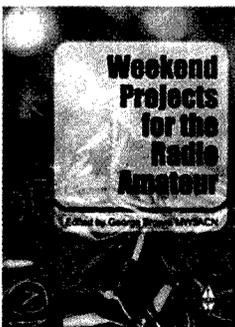


Photo 2: Showing the capacity of David VK5FDAL to etch on to a curved surface.

Visit our Bookshop



Weekend Projects for the Radio Amateur

Weekend Projects for the Radio Amateur is broken down into two main parts: Build It Yourself and Reference with the first part split further into three sections Aerials, General and Station Accessories. The Aerials section, contains, six antennas for you to try along with information on erecting antennas and their maintenance. Moving on the reader is treated to a design for an 80 m transceiver and getting into the 10 GHz band in the General section. The Station Accessories section is huge, containing dozens of projects covering everything from a dry cell tester and ni-cad chargers through ATU designs and much more. The books Reference part is packed with articles to maximise the hobby. There are articles on oscilloscopes, noise reduction circuits, radiation resistance along with guides to HF Contesting and getting started on a shoestring.

Product Details

Softcover: 224 pages Publisher: Radio Society of Great Britain (RSGB)

MEMBER PRICE: \$60.00* RETAIL PRICE: \$66.00*

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details.

www.wia.org.au/members/bookshop/about/

ALARA

Margaret Blight VK3FMAB – Publicity Officer

One of the overseas participants at the YL International Meet earlier this year was Unni Gran LA6RHA from Norway. Most of the YL members I have met seem to be people with a variety of interests. Unni is no exception. She has served in the Army Reserve in Norway and has developed skills in casualty makeup. So she is often called upon to demonstrate these skills when there is a rehearsal for a casualty training exercise, either for the armed services or civilian organisations.

It was interesting to listen to a conversation between Unni and Jenny VK5FJAY who is a long-time member of the St. John's Ambulance Brigade in South Australia, as they compared notes on how best to reproduce a realistic wound during an exercise. The latest news on Unni is that she has travelled to Fair Isle near Scotland to participate in another training exercise. Her skills certainly give her the opportunity to travel and no doubt she will be on the air while she is there.



Photo 1: Pat VK3OZ and Joline ZK1UJB.

How to become a sponsor

I was recently asked to become a sponsor to a WARO member from New Zealand. Shortly afterwards I received the following email from



Photo 2: Darwin group travellers and Darwin Amateur Radio Club members.

Dot VK2DB. Having read the email you can see why I agreed and Joline and I have been corresponding happily ever since.

'Hello Margaret, We have found a wonderful sponsor for you. Joline ZL1UJB. She is a delightful, clever, funny lady with a delicious sense of humour and I'm sure you'll both get on well together. 33 Dot VK2DB.'

YL International: A final note - Tina Clogg VK5TMC - Vice President.

Everyone is certainly home from the YL International 2012. As the organizer I am ecstatic that everything went off as planned and everyone seemed to enjoy the activities and the company. I want to add a final thank you to the Darwin Amateur Radio Club for the wonderful BBQ they put on for us at their clubroom. It certainly made for an interesting morning while most of our group was waiting for their plane departures. My OM and I also stopped by the DARC clubrooms the following Thursday to have a cuppa with those who had gathered at their regular weekly meeting.

We don't have a proposed location for the 2014 YL International yet. But we do have

the ALARAMEET in Nelson Bay, NSW, in October 2014, to look forward to. Other international meetings that we hope to attend are SEANET 2012 in Kuala Lumpur in November and the SYLRA Meet in Copenhagen in August 2013.

News from VK3

The Gippsland Gate Radio Club held their annual Hamfest in July. Although the weather was cool, the rain held off, so the barbeque was set up outside the hall and other refreshments were available in the kitchen. A number of ALARA members joined in to help make the occasion a success.



Photo 3: L-R. Susan VK3UMM, Pat VK3OZ, Jean VK3VIP, Margaret VK3FMAB, Dianne VK3FDIZ, and YLs Jenny and Naree.

Birthday luncheon

ALARA members and OMs gathered in Sunbury to celebrate 37 years since the commencement of ALARA.



Photo 4: L to R - Rina, Jenny VK3WQ, Elaine VK3EQY, Susan VK3UMM, Jean VK3VIP, Margaret VK3FMAB, Dianne VK3FDIZ, and Margaret.

The weather was wet and cold but the welcome from host Jenny VK3WQ and her OM Peter was welcoming. Hot soup and snacks soon warmed everyone up and everyone enjoyed the afternoon's entertainment. This included a video of Norma VK2YL giving an address to the WIA Conference in Canberra on the origins and history of ALARA and women in radio.



Photo 5: Jenny VK3WQ and Jean VK3VIP cutting the birthday cake.

The birthday cake was cut and distributed by Jenny VK3WQ and Jean VK3VIP and ice creams were provided by our talented Lollygirl Dianne VK3FDIZ. It was a fun afternoon.



Photo 7: L to R - Jenny VK5FJAY, Shirley VK5YL, Sharon ZL3AE, Tina VK5TMC, Myrna VK5YW, Meg VK5YG, Christine VK5CTY and Jeanne VK5OQ.



Photo 6: Our Lollygirl Dianne VK3FDIZ.

VK5 news

Christine VK5CTY enjoyed an ALARA lunch with other YLs in Adelaide. They decided to liven things up by making it a Red Hat Day.

Over to you

Amateur history

Dear Editor,

I read with great pleasure Keith Williams historical article about his father VK3WE, in August *Amateur Radio* magazine. Having researched my family history, I lament not having spoken in particular to my grandparents about the changes they lived through. They all were born in the 1890s and as such grew up from there being no radio to radio's beginnings in the 1920s. This must have been a monumental change from having no instantaneous information and entertainment to having it. The transition would have been much greater than what I lived through, the introduction of television and of now the Internet. Going from nothing to something is always greater.

I hope our Australian amateur history is not lost. I am at present scanning *Amateur Radio* magazine, continuing on from the 1933 to 1939 series and you cannot help but read some of the articles. These old *AR* magazines have a wealth of our Amateur Radio history and hopefully will be available for all to read, research and enjoy soon.

The WIA's archive project, also mentioned in August *AR*, is much needed and should receive all the help and support it can. Well done WIA on moving on this most important project. History is so easily lost and or distorted.

Regards,

Will McGhie VK6UU



DX-News & Views

Chris Chapman VK3QB and Luke Steele VK3HJ

It's appropriate to open this month's column with a special note of thanks and appreciation for John VK4OQ who has diligently brought us news of DX happenings for the past seven years. Thanks John – we've been able to work a few new ones and stayed on top of DX news from your monthly updates. As your new *DX – News and Views* columnists we will aim to continue John's fine tradition and welcome any news, questions or general tips from the VK community. Over the coming months we hope to provide some additional information on how to maximise your DXing as well as hints and tips for new-comers.

Our first column has been a little rushed as we come to terms with the publishing cycle and deadlines, so next month we'll provide a brief introduction and bio. In the meantime we hope you enjoy the column and please drop either of us an email if you have any comments, suggestions or questions.

July and August

July continued the fairly unexciting propagation conditions from June. Mid July saw some strong solar activity, including a strong earth-directed solar flare, which counteracted the high solar flux somewhat. Apart from a few IOTA operations, including YE0M Kaliage Besar Island in Indonesia, the only other point of interest was the Sovereign Military Order of Malta operation, from Rome, and they didn't seem too interested in working VK! 20 metres has been opening on the long path into Europe most afternoons, and going into August, shows some very good signals both ways. Some long path signals from Africa have also been evident on 20 metres mid-afternoon. There's no shortage of 40 metre signals from North America and Asia during our evenings. 40 metre has

also been good into Europe around sunrise. Conditions should continue to improve as we head out of winter, and higher in the solar cycle.

Fifty-three VK ops made the CY9M St Paul expedition log at the end of July. They had to QRT and leave the island a day early, and make a sea trip back to Sydney, Nova Scotia before some bad weather.

At the time of writing, John 9M6XRO and Steve 9M6DXX will be starting their Spratly Island expedition as 9M4SLL. This will be the third activation of this wanted entity this year, after some years of no activity.

Lakshadweep was activated for the ILH weekend as VU7M.

Also in the Indian Ocean, a team of European operators activated Grande Comore Island with the

callsign D64K.

DX observations from around Australia are welcome, to complete the bigger picture. Otherwise the observations in this column may only represent the view from VK3.

Some upcoming DX operations

The following table below summarises some of the DX activations that may be of interest to VK operators.

NH8S Swains Island, a relatively new DXCC entity, should be a nice easy one to work from VK, from 5-18 September. The last major operation was in 2007.

E6 Niue will be activated by W7GJ on 6 m and 2 m EME from 7-21 September. ZL1RS will be also active on Niue on 6 m and 2 m from 8 September-15 November.

Date	Call	QSL via	Information
1-3 Sep	5R8VE	F4EZG	Nosy Alanana AF-090, 40, 20, 15, 10 SSB
2-10 Sep	FR/DF8AN	DF8AN	Reunion Island, mainly CW
5-18 Sep	NH8S	OQRS	Swains Island
6-12 Sep	3B8/IW5ELA	IW5ELA	Mauritius, mainly CW, holiday style
7-10 Sep	EA6	IZ4WNA, IZ4WNP	Ibiza Island, EU-004, SSB, PSK63
7-21 Sep	E6	TBD	Niue Island, W7GJ, 6 m, 2 m, EME
8 Sep – 15 Nov	E6	TBD	Niue Island, ZL1RS, 6 m, 2 m
13-17 Sep	JW8DW	LA78DW	Spitsbergen Island, Svalbard EU-026
13-17 Sep	XP2I	OZ1BII	Kangerlussuaq, Greenland. CW
18-23 Sep	HB0	ON4ANN	Liechtenstein, Belgian DXpedition
24 Sep-5 Oct	3D2C	YT1AD	Conway Reef, International DXpedition
26 Sep-1 Oct	VP2V	AA7V	British Virgin Island, VP2V/AA7V
29-30 Sep	CO WW RTTY		
1-15 Oct	7Z7AB	7Z1CQ	Al-Dhahrah Island, AS-190 New
21-31 Oct	TT8TT	I2YSB	Chad, DXpedition
16-23 Oct	3B9SP	HB9ACA	Rodrigues Island DXpedition
27-31 Oct	P29NI		PNG, Simberi Island, OC-099, then into November, Lihir, Buka and Manu Islands.
16-25 Oct	T30PY	OQRS, PY2PT	West Kiribati, Brazilian DXpedition
23-30 Oct	VP2MXU	G3NKC	Montserrat
10-22 Nov	PT0S	LOTW	St Peter and St Paul

XP2I will be the call used by OZ1BII from Kangerlussuaq, Greenland from 13-17 September. Henning will be active in the Scandinavian Activity Contest.

Liechtenstein, a semi-rare entity will be activated by a group of Belgian operators from 18-23 September. They will be operating as HBO/home calls. QSL via the Belgian bureau.

Conway Reef will be activated by a large group led by YT1AD, as 3D2C from 24 September – 5 October. Conway Reef is near Fiji, so will be a nice easy one for VK.

The CQ World Wide RTTY contest is on 29-30 September. Also look out for activity from the contest stations before and after the contest.

Chad will be activated by I2YSB and a team as TT8TT in October. This is a fairly rare one for VK, but this team, in previous operations, has been listening for VK/ZL from time to time.

Mali should be on air soon, courtesy of Fernando EA4BB. Nando is taking up a new assignment in the Mali Republic after operating for some time in Zimbabwe as Z21BB, and

previously as 9Q5BB, D2BB, ST2BF, and TU5JL. His new call is likely to be TZ6BB. QSL via W3HMK.

Rodrigues Island will be activated in October by a group of Swiss operators as 3B9SR. This entity has been fairly regularly activated, but the last big expedition there was in 2004.

The CQ World Wide SSB contest is on 27-28 October. Look out for activity from the contest stations before and after the contest too.

An IOTA expedition to Papua New Guinea's islands will be starting on Simberi Island OC-099 as P29NI, from 27-31 October, then Lihir Island OC-069, from 2-4 November, then as P29VCX from Buka Island OC-135, from 6-9 November and Manus OC-025, from 9-12 November.

The St Peter and St Paul Rocks PT0S expedition will have a focus on the low bands. VK6 ops may have a chance to work them at the morning grey line, but in November the rest of VK will have no mutual darkness at all. Let's hope for some propagation on the higher bands. A previous announcement indicated that amateur radio activity would no

longer be permitted from St Peter and St Paul, so make the most of this activation.

ZL9HR Campbell Island, IOTA OC-037, should be easy to work on most bands from VK, during the period 28 November – 9 December. This entity was last activated in January 1999, and is now very difficult to access due mainly to landing permissions and permits. Make the most of this one, as it may not be activated again for a long while. If you need ZL9, please consider making a donation to help with the significant costs – without our support many rare entities cannot be activated. See <http://www.zl9hr.com> for further information.

In other news, Ivica YU1YU may find less time for amateur radio, now he is Serbia's new Prime Minister. Also, the ITU has announced a new prefix for Niue; formally ZK2, Niue is now E6A-E6Z.

Special thanks to the authors of The Daily DX, 425 DX News, DX World and QRZ.DX for information appearing in this month's column. Interested readers can obtain a free two week trial of The Daily DX from www.dailydx.com/trial.htm

Silent Key

Hugh Holmes VK3ATH

Hugh was born on 7 November, 1922 and became SK on 16 May, 2012.

He was educated at Essendon High School, and joined the Army, in Kajarena, WA, and served with the 2nd Field Ambulance. At eighteen and a half he transferred to the RAAF in Perth, eventually serving with them in Darwin as a radio technician.

He married Marian in 1946 and they had two children, John and Colin, and at the time of his death he had eight grandchildren

and two great-grandchildren.

After the war Hugh attended night school at Melbourne Tech for ten years doing radio and electronics, worked for Pye Radio as Production Engineer and at one time had his own painting and decorating business. He later worked for 3AK as Radio Engineer and went to the Mullard/Phillips group as chief engineer salesman. He retired from there owing to ill health and finished his working days with 'Erni Electronics' working three days a week as their chief salesman.

He moved to Lockwood South in 1986 and had a house built there, and where he spent the remainder of his life.

He joined the Midland Amateur Radio Club and was a regular member at meetings and events until his poor health prevented him from attending. Hugh had been an amateur radio operator for the last 50 years.

Rest in peace Old Man.

Contributed by Ray Taylor VK3FQ with assistance from his wife Marian.

Contests

Phil Smeaton VK4BAA
e vk4baa@wia.org.au

Welcome to this month's Contest column.

A bumper edition this month, with a plethora of contest results to report.

BERU results

First cab off the rank - the results are out for BERU 2012. Team Australia came second, facing fierce opposition from all-comers. Many congratulations to the Team - VK2BJ, VK2PN, VK3TDX, VK4EMM and VK6LW.

CQ WPX CW 2011 results

Once again, VK was well represented in this contest, with the results showing the following VK stations on Table 1.

CQ WPX SSB 2011 results

VK was very well represented in this contest, with the numbers of submitted VK logs on the rise yet again. The published results show the following VK stations on Table 2.

IARU SSB 2012 contest

Just in time for the contest, a big sunspot AR1520 unleashed an X1.4-class solar flare. Because the sunspot is directly facing Earth, everything about the blast was geoeffective. For one thing, it hurled a coronal mass ejection (CME) directly toward our planet and caused a modicum of heartache for contesters.

John VK4EMM noticed a few anomalies on the bands, especially on 40 metres. Strong echo effects on signals were noted, which John attributes to back-scatter during the severe geomagnetic storm. John recorded part of the contest, which includes Vlad VK2IM enjoying a good run on 40 metres while Johns beam was pointing towards North America. The echo is very pronounced until 50 seconds into the recording, when John swung the

Contest Calendar for September 2012 – December 2012

September	1/2	All Asian DX Contest	SSB
	1/2	Region 1 Field Day	SSB
	8/9	Worked All Europe DX Contest	SSB
	29/30	CQWW RTTY DX Contest	RTTY
October	6/7	Oceania DX Contest	SSB
	13/14	Oceania DX Contest	CW
	20/21	Worked All Germany Contest	CW/SSB
	24/25	CQWW DX Contest	SSB
	24/25	ARRL International EME Competition	CW/SSB
	24/25	CQWW SWL Challenge	SSB
November	10/11	Japan International DX Contest	SSB
	10/11	Worked All Europe DX Contest	RTTY
	3/4	ARRL International EME Contest	All
	24/25	Spring VHF/UHF Field Day	CW / SSB / FM
	27/28	CQWW DX Contest	CW
	30	ARRL 160 m Contest	CW
December	1	RTTY Melee	RTTY
	15/16	ARRL 10 m Contest	CW/SSB
	21/22	OK DX RTTY Contest	RTTY
Dec 2012 to	Jan 2013	Ross Hull Memorial VHF Contest (VHF/UHF)	CW / SSB / FM

Note: Always check contest dates prior to the contest as they are often subject to change.

Call	Category	Score	QSOs	WPX	Hours
VK4CT	SO HP ALL	5,341,920	1,881	718	35.8
VK2IM	SO HP ALL	4,491,828	1,753	684	36.0
VK3TDX	SO HP ALL	2,905,500	1,331	596	29.9
VK2PN	SO HP ALL	665,448	622	357	28.4
VK7GN	SO HP ALL	528,360	483	296	14.0
VK8AV	SO LP 40M	129,944	159	148	7.6
VK2CCC	SO QRP 40M (T)	121,429	169	133	13.5
VK3FM	SO LP ALL	120,802	227	187	23.9
VK2CA	SA HP ALL (T)	77,322	173	147	10.3
VK4TT	SO LP ALL (T)	71,300	176	124	9.5
VK4FJ	SA LP 15M	39,900	128	114	17.5
VK2BNG	SA LP ALL (T)	37,824	118	96	12.4
VK4EJ	SO LP 15M	31,416	113	102	10.6
VK7NET	SO LP ALL	250	10	10	2.8
VK6DXI	SA LP 80M (T)	60	4	4	0.2

Table 1: CQ WPX CW.2011 results.

beam towards VK2 – a bearing of approximately 160 degrees. While beaming to VK2, Vlad's signal is clean and crisp with no significant echo. Ten seconds later, the beam is swung back on NA and the echo effects are again very pronounced. This effect was pronounced on NA and JA stations.

Steve VK3TDX was having fun on the bands and had some fun regardless of the CME flare. The flare really slammed the hammer on propagation with K indexes as high as 8 in some northern locations and created an EU QSO party for many there with DX openings highly curtailed.

Call	Category	Score	QSOs	WPX	Hours
VK4KW	MULTI-TWO	26,528,482	5,756	1,369	46.3
VK4NM	MULTI-ONE	6,133,875	2,072	825	35.7
VK2IM	SO HP ALL	3,786,880	1,508	640	34.9
VK6NC	MULTI-ONE	2,897,063	1,408	703	28.3
VK4EMM	SO HP ALL	2,856,276	1,376	636	35.3
VK6IR	SA HP 15M (T)	2,263,494	1,252	654	29.2
VK2CA	SA HP ALL (T)	2,015,059	1,217	571	23.3
VK3TDX	SO HP ALL	1,989,376	1,073	608	26.8
VK1CC	MULTI-MULTI	1,608,491	956	563	28.1
VK4WIP	MULTI-ONE	1,252,649	876	509	16.9
VK3DOG	SO HP ALL (R)	212,930	293	214	22.2
VK3AVV	SO HP ALL	189,200	277	215	19.3
VK4VDX	SO LP ALL	168,696	255	213	16.9
VK6FDX	SO HP ALL	141,038	267	194	10.4
VK3MDX	SO LP ALL	116,272	212	169	16.2
VK3TZ	SO LP ALL	109,210	204	163	7.5
VK7NET	SO LP ALL	100,110	206	141	25.3
VK2HBG	SO LP ALL	98,596	203	157	25.8
VK4IU	SO HP ALL	81,780	202	141	8.0
VK1OO	SA LP ALL	72,765	160	135	15.1
VK4FJ	SO LP 15M	68,497	175	143	14.3
VK3LM	SO LP ALL	65,142	150	141	17.8
VK4XES	SO LP ALL (T)	63,512	147	136	16.0
VK2BCQ	SO HP ALL (T)	63,384	164	139	14.0
VK4DMP	SO LP 20M	56,823	150	141	9.8
VK6HAD	SO LP ALL	51,528	165	114	23.1
VK1MJ	SO HP ALL	39,710	106	95	4.7
VK2WTT	SO LP 20M	38,976	123	116	8.8
VK2ERP	SO HP ALL	30,694	121	103	19.7
VK2ACC	SO HP ALL	29,302	105	98	9.5
VK2WAY	SO LP ALL (T)	29,058	98	87	15.9
VK1PAR	SO LP ALL	28,644	97	84	10.7
VK4BL	SO LP ALL (T)	28,608	111	96	16.2
VK4ATH	SO QRP ALL	22,532	99	86	20.1
VK5MK	SO LP ALL	17,822	74	67	7.4
VK2FHRK	SO QRP ALL	12,201	55	49	6.6
VK4MN	SO LP 20M (T)	5,625	45	45	6.4
VK4QH	SO LP ALL	2,650	28	25	3.9
VK3VTH	SO LP 20M (R)	2,052	27	27	4.5
VK2HEK	SA LP ALL (T)	1,188	19	18	5.0
VK1MAT	SO LP 20M (R)	225	9	9	1.1
VK4FJAM	SO QRP ALL	48	6	6	2.5
VK6FMAB	SO LP ALL (R)	40	6	5	1.3
VK5FMPJ	SO LP 40M (R)	4	2	2	-
VK5FCJM	SO LP 15M	3	1	1	-

Table 2: CQ WPX SSB 2011 results.

However, from Steve's QTH there seemed to always be an open band somewhere and the activity was excellent from all directions. Steve reports that ten metres was

very disappointing however as he didn't even hear the usual JA stations and nil from EU. 15 was so-so with the usual super stations coming through but never got a run

going with the normally common EU 'back yard dipole' operators. 20 was a big band however with lots of surprises, with the long path openings being a good source of QSOs. Steve bagged just over 700 QSOs for a claimed score of around 750,000 points.

Mirek VK6DXI put his remote station facility to some good use during the contest. Mirek found 160 metres and 80 metres to be noisy. One extremely loud signal on 160 metres heard was from R3HQ (really big on all bands) which made Mirek think that he was a VK station! However, the receive capabilities of R3HQ didn't quite match-up to the TX side of things, making for several unanswered calls from DX stations. Mirek reports that 15 metres was the 'money band' for him, with some useful EU propagation on 10 metres also. As always, it depends on which on this bit of rock you located as to the DX arriving at your antenna. Mirek netted almost 1200 Qs for a claimed score of a smidge over one million points.

Vlad VK2IM reported that the band conditions were all over the place at his QTH. Vlad started okay, but things dried out pretty quickly and that there are better things to do at 2 am (1600Z) than making 20 Qs/hour! 40 metres was open to Asia only (bright daylight in EU and NA) and on 20 metres Vlad could not even hear half of the stations that John VK4CT was working. After a while, 20 metres opened LP to EU and SP NA with good signals reported. It was followed by 40 metres to NA. Vlad logged 1300 Qs for a claimed score of a tad over 1.1 million points.

Wes VK6WX was operating the super-station at VK6NC as a single operator, and managed to get just over 400 Qs into the log for a claimed score of a little over 237,000 points. He reported a high level of noise floor, but that might've been the beer fridge motor doing overtime and not the bands as such.

One reported aspect was not so rosy for this particular contest. It was reported by some stations that during the contest, some stations were heard to be operating outside the rules which limit the number of simultaneous signals permitted on the bands – just the one is permitted for M/S operation. However, I am sure some stations will push the envelope here and have a second station which is operating on the same band/mode as the 'run' radio. In order to prevent more than one transmitted signal at a time, some sort of interlocking system would have to be used. This would be fine and would be a competitive advantage without breaking the rules, forcing the station to only have one signal transmitted at any given time. However, it was noted by a number of participants that one very well-known multi-single station was clearly not using an interlock and had two independent stations running on each end of the band. There are recordings on the Net clearly showing two signals present very often at the same time. Faced with such evidence, it can only be hoped that the people who are responsible for these operations will offer to submit their log as a check log and not pollute their scores with those played by the wrong rules.

Well, in every aspect of life, there have been, are, and always will be cheaters. Two big aspects (historically) that motivate cheating are (a) others do it so I need to cheat as well in order to maintain a level playing field, and (b) What is the risk of getting caught? For ham radio events, there is likely to be a subset of (b) along the lines of... if I get caught, will the contest sponsor actually take any action? The sponsor (the ARRL) has been notified of what the various reporting stations heard - and they are working the issue to collect more data. Once they have good data - *and* the log is submitted - then they can present the data to the offending station and ask for an explanation. Obviously, if someone

submits their log as a check log (or not at all) there is nothing wrong with what they are doing (at least from the perspective of the contest rules). It is also quite possible that this was a 'one off mistake', and with an appropriate explanation, perhaps the situation can be salvaged.

Over the years, the envelope has certainly been pushed to distortion over interpreting contest rules in some cases. Certainly it is interesting to see how far these things can go and stay within the rules. However, at some point, we might want to think about the effect this has overall on the category and if it discourages too many people from participating in the contest because they have no hope of being competitive with just a 'single' transmitter.

OCDX 2012 contest and 2011 results

The 2012 Oceania contest is almost on us, with the first two weekends of October putting our area of the world on centre stage. Once again, clubs are able to enter teams and have a go at competing for the VKCC Club award, and VK entrants need to remember to include the name of their club when submitting a log.

The Australia Club plaque is awarded to the local club from Australia with the greatest number of member stations participating in the contest. In order for a club to be eligible there must be at least five logs submitted by member stations, with each log containing a minimum of 50 valid QSOs. No clubs met this requirement in 2011. Rather than not making an award, the plaque sponsor (VKCC) decided that the plaque should be awarded to the Eastern and Mountain District Radio Club in Melbourne on the basis that this club was closest to meeting the eligibility requirement with a total of four logs (**VK3AVV** PH, **VK3QI** PH, **VK3TZ** PH and **VK3QI** CW) that met the 50 QSO criteria. The Lockyer Valley Radio and Electronics Club was runner up with two logs.

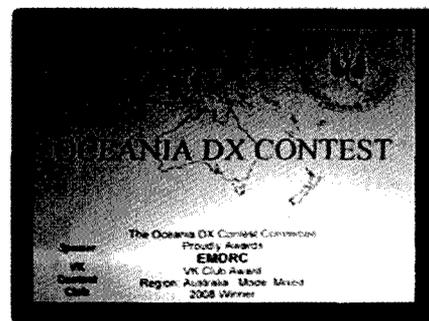


Photo 1: The Australia Club plaque awarded to the EMDRC for their 2008 OCDX contest participation – and repeated in 2011.

In order to facilitate the awarding of the Australia Club plaque in 2012 and future years, it is important that each VK entrant, who is a member of a local radio club, identifies the name of that club in their log (using the Cabrillo CLUB: field). The VKCC and OCDX contest committee will also be contacting the various clubs around Australia to encourage them to enter teams in the contest and have a go at winning the plaque.

Congratulations to all the 2011 winners. What a difference one year can make! After many years of hibernation the 10 metre band finally exploded back to life with more than 20% of the action in the 2011 contest occurring on this band. The low bands were in poor shape but this was more than offset by the great conditions on the higher bands. The 2011 OCDX contest was the biggest so far with a total of 1259 logs being submitted. This represents a 15% increase over the previous record of 1092 logs in the 2010 contest. In particular it was fantastic to see a huge (81%) increase in the number of logs submitted from North American stations. The increased activity can be attributed to excellent conditions on the HF bands, the efforts of the T32C and YJ0VK DX expeditions, and a growing awareness of the contest and the unique opportunity that it provides to work DX from the Oceania area. The participation of the T32C team in Eastern Kiribati was a huge draw card in the PHONE section and similarly, the

YJ0VK team in Vanuatu attracted a lot of interest in both the PHONE and CW sections.

New records were set by the following Oceania stations on Table 3.

CQWW log submission changes

The contest committee for this contest recently announced a major change as regards log submissions: 'With the technology available today and the presence of the internet practically everywhere, it has been decided to reduce the log submission time for all CQ contests to five (5) days.

Your log should be sent to the appropriate robot within five (5) days after the end of the contest. Reviewing the submissions from last year's CQ WW DX contests, ~ 70% of all electronic logs were received within seven days after the contest. We realize that in some cases circumstances may not allow a timely submission. Requests for

Category	New record set by	2011 Score
Oceania PH MM	T32C	49651218
Oceania PH M2	VK4KW	12707916
Oceania PH M1	VK4NM	5214247
Oceania PH SO ALL LP	ZL1TM	1194914
Oceania PH SO 15 m HP	WH2X	951220
Oceania PH SO 10 m HP	VK6NC	646866
Oceania CW M1	VK4CT	4156851
Oceania CW SO ALL LP	ZL1TM	2067954
Oceania CW SO 10 m LP	VK4AN	360360

Table 3: OCDX 2011 results.

an extension must be received before the log submission deadline by sending an e-mail to questions@cqww.com The first CQ contest affected by this new log deadline will be the CQ WW RTTY contest taking place in September. It will be interesting to see how this pans-out, as the robot has been known to throw teddy out of the pram at times – even with a wider timespan for log submission to reduce the traffic. Some DXpeditions may or

may not be able to comply as some areas, in fact, do not have Net access freely available and reliable. Time will tell, no doubt.

If you have any contest related material for inclusion within the column, topics that you'd like covered or even some experiences and pictures you'd like to share, then please feel free to get in touch via vk4baa@wia.org.au See you on the bands.

73 de VK4BAA Phil Smeaton.



RAOTC QSO Party 2012

All licensed Australian amateur radio operators are invited to participate in the annual QSO PARTY sponsored by the Radio Amateurs' Old Timers' Association Inc.

The event may be treated as a contest, or simply enjoyed as a basic contact occasion.

This event is sometimes referred to as the "Old Rigs Contest", because, as amateurs with many years' experience, many have older radios still in working order. Here is a good opportunity to give them an airing. However, do not feel afraid to use the latest "do everything" radio!

Date: Saturday 22 September 2012

Time: 0400 – 1200 UTC

The object will be to make as many contacts as possible, especially with members of RAOTC.

Bands will be 160, 80, 40 and

20 metres.

Modes: CW, AM, SSB

Suggested Frequencies:

- > 160 metres AM 1843 kHz, SSB 1850 kHz
- > 80 metres CW 3520 kHz, SSB 3570-3590 kHz
- > 40 metres CW 7020 kHz, SSB 7080-7090 kHz
- > 20 metres CW 14040 kHz, SSB 14160-14170 kHz

Exchange callsigns; serial number starting at 001 and incrementing by one for each contact, whether RAOTC member or not.

Score

- one point per contact
- add 25 points to total score if using a radio 25 years or more old

Logs must show callsign of station worked, time, mode, exchange sent and received, callsign, name and postal address of operator submitting log, whether using an older radio or not.

Send Logs to: Secretary, RAOTC, PO Box 107, Mentone, Vic, 3194 or via email to raotc@raotc.org.au by Friday, 28th September, 2012. If sending by email and no acknowledgment is received, please resend.

Certificates will be issued to:

- scorer with highest total contacts;
- highest scorer using an old rig;
- highest scorer on each band;
- highest scorer in each mode

Find these Rules on the Web: www.raotc.org.au



The Westlakes Cup Contest 2012

Date: 15 September 2012. **Time:** 1030 UTC to 1130 UTC

Band: 3.535 to 3.620 MHz. **Mode:** SSB, DSB, AM

Maximum Power: 100 Watts Standard and Advanced licences, 10 Watts Foundation Licences

Rules: All stations to call "CQ Westlakes Cup." Exchange shall be operator's name and a signal report.

After a contact is made and reports exchanged, the station that had called "CQ" must QSY at least 5 kHz before calling again. There will be no sitting on a frequency and working a "pile up."

Valid Contacts: Only VK or special prefix (AX, VI) Australian stations may be worked.

Points A: There will be two BONUS stations operating in the contest. The BONUS stations are those that hold the cup from last year's contest. The BONUS stations are worth 1 point for the QSO plus 3 bonus points and may be worked twice, once in each half hour. For 2012 the BONUS stations will be

VK7VH/BONUS and VK2FHRK/BONUS.

Points B: Amateur Radio Club stations taking part are worth 1 point for the QSO plus 1 bonus point. Club stations may only be worked once.

Points C: All other stations are worth 1 point and may only be worked once.

Points D: SWLs can claim the same points as transmitting stations.

Contest Procedure: At 1015 UTC on 3.585 MHz +/-QRM, BONUS station VK2FHRK shall make an announcement outlining the contest rules and greeting participants. Any questions will be answered at this stage.

Contest Logs: Should contain the following: **Cover Sheet** showing the entrant's call, name, station address, email address (optional), points claimed, and the declaration, "I declare I have operated within the rules and spirit of the contest and in compliance with my licence conditions."

The **Log** should show: UTC time station worked, call and name of operator of station worked, and exchanged signal reports.

Awards: Inscribed cups shall go to the stations with the highest points - one cup for the Standard/Advanced section winner and one cup for the Foundation section winner. The two winners will be the BONUS stations for next year's contest. Certificates will be awarded to first, second, and third place getters in each section, (Standard/Advanced, Foundation, and SWL.)

Logs should be sent to: The Contest Manager, Westlakes Amateur Radio Club, PO Box 3001 TERALBA N.S.W. 2284 or by email to: contestmanager@westlakesarc.org.au

The closing date for logs is Saturday 27 October 2012.

David Myers VK2RD
Contest Manager
Westlakes Amateur Radio Club Inc.



The 2012 ZL9HR DXpedition to Campbell Island

Ed Durrant VK2ARE – Australian Publicity Officer

The team at the Hellenic Amateur Radio Association of Australia are pleased to announce that the landing permit for the ZL9HR DXpedition to Campbell Island (IOTA OC-037) has been issued by the New Zealand Department of Conservation.

The DXpedition will take place between the 28th of November and the 9th of December, 2012. An international team is being assembled for this event on the sub-Antarctic Campbell Island (IOTA OC-037).

This will be the biggest DXpedition by an Australian club in 25 years and the biggest one in 2012 worldwide.

For all information please go to the DXpedition website at ZL9HR.com



The proposed QSL card design for the ZL9HR DXpedition.

Winter VHF-UHF Field Day 2012: Results

Contest manager: John Martin VK3KM

The Winter Field Day was quieter than usual, with a total of 51 logs received. Many entrants reported cold weather which reduced the number of active stations. One interesting feature is that this is the first Field Day where VK2 stations have won three sections - and it

is also the first event in which VK3 stations have won none.

It was good to see an increase in activity by Foundation licensees in the single operator sections.

They will receive an extra "F Call Challenge" certificate.

Congratulations to the section

winners Matt Hetherington VK2DAG, Steven Harrison VK2XDE, the Sunshine Coast club VK4WIS, Keith Minchin VK5AKM, and Justin Lavery VK2CU. And congratulations to all.

The next Field Day will be the Spring event on November 24/25.

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
Section A: Single Operator, 24 Hours													
VK2DAG	Matt Hetherington	QF47, QF48	71	327	415	576	720	710	710	710	710	-	4949
VK5ZD	Iain Crawford	PF85, PF95	21	258	440	608	720	720	750	660	550	-	4717
VK5KK	David Minchin	PF94, PF95	34	261	430	632	720	600	620	440	430	-	4167
VK5TX	Ben Hennessy	PF85, PF95	21	306	430	632	540	-	440	-	-	-	2369
Section B: Single Operator, 8 Hours													
VK2XDE	Steven Harrison	QF57, QF58	71	216	360	576	720	710	710	710	720	-	4793
VK5ZD	Iain Crawford	PF85, PF95	-	234	385	472	570	470	600	440	330	-	3501
VK5KK	David Minchin	PF94, PF95	23	213	345	424	480	370	390	440	430	-	3115
VK5OQ	Keith Gooley	PF95	22	153	195	184	-	230	230	-	-	-	1014
VK3YFL	Bryon Dunkley-Smith	QF22	34	159	240	296	-	-	-	210	-	-	939
VK4ADC	Doug Hunter	QG61	43	285	285	288	-	-	-	-	-	-	901
VK5FDCA	Dominic Giles	PF94, PF95	-	204	320	-	-	-	-	-	-	-	524
VK5AR	Alan Rafferty	PF95	-	151	225	-	-	-	-	-	-	-	376
VK2EH	Colin Matten	QF56	36	180	120	-	-	-	-	-	-	-	336
VK1AI	Greg Parkhurst	QF44	24	117	125	-	-	-	-	-	-	-	266
VK3FEZZ	John Witte	QF22	-	111	120	-	-	-	-	-	-	-	231
VK2WFD	CCARC (VK2ARE)	QF56	23	75	120	-	-	-	-	-	-	-	218
VK3FDBB	Daniel Bird	QF22	-	135	-	-	-	-	-	-	-	-	135
VK2ZMC	James Cleary	QF57	-	105	-	-	-	-	-	-	-	-	105
Section C: Multi Operator, 24 Hours													
VK4WIS	SCARC	QG63	101	510	505	496	-	-	-	-	-	-	1612
VK2BOZ		QF68	46	507	255	400	-	-	-	-	-	-	1208
VK1MT		QF44	42	207	170	-	-	-	-	-	-	-	419
VK2HZ	BMARC	QF56	27	162	115	-	-	-	-	-	-	-	304
Section D: Multi Operator, 8 Hours													
VK4IZ	RDRC	QG62	54	264	270	288	-	-	-	210	-	-	1086
VK2BOZ		QF68	33	387	230	360	-	-	-	-	-	-	1010
VK2MB	MWRS	QF56	28	159	150	168	-	-	-	-	-	-	505
VK5GRC	NERC	PF95	32	162	185	-	-	-	-	-	-	-	379
Section E: Home Station, 24 Hours													
VK5AKM	Keith Minchin	PF95	24	138	270	504	360	480	480	-	-	-	2256
VK3GL	Graeme Lewis	QF21	87	540	645	456	-	-	-	-	-	-	1728
VK5MK	Mark Hutchinson	PF94	22	291	415	488	-	-	-	-	-	-	1226
VK3MY	Ross Keogh	QF22	72	330	420	400	-	-	-	-	-	-	1222
VK4VDX	Roland Lang	QG62	48	312	415	384	-	-	-	-	-	-	1159

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
Section E: Home Station, 24 Hours (cont.)													
VK3WT	Max Chadwick	QF22	61	303	390	400	-	-	-	-	-	-	1154
VK3KH	Michael Coleman	QF21	39	300	365	416	-	-	-	-	-	-	1120
VK3HY	Gavin Brain	QF22	67	342	320	352	-	-	-	-	-	-	1081
VK4KLC	Ron Melton	QG62	81	387	465	-	-	-	-	-	-	-	933
VK4AMG	George McLucas	QG62	52	279	255	256	-	-	-	-	-	-	842
VK5KC	David Clegg	PF94	33	138	225	352	-	-	-	-	-	-	748
VK3AVV	Mike Subocz	QF22	49	342	260	-	-	-	-	-	-	-	651
VK1KW	Robert Quick	QF44	27	348	200	-	-	-	-	-	-	-	575
VK3SMC	Simon McClure	QF22	37	186	265	-	-	-	-	-	-	-	488
VK4CZ	Scott Watson	QG62	63	153	250	-	-	-	-	-	-	-	466
VK2XN	Wayne Fouracre	QF59	-	228	160	-	-	-	-	-	-	-	388
VK3FASW	Andre Walker	QF21	-	192	190	-	-	-	-	-	-	-	382
VK4TGL	Gerard Lawler	QG62	39	177	140	-	-	-	-	-	-	-	356
VK3FCAA	Keith McDougall	QF22	-	129	110	-	-	-	-	-	-	-	239
VK2ACL	Matt Maguire	QF56	21	66	110	-	-	-	-	-	-	-	197
VK3ZHQ	Eric Warren-Smith	QF22	-	171	-	-	-	-	-	-	-	-	171
VK2AMS	Mark Swannack	QF68	6	33	35	56	-	-	-	-	-	-	130
VK5FMLB	Matthew Bonser	PF94	-	36	65	-	-	-	-	-	-	-	101
Section F: Rover Station, 24 Hours													
VK2CU	Justin Lavery	QF58, QF57, QF48, QF47, QF69, QF59, QG50	94	534	755	1120	960	960	960	960	960	-	7303
VK5ZT	Tim Dixon	PF85, PF94, PF95, PF96	-	255	395	648	770	760	770	660	640	-	4898

Notes

VK1MAT	Matthew Bowman VK1MAT, Shane Goodwin VK1MAD
VK2AWX	Hunter Radio Group: VK2SH Geoff Wrightson, VK2FWJL Wayne Lawrence, VK2FERM Craig Murnane, VK2OI Michael Clarke, VK2FA Grahame O'Brien, VK2VV Graham Brice, VK2CLH Charles Hunt
VK2BOZ	Cris Perrett VK2BOZ, Doug Tufrey VK2FWWD, Brenda Taylor VK2FSMI
VK3ALB	Lou Blasco VK3ALB, Nik Presser VK3BA, Peter Westgarth VK3APW, Jenni Blasco VK3FJEN, Michael Blasco VK3FMIC
VK3YVG	Yarra Valley Amateur Radio Group: VK3ABJ, VK3PPC, VK3DAC, VK3VWW, VK3HKB
VK3BJA	Gippsland Gate ARC: Mike Ide VK3KTO, Graham Brown VK3BXG
VK4IZ	Redliffe and District Radio Club: Kevin Johnston VK4UH, Colin Hutchesson VK5DK/4
VK4WIE	City of Brisbane Radio Society: VK4MJF, VK4KSY, VK4CRO, VK4NE, VK4FABD
VK4WIS	Sunshine Coast ARC: Glenn VK4FSCC, Richard VK4RY, Ches VK4WT, Bill VK4XZ, Geoff VK4KEL, David Carr
VK5LZ	Elizabeth ARC: VK5ADE, VK5KX, VK5AKH

Participate

- September 8 **SUNFEST 2012 Sunshine Coast Amateur Radio Club**
At Woombye School of Arts, Blackall Street, Woombye, QLD
- September 9 **SADARC Hamfest 2012 Shepparton and District ARC**
St Augustines Hall, Orr Street, Shepparton, VIC
- September 21-23 **ICOM D-Star QSO Party**
<http://www.icom.co.jp/world/d-starparty2012/>

VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/



Cradle Coast Amateur Radio Club

The biggest amateur radio news in VK7 in recent times has to be the very well planned and executed helicopter battery replacement on Mt Duncan for the VK7RMD repeater. This all took place on 8 July 2012 with the new batteries and housing being air lifted up to the site and the old batteries and junk being air lifted back down the mountain. A big thank you to all involved, it is a huge credit to you. There are photos and video available on the CCARC web site at: <http://my-x15.net/ccarc/page11.html>

Winston VK7EM also let the author know that the DATV repeater VK7RMM destined for Mt Montgomery in North West VK7 is progressing well. The bench testing performed by Winston and Dion VK7DB has seen the first pictures being repeated through it from 1250 MHz analogue and transmitted on 446.5 MHz DVB-T with a temporary repeater controller connected.

Northern Tasmania Amateur Radio Club

By all account the presentation on Radio Direction Finding that Jason VK7ZJA gave the Northern club was a big hit. Jason works for Optus and spends much of his time tracking down interference using radio direction finding techniques. Jason started with an explanation of CDMA and WCDMA and went on to a very entertaining description of how he eventually tracked down interference emanating from the Hobart ABC TV studios where an intermittent device in a cupboard



Photo 1: Some of the crew helping on top of Mt Duncan, from left: Steve VK7FXXX, Steve ex VK7FWWF, Steve VK7NZL, Caroline, Geoff VK7ZGW and Dion VK7DB. Photo courtesy of VK7EM.



Photo 2: Here is the full crew that helped on Mt Duncan: Back row: Dion VK7DB, Peter, Dick VK7DIK, Peter VK7PD, Caroline. Middle row: Steve ex VK7FWWF, Winston VK7EM, Geoff VK7ZGW. Front: Steve VK7FXXX, Steve VK7NZL. Photo courtesy of VK7NZL.

was being affected by temperature, air conditioning and meetings...HI HI. A big thank you to Jason.

Radio and Electronics Association of Southern Tasmania

We congratulate Tony de la Bere from Howrah who successfully gained his Standard licence recently. We should be hearing Tony on air very soon.

REAST's July presentation was given to us by Jim Palfreyman who has just finished his thesis for a Masters in Astrophysics – studying pulsars using the radio telescope at Mt Pleasant. Pulsars provide accurate pulses and Jim spent four years studying the Vela pulsar around 1400 MHz that pulses around 700 Hz and emits electromagnetic radiation across the spectrum from X-rays to the visible.

Jim also has a passion for accurate time and he assists in looking after the University of Tasmania's hydrogen maser atomic clock. He has also built his own atomic clocks using parts from eBay which keep his clocks accurate and this includes the old Hobart 'Speaking Clock'. Jim demonstrated he was a keen hacker and homebrewer which went down well with the large group that came along to hear the presentation. Thanks Jim for a very enlightening presentation.

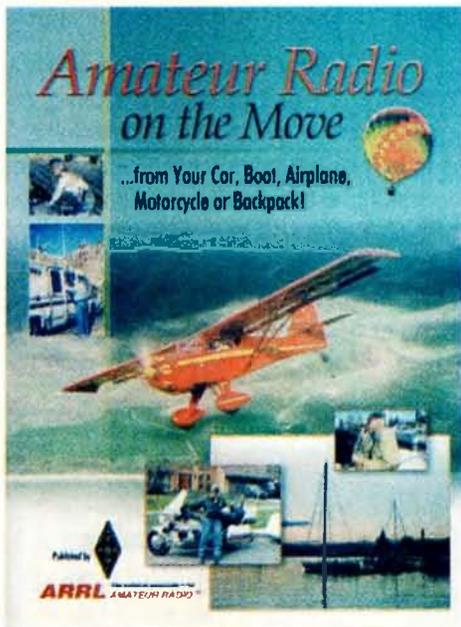


Photo 3: Jim Palfreyman explaining his homebrewing experiments getting the Speaking and Pendulum clocks atomic locked! Photo courtesy of VK7TW.

Our DATV Experimenter's nights have been treated to a video summary of the 2012 GippsTech microwave conference, including a 10 GHz preamp, power amplifiers, ARDF, SOTA, DUBUS magazines, and Jan King W3GEY/VK4GEY video compliments of Peter VK3PF. A great

big thank you to Rick VK7FRIK who has very generously donated video equipment including an LCD video monitor wall which replaces our CRT monitor wall and substantially cuts down the amount of power we use in the DATV Studio.

Visit our Bookshop



Amateur Radio on the Move

Expert advice for radio operating on the go!

Amateur Radio on the Move is filled with advice from people with lots of hands-on, practical experience with the joys, as well as the problems and pitfalls, of mobile radio operating.

Use this ARRL book to find out what to do, and what not to do!

Includes:

- Radios you can use mobile
- Getting power to run a radio
- Installation tips
- Safety
- Antennas for mobiling
- Getting rid of the noise
- Operating hints and tips
- Software

Chapters:

- Mobile in Your Automobile by Roger Burch WF4N; Mike Gruber W1MG; Terry Rybak W8TR; Mark Steffka WW8MS
- On the Go with Maritime Mobile by Steve Waterman K4CJX
- Aeronautical Mobile by Dave Martin W6KOW
- RV Mobile and Motorcycle Mobile by Al Brogdon W1AB
- HF Unplugged by John Bartscherer N1GNV

First edition, © 2005, The American Radio Relay League, Inc.

MEMBER PRICE: \$35.00*

RETAIL PRICE: \$42.00*

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details <http://www.wia.org.au/members/bookshop/about/>

VK3 news Amateur Radio Victoria

Jim Linton VK3PC

e arv@amateurradio.com.au

w www.amateurradio.com.au

Who does what?

The first meeting of Council after the Annual General Meeting elects and appoints those who are to serve the organisation for the coming year.

Council in accordance with the Constitution elected Barry Robinson VK3PV as President, the Vice President Peter Mill VK3APO, and taking on the dual roles of Secretary and Treasurer, Ross Pittard VK3CE.

In other appointments: Tony Hambling VK3VTH – Contests and Awards; Terry Murphy VK3UP – Events and Deceased Estates; Keith Proctor VK3FT – Radio masts; Peter Cossins VK3BFG – ATV matters and classes; Gary Furr VK3FX – Internet Project Development and Jim Linton VK3PC – Publicity.

Barry VK3PV is also the Team Leader of Education which includes Kevin Luxford VK3DAP/ZL2DAP as the Class Instructor.

Peter VK3APO is responsible for repeaters and beacons, plus he oversees the strategically placed Mt Stanley site re-building after the 2009 Black Saturday Bushfires.

In addition there is a band of volunteers who open the office weekly and maintain the QSL Bureau, headed by John Brown VK3FR.

Meetings with speakers introduced

In response to the interest shown Council has introduced quarterly meetings where members can come along and listen to expert speakers on various topics.

The first meeting was held in August with popular presenter Mark Tell from the ACMA.

The next meeting will be on Tuesday November 13, then February 10 during next year's Centre Victoria RadioFest No 6, and the Annual General Meeting on May 14, 2013.

The speaker nights start at 8 pm and are held at 40g Victory Boulevard, Ashburton. Put the dates in your calendar now and support this initiative.

RadioFest planning begins

Council has already begun with its review and planning for the Centre Victoria RadioFest to be held at the Kyneton Racecourse on Sunday, February 10, 2013.

Preliminary discussion involved the mini-lecture program headed by Peter Cossins VK3BFG and who can take part. Thought has been given to what new activities to include in the major event of its kind in Victoria.

The logistics and other matters will be on the agenda and if any member has ideas or wishes to be involved they should contact the Secretary, Ross Pittard VK3CE.

The bookings will open later in the year for the Traders Hall, Second-hand market places, and Club Corner.

KRMNPA update

Further Keith Roget Memorial National Parks Awards have been issued to claimants who have supplied proof of contact through an extract of their logs.

KRMNPA Manager Tony Hambling VK3VTH reports having sent two certificates with the tally now being nine for 15 or more Victorian National Parks activated or worked. One of those and the first from interstate came from David Giles VK5DG of Mount Gambier, South Australia. David VK5DG has told us he received the operating award and it looks pretty good on the shack wall.

Next class session

Enrolments are open for the Foundation licence training and assessments to be held on September 22nd and 23rd. These highly successful courses are held at the centrally located Amateur Radio Victoria office at 40G Victory Boulevard, Ashburton. For enrolment or more details please contact Barry Robinson VK3PV via email foundation@amateurradio.com.au or telephone 0428 516 001.

Silent Key

John Laurence Martin ex VK2II

John Laurence (Laurie) Martin passed away on 22 July, 2012.

He was educated at Auckland Grammar School and completed a radio course at Johnson Radio College in 1935. He started work assembling crystal radios then went to sea as a RO. He later transferred to Tasman Empire Airways. After the war he spent two years flying

around China in DC3s. He then joined BCPA and Qantas. His original call sign was ZL2IS.

Laurie was an avid inventor and made his own TV. As he could not afford the picture tube, it was listened to for quite a while! He serviced radios and TVs for friends and neighbours.

He was a long-time member of the WIA and entered in many competitions – among

them, 1983 when he competed in the RD contest, finishing in 3rd place in section B (CW/RTTY). He was also a member of the RAOTC. He did Morse code in his sleep and hence his nickname was 'Banger'.

Submitted by Kevin Stannard, formerly VK2JCY, now proudly VK2II.



AMSAT

David Giles VK5DG
e vk5dg@amsat.org

Stop him someone – he’s going historical!

This month we dwell back on the past by looking at some of the resources available for those with a sense of history. Collections are available to download for AMSAT’s journals, newsletters and bits of AMSAT’s story covered in other magazines of amateur and computing interest.

During the past year various milestones for AMSAT have been reached. Such as 50th anniversaries of OSCAR-I and OSCAR-II’s launches and 10 years since AO-7 came back to life. Another milestone occurs next month. Reading back on the experiences and techniques of those who were involved with satellites in those pioneering days has shown how far we have come. It’s much easier these days to find the satellites by just downloading a tracking program and getting it to fetch the latest Keplerian elements. But just as the Internet has made tracking easy, it also provides us with a large repository of historical documents so people like me that weren’t part of the early years of AMSAT can see how it started and developed.

AMSAT’s own

Phil Karn KA9Q is a familiar name in the AMSAT community as he has been involved in quite a few missions. His latest contribution was the BPSK telemetry on ARISSat-1. On his website he has collated copies of AMSAT newsletters and journals from 1969 to 1987, from several sources as well as his own collection. These include ‘*The AMSAT newsletter*’, ‘*AMSAT satellite report*’, ‘*AMSAT*

Orbit’ magazine, ‘*AMSAT Technical journal*’, and the ‘*AMSAT Journal*’. The period covers from OSCAR-6 through to OSCAR-13. [1]

Amateur magazine

The biggest collection I have found is the complete set of 73 magazine. Published from 1960 to 2003 by Wayne Green, 73 magazine focussed on the technical side of amateur radio. It featured many articles on amateur satellites and had regular columnists. The earliest construction article I found was from February 1965 – a VXO for a 2 metre radio to use with the upcoming OSCAR-III transponder. But the next issue had ‘An orbit computer for OSCAR III’. This piece of ingenuity consisted of a globe of the world with a wire around it representing OSCAR-III’s proposed orbit and various markers to assist in locating OSCAR-III. No personal computers in those days and amateurs were kept up to date using HF to exchange observations. I won’t be listing every satellite article in 73 magazine but there were some issues devoted mainly to satellites. Those I have found are July 1975, November 1977, May 1988, and May 1989. Most issues have an AMSAT column but the best were from Andy MacAllister WA5ZIB (later WA5ACM). His regular column ran from January 1987 through to the last issue in September 2003. Possibly the most complicated satellite project described was the AutoTrak (July 1977) and its follow up AutoTrak-II (January 1979). This device could track one satellite (or the moon) and control azimuth and elevation rotators. It was designed with discrete logic and phase locked loops for all the timing; no microprocessor

in sight. There are quite a few articles on computer aided tracking with program listings. There are annual indexes in the December or following January issues. Even so you may have to do some extra searching for OSCAR related articles for some years. The total archive is about 17 Gigabytes. [2]

Computing magazine

Perhaps the final bit of inspiration for this column came from a less likely source. I was pointed towards a collection of the magazine *Byte*. *Byte* was an American computer magazine that ran from 1975 to 1998. I used to read it at the library during the 80s (Circuit Cellar was always a favourite column) so missed out on the early issues and the later ones. But there are some articles from and about AMSAT in there. The March 1975 issue mentions tracking OSCAR in an article about amateur radio. In the September 1976 issue AMSAT presented a debug monitor for an 8080 based computer. This piece of software (six pages long of 8080 assembly language taking about 1.5 k of memory) was enough to allow you to enter and debug machine code programs via a terminal. The following month had ham radio as its theme with a selection of articles mainly on using a computer to do CW. Before the ill-fated launch of P3A, Dr Karl Meinzer presented an article describing IPS in the January 1979 issue. IPS was the language he developed that was used for the software on the Phase-3 OSCARs themselves and their control stations. The last AMSAT article I have found is in the September 1979 issue and describes the

AMSAT-Golem-80 computer. The Golem-80 used commercial S-100 cards for processor, memory and some I/O but AMSAT's contribution was to add the software for amateur applications (satellites, RTTY, CW etc) and specialised hardware such as modems. Must end here with a warning – some of these files are very large (up to 450 MB). [3]

Final Pass

This column was inspired by two nostalgic events. On a recent trip to VK1 I visited the Honeysuckle Creek

tracking station site for the first time. It is now a historical relic as the buildings no longer exist and the dish was moved to the Tidbinbilla Deep Space Network site just up the road. Its main claim to fame is that it was the tracking station that received the first pictures from the moon by the Apollo 11 astronauts.

The second event is that the first draft of this column was typed up on a 30 year old Microbee computer that was recently donated and I am currently restoring. Many of the early magazines mentioned in

this article also give insight into the early days of hobbyist computing when memory was in kilobytes and processor speed in single digit Megahertz.

References

- [1] <http://www.ka9q.net/newsletters.html>
- [2] <http://archive.org/details/73-magazine>
- [3] <ftp://helpedia.com/pub/archive/temp/Byte/>



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU
email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz
VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.



Plan NOW for JOTA/JOTI 2012!

Contact your local **Scout** or **Guide** group.

The **55th Jamboree On The Air** will take place on 20 and 21 October 2012.

This year's theme is: How big is your world?



VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC

The GARC presentation syllabus

With the exception of the monthly General Meeting, the GARC Syllabus Coordinator Lou VK3ALB provides the membership with presentations directly and indirectly connected with amateur radio, by club members and external sources. Below are four such presentations delivered this year.

Law and Order

Amongst the recent indirect presentations was the second in the series dealing with Civil and Criminal law in Australia, given by Ian VK3BFR. These talks have been extremely thought provoking in the manner in which the Australian state judicial systems operate, particularly contrasting certain 'rigid' attitudes to law in America; whereas Australia accepts that in some areas there are legal shades of grey, for instance, in the acquisition of evidence 'illegally', dependant on the severity of the crime.

An introduction to SDR

By contrast Lou VK3ALB recently gave a presentation on a simple introduction to Software Defined Radio (SDR), a feature that is now embedded in a lot of commercial amateur radio equipment, but is also gaining in popularity with constructors.

Conventional communication receivers have followed a fairly standard pattern over the years with multiple conversion stages, a high degree of screening with the design being fixed and in general being both bulky and heavy as well as expensive.

The characteristics of SDR however are significantly different, in that:

- It can work in conjunction with a notebook PC equipped with a stereo sound card ideally with a sampling rate of 48 kHz or above; on screen this will also function as a panoramic adapter.
- It is relatively simple to build using a single conversion to base band audio such as the Soft Rock 40 single band kit.
- In this configuration it is the software, and usually freeware, that defines the radio's parameters.
- The commercial plug-in units for SDR are usually under \$100.
- It is now possible to get SDR on a Samsung Galaxy 2 phone, with the gISDR Android app by Alex Lee Shing Cheung.

The detailed power point presentation covering this topic may be found on the GARC website at www.vk3atl.org under Home Page/Syllabus/Notes from previous presentations.

Measurement of VSWR

Chas VK3PY, in a series of presentations, has demonstrated in a clear objective manner the way in which forward and any reflected voltages on a transmission line interact.

In the latest presentation Chas, with the aid of David VK3QM's 3.4 GHz transmitter, a slotted coaxial cable terminated with an N connector mounted on a vernier slide, with a voltage detector coupled to a meter; showed that with a 50 ohm plug/termination, the meter showed a flat line voltage over, what were, a couple of wavelengths at 3.4 GHz. This represents a Vmax/Vmin of 1:1 signifying a perfect match of line to load. Changing the termination to a

T piece with two 50 ohm plugs (25 ohm load) showed a Vmax of twice the Vmin, cyclically over the same length of coax, giving a VSWR of 2:1. This demonstration would be of considerable interest to those training for their Foundation licence.

Magnetism, gravity and climate control

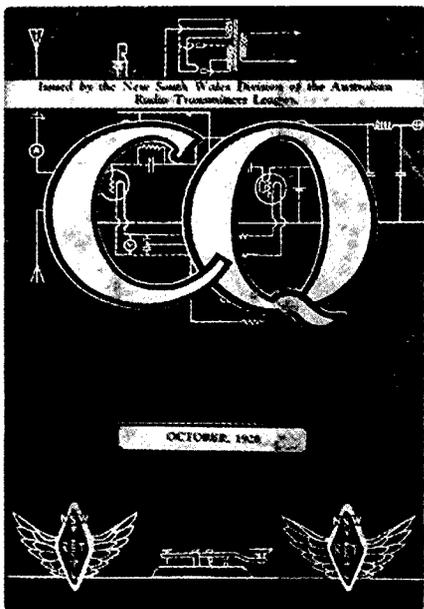
Possibly the most controversial presentation the GARC has ever sponsored was by Thomas Watson entitled 'A Challenge to Flemings Continual Magnetic Flow Rule and of the Theory of Gravity'. Watson discussed an extremely detailed PowerPoint presentation regarding the positive harmonic relationship between the electrons and their nucleus for all natural atomic structures. From this connection, he developed a simple formula that determines the atomic gravity, as a relationship between its magnetic activity for all natural atomic structures. It is this activity, he believes, that science will eventually identify as being the probable connection between the magnetic fields from the earth to the sun's magnetosphere that also facilitate on-going climate change processes.

Watson asserts that one event, with which amateurs are familiar, is the switching of the sun's polarity, which happens on average every 11 years. This event is also well known within climatic science and is referred to as the Milankovitch Cycles. It relates to the earth's orbital variations, which over thousands of years, accumulate to allegedly produce the changes in climatic conditions that we witness today.



Hamads

WANTED - NATIONAL



Copies of *Australian CQ* magazine.

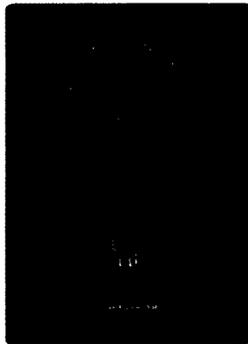
The WIA Archive is seeking early copies of the late 1920s Australian CQ for copying and/or adding to the WIA Archive's shelves.

This magazine was published by the NSW Division of The Australian Radio Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrajong Radio Museum. Collectively, we wish to build up the issues extant.

The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.

WANTED - NATIONAL



The WIA Archive is seeking a copy of *Radio Broadcasting Technology* by John F. Ross.

This book covers 75 years of Radio Broadcasting History in

Australia between 1923 and 1998.

It primarily covers Commercial and ABC broadcasting, but also contains some information about activities of early amateur broadcasters.

This is a hard covered, substantial book, approximately A4 page size and has 600 pages. It was privately published and so had very limited circulation. The WIA Archive would like to obtain a copy to complement other books held by the institute covering early Australian broadcasting and communications.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate a copy of this important book.

FOR SALE - VIC

I would rather give it away than dump it, so this is FREE. National Electronic organ. Top G# working but others are not working. Has a 50 W (peak) solid state amplifier, 1 x 25 cm speaker, 2 x 20 cm speakers, 1 x 2.8 cm speaker, 73 IC's, 254 transistors (including 11 Fets), 408 diodes. Also plenty of useful parts if you don't want to repair it. Pick up from Cohuna.

Contact Norm VK3JAL, phone 03 5456 3122.

Kenwood two metre FM TX, TR7950,S/N 4070886. Unused, and in original package. \$300.

AWA RT80 TX, model IM82002, S/N 203733, 148-174 MHz, complete with control unit. Unused, and in original packaging. \$200.

Philips (TCA) TX, FM1677C/25, S/N 7626, complete with mounting hardware, Suitable for conversion to ham band, \$100.

VK Powermaster power supply, 13.8 V, 20 A, \$150.

Contact Bill Adams VK3ZWO, QTNR or at waadams@dodo.com.au

I have for sale one Henry 1kd5 linear amplifier. Included is lots of information on the unit, plus the operating and maintenance manual. Also included is a spare '3-500Z' and spare tuning charts and information.

I have never used this amplifier since I purchased it almost a year ago, but I always turned it on and let it run for an hour or so each week to keep the tube in good shape. This is a very heavy unit, thus pickup would be advised; however, you pay for the post if required. The unit looks clean for its age.

Asking price is \$550.00 with a spare 3-500Z tube and all paper work.

Contact Cliff VK3CB, phone 03 5346 1534.

FOR SALE - NSW

FT-1000MP, and FL-7000 amplifier, \$3,500.00.

Contact David VK2AYD on 02 6585 2647 or on dvdply@midcoast.com.au

WANTED - ACT

A printer compatible with Tono and/or Telereader series. Or information about same to assist in a purchase.

Contact Fred Ryan VK1RY QTNR or on phone 02 6247 9886, or by email to fwryan@tpg.com.au

FOR SALE - SA

ESR Meter parts – Complete parts kit, \$69.95 plus postage. Order on-line from Aztronics Pty Ltd, 170 Sturt St, Adelaide, 5000. Phone 08 8212 6212 or at www.aztronics.com.au

PCB only, \$10.00 plus postage. Order on line from VK5JST, www.users.on.net/~endsodds



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

AMIDON FERROMAGNETIC CORES



ttss systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystem.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links
related to Amateur Radio
and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products
Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**

About Hamads

- Submit by email (**MUCH PREFERRED**) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'

PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au



Tecsun PL 600 HF Receiver

Easy to use 600 memories

Large LCD display, direct frequency entry, LW, MW and continuous SW coverage to 29,999KHz, SSB, supplied with approved charger and NiMh batteries.



ONLY \$139 + shipping

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100
Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au

www.avcomm.com.au

ADVERTISERS INDEX

Av-com	63
ATRC	13
Com-an-tena	15
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	7
TET-Emtron	9
TTS	63
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

JACKSON BROS

www.jacksonbrothers.com.au
Highest quality products made by UK craftsmen

Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES

HAMMOND MANUFACTURING - Large range of quality electronic enclosures for the discerning Radio Amateur. Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many ARRL projects.

Cookson Controls CHARLES I COOKSON PTY LTD
11-13 Port Rd Queenstown SA 5014
Tel: (08) 8240 3200 Fax: (08) 8240 3233
sales@jacksonbrothers.com.au
ccookson@hammfg.com
ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND

Directory

National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>



The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au

- * John Bishop VK2BK
- Dominic Dahl VK2YDD
- * Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- * Bob Tait VK3XP
- Luke Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- * Michael Charteris VK4QS
- Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- * David Clegg VK5KC
- * Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- * Heath Walder VK6TWO
- * Craig Lamb VK6FLAM

Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- * Justin Giles-Clark VK7TW
- Peter Rumble VK7IY

Northern Territory Advisory Committee

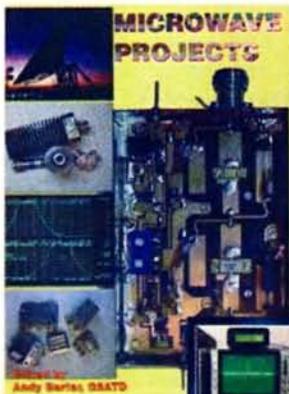
Email: vk8advisory@wia.org.au

- * Peter Blackadder VK8HPB
- Garry Woods VK8GW
- * Alan Baker VK8AB
- Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board ("Nominated Member")

Visit our Bookshop



Microwave Projects Vol. 1 & 2

Volume 1 is packed full of ideas from around the world, this book covers the subject with a variety of projects. The book has many contributors who have a wealth of experience in this area and they have produced many projects, design ideas, complete designs and modifications of commercial equipment. This title provides much useful information as to what can be achieved effectively and economically. Covers useful theory of designing microwave circuits and test equipment for the projects.

Volume 2 brings you more innovative projects from around the world. If you are interested in building equipment for the Amateur Radio microwave bands, the designs in this book are sure to please you. Projects have been selected from international authors and all of the projects use modern techniques and current components. Details of how to obtain ready-made boards are included with most projects.



Included on Vol 1:

- Signal Sources
- Transverters
- Power Amplifiers
- Test Equipment
- Design

This is a must-have-book for all those who are already active on the microwave bands and those looking for interesting projects to embark on.

200 pages. © 2003. By RSGB.

MEMBER PRICE: \$50.00*

RETAIL PRICE: \$58.00*

Included on Vol 2:

- Transverters and transmitters, including two new transverter designs for 23cm and 13cm plus an ATV transmitter for 3cm.
- Receive amplifiers, including preamplifiers for 23cm, 13cm, 6cm and 3cm
- Power amplifiers, including a detailed design for a valve amplifier for 23cm plus solid state amplifiers for 23cm, 6cm, 3cm, 24GHz and 76GHz
- Filters, including detailed design technique for coaxial and stripline low pass filters.

216 pages. © 2005. By RSGB.

MEMBER PRICE: \$52.00*

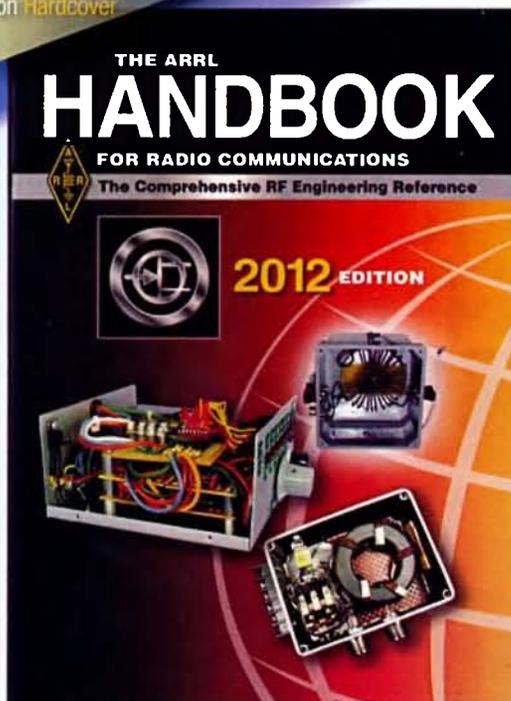
RETAIL PRICE: \$60.00*

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

Visit our **Bookshop**

Also available
on **Hardcover**



ARRL 2012 Handbook for Radio Communications (Softcover)

The ARRL Handbook for Radio Communications has kept technologists—amateur, professional and students—immersed in the radio art for generations. As innovations in wireless communication march (and race!) ahead, The ARRL Handbook has maintained its place at the forefront—a single resource covering electronic fundamentals, radio design, and loads of practical treatments and projects. You'll read it, study it, and turn to it...again and again.

Includes:

- › New Test Equipment and Measurements chapter
- › New projects, including High-Power RF Samplers, RF Current Meter, and a Two-Tone Audio Oscillator from the ARRL Lab Updated Elsie™ filter design software
- › Expanded content on CD-ROM, including an operating supplement for Space Communications, Digital Communications, and Image Communications
- › New comprehensive treatment of Noise (chapter 5)

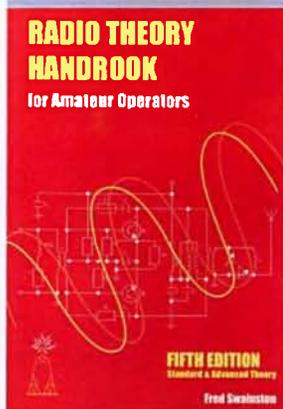
... and more!

CD-ROM Included! The CD-ROM includes all of the fully searchable text and illustrations in the printed book, as well as expanded supplemental content, software, PC board templates and other support files.

Softcover: 1320 pages. Hardcover Edition also available.

Publisher: The American Radio Relay League, Inc.

Members: \$80.00 * Retail: \$95.00 *



Radio Theory Handbook for Amateurs - 5th Ed.

This book has been written as a study guide to cover the Australian Communications and Media Authority syllabus for Australian Amateur Operator Certificate of Proficiency. The book contains the theory necessary to pass the examinations to become an amateur radio operator.

The material presented in this book has been written to be concise and easy to understand with the view to provide the reader with a holistic understanding of radio and electronics.

Sample questions similar to those in the examination question banks have been included for both Standard and Advanced Amateur Operator Certificate of Proficiency theory.

5th ed. 430 pages plus CD

Members: \$110.00 * Retail: \$132.00 *



The Foundation Manual - Second Edition

This is the second edition of the WIA Foundation Licence Manual. It is a full color manual consisting of 108 pages of relevant information for those studying, or those who would just like a reference book for Foundation Licence Operators.

The manual contains the all relevant information you will need to know to successfully complete a training course to obtain a foundation licence. It also contains a wealth of information a Foundation Licence operator will need. Items like Band Plans, Electrical Safety information, operating procedures such as the Q code, how to contact you local radio club, the WIA and much more.

Publisher: Wireless Institute of Australia

Members: \$19.50 * Retail: \$24.50 *

**Plus Postage & Packaging*

Order your copy today! Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

Experience Icom technology in analogue & digital



ID-31A



IC-2820H



IC-RX7



IC-7700



IC-80AD

IC-92AD



IC-9100



ICOM 657

To find out more about our latest products,
call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

Volume 80
Number 10
October 2012
Price: \$8 incl GST

www.wia.org.au



Seaside radio fun

YJ0VK Vanuatu DXpedition
ILLW 2012

- Portable VHF & UHF beams
- 80-10 m with a HF loop

ISSN 0002-6859

10



9 770002 685062

The radio... *YAESU*

HF/50 MHz 100 W Transceiver
FTDX 3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments



The amazing Crystal Roofing Filter performance

The Down conversion 9 MHz 1st IF frequency receiver construction, can realize narrow 300 Hz (optional), 600 Hz and 3 kHz bandwidth roofing filters.

Outstanding receiver performance, the heritage of the FTDX5000!

The high dynamic range IP3 performance that was realized and proven in the FTDX5000.

IF DSP provides effective and optimized QRM rejection

Independent Frequency display

4.3-inch Large and wide color LCD display with high resolution

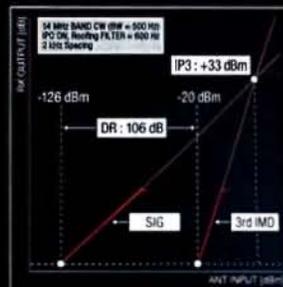
High Speed Spectrum Scope built-in

AF SCOPE display and RTTY/PSK encoder/decoder (optional)

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.



Characteristics of the Crystal Roofing Filter (300 Hz)



Order Dynamic Range IP3

YAESU
The radio

YAESU Authorized Dealer in Australia and New Zealand

Amateur Transceiver Radio Centre
Level 1, 141 Gilba Road,
Girraween NSW 2145
URL : www.atrc.com.au
Tel: +61-2-9896-2545

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street,
Greystanes NSW 2145
URL : www.andrewscom.com.au
Tel: +61-2-9636-9060

Strictly HAM Pty. Ltd.
14 Church Street,
Bayswater Vic. 3153
URL : www.strictlyham.com.au
Tel: +61-3-9729-7656

GEOPLEX DISTRIBUTION LTD
Level 1, 60 Cook Street,
Auckland 1010, New Zealand
Tel: +64-21 434342

YAESU Authorized Service Center in Australia and New Zealand

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
Tel: +61-2-9636-9060, Fax: +61-2-9688-1995
E-mail: radioandrews@hotmail.com

JNB Electronics Pty Ltd
St Kilda Rd Towers, Suite 1138, 1 Queens Rd, Melbourne, VIC 3004
Tel: +61-3-9465-9399, Fax: +61-3-8682-8748
E-mail: yaesu@jnb.com.au



Amateur Radio

Volume 80
Number 10
October 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor
Peter Freeman VK3PF
editor@wia.org.au

Technical Editor
Peter Gibson VK3AZL

Publications committee
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters
nationaloffice@wia.org.au

How to submit material
Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor
Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads
'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising
All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines
All articles, columns, hamads and
advertising booking by **first day of
previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

Vanuatu 2012 – YJ0VK – DXpedition 6
in a box

Chris Chapman VK3QB

Activation of Port Adelaide
Lighthouse Museum (AU0107) -
ILLW 2012 14

Keith Gooley VK50Q

East Gippsland Radio Group VK3EG 21
participates in the ILLW 2012 at Point
Hicks AU0027

Rob Ashlin VK3EK

ILLW 2012, Cape Willoughby,
Kangaroo Island – AU0095 23

Paul Simmonds VK5PAS

JOTA-JOTI 2012 25

Bob Bristow VK6POP

International Lighthouse &
Lightship Weekend in VK7 2012 26

Justin Giles-Clark VK7TW

Amateurs supporting the community 30

Steven Heitmann VK2B0S

ILLW 2012 – Cape Schanck 35

Glenn Alford VK3CAM



*This month's cover
The sun sets on another successful YJ0VK.
DXpedition. Photo by Brenton Vowles VK3CBV.*

Technical

Portable beams for VHF and UHF 15
Fred Baker VK2FWB

80 m or 40 m to 10 m - 19
just one loop fits all!

Ray J. Howes G40WY

Usability and complexity 29
Peter Parker VK3YE

Power supply requirements – 32
surplus equipment

Justin Giles-Clark VK7TW

Columns

ALARA 39

AMSAT 37

Contests 52

DX - News & Views 55

Editorial 2, 5

Hamads 62

Over To You 22, 36, 58, 60

Silent Key 28, 40, 44, 54

Spotlight On SWLing 46

VHF/UHF – An Expanding World 47

WIA Comment 3, 5

WIA News 4, 5

News from:

VK2 45

VK3 59, 61

VK4 41

VK5 51

VK6 43

VK7 57

Contributions to Amateur Radio



Amateur Radio is a forum for
WIA members' amateur radio
experiments, experiences,
opinions and news. Manuscripts
with drawings and/or photos are
welcome and will be considered
for publication. Articles attached to
email are especially welcome. The

WIA cannot be responsible for loss or damage to any material.
Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage
within Australia) to members.

Photostat copies

11 back issues are unavailable, photocopies of articles are
available to members at \$2.50 each (plus an additional \$2 for
each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily
reflect the official view of the WIA and the WIA cannot be held
responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Unit 20, 11-13 Havelock Road

Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mal Brooks	VK3FDL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDZ

Board of Directors

<i>President</i>	Michael Owen	VK3KI
<i>Vice-President</i>	Phil Wait	VK2ASD
<i>Directors</i>	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Chris Platt	VK5CP
	Trent Sampson	VK4TS
<i>Secretary</i>	David Williams	VK3RU
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Platt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
<i>NTAC</i>	John Bishop	VK2ZOI
	John Martin	VK3KM
	Peter Wolfenden	VK3RV
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Platt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV
<i>International Travel Host</i>	John Miller	VK3DJM

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
<i>QSL Curator</i>	National Office	
<i>Repeater</i>	Peter Mill	VK3ZPP
	Richard Cerveny	VK2AAH
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Wait	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

Change of seasons underway

Down in Gippsland the weather of late has been extremely changeable, somewhat typical of the onset of spring. The longer days and slight increases in temperature induce faster growth of the grass, which in turn means that one must fire up the mower more often! But the back yard still feels like a wet sponge underfoot, due to the wet winter. It makes for challenging decision making regarding which task to tackle when with regard to home maintenance.

The change in season means that propagation conditions will change. On the VHF and UHF bands, I have already observed some of the locals enjoying enhanced tropospheric conditions under high pressure systems. The fans of the "magic band" are hoping for conditions to improve as the equinox approaches. Lots of amateurs have been chasing the DXpeditions on HF, with plenty of pile ups heard. But it is strange that when the DXpedition packs up and heads for home that suddenly the bands appear to be dead!

Operating by the seaside

In this month's issue, we have a report on this year's YJOVK DXpedition by an all-VK team. As can be seen in the cover photo, the team was set up close to the beach in what looks to be a very pleasant location.

We also feature several reports from teams that participated in the International Lighthouse Lightship Weekend (ILLW) in August. As one would expect, most of these operations were close to the water as well as close to the lighthouse.

A key feature of the ILLW is the fellowship/camaraderie amongst the members of each team and between the various teams at different lighthouses around the globe. Readers may be interested to note that Australia was the most active country for the ILLW – more ILLW stations were registered in VK than any other country, I am informed: there were 72 lighthouses registered in VK, followed closely by 71 in the US. Participation in the ILLW is steadily increasing, so perhaps you need to start thinking now about your possible involvement in 2013 and start planning by booking a lighthouse early.

2013 Callbook

The team producing the 2013 edition of the *Callbook* are beaver away as this issue of *AR* is being prepared. The plan is to have the *Callbook* available for sale by late October. Purchasing details should soon be available on the WIA website. It is also likely that it will be available for sale at some of the main hamfests scheduled before Christmas.

Callbook Editor Greg VK3VT is busy finalising all the content and the plan is to include all issues of *AR* from 2011 on the *Callbook* CD. The CD is also likely to include the 2013 issue of the NZART *Callbook*, which usually contains a wealth of additional information.

The data on the number of callsigns issued shows that the amateur population has undergone a small decrease since last year (15153 licences in September 2013 compared to 15270 the previous year).

Continued on page 5

WIA comment

Michael Owen VK3KI

The Foundation licence – Time for a Review?



The first Foundation certificates of proficiency were issued in October 2005, after the Determination of the ACA creating the Foundation licence came into effect.

In May 2004 the ACA had published the “Outcomes of the Review of Amateur Service Regulation.” The Outcomes paper referred the Discussion paper that the ACA had published in August 2003 that had led to an extensive consultation process. The Discussion paper had raised the possibility of introducing a new entry-level licensing option in Australia, similar to the Foundation licence in the United Kingdom. The authors of the Outcomes paper concluded that “on balance and after careful consideration of submissions, the ACA has decided to introduce a foundation-style amateur licence, to form part of a three-tier licensing structure.”

From time to time different people have suggested changes to the Foundation licensee's privileges and recently the WIA Directors have been discussing the issue.

The Directors would like to know the opinion of amateurs generally on the Foundation licence, and whether there should be any changes. We are inviting submissions from amateurs, groups of amateurs and clubs to assist us.

Should the WIA seek any changes to the Foundation licence?

I would like to identify some of the issues that have been raised and also identify some of the arguments advanced for change and some of the arguments against change.

Probably the most regularly raised question is why cannot the

Foundation licensee be permitted to use digital modes? The main argument against the digital mode is that it becomes another subject to be included in the syllabus, thus making the Foundation qualification more difficult and is a move away from the simple entry level qualification that can be achieved over a weekend. It is said that the previous Novice qualification had ended up being perceived as being quite difficult, simply because over the years more and more privileges had been given to the Novice, requiring more and more matters to be added to the syllabus.

On the other hand, it is said that the absence of digital mode is quite out of keeping with today's world, that its absence labels the Foundation licence as being old fashioned. In short, it is argued that digital modes would add to the attraction of the Foundation licence.

In September 2007, as the Amateur LCD was being amended to give effect to the “Outcomes”, the WIA submitted that Foundation licensees should be permitted to use digital modes, saying:

The WIA does not wish to change the essential character of the Foundation licence as an entry level licence. In particular, we recognise the risk of adding privileges from time to time, thereby increasing the knowledge required, and therefore gradually changing the qualification from an entry level as described above to a higher level licence. We also think it is important to ensure that there are sufficient privileges associated with the higher level licences to provide a meaningful incentive to upgrade.

We see no reason why a Foundation licensee should be restricted from using the particular mode when in reality there is no difference in operating the currently available equipment in a digital mode from equipment using analogue modes.

The ACMA rejected the proposal.

The ACMA said that the entry-level licence is meant to be easy to obtain, the amendment proposed to permit digital voice mode “would require expansion of the current syllabus and add a level of complexity to the qualification.”

The ACMA also contended that adding digital voice modes would erode the difference between the Foundation and the other higher levels of licence, and that the digital voice mode would require the transmission of digital data, incompatible with the Foundation licence.

Those in favour of this change argue that the extent of the expansion of the syllabus is greatly exaggerated. They point to the Foundation syllabus and how much of that is devoted to the two modes, AM and FM, and say that the additional training would be minimal.

On the other hand, it is not clear what different people mean by digital mode in this context.

Another issue raised by a number of people is the 10 watt PEP all modes power limit. It is argued that the power limit really restricts the Foundation licensee, particularly when competing against stations using much higher power.

Continued on page 5

The WIA issues guide to running a WIA Annual Conference

The WIA Board invites clubs, groups of clubs and even groups of individuals to consider conducting the WIA Annual Conference.

The Annual Conference in 2011 was in Darwin and the host club was the Darwin Amateur Radio Club and the Annual Conference this year was in Mildura and the host club was the Sunraysia Radio Group.

The *Guidelines for Hosting a WIA Annual Conference Weekend* is based on the experience of those involved in those two conferences, and Spud Murphy (Darwin) and Noel Ferguson (Mildura) have contributed to the "Guidelines".

The Board hopes the pattern set by these two highly successful events can be continued, with different clubs in interesting areas hosting weekends, usually in the latter half of May.

The 2013 Conference will be in Perth, but clubs are urged to think about Conferences after that. The "Guidelines" set out the general procedures for a Conference, some of the issues that should be considered and the approach to actually coordinating and managing a Conference.

The Guidelines can be found at the WIA website www.wia.org.au

Applications for 2012 Club Grants received

Ten applications from WIA Affiliated Clubs were received at the WIA National Office in time to meet the deadline on Monday 20 August for applications for grants under the Club Grant Scheme, and one application was received nine days after the deadline.

Following general discussion and discussion at the Open Forum following the Annual General Meeting in Mildura on 26 May 2012 a new and simplified criteria for a grant was adopted for this year.

The WIA Board has announced that the Grant Committee for 2012 will comprise Reg Emmett VK7KK as chair, with Peter Lowe VK3KCD and Bill Main VK4ZD as the other two members.

It is hoped that grants will be announced by Monday 22 October 2012.

Philippines earthquake

Jim Linton VK3PC, Chairman of the IARU Region 3 Disaster Communications Committee, and Eddie Valdez DU1EV, Chief Operating Officer of PARA, report that soon after the strongest earthquake in more than two decades hit, measuring 7.6 on the Richter scale, the Philippines members of the Ham Emergency Radio Operations (HERO) soon after were exchanging messages with the affected coastal areas. Eddie Valdez DU1EV, the Chief Operating Officer of the Philippines Amateur Radio Association, said that DU1VHY handled traffic and received reports from the affected areas of DU4, DU5, DU6, DU8 and DU9. Eddie DU1EV said: *The area of DU5 was nearest the epicentre and DV5PO reported there was a power outage in Borongan, Samar Island. DV5RAY reported that people were evacuating because of the tsunami alert.*

The Philippine Institute of Volcanology and Seismology later lifted its tsunami alert after only small waves were generated and not the life-threatening waves that can be expected to occur with an earthquake of that size. It also caused tsunami warnings in Indonesia, Japan and Papua New Guinea. He said the earthquake was felt over a wide area with numerous reports including shaking chandeliers and triggering alarms in some vehicles. Eddie DU1EV said it was good that many hams in the affected areas showed up on the

2-metre and 40-metre emergency channels and other districts were on standby if needed.

The undersea earthquake struck the central part of the archipelago off the town of Guiuan on Samar Island on Friday. It killed one person in a collapsing house, caused damage to infrastructure and people to flee to higher ground. Tens of thousands of people have since returned home. Eddie DU1UV reports that an initial assessment by the government's National Disaster Risk Reduction Management Council is that there was no major structural damage in the affected areas.

Most of the homes destroyed were made of light materials in the coconut growing low-socioeconomic area. In February this year a 6.8 quake killed 51 and left more than 60 people missing in the Negros and Cebu regions on the Philippines. The latest earthquake followed HERO being activated during the flooding caused by heavy recent seasonal monsoon rains and storms, including most of the capital of Manila being under water during a 48 hour deluge. Authorities have also renewed their warning of further disasters in the Pacific-rim of fire which includes the Philippines, where an earthquake measuring 7.9 killed thousands in the area of Luzon on July 16, 1990.

Typhoon wreaks havoc on Korea

Jim Linton VK3PC, Chairman IARU Region 3 Disaster Communications Committee, and Yong-Surke Lee HL1FB report that as the powerful storm Typhoon Bolaven battered South Korea, radio amateurs joined the response and recovery efforts to minimise the toll and damage. The state disaster management agency reported deaths as the storm, the strongest to hit the country for almost a decade, left nearly 200,000

homes without power, and property damage.

From the Korean Amateur Radio League, Yong-Surke Lee HL1FB said the 2-metre repeater D90IK on a 535 m high mountain with coverage of at least 100 km was used for emergency communication on the day the storm hit. Lee said: *The control station 6K2BUF*

was in charge as the effort was maintained. Operators were able to contact stations to get the disaster information relayed and report them to the authority. Some areas had power outage so battery operated 2 m radios were used. DS2HBX went up to the repeater site and had a gasoline engine generator ready in case for power outage.

There were media reports of widespread damage this week in the less prepared North Korea. While South Korea is engaged in a big clean-up, a close watch is being kept should another storm - Typhoon Tembin - which was moving over the Yellow Sea.

Editorial

Continued from page 2

The number of repeater and beacon licences has increased slightly (474 in 2012 compared to 467 in 2011). Most call areas had a small decrease in the number of callsigns, except for VK1, where the numbers grew slightly.

These numbers are interesting when you consider the President's Comment in last month's *AR*. Perhaps we all need to consider how to attract newcomers to our hobby? Our local club is currently finalising arrangements for a Foundation

training and assessment weekend in the near future. Hopefully the course will see a small increase in local amateurs and perhaps also a few successful upgrade candidates.

Cheers,
Peter VK3PF

WIA comment

Continued from page 3

The power level for the Foundation licence was an issue during the consultation process leading to the Outcomes. The Outcomes paper said this on the question of power:

In deciding to permit a maximum transmitter power of 10 watts PEP, the ACA has followed the UK model for its foundation licence. Although the majority of submissions suggested that a maximum transmitter power of 100 watts PEP should be permitted, it was considered that the need to limit the occurrence of interference and exposure to EMR, in circumstances where licensees are required to possess little technical knowledge, far outweighed the claimed operational advantages provided by allowing the use of 100 watts PEP. The claim that 100 watts PEP should be permitted on the basis that commercially manufactured

10 watts PEP equipment is not available was not accepted. At least three models are available that are known to meet this specification.

Against this view is put the view that the power of 10 watts PEP is a disincentive and more would seek the Foundation qualification if the power was higher, that even the grey nomads with their land mobiles use 100 watts PEP, and a power of 25, 50 or even 100 watts would be more appropriate for the Foundation licensee.

Another issue that has been raised is the structure of the Foundation callsign, that is, a four letter callsign. It has been said that overseas amateurs are confused. In the UK the Foundation callsign is identified by a different prefix. It is not known whether the international prefixes allocated to Australia, namely AXA-AXZ, VHA-VNZ and VZA-VZZ, have all been used, but is

it thought desirable to explore the option of a different prefix? Or, is the VK so recognized as Australia that the present system is preferred?

Is there any other matter that should be reviewed?

Please do bear in mind what the Foundation licence is meant to be, an entry level licence achievable over a weekend, to give those who are interested a taste of amateur radio, and hopefully, to provide incentives to upgrade.

May we have your opinion, with your reasons for your conclusion? Even if you think that there should be no change, it is important that you communicate that view to us.

You can send your submission by mail to the WIA at PO Box 2042, Bayswater, Victoria, 3153, by fax to (03) 9729 7325 or by email to nationaloffice@wia.org.au

Participate

Oceania DX Contest

October 6 & 7 - Phone
October 13 & 14 - CW

Vanuatu 2012 – YJ0VK – DXpedition in a box

Chris Chapman VK3QB

Once again the Oceania DX Group and the VK crew headed to Vanuatu as YJ0VK for 14 days from 21 April to 5 May, 2012. Rather than provide an account of operations, we thought it better to tell a slightly different story this time. Many readers may recall that this is the team's third trip to Port Vila, Vanuatu.

By now the team has many elements of a DXpedition well in hand. We like to refer to these DXpeditions as low stress, fun, 'DXpeditions in a box', providing an opportunity for new operators to have a go without the intimidating environment that accompanies many large scale DXpeditions. We aim to keep the fun factor up at both ends of the pileup and keep the logistics and costs within reach of most operators.

Any such venture requires considerable planning, risk management (aka, what could possibly go wrong?), goal setting and expectation setting. Let's begin by explaining how we addressed each of these requirements and then how it affected the outcome.

Goal Setting

Our goals can be best described as follows:

- Find a location which is reasonably high on the DX most wanted list – say 100th or better – this ensures plenty of pileups, good fun and learning experiences for the new operators – without being a 'mad house'.
- The location must be easy to get to with normal commercial airlines, pleasant climate and within six hours flying time of the eastern seaboard of VK.
- Obtaining a local licence should be relatively straight-forward.
- The location should have a



Photo 1: The YJ0VK team. Lee VK3GK, Brenton VK3CBV, Chris VK3QB, Luke VK3HJ, Mike VK3GHM and Allan VK2CA.

suitable QTH for establishing an adequate set of radio stations and antennas as well as providing basic quality accommodation.

- Focus on WARC bands.
- Apply the Keep It Simple Stupid (KISS) principle with regards to equipment; reduce costs and logistics associated with freight and the set-up/tear-down effort.

Expectation Setting

- We like to run a fairly relaxed DXpedition. This means that operators can take a break; we don't work to a tight operating schedule.
- We have a team leader but we work as a team.
- If appropriate, we agree about any contest operation that may be scheduled. That is, will our station enter the contest or not? How will those operators not interested in the contest spend this time?
- We operate as a team with a team callsign. No individual callsigns – multiple callsigns have the potential to confuse

the pileups and create problems downstream for the QSL Manager.

- Our operation allows for side trips and excursions; whilst in a beautiful part of the world we should see more of it than just the faceplate of a radio.
- We aim to keep costs manageable.
- We welcome donations to help with freight costs, but do not actively chase sponsorship.

Risk Management (what can go wrong – lessons learned)

- Sickness and injury
- Inclement weather
- Broken equipment
- Interference (both ways – created by us and affecting us)
- Unforeseen expenses
- Reduced efficiency/fun due to difficulty in erecting antennas

I will now work through each of the above elements which I hope provides a useful insight into another side of DXpeditioning.

First a quick review of the operation is appropriate to set the scene. Our team consisted of six

VK operators: Chris VK3QB, Luke VK3HJ, Allan VK2CA, Brenton VK3CBV, Lee VK3GK and Mike VK3GHM. Refer to Photo 1.

All operators had been to Vanuatu at least once before. The team has good experience working together and we have learnt many lessons from previous DXpeditions.

To best satisfy our goals the team decided once again to activate Vanuatu as YJOVK. We had considerable experience with the country, climate, QTH and Vanuatu is still well within the top 100 most wanted countries – especially in Europe with an emphasis on the WARC bands and RTTY. We also had the licence in hand and a well-tested QTH. By choosing Vanuatu we also eliminated many of the risks and potential issues that plague many DXpeditions.

A very quick overview of the statistics is presented in Tables 1 and 2. A total of 17,415 QSOs with almost 34% being on WARC bands and about 19% of all QSOs being RTTY – thanks to Allan VK2CA, our 'RTTY-man'. We achieved our goal of focussing on the WARC bands and RTTY.

Band	CW	PH	RTTY	PSK	FM	Total
160	3	0	0	0	0	3
80	197	9	0	0	0	206
40	996	118	41	0	0	1155
30	734	0	498	0	0	1232
20	1598	1265	421	1	0	3285
17	1747	603	483	0	0	2833
15	1789	1555	647	5	0	3996
12	1298	215	302	0	0	1815
10	969	1050	819	1	50	2889
6	1	0	0	0	0	1
Totals	9332	4815	3211	7	50	17415

Table 1: QSOs by band and mode.

Band	PH	CW	PSK	RTTY	FM	Total
AF	19	29	0	9	0	57
AN	0	0	0	0	0	0
AS	1760	3914	2	1630	38	7344
EU	1409	2363	1	1004	0	4777
NA	1212	2658	1	471	1	4343
OC	387	302	2	87	11	789
SA	28	66	1	10	0	105
Total	4815	9332	7	3211	50	17415

Table 2: QSOs by continent and mode.

Equipment

The following sections provide a synopsis of our equipment and how it helped us achieve our goals.

Radios

As we were running three stations we made the conscious decision to stick with the Kenwood TS-480HX radios. The radios are well suited to DXpeditioning;

Electronics Enthusiasts

Mains Timer Kit for Fans & Lights

Refer: Silicon Chip Magazine August 2012.

This simple circuit provides a turn-off delay for a 230VAC light or a fan, such as a bathroom fan set to run for a short period after the switch has been turned off. The circuit consumes no stand by power when load is off. Kit supplied with PCB, case and electronic components. Includes 220nF capacitor for 2.5 mins to 45 mins. See website for a list of alternate capacitors for different time periods between 5 seconds to 1 hour.



NEW

\$29⁹⁵

Note: Assembly required

- Handles loads up to 5A
- PCB: 60 x 76mm

KC-5512

3" Sheet Metal Bending Pliers

Bend sheet metal easily with this heavy duty offset hand tool. Features strengthened rivets and dual layered pitted handle for a firm grip

- Jaw Width & Depth: 75 x 30 mm
- Overall length: 210mm

TH-2336



\$24⁹⁵

NEW

32 Piece Precision Driver Set

High quality driver set with all those really small bits. Tactile handle with hardened hex shaft that extends from 140 to 210mm. Ideal for jewellery, model making or electronics. Slotted, Phillips, Pozidriv, Torx and hex. Case included.

- Case size: 157(L) x 100(W) x 27(D)mm

TD-2106



\$17⁹⁵

1kW Sine Wave Inverter Generator

NEW



\$599

Ideal for camping or at home during power blackouts. Produces a stable pure sine wave 230VAC to power most domestic appliances including sensitive electronics. Features include low noise level, low oil cut-out, and overload circuit breaker. See website for full features and specifications.

- Weight: 13kg
- Size: 470(L) x 400(H) x 255(W)mm

MG-4501

Portable Fold-Up Solar Panel Kits

Excellent for your next camping trip, this will easily charge a battery (not included) to run power, lights, TV etc. Each model features folding solar panel with alligator clamp connections on a 4m lead, and a charge controller. All supplied with a heavy duty metal carry handle and latches, plastic protective corners and a durable nylon carry bag.

Choose from three 12V sizes

- 40W, 640mm wide (open) ZM-9132 \$249.00
- 80W, 1090mm wide (open) ZM-9130 \$379.00
- 120W, 1090mm wide (open) ZM-9134 \$499.00



From \$249

NEW LOWER PRICE

To order call 1 800 022 888
www.jaycar.com.au



all HF bands plus six metres, reasonably compact for a full function 200 watt radio. Maintaining consistency of rigs across the three stations also ensured familiarity for the operators and less likelihood of improper operation leading to QRM or, at worst case, damage to equipment. You will note the lack of amplifiers. Amplifiers are great (mandatory?) for Top Band, but given our QTH and the proximity to salt water the team felt the (considerably) extra hassle with freight, potential interference and licencing requirements did not warrant the potential benefit. 160 metres was full of tropical noise anyway, so a decision was made to spend very little time on that band, and this is evidenced in the results. We believe that the difference between 200 watts and the additional power of an amplifier would not have made a measurable difference to the results. When you are the DX, there is not much point being the strongest signal on the bands anyway.

Antennas

As the QTH was beachfront we opted once again to run verticals and wires. We did not take the beam this year – the rewards of a directive antenna simply did not warrant the extra hassle with freight and set-up; both important considerations with our goals and expectations. Antenna consideration is a key aspect of planning successful DXpeditions; the practicalities of freight and time spent erecting and packing up, both activities which reduce the time spent on-air and add another level of complexity and cost.

Vertical antenna

When a beachfront QTH presents itself a simple vertical antenna is the best and most flexible option. Our team used two antennas configured as follows:

12 metre squid-poles with wire taped from the base to the top. An SGC-230 auto-ATU mounted at



Photo 2: The base of one of the 12 metre squid pole antennas.

the base and a single counterpoise running into the seawater. The base of the antennas were constructed by Ian VK3BUF and made for easy freight and on-site assembly. Refer Photo 2.

These antennas were flawless and operated exceedingly well on all HF bands from 80 metres through to 10 metres.

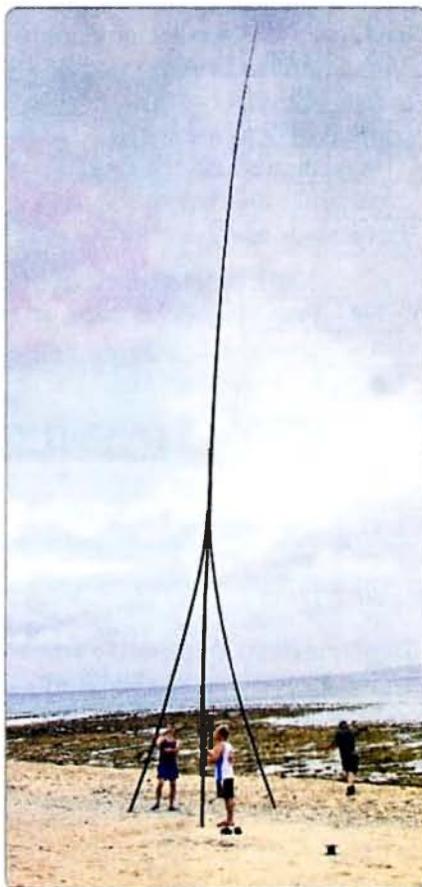


Photo 3: The inverted L in place.

The SGC-230 ATUs worked without fault; they are weatherproof, of solid mechanical construction and eminently efficient given their size and purpose. Furthermore, this model is rated at 200 watts and comfortably handled two weeks of constant use in a demanding salt water environment. Thanks to Dave from TTS Systems for loaning the team one of these units. A smaller operation could easily get by with the SGC-237 100 watt version.

This article would not be complete without a quick description of our inverted L for 80 and 160 metres. We roped together some bamboo poles and attached a 12 metre squid pole to the top. This made the vertical leg about 18 metres high. It was quite a beast to see, and also worked well on 80 metres especially. Refer Photo 3.

Dipole

When two 17 metre high coconut palms about 50 metres apart present themselves it really is a situation crying out for an 80 metre dipole fed with open wire line. And this is what we did. This antenna provided two very useful characteristics; first it was another fantastic multi-band antenna when fed through the MFJ-962 tuner; second, the horizontal polarisation assisted in reducing interference between the stations. In fact, the team were able to run two stations simultaneously on the same band (one SSB and one CW) where one was using the dipole and the other using the vertical.

As many ardent dipole followers will attest, the real problem arises when faced with getting the wires up in the trees. We had the benefit of an ingenious device loaned to us by Brian VK3BSN from NBS Antennas. The 'antenna launcher' - based on an arborist's tool, and used to launch ropes into high trees to assist them in climbing and managing the destruction of said trees. Refer Photo 4. Our thanks to Brian for the loan of this important tool – the team had previously learnt



Photo 4: The antenna launcher – in action.

the benefits of such a device on Lord Howe Island in 2009 and then again in Vanuatu in 2011 – and Brian

had adapted the design by breaking the pole into two sections making for far easier transport.

Fritzel FD-4 dipole

Whilst at the Wyong Field Day, Carsten from RF Solutions was kind enough to offer the team the use of the Fritzel FD4 multi-band antenna. Without giving too much away, we were very impressed with this antenna. It resonates nicely on 80, 40, 20, 17, 12 and 10 metres. The construction is extremely robust and once up in the air (about 14 metres high) this antenna proved to be a stable workhorse bringing in many RTTY QSOs. It performed very well and would be an ideal antenna to compliment a small operation. Thanks to Carsten from RF Solutions for donating this antenna.

Band pass filters

Band pass filters were a key component of our risk mitigation strategy as far as multi-station interference was concerned. As all three stations were within 15

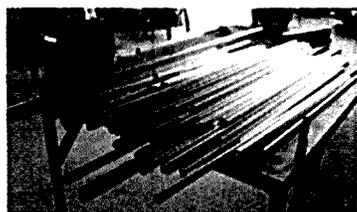
metres of one another, we needed all the armoury we could muster to minimise inter-station interference. At first the units appeared to do a fine job, but within two to three days they progressively failed. We are still liaising with the manufacturer of these units, so will reserve any final comments pending their assessment and response. However, the clear lesson here is to ensure BPF are selected carefully and some performance testing is carried out prior to actual usage.

Financing DXpeditions

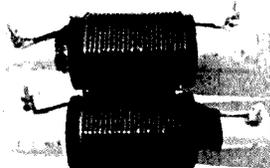
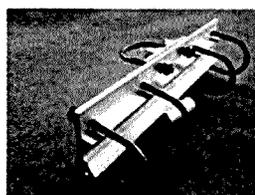
Much has been written about this topic, and it can be a subject fraught with controversy and debate. Money (or lack of it) plagues most DXpeditions and it is a constant source of concern for the organisers and team members alike. From my experience, most operators are more than prepared to pay for their travel (assuming normal commercial air travel), accommodation and meals;

TET-EMTRON

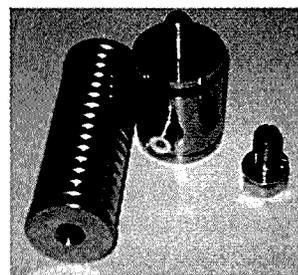
More and more Home Brew parts every month!!!



Aluminium Cut to Order.



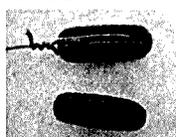
Traps.



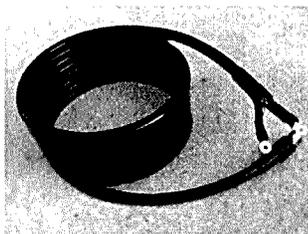
Mobile Parts.



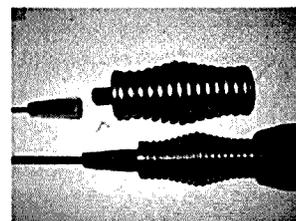
Dipole Centres



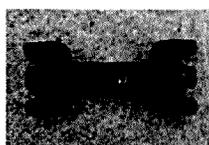
Insulators.



HF Chokes.



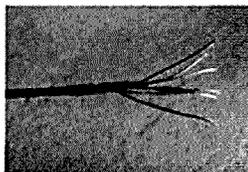
Codan and Barrett Parts.



450 Ohm Spreaders



Baluns.



Copper Wire.

See our wide range of new parts and products at:-

www.tet-emtron.com

TET-Emtron

80 Stock Road, HERNE HILL. WA 6056

Phone: 08 9296 3224

and this is entirely reasonable. In most cases, all equipment is provided by team members. By choosing locations with regular airline schedules, we minimise the extremely high costs that often plague DXpeditions; especially where a boat charter is required. It is the extra costs that many do not consider, and these costs can add up considerably.

- DXpeditions often have equipment requirements that may not be fulfilled by the average radio amateur. Examples include: band pass filters, high quality long coax runs, antenna launcher, portable antennas, transport boxes for delicate radio equipment, portable laptop computers for log keeping and, of course, generators and fuel for remote operations. Also, some equipment is not worth bringing home – either due to the weight or deterioration due to weather, usage or salt water (for example, antenna wires).

- Freight: Freight equals weight. Weight equals cost, and lots of it. Excess baggage is an area that most airlines use to make massive profits. Here is an example; let's say I weigh 80 kg. The cost for my return airfare to Vanuatu is \$750 – including food, alcohol, facilities and pressurisation. By comparison, transporting 80 kg of additional freight is \$35 per kg, or in this case \$2,800. You can get a 30% discount by paying in advance. From this example you can see that air freight is a significant expense for most DXpeditions. We aim to minimise this expense as follows:

- minimise personal effects. Each operator was permitted five kg of personal items. Travelling to a country like Vanuatu makes this possible due to the pleasant weather.
- Careful selection of equipment. Pack just the right gear, no more, no less.



Photo 5: Inside the Cessna on the way to Mt Yasur.

- Simple antennas tend to mean less weight. Using lower specification coax reduces the weight a lot; and for HF operation the dB loss is not significant. Again, this is about overall reward versus cost. For example, the weight of a 30 metre run of RG213 is just not worth it for HF and 200 watts.
- Wear as much of your clothing as possible. This means less weight and fewer items to take up precious baggage allocation.
- Wear clothes with BIG pockets and carry everything possible as carry-on! This is a bit of a trick, and you do need to be careful not to go overboard.
- Another strategy if you have considerable excess baggage is to use a freight company and send the gear ahead of time. This can be done for about 20% the cost of normal airline prices. Our research suggests the break-even point is about 40 kg for such service.

For a relatively simple DXpedition like YJ0VK 2012, the costs over and above our airfares, accommodation and food were approximately

\$1,100, being made up of excess freight and miscellaneous equipment.

On top of these costs, and of a more general note, each member will undoubtedly buy additional gear to make the operation more successful. This is a hidden cost, and one that is best regarded as an inherent part of the hobby.

How did we go managing risk?

I'll work through each of the potential risks and how we dealt with them.

1. Sickness and Injury

Touch wood, we've yet to suffer any serious injury. However, as team leader I keep a log of each member's known health issues, medications, insurance details and emergency contacts. We insist that each member has adequate travel insurance. In spite of our (sometimes poor!) judgement, we try to avoid the more risky activities of climbing trees and/or putting ourselves in harm's way. The antenna launcher is a good example of using the right equipment to eliminate the risk associated with climbing trees.

Unfortunately this year the whole team came down with some sort of exotic stomach bug. It was not

pleasant, but thankfully it lasted only 24 hours. This impacted on our QSO rate for about 48 hours as the beastly worked its way through each of the team members. About the best way to minimise such illnesses when abroad is to (obviously!) ensure personal hygiene standards are maintained – keep those alcohol based hand washing dispensers handy and wash hands at every operator change, before and after meals, and so on. Next time we'll ensure we have a ready supply of hand wash by every station and in each room.

2. Broken Equipment

Our only casualties were the band pass filters. These filters were rated at 200 watts, so it was a big disappointment when they progressively failed. This was evidenced either by way of smoke escaping the cabinets or the units going out of band, literally. Upon inspection we found the capacitors had fried and the coils had both increased their spacing (hence the de-tuning) and lost their enamel coating. We can only assume this is the result of poor design; notes have been made and sent to the manufacturer to obtain feedback (and hopefully a refund).

Photo 6: The group on site at with Mt Yasur in the background.



Of course, having our BPFs fail meant we had to deal with increased interference between the stations; a less than ideal situation which we will resolve before the next trip.

3. Interference

Interference is multi-faceted when on a DXpedition, as when operating from home. There is the interference you create, and there is the interference you are subjected to. Both have the very real threat of ruining, or at least reducing your success and operating enjoyment. There is no point spending thousands of dollars and countless hours organising a multi-station DXpedition only to find it is impossible to operate more than one station at a time due to interference.

- You want to minimise interference you receive from spurious equipment in your immediate environment. Our QTH was in a simple resort which had *no* TV sets, a good quality mains power supply and was adequately distanced from neighbours. Sadly, radar interference from Asia was an annoyance occasionally, on 80 and 40 metres in particular.

Amateur Radio Specialist

Look forward to hearing from you



AMATEUR TRANSCIVER RADIO CENTRE

Australia's largest stockist
of Amateur Equipment

We supply these famous brands

- ALINCO • ICOM* • KENWOOD* • LDG*
- YAESU* • DIAMOND* • BUTTERNUT*
- DAIWA* • PALSTAR* • ALPHA DELTA*
- VERTEX STANDARD* • TARHEEL*
- CUSHCRAFT* • GAP*
- RADIOWAVZ* • HUSTLER*
- SUPER ANTENNAS*
- MOSLEY* • HEIL SOUND
- SGC • STARTEK*
- COMMANDER AMPLIFIERS*
- M2 ANTENNA SYSTEMS
- HI-Q ANTENNAS* • TGM*
- COMET* • UNIDEN*
- SPIDERBEAM* • AVAIR*
- MALDOL* • AUTOTENA*
- PALOMAR AMPLIFIERS*
- BUCKMASTER*
- BUXCOMM* • ZCG SCALAR*
- SYNCRO* • MOBILE ONE*
- OUTBACKER* • BENELEC*
- RF INDUSTRIES* • CRE-
ATE* • HEAR IT* • RF PARTS*
- N2VZ ENTERPRISES*
- RM ELECTRONICS*
- CHAMELEON ANTENNAS*



*Only equipment purchased from an authorised dealer carries the full manufacturer's warranty.

We have DJ-X11
(02) 9896 2545
www.atrc.com.au

Check out our Hot Specials

Level 2, 141 Gilba Road
Girraween NSW 2145

inquiries@atrc.com.au

Ask what we can do for you,
Les VK2MPZ

We Ship Anywhere

- You want to avoid atmospheric interference if at all possible. The obvious problem being thunder storm activity in the tropics. Picking the correct time of year is probably your best chance of avoiding such problems. We had one evening where no operation was possible due to local thunder storms.
- You want to minimise interference caused by close proximity of transmitters. We did about all we could. We used band pass filters (which, as described elsewhere, failed). We were careful about band selection, and we reduced power where-ever possible. Also, we did not use amplifiers. The old adage 'use only as much power as is required to make the QSO' holds especially true for a DXpedition.
- You want to minimise interference caused by close proximity of antennas. This is best achieved by physical separation, polarisation and

location. We used all the methods available to us. Overall, we were very pleased with the lack of inter-station interference that we achieved as a result of antenna selection, orientation and placement.

Summary

Overall, YJ0VK 2012 was a great success and enjoyed by all. We worked over 17,400 QSOs with about 75% being unique calls. Our team, represented and supported by ODXG Inc., now has an effective 'DXpedition in a box' with equipment, check-lists and methods for organising simple DXpeditions in our region. The group is focussed on providing a collegiate environment and we encourage newcomers. By focussing our efforts on simple, yet enjoyable DXpeditions we have been able to address the basic requirements, whilst minimising costs and reducing risks, both of which are major impediments to DXpeditioning.

Lastly, I mentioned that we wanted to see more than the faceplates of the TS-480 radios. Five team members took an intrepid trip aboard a small six seat Cessna (built in 1969) to the island of Tanna to visit the world's most accessible active volcano, Mt Yasur, about 180 km to the south of Port Vila. See Photos 5, 6 and 7. It was a truly unforgettable experience.

More pictures and statistics etc. can be found on our web page at <http://yj0vk.odxg.org/> and visit <http://www.odxg.org/> for more information about ODXG Inc. There are also links to our online logs and QSL instructions. YJ0VK logs were uploaded to LoTW within two weeks of the operation's conclusion.

The YJ0VK team thanks the following for their support in providing or loaning equipment or services.

Brian Smith from NBS Antennas - <http://www.nbsantennas.com.au/>

Carsten Pederson from RF Solutions - <http://www.rfsolutions.com.au/>

Dave and Claireen from TTS Systems - <http://www.ttssystems.com.au/>

The committee and members of ODXG Incorporated - <http://www.odxg.org/>

Allan Meredith from VK Classifieds - <http://www.vkclassifieds.com.au/>

We also thank individual amateurs who made donations to help offset the expenses associated with this DXpedition. If you wish to know more about our operation or want to consider joining our next DXpedition please visit <http://www.odxg.org/>



Photo 7: A spirited Mt Yasur in action – photographed from a responsibly safe distance.



Participate

19 to 21 October 2012



JOTA/JOTI

TEN-TEC

Put a little kick in your QRP



- Model 418 160-6 metre solid state linear amplifier.
- 100 watts of output power with just five watts of drive.
- Extra power when you need it.
- Bypass mode available with the flip of a switch.
- Manual antenna switch. Allows you to quickly change between two different HF antennas.
- Automatic or manual band selection for worry free operation.
- Output power and SWR are displayed on a large easy to read LCD Panel.
- Colour adjustable LCD backlight display.
- Automatic sensing of six metre input. No need to switch to a six metre antenna. When a six metre signal is sensed, the six metre antenna port is automatically selected.

Australian distribution by



tts systems

Phone **03 59774808**

Fax **03 59774801**

Email info@ttssystems.com.au

Web www.ttssystems.com.au



tts systems

www.ttssystems.com.au

Phone: 03 5977 4808 Email: info@ttssystems.com.au

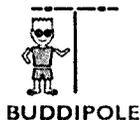
Your Australian reseller for:

YouKits

New Products coming soon

AVAILABLE NOW

- Hard Drawn Copper Wire, Insulators, Dipole Centres
- Open Wire Transmission Line, Spreaders, Kevlar Guy Line
- Spiderbeam Fibreglass Poles, Baluns and Switches



BUDDIPOLE



ELECTRONICS



High performance lightweight antennas



...America's Best!



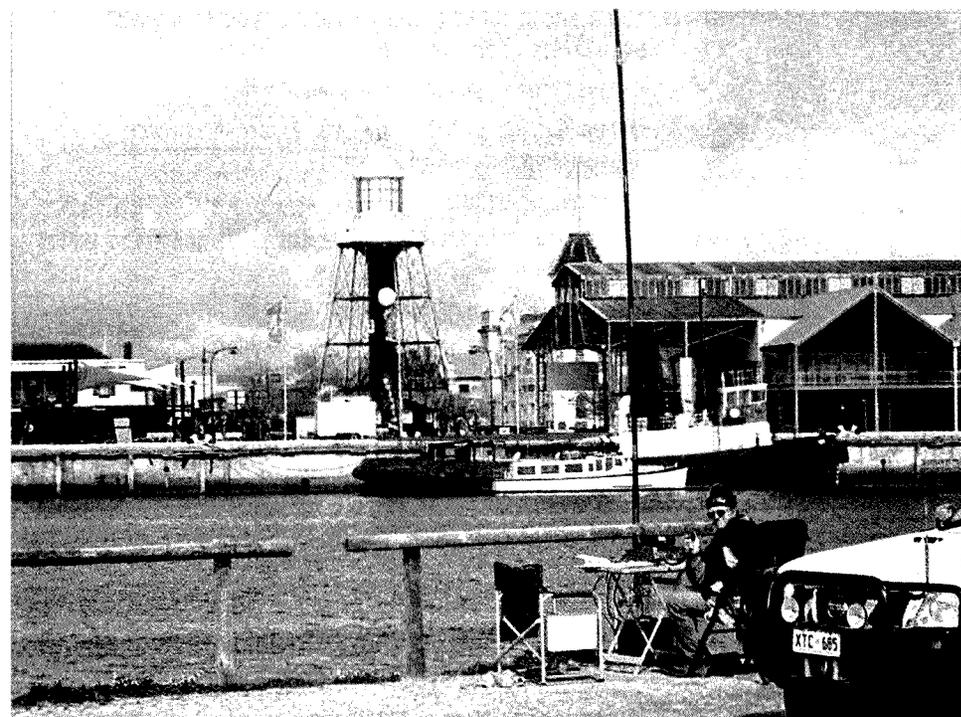
- Meanwell power supplies
- Diamond products
- Daiwa products
- Technical books
- Amidon products
- Custom cables made to order



We will be on Ballarat Hamfest on 21 October, the SPARC Hamfest on 25 November, and the Central Highlands Hamfest in Tasmania on 2nd December.

Activation of Port Adelaide Lighthouse Museum (AU0107) - ILLW 2012

Keith Gooley VK5OQ



The Port Adelaide LH, across the river from the station.

After some prodding from Steve VK5AIM, I decided to give it a go this year for my first entry into the International Lighthouse and Lightship Weekend. Steve agreed to join me for just the Saturday. As usual I left it to the last minute and didn't make any arrangements with the Maritime Museum staff. So we rolled up at the lighthouse at about 10 am but found it wasn't practical to set ourselves up right at the lighthouse. Steve knew there was a likely place immediately across the Port River from the light so we drove over the Birkenhead Bridge and found the spot quite close to the water's edge with a most suitable wooden railing to support the antenna.

The Lighthouse was originally located off Semaphore Beach which is now in suburban Adelaide. With the advancing development in the 19th century, the lighthouse became

redundant and it was moved to Port Adelaide to be set up as a tourist attraction. It is now under the control of the South Australian Maritime Museum.

The weather on the Saturday was a bit variable with some nice sunny breaks between cloudy conditions and a few light showers. There was a light to moderate breeze but not enough to worry the squid pole antenna. Fortunately the heaviest of the showers was at lunchtime. We threw the obligatory sheet of Field Day plastic over the gear and retreated to the car to have our lunch. While we did so a one legged seagull landed on the bonnet and watched us eat. They certainly know when tucker is around.

The equipment setup consisted of a Kenwood TS-2000 radio powered by a 110 Ah deep-cycle battery and a nine metre squid pole antenna of the VK7YY design. The vertical antenna was

complimented by a single 10 metre wire laid on the ground as a counterpoise; plus for good measure, a slide hammer earth stake of the VK3XSW design - see *Amateur Radio* Jan/Feb 2012. A small picnic table and two comfy chairs and we were all set. Our first contact was just before 11 am with V15CW at the Cape Willoughby Lighthouse on Kangaroo Island, with Lesley VK5LOL on the mike.

We contacted a further 15 lighthouses during the afternoon on 40 and 20 metres. The squid pole works particularly well on the latter band and we were able to have a QSO with F5CAC in north-eastern France. In all, we contacted lighthouses in four other Australian states as well as VK5. We passed the mike between us and each had a contact with each of the stations contacted.

Several interested passers-by stopped to ask what we were doing and we were able to explain about amateur radio and the Lighthouse Weekend in particular. The big advantage of setting up in a populated area means there are more people around who may wish to know what we are about. An additional advantage is the proximity of the Birkenhead Hotel. I'll say no more.

At about 4.30 in the afternoon, we decided to call it a day as the flow of contacts had almost dried up and the south-westerly breeze was becoming decidedly colder. It was a most enjoyable day even if it was not a massive exercise, as field operations go, but a great pleasure. I'll certainly give it a go next year if at all possible.



Portable beams for VHF and UHF

Fred Baker VK2FWB

The decision to retire and travel around Oz in our caravan was easy, but to play amateur radio as well was the icing on the cake.

My operation now is completely portable and consists of the following: Icom IC-706IIG, modified RFDS whips on HF, modified CB whips on 6 and 10, and two small beams for 2 m and 70 cm. Travelling in a large 4WD without a roof rack all antennas and support masts are

limited in size to what will fit on the back seat or across the rear cargo deck of our Nissan Patrol 'truck', that is, approximately 1200 -1500 mm.

Many different designs exist for small and large VHF and UHF beams and recognition must be given to Gunter Hock DL6WU who pioneered extensive research into new designs. In Australia David VK3AUU developed a spread sheet program to design large arrays and hundreds have now

Photo 1: The completed 70 cm Yagi, black carry bag, and the disassembled 2 m Yagi.



COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$265
2 m 5/8 vertical	\$125
20 m 3 el. Yagi antenna	\$460
M B vert 6, 10, 12, 15, 17, 20, 30, 40 and 80 m Auto switch between bands	\$436
2 m & 70 cm 5/8 co-linear vertical	\$130
6 m 5 el. beam	\$326
23 cm 36 el. 2 m 1 boom n-con	\$249
70 cm hi/gain Yagi 3 m boom	\$170
2 m 10 el. hi/gain Yagi beam	\$207
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$330
Log-periodic 7 el. 7.6 m boom	\$949
Tri band antenna 6.2 m 1boom	\$749
M.B. Vert 10 to 80 m 5 bands	\$370
40 m 2 el. beam	\$705

Guyed masts 13 or 21 metres

Winch up, tilt-over, aluminium and stainless steel three sided construction. Auto brake winches.

115 John Street
Glenroy VIC 3046

Phone
0419 542 437

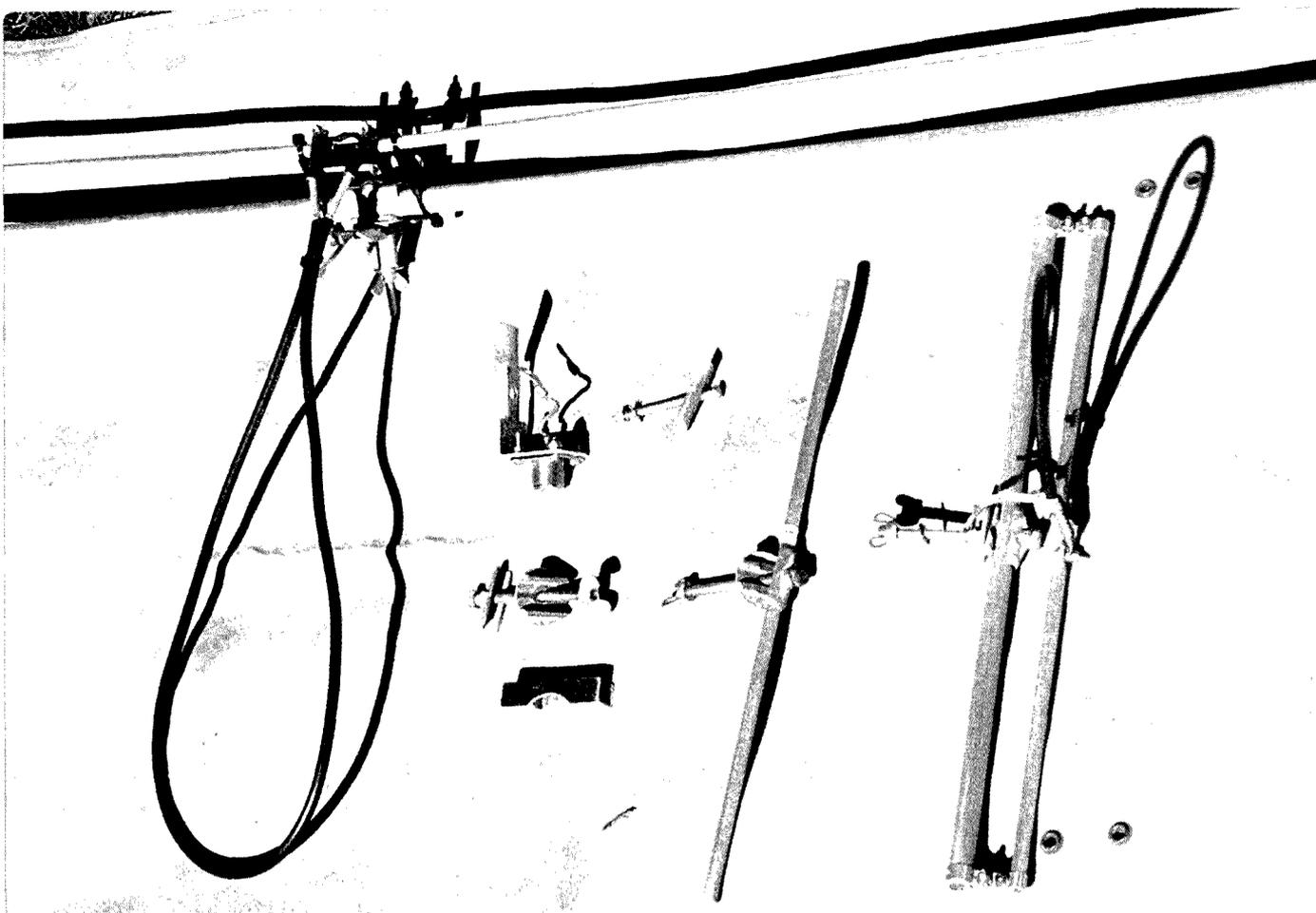


Photo 2: Completed baluns, folded dipoles, mounting spacers, coax socket bracket.

been built to this design (See Note 1. Ed.). This design is targeted at long boom antennas over nine elements and I have used a program by VK5DJ for the 70 cm beam (nine elements) and the ARRL design for the 2 m beam (4 elements). These antennas are designed for the SSB end of the bands, that is for 144.2 and 432.2 MHz, and will be horizontally polarized. Both antennas are narrow bandwidth and many operators use this portion of these bands for weak signal, DX and aircraft enhanced operation.

With the changeover to digital TV many low band TV antennas are now obsolete and a good source of material. However new material and stainless steel hardware is a good investment for the long term. Expected gain on 2 m was 6.8 dBd and on 70 cm 11.1 dBd. Expected beamwidth on 2 m was 71 degrees and on 70 cm, 44 degrees.

The two metre beam

This antenna was built from an old ARRL VHF handbook and consists of four elements on a 25.4 mm (one inch) boom with a folded dipole driven element. The boom can be split in the middle and is supported and sleeved where the second director is fixed to the boom. The four elements and boom can be left assembled and fits in the back seat of the truck. The elements are 10 mm diameter and are mounted on top of the boom on small aluminium spacers or 'chairs'; these spacers were made from 10 mm 'U' aluminium channel and the solid base was filed out to fit the boom. The elements are then fixed to the boom with 5/16 x 2 inch metal threads and wing nuts. Stainless steel metric screws would be better in the long term.

The folded dipole is made from 10 mm tube for the top element and

6 mm tube for the broken (bottom) section, spaced 45 mm apart. This will give a reasonable six to one transformation, matching the 300 ohm folded dipole to 50 ohms into the balun for connection to the 50 ohm coax.

Construction

Mark out the location of all elements on the boom and drill all holes accurately through the boom. A tip! Screw a piece of flat timber to the hole for the reflector first as a flat drilling guide. Next cut all elements approximately two mm longer than required (I use a small plumbers pipe cutter) and then drill a hole through the exact centre for mounting on the boom. Number all elements, and then fix all elements to the boom. At this point you can make sure that all elements are the right length and dead centre, and if not trim with a file. The folded dipole was made with square ends by

making two small clamps to attach to the top and bottom bars.

For the two metre beam dimensions, refer Table 1. For the two metre folded dipole dimensions, refer Table 3, and for the two metre balun refer Table 4.

The 70 cm beam

The 70 cm beam was constructed using the DL6WU design and the computer program by VK5DJ. The elements are six mm diameter and are mounted in the same fashion as the two metre beam. In this case I had a small quantity of spacers from a commercial antenna which were a better fit for the six mm elements, refer Photo 2. The folded dipole is made of 10 mm tube for the top unbroken section and six mm tube for the bottom (broken) section, with a spacing of 25 mm.

Use the same method of construction as for the two metre beam. Note that if the elements are mounted through the boom a correction factor must be added to the length of each element. See computer program for details.

The beam dimensions are detailed in Table 2, and for the folded dipole, in Table 3.

Baluns

The baluns are made from good quality RG58 coax and are half wave at the design frequency of 144.2 and 432.2MHz respectively, multiplied by the velocity factor Vf, for PE 66%, and for foam 79%, approximately. A short tail can be added for connection to the main feedline or coax socket, refer Photo 2. See the handbook for exact velocity factor figures for the coax that you are using and coax balun construction. If you have UHF quality coax available, then all the better.

	Length (mm)	Spacing (mm)	Incremental (mm)
REF	1041	0	50
DE	978	406	456
D1	952	304	760
D2	946	508	1268

Table 1: The two metre antenna

Beam spacing

General practice is to space the antennas above each other on the mast, at least equal to or greater than half of the boom length of the shortest antenna. I use one metre spacing.

SWR figures of 1.2 and less are achievable with the two metre beam which will result in better than 95% of the available power being radiated. A SWR of 1.1 was achieved with the 70 cm antenna. More time and effort would be spent for base station arrays.

The IC-706 has separate antenna sockets for HF and VHF/UHF, so a good quality coax switch must be used on the VHF/UHF socket to switch antennas. The coax used is RG213 for two metres and Belden 9913 and 9914 for 70 cm. The runs are tidied up by using reusable cable ties (garden ties) from Bunnings or similar suppliers.

The portable mast is assembled from several 1.5 m lengths of large diameter aluminium tubing, some of which came from storm damaged 27 MHz CB base station verticals. The mast is attached to the bull bar on the 4WD by a TV mast standoff and two muffler clamps with wing nuts.

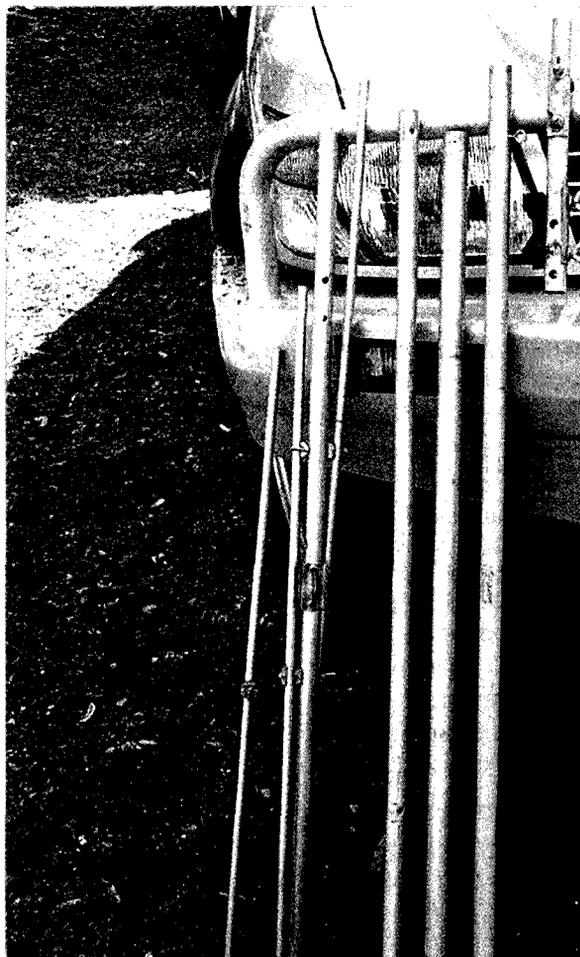


Photo 3: Two metre Yagi elements, mast sections, mounting clamp on bullbar.

Refer Photo 3. On top of this sits a large cardboard compass for accurate (Ha Ha) beam headings - plus or minus 10 degrees should do.

The antennas and mast sections are disassembled and fit into carry bags similar to fishing rod or banner bags, to minimise damage during

	Length (mm)	Spacing (mm)	Incremental (mm)
REF	337	0	30
DE	327	139	169
D1	297	52	221
D2	293	125	346
D3	290	149	495
D4	287	173	668
D5	284	194	862
D6	281	208	1070
D7	279	218	1289
Director 8 has been added for those who may have a longer boom available.			
D8	276	229	1518

Table 2: The 70 cm antenna

transport. See Photos 1, 2 and 3. Battery power for the radio comes from the auxiliary 105AH battery in the 4WD and is charged from the alternator while driving and from the van's solar panel when parked. These small antennas are easy to build, transport, assemble and they have achieved good results during portable operation.

The photos show the spacers, the elements and the completed baluns and beams, including the 70 cm beam with elements folded flat ready for transport. I hope this information allows more operators to enjoy another aspect of our great hobby and make more use of the SSB portion of the two metre band. I have had good results from high locations during field days with many contacts over 200 km.

So...go portable, go bush, find a good high spot and enjoy the fresh air. Good DX.

Tips

Read figures three times, measure twice and cut once.

Don't change anything the night before a field day (don't ask me why).

Take spare baluns, screws and wing nuts, as things do break.

References

- DL6WU designs.
- VK3AUU, VK4ZF, VK5DJ notes.
- VHF and field day sites on the internet.
- ARRL VHF, antenna and ARRL handbooks.

Note 1

In response to a query from the Editor regarding a design program by VK4ZF, original cited in the draft article, David VK3AUU notes the following with regards to his spread sheet program:

The spread sheet was based on a lookup table, but I am unable to recall which actual source I used. It may have come via VK4ZF and his program, but it was available from a few different sources. The original article by DL6WU contained a very extensive lookup table. I included it with the original spread sheet which was in SuperCalc, which VK3KAI changed over to Excel if I remember rightly.

What I did, by extensive trial and error was to produce a very complicated algorithm which very closely replicated the original lookup table. This is what I used in the spread sheet and later, VK5DJ used the algorithm in his program. I didn't actually use the program by VK4ZF, I just used the lookup table from it.

	2 m	70 cm
DE length (a)	978	327
DE dia	10	10
Bottom bar length (b)	476	156
Bottom bar diameter	6	6
Bar spacing (c)	45	25
Ballun gap (d)	26	15
All dimensions in mm		

Table 3: Driven element dimensions

Band	VF 66%	79%
2 m:	686 mm	832 mm.
70 cm	229 mm	274 mm.

Table 4: Balun dimensions

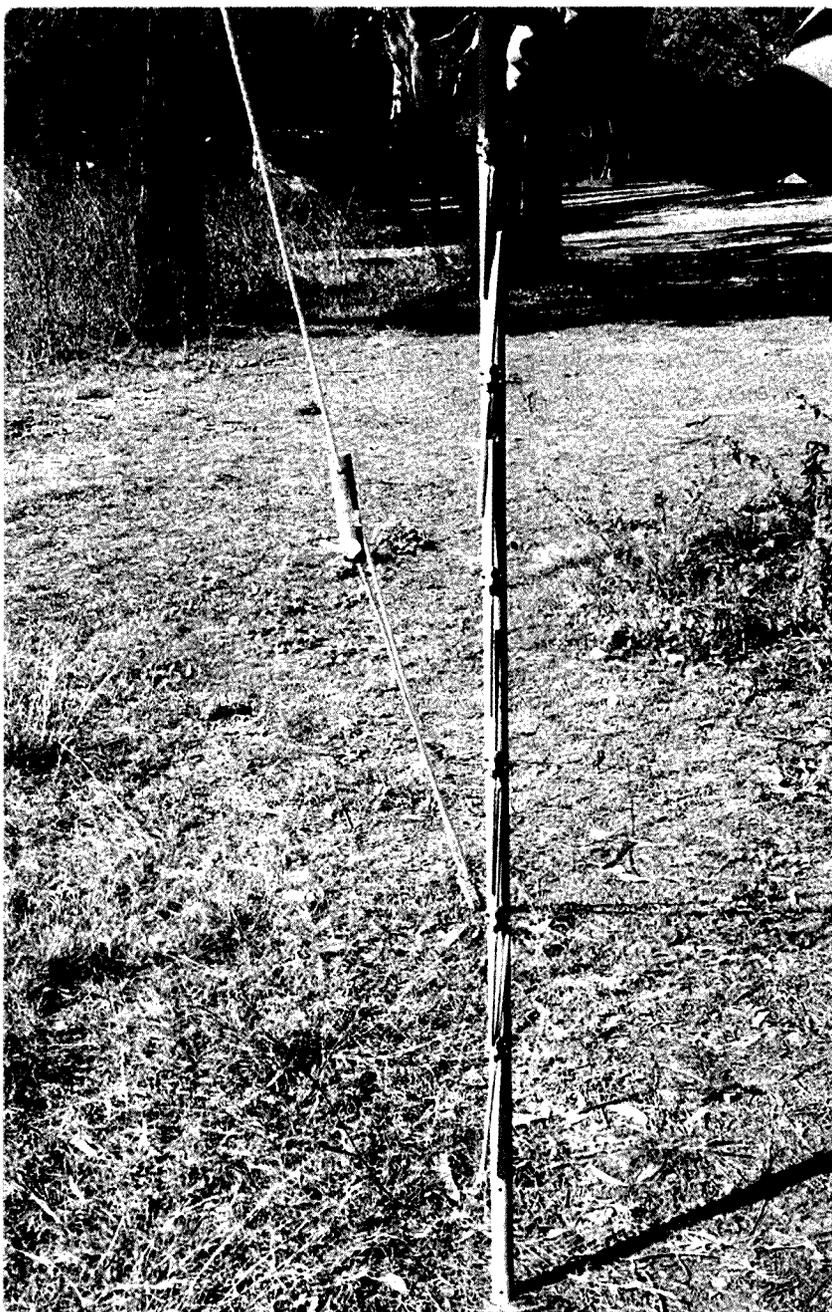


Photo 4: The 70 cm Yagi folded ready for transport.



80 m or 40 m to 10 m - just one loop fits all!

Ray J. Howes G4OWY

What could possibly be better than one piece of wire that will perform extremely well on all HF bands, is simple to build, can work without an ATU, costs pennies, and totally eliminates the need to have several lengths of wire strung up at your QTH going this way, that way and every way. The answer is a full size loop, sometimes also called a 'skywire' or a 'DX Buster' by those who would not use anything else.

Someone somewhere once described this antenna as one of amateur radio's 'best known secrets'. But even though it probably is, its biggest downside of course is its sheer size. So, if you decide to build one to cover 1.8 m to 10 m, for example, you will need approximately 165.8 metres (544 feet) of wire. That is one big antenna!

However, for the loop antenna to be described here, you will need 43.2 metres of wire (82.9 metres for the larger version) and some coaxial feeder and four insulators.

Before I proceed to the construction details, which is really just measuring out the amount of wire you will require, I should also mention at this juncture that this antenna has to be orientated in the horizontal position for best results. It can also be vertically polarised. But in this instance, you will need to ensure that the actual feed-line from the loop is kept vertical with both of the conductors being tied together. This configuration works against ground and is then connected to an ATU. This variation is a little more complicated and although it works, I much prefer the simpler version! And as the actual enclosed area of this loop is a fundamental requirement of its effective operation - a circle would be ideal, but in practice is obviously impractical, a square shape is the alternative method.

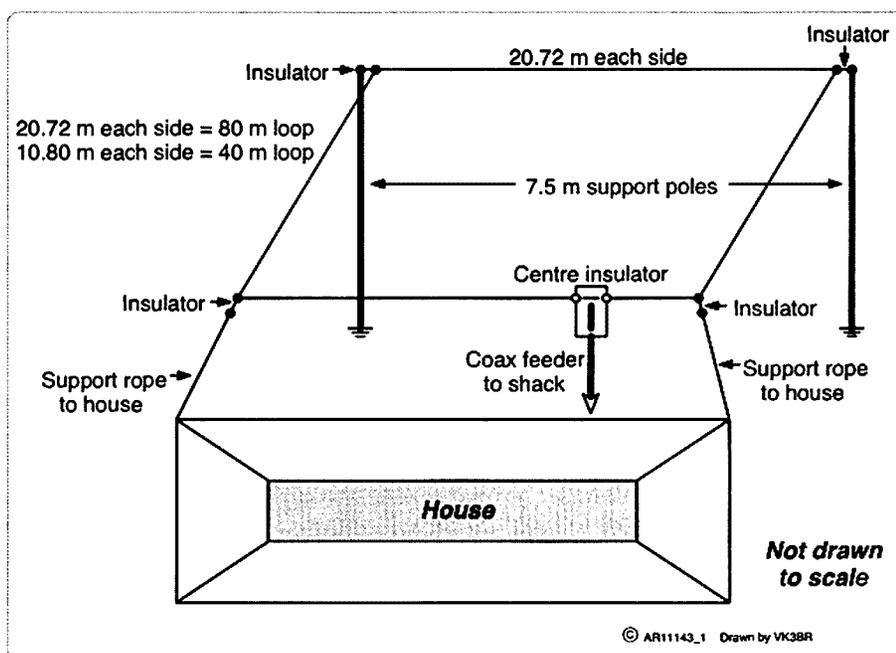


Figure 1: The loop that fits all.

Other shapes are possible if you so wish, but whatever it is, it has to be horizontal in respect to the ground underneath it.

Now, if your QTH is not quite big enough to accommodate the 82.9 metre (272 foot) loop (the 80 m to 10 m version) you could instead build the 40 m version, as I did. In this case, you will need approximately 43.2 metres. ($L = 1005$ divided by the desired frequency which gives the total length required in feet. I used 7.050 MHz) of wire. If you choose this option, 80 m operation will not be possible. Having said that though, I did get the smaller version to load up on 80 m - trouble was, I could not get the SWR much below 3.1:1. Mind you, if you have a rig which has a tube type final amplifier, it might be persuaded to cooperate? My vintage Yaesu FT-101E did tune-up okay.

But no matter which size you decide upon, both versions are one wavelength in total length at their fundamental working frequency. And by default, will happily perform

on all harmonics above your chosen design frequency - be it the 80 m or 40 m version. This will, of course, include the 30 m, 17 m and 12 m bands too!

What I cannot over emphasize is that this antenna be kept in the horizontal position for best performance. The height above ground (if you've chosen to go the vertical route, the height will be of greater importance) will of course affect its overall capabilities as will nearby buildings, etc. So, as with any other antenna, get it as high as your location permits. Although it is not up at the moment, the first loop I constructed was only about 3.5 metres or so above ground level and worked fine. The ideal height however would be between 12 m and 15 m - and higher would be better. But, if like me, you don't happen to have three or four equally spaced 12 metre high wooden monsters conveniently growing in your garden, the highest point on your house might have to suffice instead.

As I mentioned earlier, the actual construction could not be simpler. Measure out your wire - either 82.9 or 43.2 m or thereabouts (10.8 m for the 40 m version, or 20.72 m for the 80 m version, on each side), but don't worry unduly about getting the exact measurement spot on. A millimetre here or there will not really matter. Also, do not bother to run yourself ragged whilst you attempt to bring the loop into a cosy resonance - it probably will not happen. But of course, so far as the SWR is concerned, feed-line length and your operating frequency will determine the final outcomes here. Besides, just let your trusty ATU take the strain instead. Much easier!

For this loop, I used 50 ohm coaxial feed-line - approximately 15.2 metres or so. Simply because I had it to hand and it is so much easier to use and manipulate. I guess you could also try open-wire type feeder instead? But having actually not tried this alternative myself, I preferred the convenient confidence of 50 ohm coax.

Now the feed-line is sorted, all that needs to be done once the wire has been measured, is to hoist it aloft. But before this is done, it's advantageous to attach the feed-point insulator to the antenna first! I just made one out of a piece of plastic skirting-board - and drilled four holes in it. Two to thread the coax through and the other two to tie the two ends of the loop wires. If you wish, you could purchase one of those dipole centres - but for the price of one of those (the last I looked they cost about \$30.00) you could build perhaps another three full size loops! Well, if you've got one to hand, you may as well use it. And if doing so, there will not be any need to solder the coax feeder to the two end loop wires. But you will still have to make sure all connections are water-proof, as would be the case going the home-brew route.

The feed-point is not critical. In fact, it could go anywhere you

choose. However, it is best to attach it to the nearest point to where your shack is located. And feeding the loop in the corner - again in the corner nearest to your shack is best. The preferred wisdom though, is to feed the loop not right in the corner, but just a foot or so from it. That way, whatever feeder you choose to use should be prevented from getting tangled up in the support ropes. Perhaps I should also mention that before I sealed up my home-brew dipole connector with some water-proof self-amalgamating tape, I made sure that the antenna was performing as it should.

Ideally then, this antenna needs to be as high as you can get it. So with this in mind, at my QTH I tied two ends of the loop to each corner of my house, approximately 10 m, and the remaining two ends (all of them via four dog-bone shaped plastic insulators) to a couple of 7.5 metre fibreglass poles - one of which was placed inside my neighbours garden! I might also add that all four loop sides were in the droopy state - doing so meant that less garden width and length was actually required to fit all four loop sides into the area I had available.

So how does this antenna perform? Well, my first contact was with a station in California who, admittedly, received my signal via a three element Yagi atop a 26 metre tower - so it probably helped a bit! On 10 m, with 10 watts SSB, I received a 5 by 8 report. Other stations were worked on the east coast of the states with similar reports. Also, many of the usual suspects on 20 m were contacted with ease too. It also performed well as a general QSO antenna on 40 m, where I was receiving many complimentary reports although only using low power, typically, between five and 10 watts, on SSB. And don't forget, unlike the aforementioned three element Yagi which has to turn around to bump into the strongest signals, this

antenna receives signals on every point of the compass, at all times. Absolutely no turning is needed.

There is no doubt that this antenna does perform. But I should add that, for all those people out there who expect 599 plus a few dB's for every contact, they will probably be disappointed. This is not a miracle type antenna - if such a thing exists.

On the other hand though, this antenna has been up at this QTH for many months and is used on a daily basis whenever I'm in my shack. And I definitely wouldn't swap it for anything else - unless of course, it was another type of loop antenna. Or the same one - but much higher!

Strangely, I don't work many stations that are using this type of loop antenna - whether because of its size or not. However, if you can fit it in at your QTH, I'm sure you won't be disappointed. And if you are one of the lucky amateurs who have a tower and a three element Yagi at the bottom of the garden, this antenna just might make it redundant.

Finally, as an added bonus, loop designs also make great stealth-type antennas. Constructing them using very thin wire will render them almost invisible once aloft. Your neighbours probably won't spot them. Trouble is, the birds won't spot them either! So they tend to fly straight into them with catastrophic results. Your new antenna is down on the ground rather than up in the air. But if your neighbours object to 'ugly antennas' rampaging all over your property, a full size loop constructed with very thin wire might be the vital difference between operating or not. And even if it's brought down by a bird-strike or two, it can be quickly mended. So give it go. The DX is forming an orderly queue for your CQs!



East Gippsland Radio Group VK3EG participates in the ILLW 2012 at Point Hicks AU0027

Rob Ashlin VK3EK

The East Gippsland Radio Group VK3EG, headed by Rob Ashlin VK3EK, the Club's President, went to Point Hicks Lighthouse from 17 - 19 August, 2012 for the International Lighthouse Lightship Weekend (ILLW), an amateur radio event which is held annually on the third full weekend in August. EGRG has been participating in this worldwide event from Point Hicks Lighthouse since 2005 and every year thereon. This year's ILLW 2012 had approximately 471 entrants operating in different lighthouses or lightships all over the world.

Photo 2: Point Hicks Lighthouse AU0027. Photo courtesy of Rob Ashlin VK3EK.



Photo 1: East Gippsland Radio Group participates in this year's ILLW 2012 at Point Hicks Lighthouse. From left to right: Ron VK3HAK, Ian VK3TCX, Pete VK3NPI, Claire Pomeroy, Col VK3BLE, John Henry Lowe, Bernardita Ashlin and Rob VK3EK.

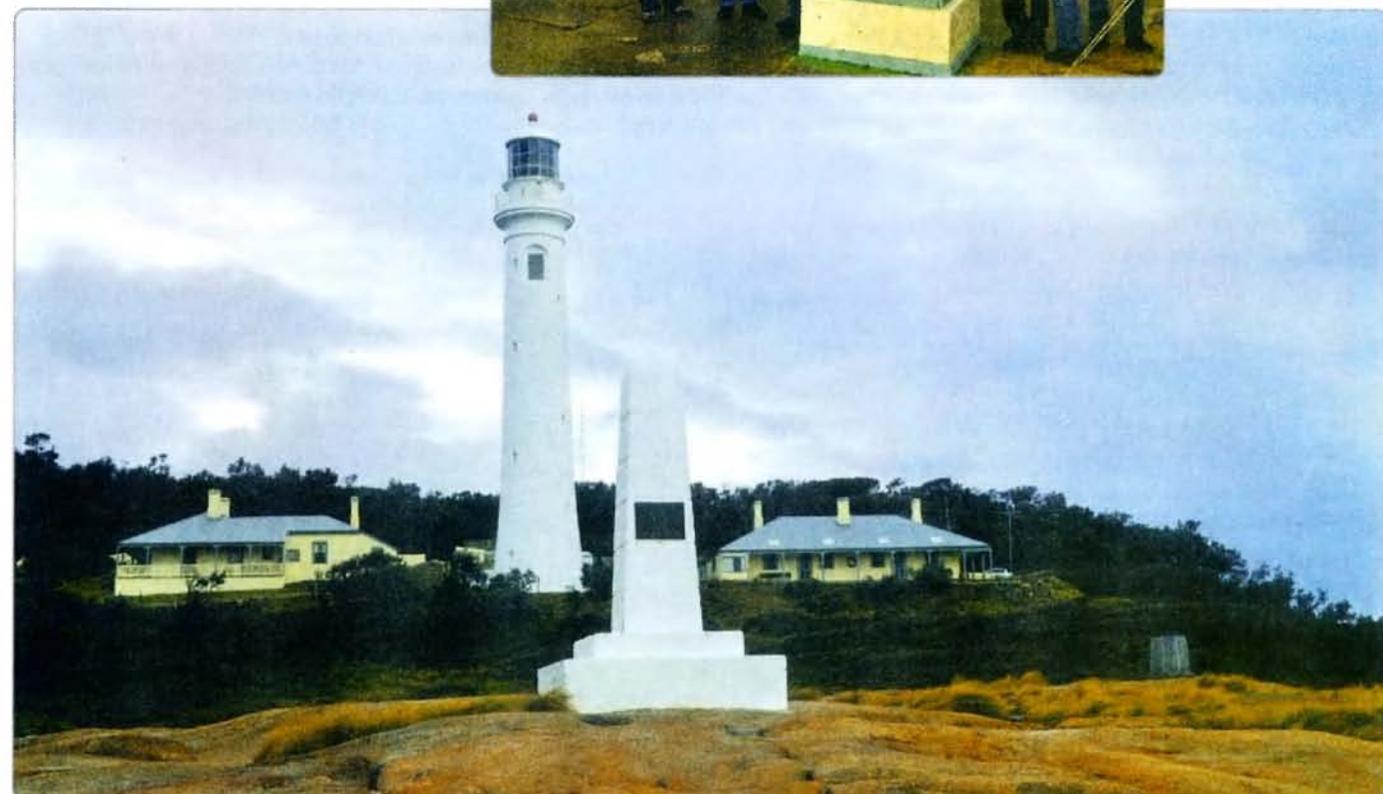




Photo 3: Ian VK3TCX, Ron VK3HAK and Col VK3BLE in full swing as they operate amateur radio at Point Hicks Lighthouse in participation of the ILLW 2012.

Photo 4: East Gippsland Radio Group members Pete VK3NPI, Col VK3BLE, John Henry Lowe and Rob VK3EK assembling the antenna for operating amateur radio at Point Hicks Lighthouse for the ILLW 2012.

Six members of EGRG booked accommodation in the old assistant lighthouse keepers cottage from Friday to Sunday where they made contact with other radio operators participating in various lighthouse

locations. Point Hicks, which is the first sighting of Australia by Lt. Zachary Hicks aboard Captain Cook's *Endeavour* in 1770, lies within the Croajingolong National Park, in east Gippsland and is located on the

coast of Bass Strait south of Cann River. On this special event, the radio group takes the opportunity of promoting Point Hicks Lighthouse and east Gippsland to people all over the world.

Over to you

Three Pin Plugs (& Sockets)

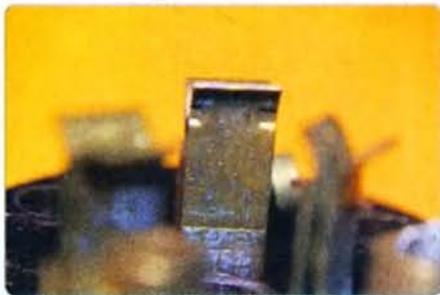
Dear Steve,

Regarding your "Over to you" item about three pin plugs, published in the June issue of *Amateur Radio*:

Here are some images of the three pin plug and socket. They were both attached to an old extension lead recovered from my father's home of 50 years in Colac. I suspect it is the "original" lead as purchased many years ago. You will note that the socket is labelled "Lock Tite Socket" and the three pin plug has the scallops on all three pins. The socket receptacles clearly have a pressed indent in them, which I suspect forms the advertised "Locking Socket".

Yours faithfully,

Tom Halloran VK3TJH



Close up view of one of the socket receptacles showing the pressed indent on either side.



A view of the socket connector from the cable side.



A view of the plug end of the extension cable.

Plan ahead

24 - 25 November
Spring VHF/UHF Field Day

January 2013
Ross Hull Memorial VHF Contest

ILLW 2012, Cape Willoughby, Kangaroo Island – AU0095

Paul Simmonds VK5PAS

Another lighthouse weekend has unfortunately come and gone. This year, 2012, was the 16th anniversary of the International Lighthouse and Lightship Weekend (ILLW), and coincided with the 160th anniversary of South Australia's oldest lighthouse, situated at Cape Willoughby on the easternmost point of Kangaroo Island.

A team of seven operators from the Adelaide Hills Amateur Radio Society ventured to Kangaroo Island, Australia's third largest island, and operated from remote Cape Willoughby, using the special call sign of VI5CW from the afternoon of Friday 17th August through until the morning of Monday 20th August.

The group consisted of Paul VK5PAS, Sasi VK5SN, Mark VK5VW, David VK5KC, Hans VK5YX and his wife Lesley VK5LOL, and Trevor VK5ATW. Not to omit the other important members, our XYLs, Marija, Ash, Michelle and Joy, who kept us fed and watered.

Early on the Friday eight of us journeyed to Cape Jervis on the Fleurieu Peninsula, about 108 km



Photo 1: The happy crew at the steps of the Cape Willoughby Lighthouse.

south of Adelaide, to board the 8.30 am ferry. Three of the group were smart enough to catch the later ferry at midday. Enroute to Cape Jervis we encountered some blustery weather, including hail which was not a good omen for things to come.

The 45 minute journey aboard the SeaLink ferry, across the 11 km

stretch of water called Backstairs Passage, made for some interesting times. The weather was particularly inclement that day and the trip quite rough. Fortunately though only one case of sea sickness resulted.

Our adventures didn't finish there. After arriving on the island at Penneshaw, the 30 km dirt stretch of Willoughby Road to the lighthouse was quite challenging at times with mud, large sheets of water, and big pot holes. Fortunately no one became bogged and the view along the shrub lined dirt road to the lighthouse was spectacular.

Upon our arrival at the Cape Willoughby lighthouse, we were informed that Cape Willoughby had experienced 55 knot winds (100 kmh) that morning, making it the windiest place on record in Australia. This made the erection of antennas quite a challenge. David VK5KC and Trevor VK5ATW made the 102 step journey to the balcony of the lighthouse and secured some ropes to the railing, some 22 metres from the ground. From here we were

Photo 2: A view of the lighthouse – careful examination will reveal one of the HF antennas.



able to erect a dipole antenna.

Our accommodation was the 'Thomas' and 'Seymour' cottages located at the lighthouse. These are the old lighthouse keeper cottages constructed in 1927, which have been beautifully refurbished, are self-contained and offer five bedrooms. They provided very comfortable accommodation for our three night stay.

During the blustery Friday, we established four operating stations at the lighthouse in what could only be described as trying conditions.

The first operating position was located in the old weather station, about 15 metres from the lighthouse. This consisted of a Yaesu FT-450, 100 watts, and a broadband folded dipole which was attached to the railing of the lighthouse in a sloper configuration. This was our main operating position. The refreshing voice of Lesley VK5LOL was often heard from here. Mark VK5VW and I also operated regularly from here, as did others from our group. Operating conditions were quite difficult at times, as this small room constructed of granite and sandstone did not offer great acoustics.

The second operating position was located in the back porch of the 'Thomas' cottage. This was the domain of Sasi VK5SN, who was active on PSK31 on 20 and 40 metres. Using a Yaesu FT-857D, and a vertical and an OCF dipole, he made about 30 PSK31 contacts to a variety of countries, including Australia, USA, Poland, France, Papua New Guinea, Reunion Island, Turkey, and Russia.

The third operating position was located in the back porch of the 'Seymour' cottage. David VK5KC and Trevor VK5ATW were highly sought after on two metres from stations on the South Australian mainland. A total of 60 stations were worked on SSB and FM on both two metres and 70 cm.

The fourth operating position was in the 'Seymour' cottage. Hans, VK5YX, used an Icom IC-7000

and a multiband HF whip on his 4WD parked out the front of the cottage, and made a number of contacts on 80, 40 and 20 metres.

With the performance of the broadband folded dipole being quite poor on 20 metres, on the Sunday afternoon we

erected a 20 metre dipole and this made a considerable difference to our success on 20 metres. An extremely large 'pile up' resulted into Europe.

During the three days we were active on 20, 40 and 80 metres on HF, and also on two metres and 70 cm. A total of 511 QSO's were made around Australia and overseas. A total of 30 different countries were worked on 20 m and 40 m, including Asiatic Russia, Australia, Austria, Belgium, Croatia, Czech Republic, Denmark, England, Estonia, European Russia, Federal Republic of Germany, Finland, France, French Polynesia, Indonesia, Italy, Japan, Netherlands, New Zealand, Papua New Guinea, Poland, Puerto Rico, Reunion Island, Scotland, Slovenia, Sweden, Turkey, Ukraine, United States of America, and Wales.

A total of about 39 different lighthouses around the Australian coast were worked in all states except for the Northern Territory. Five different overseas lighthouses were worked. These being the Punta Gorda lighthouse, California, USA (40 m SSB); the Punta Higuero lighthouse in Puerto Rico (20 m PSK31); the Los Morillos lighthouse in Puerto Rico (20 m SSB); Castle Point lighthouse, New Zealand (20 m SSB and 80 m SSB); and Bean Rock lighthouse, New Zealand (20 m SSB).

Some of the highlights of the weekend were speaking to a number of pedestrian mobile stations in the United Kingdom,



Photo 3: The team assembled at the operating position.

an on air interview with Ashley Walsh from ABC 891 Radio, and a special tour of the Cape Willoughby lighthouse.

Unfortunately due to the weather and road conditions out to the lighthouse, visitor numbers were limited. However we were lucky to be visited by Wren Lashmar who previously worked at the lighthouse for a total of 15 years, and a lady whose husband was a SK amateur operator. They found our operation and our small display which we had erected on the hobby of amateur radio interesting.

The weekend was a terrific success and most enjoyable, and all of us are looking forward to next year, and another possible trip to Kangaroo Island.

Special thanks must be accorded to the Department of Environment Water and Natural Resources staff at the Cape Willoughby lighthouse, including Adele and Quentin. They made us feel particularly welcome and showed a keen interest in our operation. Also our thanks go to the Department of Transport Energy and Infrastructure, who kindly allowed us to attach antennas to the railing of the lighthouse.

More information on our trip can be found at <http://simmopa.wix.com/capewilloughby> and on our QRZ.com page. Best 73 and thanks to all those who gave us a call.



JOTA-JOTI 2012

Bob Bristow VK6POP - JOTA-JOTI Coordinator, Scouts Australia



Figure 1: The JOTA-JOTI 2012 badge.

Jamboree On The Air (JOTA) and Jamboree On The Internet (JOTI) 2012 will be conducted over the weekend of 19-20-21 October.

The JOTA JOTI theme, which is 'How Big is Your World' links us to the United Nations International Year of Cooperatives. Young people will be encouraged to explore how small actions at a local level could have a huge impact at the global level.

Amateur operators have always played a pivotal role in enabling JOTA to be successful.

JOTA and JOTI are Scout-Guide events, and the responsibility for organising and conducting the activity rests with their leaders. The important role played by amateurs is to provide the amateur radio resources and operators to make the activity possible. Consultation between Scout/Guide leaders and amateurs is essential to make sure the activity is the best possible for the young folk.

Scout and Guide Leaders are expected to provide a programme of activities that will stimulate interest in the theme and discussion of same. Amateur radio and the Internet are the media through which this occurs. The spin-off for us as amateurs is that we get to show off our hobby, and we hope to stimulate young interest in the hobby.

The Scout Calling Frequencies are listed below, in MHz. To avoid congestion, please QSY away from these when contact is established.

World CW calling frequencies:
(Updated from 1 July 2007)
3.570, 7.030, 14.060, 18.080,
21.140, 24.910, 28.180, 50.160

World voice calling frequencies:
(Updated from 1 July 2007)
3.690 and 3.940, 7.090 and 7.190,
14.290, 18.140, 21.360, 24.960,
28.390, 50.160

Australian voice calling frequencies:
3.650, 7.090, 14.190, 21.190,
28.590, 52.160

Calling frequencies for Slow Scan TV (SSTV):
3.630, 7.033, 14.227

Calling Frequencies for PSK31:
14.070

Other helpful information for amateurs and Scout/Guide Leaders, including programme ideas, can be found on the JOTA-JOTI website at international.scouts.com.au

Each state and territory has their

own rules on Working With Children, and Scouts and Guides have worked with the relevant authorities to formulate policies. Please do check with the Scout and Guide leaders what is required. Usually for a casual activity like JOTA-JOTI we don't need to do anything except turn up.

On behalf of all Scouts and Guides, I wish to thank you all for helping them talk with their brothers and sisters around the world.



Photo 1 : JOTA-JOTI activities can and are many and varied. For instance, tracking a satellite.



International Lighthouse & Lightship Weekend in VK7 2012

Compiled by Justin Giles-Clark VK7TW - vk7tw@wia.org.au

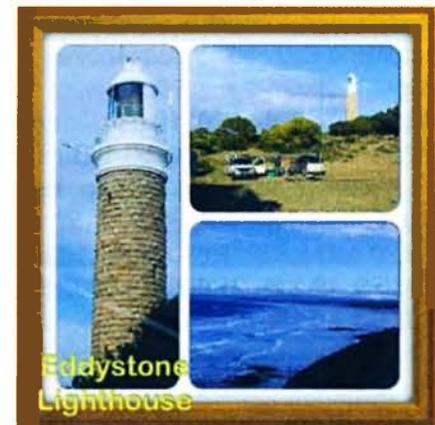


Photo 1: Eddystone Lighthouse montage. Photo courtesy Kevin VK7HKN.

Eddystone Lighthouse – AU0087

Kevin VK7HKN, XYL Lyn, Peter VK7KPC, Alan VK7AN and Geoff VK7GW headed to Eddystone Point on the north east corner of VK7. It is a long way from civilisation, no phone coverage and no Internet – idyllic. Hi! Kevin set up the 9 metre squid pole and the first contact was made with Point Lonsdale. Peter, Alan and Geoff arrived not long after and contacts started to flow and signal strengths were excellent. We worked around 60 stations including ZL lighthouses and can't wait for next year! 73. Kevin VK7HKN.

Currie Lighthouse, King Island – AU0016

Tony VK3VTH/7 and Dale VK7YR activated Currie Lighthouse, on King Island in Bass Strait. Over 160 VK and DX stations were contacted with notable contacts with Lighthouse Supply Vessel 'MV Don' in Sydney Harbour, to Tasman Island and VI5CW at Cape Willoughby, Kangaroo Island in VK5. Equipment used was an inverted V multiband antenna and Elecraft K3 transceiver. Thanks to Sue, Richard and Michael from the King Island Historical Society, Mark from the KI Council and Ondrea from King

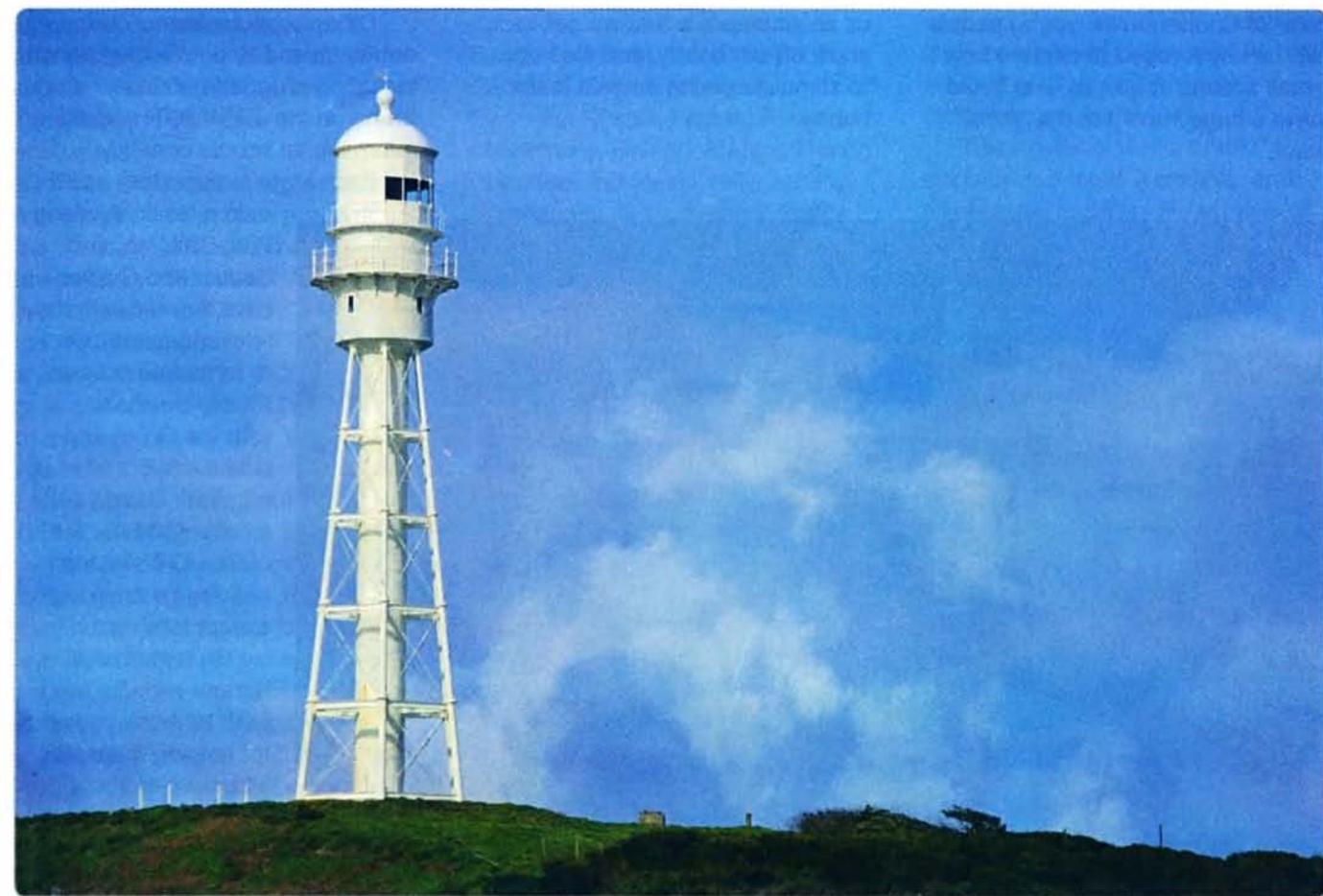


Photo 2: Currie Lighthouse on King Island, in Bass Strait. Photo courtesy of Tony VK3VTH/7.

Island Rambles. Without their assistance and support the activation would not take place. 73. Tony VK3VTH/7.

Iron Pot Lighthouse – AU0108

Andrew VK7AW and Phil VK7SS activated the Iron Pot Lighthouse at the mouth of the Derwent River. Andrew and Phil sailed Andrew's yacht 'Reflections' to the Iron Pot and anchored 100 metres or so from the island. Phil and Andrew went ashore in the rubber ducky with a couple of backpacks of radio equipment along with a car battery, table and chair. A temporary antenna was prepared but there was already a wire stretching from the top of the light tower to the ground, and it was found to make a satisfactory HF antenna - rather like a backstay! Andrew and Phil operated for three hours mainly on 40 metres and made many contacts. Andrew's great-great-grandfather, Captain Henry Boon, spent 13 years as Head Keeper of the Derwent Light ('Iron Pot') up to 1913. Captain Henry was also a keeper at Eddystone Point and on Goose Island. 73. Andrew VK7AW.

Cape Bruny Lighthouse – AU0005

Roger VK7ARN and Garry VK7JGD activated Cape Bruny using the WICEN (South) callsign VK7WCN. Access restrictions meant a short operating time, however this resulted in contacts being made with 21 lighthouses in VKs 2, 3, 4, 5 and 6 and one in ZL. Two vehicle based stations were used on 20 and 40 metres. Equipment used included an IC-706 with AH4

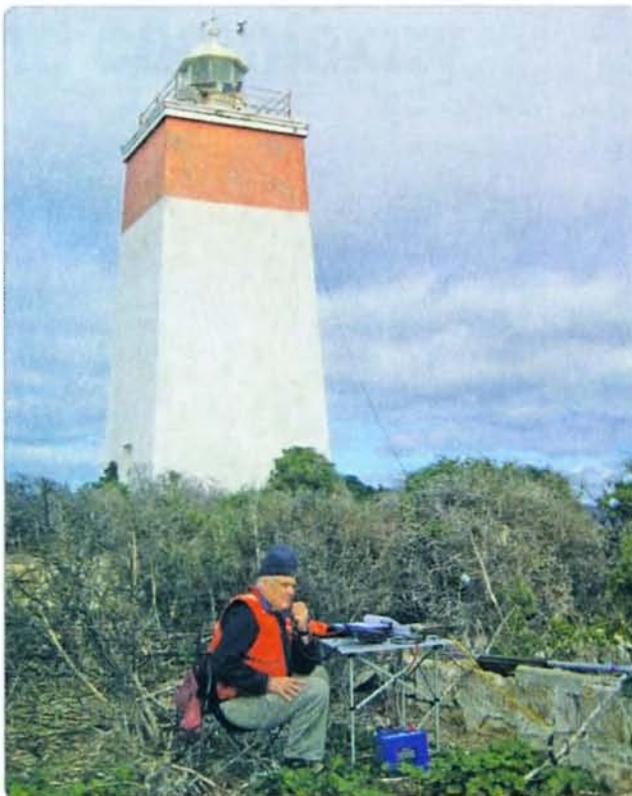


Photo 3: Phil VK7SS operating next to the Iron Pot Lighthouse. Photo courtesy of Andrew VK7AW.



Photo 4: Cape Bruny Lighthouse and vehicle stations. Photo courtesy of Roger VK7ARN.

tuner into a 12 metre squid pole and a Yaesu FT897-D and MFJ -971 portable ATU with a longwire. 73. Roger VK7ARN.

Low Head Lighthouse – AU0048

The Lighthouse at Low Head on the mouth of the Tamar River was activated by Albert VK7LH, Gavin VK7VTX, Ross VK7FAAB and Ray VK7VKV. This year a portable tri-band spider beam was erected on a wind up tower with a rotator thanks to Ross VK7FAAB. A multi band dipole was also used. The station ran 100 watts using an FT-950 and a TS-2000. 20 metres proved to be the most fruitful band with contacts made with the US, VK and ZL lighthouses. This lighthouse also houses a very unique DIAPHONE foghorn and a recording of this was used at the beginning of CQ calls which proved popular. A successful weekend with a promise to do it all again, bigger and better, next year. 73. Ray VK7VKV.

Mersey Bluff Lighthouse – AU0040

Mersey Bluff lighthouse was activated by Dick VK7FORF, Keith VK7KW and Marlene. Dick erected his G5RV and Keith his squid pole. Contacts were made with Queensland, Victoria, New South Wales, South Australia and some Tasmanian stations. As it was such a beautiful day, quite a few casual visitors called in to see what we were doing and all seemed interested. 73. David VK7EX.

Table Cape Lighthouse – AU0039

The Table Cape Lighthouse was activated by Eric VK7NFI, Dick VK7DIK and Wayne VK7NET. Dick and Wayne set up Friday morning in bleak cold weather and got the CCARC club station callsign VK7NW on the air for the weekend. Dick VK7DIK helped out throughout the weekend and decided to stay an extra night, leaving early Monday morning. Many contacts were made with lighthouses across VK and ZL. 73. David VK7EX.

Tasman Island Lighthouse – AU0101

Mike VK7FB and Anne VK7BYL activated the Tasman Island lighthouse with the generosity of FoTI (Friends of Tasman Island). FoTI voluntarily attend to the repair and maintenance of the buildings on the island twice yearly. Everything has to be transported via helicopter from mainland Tasmania. After a false start due to weather on Saturday 18th August, the group flew out on Sunday 19th. Once landed it was straight into rigging one end of the half wave dipole on 80 to the rail of the lighthouse which was fortunately opened by an AMSA representative.



Photo 5: Mike VK7FB and Anne VK7BYL surveying Tasman Island after a 42 year absence. Photo courtesy of Erica Shankley.

Equipment used was an IC-7000, 80 metre half dipole for HF and a TV ribbon J Pole for two metres. 92 stations were contacted including American and Spanish stations on 20 metres, 17 Australian lights and two New Zealand lights. A huge thanks to FoTI for providing the means to activate Tasman Island for the first time since 1969 when Anne and Mike were light keepers on the island. Anne commented

it was strange to step back on the island after 42 years and it was particularly good to see the regrowth of vegetation but also sad to see buildings fallen down. We saw several eagles, both sea eagles and wedge-tails and the Tasman Island Rail (no, not a train!) was heard. 73. Mike VK7FB and Anne VK7BYL.

Silent Key Dr David Rodda ex VK3DNG

I first met my friend David Rodda just after WW2 at a 'League of Youth' meeting. This is an outline of his story as I remember it.

David was educated as a border at Ivanhoe Grammar. He then joined AWA until enlisting in the AIF at a slightly too young age. He was sent to Singapore and was captured by the Japanese before he had even learned to dismantle his rifle. He had fired one shot in his cabin on the ship going over there.

He spent some time in Changi Prison before being sent to Thailand. He spent some time on the Burma Railway and then in a coal mine in Japan. His POW days had a devastating effect on his physical condition and his eyes and back became a concern in his latter days. When I met him he was considering

a medical course at the Mildura Annex of University of Melbourne, set up to cope with the education of discharged servicemen. He had been away from study for the war years so was a little uncertain. I urged him to go for it, which he did with flying colours. After some time in general practice, he went as a medical missionary with the church Missionary Society to Tanganyika (now Tanzania) where he met and married a nurse, Gwen Slade. After Africa, they set up a happy and hospitable home in Kew where they raised a family. David then took up Psychiatry followed by Geriatrics.

After retirement, David told me he had been into 'shortwave radio listening'. I suggested he would derive more fun from amateur radio. His response was: 'Well, I will if you will!' And so we did, about twenty two

years ago. We joined the 'Early Bird Net' which still functions with four of our early members.

David was very disappointed when he had to dismantle his steel mast in Kew then shift to a place where he could not establish a radio QTH.

After recent years greatly troubled with back and eye problems, David and Gwen moved into a nursing home where they were for only three weeks before David died due to pneumonia, on 26th July, 2012 just short of his 89th birthday. He had the peace of knowing that he would be with the Lord Jesus Christ whom he had accepted just after the war and whom he had served ever since.

Contributed by John Moody VK3VJM.



Usability and complexity

Peter Parker VK3YE

Is there such a thing as 'too simple'?

Renewed experimentation with simple transmitters and receivers has provoked some thought on the relationship between a project's complexity and its usability. At one extreme we have the very basic 'minimalist' type gear. The crudest example may be a one transistor CW transceiver, where the sole active device forms a crystal oscillator on transmit and a regenerative detector on receive. At the other end we have an all-singing all dancing multiband transceiver that is a joy to use but too complex for most people to build.

Most transmitter and receiver projects are somewhere between these extremes: simple enough to be buildable but with sufficient parts to be usable.

Figure 1 shows the relationship between complexity and parts count in radio equipment.

Our one transistor wonder is



Photo 1: A minimalist QRP transceiver - too simple?

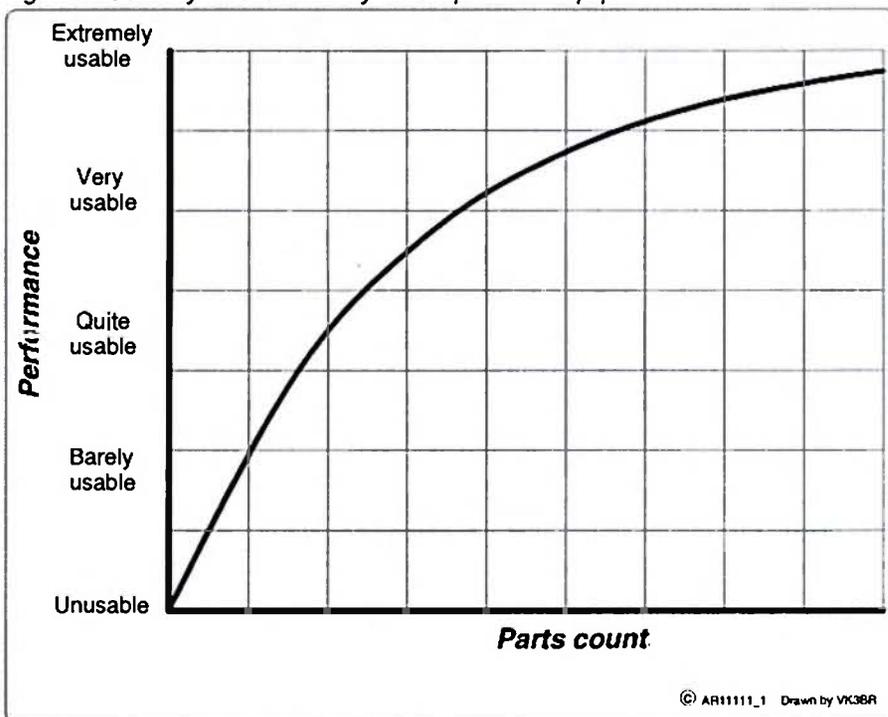
at the unusable end of the curve. Its transmitted signal will be weak and the receiver will only hear the strongest signals. It proves the point

that a transceiver does not need many parts. It is great for shack demonstrations. However in the 'real world' it will not get too many spontaneous contacts, handsomely earning the title 'unusable'.

If we add a few more parts usability rapidly increases. For example an extra transistor could increase transmit power (from a few milliwatts to around a watt) or amplify the weak sound in the headphones so more stations can be copied.

These enhancements might cost ten dollars in parts and the usability gains are huge. Operating will still be clumsy and there will be many fruitless calls, but many more contacts will be made and some will be readability five. Hence the improvement far outstrips the small number of parts added. Unless you have a particular reason to stick with a single transistor station, perhaps for the novelty value, additions like these are highly recommended.

Figure 1: Usability versus flexibility for simple radio equipment.



Still, a barely usable rig will spend most time on the shelf and except for testing purposes you will still be reaching for other gear. A rig might be light enough to take portable but is still dead weight if it is not good enough to reliably provide contacts.

Therefore one makes more improvements. For instance frequency agility, which will need a buffer stage for stability, separate keying and an output filter. And maybe a bit more RF output power and even voice as well as CW operation. If a direct conversion set, you will want audio filtering to improve selectivity and probably a better front-end to reduce hum and overload.

Each requires a transistor or two to implement. The usability gains are large and at least justify the additional parts count. The quantity and quality of contacts continues to

rise. If you go portable and try hard enough you will likely get contacts. Although quite usable, it will still be rougher than a commercial rig since many features such as single-signal reception, speech processing, automatic gain control, metering, transmit/receive frequency offsets, sidetone and break-in are missing.

Further up the line is the step that many QRP constructors do not bother with, though some of the better kits do. The curve flattens as the point of diminishing returns passes. Here you need to add many more parts for a smaller increase in RF performance.

Still, especially for the contest or DX operator, 'big rig' features are still prized. There is also satisfaction with operating a home built rig with a crush-proof front-end, quality AF filtering and smooth transmit/receive switching that builders of simpler designs miss.

I should add that the graph is most applicable to casual HF operating; for more exacting applications such as VHF DX and moonbounce small increases in performance are worth striving for and the right end of the curve is less flat.

What have we learnt? The trade-off between usability and complexity is an individual choice. However it's unlikely to be found at the extremes of the curve. Instead most 'bang for the buck' is likely to be found near the middle, where adding parts still delivers large usability gains and performance is sufficient for the project to be usable.

Reference

VK3YE website: www.alphalink.com.au/~parkep



Amateurs supporting the community

Steven Heimann VK2BOS

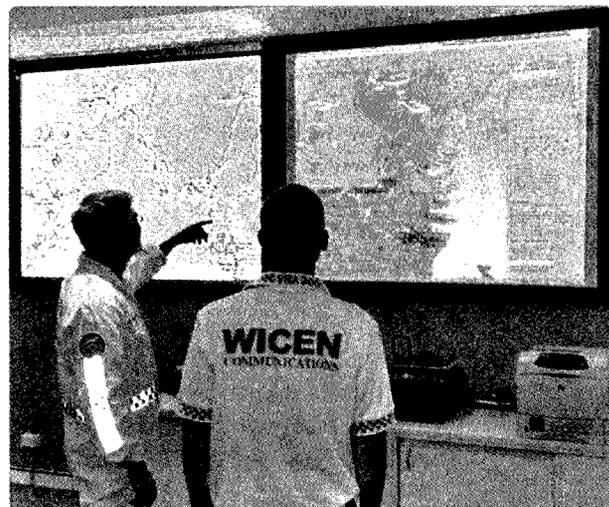


Photo 1: SES net control at SES Sydney West headquarters.

From the Hawkesbury Canoe Classic (HCC) web site: *'The Hawkesbury Canoe Classic is a fun paddle with a serious purpose. Each year around 600 paddlers paddle 111 km overnight in the moonlight,*

down the Hawkesbury River from Windsor to Brooklyn, to raise money for charity.'

The HCC Association puts on this event each year to raise funds for the Arrow Bone Marrow Transplant Foundation which is a small charitable foundation that raises money for leukaemia research and provides support to people undergoing leukaemia treatment. In this year's event, the 35th year, there were over 500 paddlers, over 350 canoes, and over \$200,000 was raised. An event of this size is a major logistic undertaking requiring support from many volunteers and different agencies.

For quite a few years WICEN NSW has provided communications support for the HCC. Much of the river has no mobile phone coverage and the enclosed valleys provide an interesting RF challenge with propagation characteristics that can vary substantially through the course of the event. WICEN treats this event as training for our operators.

WICEN planning started more than six months before the event with meetings with HCC management and other organisations. WICEN had around 40 volunteers working the event this year with operators at Start, Finish, Net Control, the sweep boat (call sign Closedown), 12 of the 16 Checkpoints (CP), and the Race Safety Officers boat. The remaining CPs are only on boats and are manned by Marine Rescue or SES. WICEN also had a few

people on standby to attend to any network failures or other problems. Fortunately everything worked as planned this year. There were also a few other amateurs directly involved in other roles and a few paddling.

This year the event started at 4 pm on Saturday, 22 October and the last boat finished around 11.30 am on the Sunday. Each CP is generally staffed to provide people to monitor and record the passage of canoes, people to provide communications (mostly WICEN), and a chase boat for SAR. All stations need to be in place by 3 pm on Saturday for a net check. CPs are progressively closed down once all canoes have been accounted for at the next downstream checkpoint. This makes for a long tiring night for those at the later checkpoints, Net Control, and Closedown.

WICEN works in conjunction with the SES, Marine Rescue, private support vessels, the Police, and HCC management to provide a system of networks to allow paddler safety messages and event management messages to be passed quickly and accurately. This event provides a good example of amateurs working cooperatively with emergency services organisations.

This year WICEN network coverage was provided through:

- Permanent UHF repeaters at Kurrajong and Berowra.
- A permanent VHF repeater at Berowra.
- A temporary UHF repeater at Wisemans Ferry.
- A temporary cross band repeater at a second site in Kurrajong, as backup.
- A temporary cross band repeater at Regents Park to provide a backup path into the main net for Net Control.
- Digipeaters at Kurrajong, Wisemans Ferry and Berowra operating on 145.200 MHz.
- An APRS iGate at Blaxland.
- A temporary UHF repeater at Picton with EchoLink to test the feasibility of using this technology for this type of event.

All the voice repeaters were linked. APRS trackers were used to monitor the location of certain key assets. In addition to the above infrastructure WICEN members set up direct links between their own checkpoint and the adjacent checkpoints to allow relaying of messages up and down the river. This keeps inter-CP traffic off the main net so it is clear for urgent messages. In particularly difficult cases a mini repeater on a suitable hill is set up if direct communications between CPs is not otherwise possible. Bands used included 70 cm, 2 m and 6 m.

WICEN's primary role is to assist with ensuring the safety of paddlers by passing various messages.

These include:

- Passing messages between CPs about the passage of canoes down the river. This ensures each canoe is accounted for at each CP.
- Passing messages about withdrawals so searches are not commenced for these canoes and to permit the paddler's land crew to be notified where to come and find the paddler.
- Passing messages about late or missing canoes, and reports from paddlers about other paddlers in difficulty to appropriate SAR agency.
- Arranging First Aid, Ambulance, or other assistance for paddlers.
- Passing general event management messages.

The bulk of messages are in the first category and are usually passed by voice. Packet is also used for these messages, either direct or via the digipeaters. Other messages are passed on the main net.

SES communications are provided through the GRN. Marine Rescue use a mixture of VHF Marine and 27 MHz Marine. This mixture of networks provides some interesting logistical challenges and requires good cooperation between all the volunteers.

WICEN net control was co-located with SES net control at

SES Sydney West Headquarters at Seven Hills, refer Photo 1. Marine Rescue net control was at Finish at Berowra.

I have worked at CP Charlie for the last couple of years but this year was co-opted as the Deputy Event Commander. This involved attending HCC meetings, organising staffing, working on recovery plans, inspecting new CP locations, and many other things. Although it was more work than I expected I also learnt a lot. WICEN unfortunately lost a few volunteers due to illness in the last week which left us stretched for resources and me with a headache, but we scraped through thanks to some sterling efforts from a few of our members. I would like to thank all those involved. For next year I would like to find a few more operators so we can split shifts at a few key posts.

From WICEN's point of view the event seemed to run smoothly. There were no reports of message bottlenecks or failures. The most common problem with this event is hypothermia cases for paddlers who end up in the river. Fortunately the weather was exceptionally mild this year resulting in fewer first aid calls. We installed and trialled some redundant network components which all worked well. Given that much of the work on this event is related to participant's safety, in future I would like to do more work on ensuring as complete a coverage as possible, system redundancy, inter-agency messaging, and incident management.

The event will be on around the same time next year. If you want an opportunity to support the community and practise portable operations think about joining WICEN and offering your services.



Power supply requirements – surplus equipment

Justin Giles-Clark VK7TW

One of my favourite shops is the Resource Tip Shop up the road from where I live. This shop has salvage rights at the local tip and they pick up anything from timber, whitegoods, e-waste and the like, in fact anything they think still has value and they sell them at the Tip Shop.

If you are into home brewing and construction these places are great sources of components, equipment, cases, etc. and the cost is a fraction of the new item. I am constantly amazed at our throwaway society and the items I find at the tip shop.

However many, many times I have found what looks like a great piece of equipment in good condition that uses an external low voltage power supply and the power supply is missing and there are no labels and you have to work out what voltages and currents the item requires to get it working.

This is a short article on some of the techniques you can use to work out for low voltage equipment what is required, through a combination of internet sourced datasheets, circuit tracing and testing and I will be using the example of a circa 1990s CCTV video sequencing/switching box.

Step 1

Do some searches on the Internet using your favourite search engine for an operations or service manual for the piece of equipment. The example I am using is a DMI SPR2 and even though the company still exists I could not locate a manual. If you can locate a manual and it is not too expensive or free then it will give you the power supply specifications and it is a matter of finding a suitable power supply matching the voltage and current requirements of the equipment. My Tip Shop has a huge selection of plug packs that have come in handy many times. However, one thing to be aware of with early (and some later!) switch mode plug packs is that they may introduce unwelcome RF noise to the amateur bands if used in the shack. I try to stick with linear ones if at all possible.

Step 2

Identify the power connector if it is not clearly labelled. Carefully take the top off and check the PCB for large electrolytic filter capacitors, bridge rectifiers and/or diodes and regulators. This will usually indicate which connector the power supply unit (PSU) uses. In the example it was a multi-pin mini-din connector

indicating more than one voltage may be required. Take a look at the silk screening (if present) on the PCB as this may give you a hint to the voltage required.

Step 3

Take a look at the components on the PCB and see if you can identify any of them. Use your favourite internet search engine and download some free datasheets to identify the voltage and ground pins on the devices and what voltage the device nominally runs from. In the example I was able to identify some 74HCT and 74HC logic chips which I knew ran from +5 VDC and ground. Then it was a simple continuity check with a multimeter to see if the +5 VDC ran back to one of the pins on the PSU connector. I was in luck, it did. I noted the pin and then checked which pin(s) were connected to ground and noted those pins. I now had one of the voltages and grounds worked out.

Step 4

With a variable voltage and current power supply with ammeter inline I carefully placed +5 VDC and ground into the PCB on the previously identified pins and switched the unit on. There was no smoke released

Photo 1: Sequencer front panel.

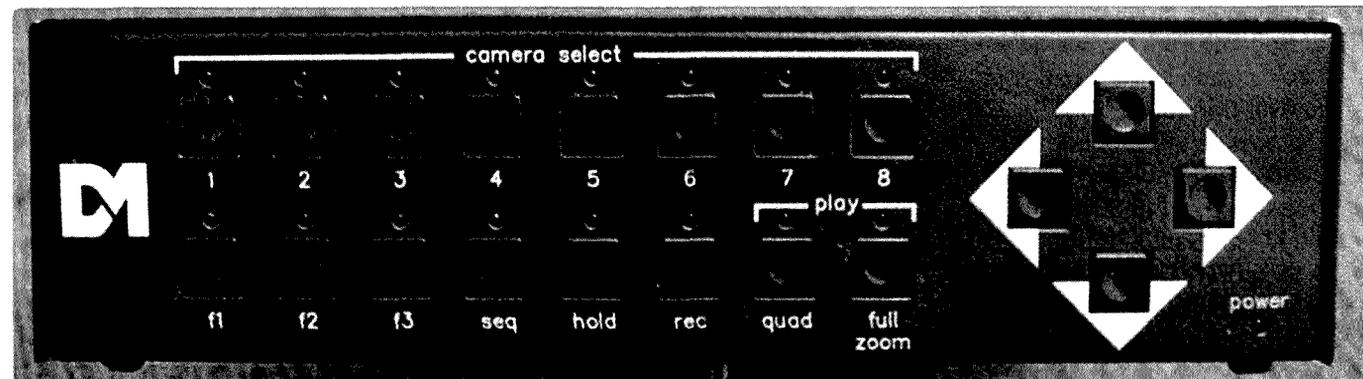




Photo 2: Sequencer power supply capacitor filters.

from any device and some LEDs lit up although the unit did not function. This also gave me some idea of the current required to run the unit from 5 VDC – it was about 1.2 A, so I knew the capacity of the final power supply unit that would be required.

Step 5

Time for some circuit tracing around the power supply connector. The first thing I realized was that there

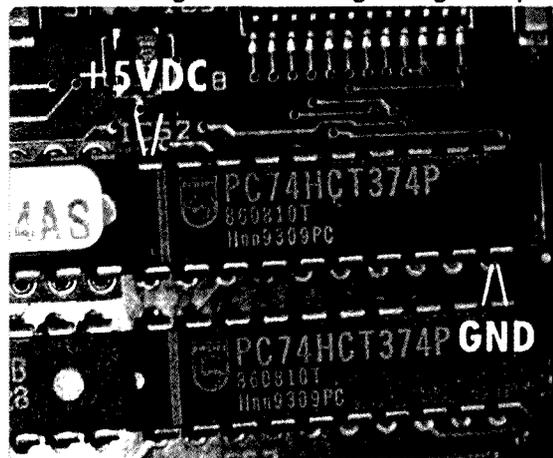
were two other pins on the connector that were connected into the power supply area of the PCB and one went to the positive pin of a 25 V electrolytic filter capacitor and the other went to the negative pin of a 25 V electrolytic filter capacitor. This lead

me to think there was a positive and negative supply required possibly for video amplifiers, switches, etc. I traced the circuit onto the PCB a little further to find that these traces went to three pin five volt regulators (78L05) used in both positive and negative configurations. Three pin regulators require at least 2-3 volts higher input than the regulated voltage therefore we were talking at least eight volts positive and negative. Given they were 78L05s – 100 mA regulators (re downloaded datasheet) I knew the positive and negative supplies were relatively low current. I later realized that the circuit designers were using a technique of separately regulating the video circuit power supplies and the logic circuit power supply to reduce interference on the video signals and switching circuits from the logic circuits. There were at least eight 78L05 regulators around the PCB.

Step 6

I did not have a variable dual rail supply so I took a chance that the positive and negative rails were 12 volts and connected a suitable positive and negative 12 VDC 1 A power supply and reconnected the 5 VDC. I rechecked that I had the right polarity of the power supply connected to the right capacitor as electrolytics tend to shed their can and explode if the polarity and voltage are incorrect. I switched all on, and sequencing LEDs on the front panel came alive and started to sequence. I plugged in a video monitor and video source and was able to see the switched video signal and started to play with the

Photo 3: TTL logic and the voltage and ground pins.



different functionality available in the unit.

The switch mode power supply unit (SMPSU) that I ended up using was also salvaged from an old Apple IIE clone that was also salvaged from a resource tip shop in VK5 many years ago! I soldered a suitable mini-DIN onto the SMPSU and re-tested. The sequencer is about to be used at our clubrooms to switch video cameras on the security system and records to a hard disk video recorder.

I do not guarantee these techniques will work every time and I have let the smoke out of a few devices in my time, but at least you have not paid too much for the item and there may be other components you can salvage – the worst thing would be to take it back to the tip!

Have fun homebrewing and recycling!

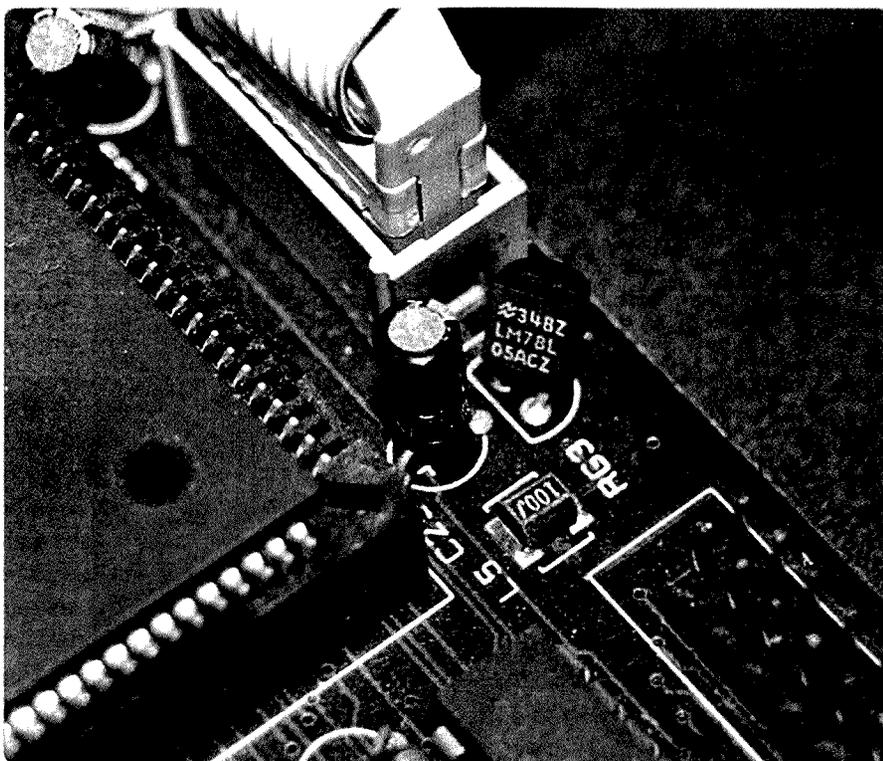


Photo 4: Low current regulator – 78L05 – 5 VDC 100 mA.

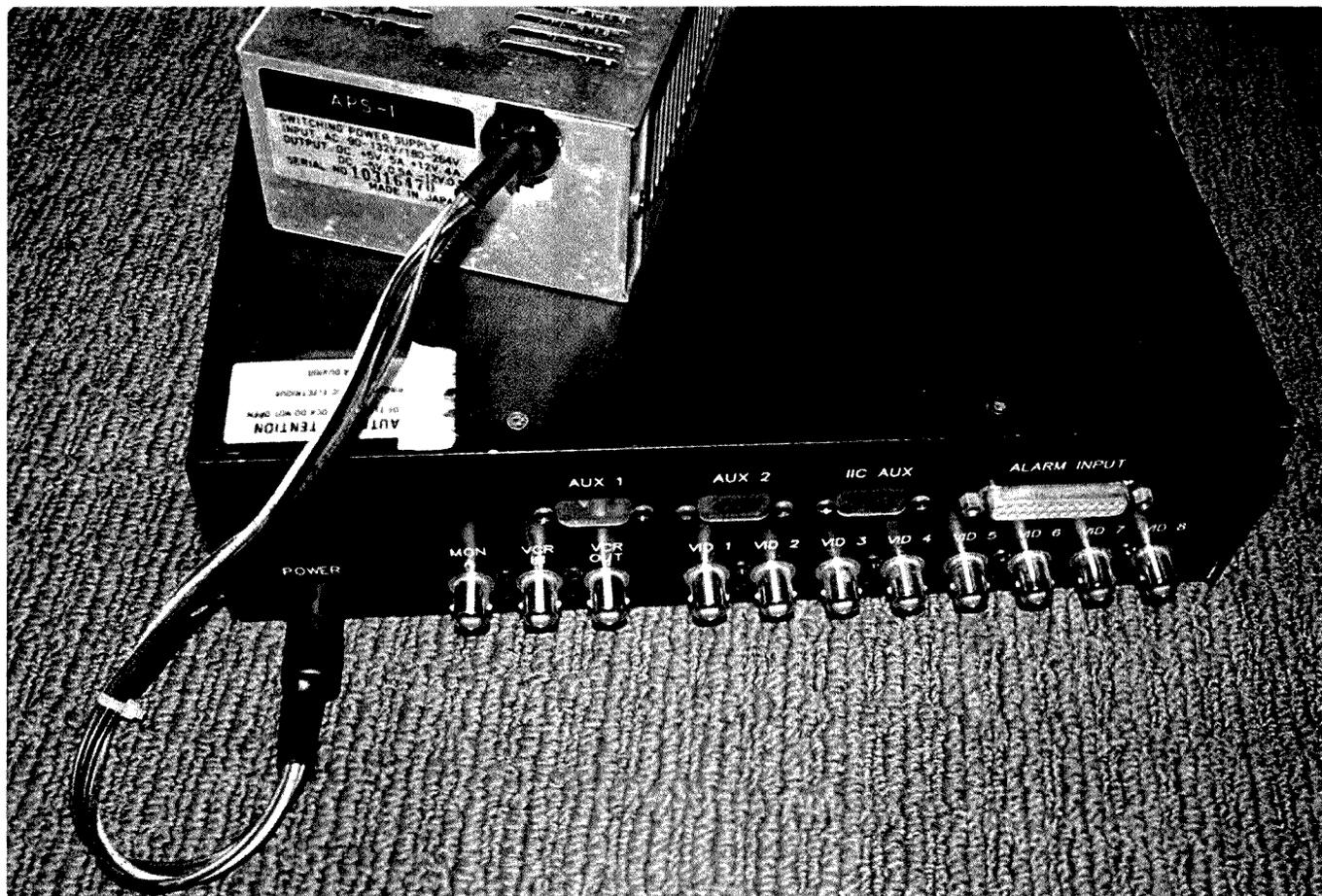


Photo 5: APS-1 salvaged SMPSU – re-deployed on the now working sequencer.

ILLW 2012 – Cape Schanck

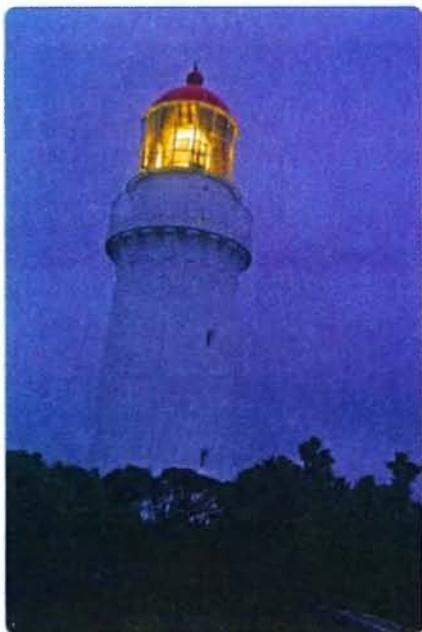
Glenn Alford VK3CAM

International Lighthouse and Lightship Weekend has become a major world-wide event, with wide appeal. It's a unique event, acknowledging the vital part lighthouses played in coastal navigation. Lighthouses often located along rugged isolated coastal cliffs, exposed to the elements of the sea and weather. Lighthouse keepers endured punishing conditions, while providing a vital service. In later years radio also played a strong part in coastal navigation and safety.

Today lighthouse while still active, play a more secondary roll, with satellite technologies, now at the forefront.

It's staggering, some 473 lighthouses world-wide were activated by amateurs from 47 countries in 2012. This event has become more popular each year. Why? Well it's not a contest, it's simply a great weekend to take our hobby to a unique coastal location. A lighthouse on a spectacular rugged coastline. It also offers exposure to the curious public that have ventured to the coast.

Photo 1: The lighthouse at night.



This year VK3ILH activated Cape Schanck Lighthouse, on the Mornington Peninsula, about 90 minutes south from Melbourne. Cape Schanck has a choice of three lightkeeper's cottages on the property, along with a museum and of course spectacular coastal walks. This year we set up operations in the white house, built around 1853. Totally refurbished and re-fitted, it offered very comfortable and warm accommodation. We did, of course, keep the open fire place well stoked.

The operators were Carl, Damian, Jack and myself. We established the station on late afternoon on Friday, erecting two antennas: Cushcraft R5 vertical, and a Fretzel off centre wire dipole. The rig was a massive Icom IC-775 DSP. The benefit of this radio is that everything is built in, tuner, power supply, twin receiver, and an output of 200 watts. We achieved some 125 contacts, of which 47 were lighthouses.

Operations were commenced late Friday through to Sunday mid-morning, with low QRM or noise. So the new location on the site proved favourable. Jack VK3WWW also found some time to try his kite antenna. However wind conditions on some occasions provide too strong and challenging.

Photo 3: Jack VK3WWW flying his kite, with assistance from Damian VK3KQ.



Photo 2: The HF antenna outside the keeper's cottage.

Being at Cape Schanck also offered some very scenic coastal walks, so plenty of great photo opportunities. So if you have never experienced such a great weekend, you are certainly missing out. It's simple, find a lighthouse/lightship, register on line www.illw.net

Guidelines and more information is available on the web site. There are also lighthouse web sites

that can help with location and details of the lighthouses. Then count the days down to the next ILLW: August 17-18th 2013. We have already begun the planning for the return of VK3ILH to Cape Schanck, in 2013.

Erratum: An ESR meter for Electrolytic Capacitors

by Jim Tregellas VK5JST

We regret that some of the images for the article "An ESR meter for Electrolytic Capacitors" by Jim Tregellas VK5JST were not correctly reproduced in the September issue of Amateur Radio.

In particular:

(a) the printed circuit pattern. The original drawing had a clear margin surrounding it which defined precisely the final printed circuit board size. This has been removed and replaced with an arbitrary border by AR making the pcb far too large to fit the box specified.

(b) the drawing for the component overlay and front panel pattern. This

drawing has been down sized by about 5% making the front panel pattern useless for its intended purpose of marking out the box and producing a properly sized front panel label.

Correctly sized front panel artwork is available on author's homepage. <http://www.users.on.net/~endsodds/esr.htm> (Alternatively the front panel drawing can be increased to its correct size by using the artwork published in the September Issue and a good photocopier. The correct size of the outer border of the front panel detail is 157 x 95 mm, producing a front panel label 80 mm wide by 82 mm high). Also

available on the author's homepage is a full colour version of the meter scale for both MU-52 and MU-65 meters which was not submitted as part of the original article.

A pdf copy of all the artwork submitted for publication is also available on the September AR page on the WIA web site: <http://www.wia.org.au/members/armag/2012/september/> Scroll to the bottom of the page to find the link.



Over to you

ESR Meter.

As soon as I saw Jim Tregellas' article "An ESR meter for Electrolytic capacitors" published in AR for September 2012, I realised that here was an extremely useful test instrument. Within a few days I had my version built and it worked exactly "as advertised". Congratulations to Jim on yet another excellent piece of gear; elegant in design, simple to build, inexpensive and accurate.

The kit looks good value and would undoubtedly result in a neater version than my copy, but, being a true amateur with deep pockets and short arms, I decided to raid my junk box and see what I could scrounge therefrom to build

the meter with minimum financial outlay. In fact the only items I needed to purchase were the two ICs, an outlay of exactly three dollars and twenty cents. Some scrap chipboard and aluminium sheet sufficed to make an enclosure.

Reversing the printed circuit board artwork presented a problem so rather than waste time trying to work out how to do it I decided to simply hand draw it as shown in the article and then add the components "paddy board" style. This also removed the need to drill holes for the component leads. A little careful work with a Dalo pen soon saw the board copied and etched.

My meter was salvaged from an old Telstra unit whose function was lost in the mists of time. Although it was calibrated in microseconds and claimed to have an FSD of 10 volts, it was actually a 1 mA FSD movement and ideal for the job. Rather than follow Jim's method of using double sided tape to attach the new scale to the reverse side I chose to attach mine with PVA woodworking glue because the thickness of the tape would have caused the meter needle to foul. Using PVA has the added advantage that if you ever want to restore the meter to its original calibration, the glue can be removed by soaking in water.

Apart from the ESR meter's primary function – which it does extremely well – it is also very handy for sorting out low ohms resistors, such as the 0.1 or 0.5 ohm emitter current balancing resistors found in transmitter output stages. It will easily distinguish between, say, a 0.1 and a 0.15-ohm resistor, something which may be more difficult using an ordinary multimeter.

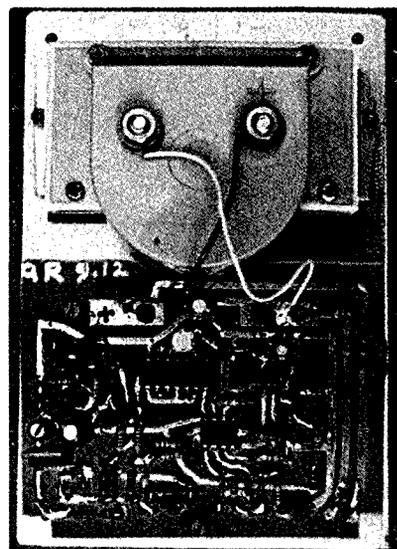
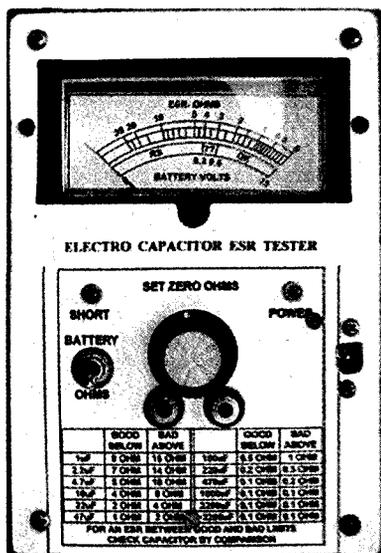
Like many other amateurs I have a large collection

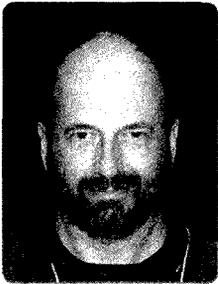
of salvaged electrolytic capacitors. Although I always endeavour to check their serviceability prior to reusing them, Jim's unit makes what was a chore with a capacitance meter and a timed leak test a breeze.

On occasions I have spent literally hours removing and testing electros in computer equipment simply because testing them in circuit was not a viable option. Jim's meter should change all that!

Once again, congratulations to VK5JST on an excellent and well written project. No self-respecting shack should be without one!

73 de Clive VK6CSW.





AMSAT

David Giles VK5DG
e vk5dg@amsat.org

40 years of OSCAR transponders

Since the launch of AO-6, we have always had at least one operational satellite with a transponder.

AMSAT OSCAR-6 was launched on 15th October, 1972 and remained operational for 4.5 years before the battery failed. It wasn't the first amateur satellite with either a transponder, telemetry or command control, but it was the first to combine all of these with some redundancy to provide a long life of service. It was based around a 2 m to 10 m linear transponder with a 70 cm beacon, 24 channels

of telemetry and a messaging system called Codestore that could receive and re-transmit CW messages. Since personal computers were non-existent at the time the telemetry was transmitted in CW and the operator only had to copy the numbers and check them against some graphs. A similar system is in use on AO-7. AO-6 spawned an educational program for primary and secondary schools. The educational aspect was a major part of AO-6 getting a free launch. It had some problems. The 70 cm beacon failed after a few months but its main problem was

an over sensitive control system that would randomly turn on or off the transponder. An ingenious world- wide network of automatic amateur ground stations was set up to (more-or-less) continually command AO-6 into whatever mode it should be in at the time. AO-6 was constructed in the USA with subsystems from Germany and Australia.

Open Source

What do Firefox, Thunderbird, LibreOffice and Linux have in common? They are all Open Source projects where the actual programming code is freely



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU
email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz
VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

available for anyone to download and modify. While most computer users use some form of proprietary operating system and applications, it is likely that most of these will have used an open source program at some stage, directly or indirectly. A good example is that from a recent survey of over 600 million web servers, nearly 65% of them were using the open source program Apache [1]. Another is the Android operating system found on smartphones and tablet computers. The term 'Open Source' was first used in early 1988 when Netscape released the source code to their then popular web browser 'Navigator'. Sharing source code had been around since the early days of computing such as listing BASIC programs in computing journals. Today there are thousands of projects that anyone can join in and contribute to. Open Source has also diverged from just software. Open Source hardware such as the Arduino microcontroller platform, Openmoko mobile phones and the OpenRISC processors. Open Source drinks including Australia's own 'Brewtopia' [2]. Open Source is also branching into science and medicine fields.

Now we have the first Open Source satellite. The Open Source Satellite Initiative was founded in 2008 by Hojun Song, a South Korean artist. In his own words: 'Sputnik was launched in 1957. Even a dog (Laika) went to space

too. I believe it is natural to think by 2011 that it's a time for an individual to start space projects of his own. There will be hurdles, but if we don't start now, we might never be able to start one in the future. Let's bring space fantasy back to people!' [3]. The satellite is called OSSI-1 or G.O.D. (Global Orbiting Device) and is a 1U size cubesat. It was scheduled to be launched in August on a Soyuz 2-1b into a 575 by 290 km orbit and is expected to last for a year before re-entry. The launch has been postponed until April 2013. It will have a 2 m uplink and 70 cm downlink using AX.25, a Cosmic Microwave Background radiation detector and four LEDs that will flash a message in CW.

As I write the website contains videos, pictures, and press releases. The closest I have found to actual source is the DIY_satellite document – and it is quite different. It consists mainly of sketches and short descriptions of the satellite design and launch. Nothing like a technical document that I expected. According to the press release the complete documentation on building and launching the satellite will be released after the launch. The video 'How OSSI-1 works: General Overview' features Hojun Song and a close look at the satellite itself. No mention of the radiation detector and they infer that the 2 m antenna is for a beacon. However the LEDs are 11 watts each and are powered via some super capacitors instead

of just from the battery. He says any licensed amateur can request (possibly upload) a message that will be transmitted via the LEDs. Since the satellite is stabilised by a magnet and the LEDs are all on one face, I expect this will be seen only in the northern hemisphere. As to how much of the satellite is made from commercial parts and how much was made by Hojun Song and his team will have to be seen when the details are published. There is a video of a talk Hojun gave in Malmö, Sweden where he goes through previous projects and the tragedies and triumphs of building his satellite [4].

The OSSI website is www.opensat.cc

Final Pass

'So you want to build a satellite' has been a chapter in the satellite experimenter's handbook since the first edition. At last it is a reality, as OSSI-1 will be the first satellite built by a private individual rather than by or sponsored by an organisation. I'm looking forward to hearing it and seeing the open source.

References

- [1] <http://news.netcraft.com/archives/2012/02/07/february-2012-web-server-survey.html>
- [2] <http://www.brewtopia.com.au/>
- [3] <http://opensat.cc/blog/launch/signing-ceremony/> (press kit)
- [4] <http://www.uk.amsat.org/9220>



CCARC
Central Coast Amateur Radio Club Inc.

Wyong Field Day

24th February 2013

Lucky Door prizes, Flea market plus much more!

For more information go to the website
www.fieldday.org.au

Be part of the largest Amateur Radio event in the Southern Hemisphere!

Margaret Blight VK3FMAB – Publicity Officer

Congratulations Dot VK2DB on a job well done

After putting in a solid 20 years' work as Editor of the ALARA quarterly newsletter, Dot VK2DB has finally retired from the task. Our new editor is Susan VK3JMM who completed her first publication in July this year.

However Dot has not stepped down from taking an active role in radio. She has shared one of her recent experiences with us:

'Early in August we were having a family reunion at Yamba and OM John VK2ZOI wanted to keep his sked with Lord Howe Island and also check what the propagation was like from 'up the coast'. He used his 'mobile windom' which is strung between two squid poles and goes everywhere with us. He tied one squid pole to the verandah rail of our motel room and the other pole was tied to a chair in the barbeque area. It looked very unstable so I sat on the chair, held the pole and chatted to my son on the phone. Very good radio contact.'

News about sponsors

Being sponsored by a member of another country's equivalent to ALARA means you receive a copy of that operator's newsletter. I recently received the winter edition of the WARO Bulletin which contained information on the NZART (New Zealand Association of Radio Transmitters) conference held in Nelson, NZ over the Queen's Birthday weekend. Part of the program included a number of forums one of which caught the attention of a few YLs so they registered to take part in Rory Deans 'Radio Tek'. In her own words Topsy ZL2LS described the experience.

My First Radio Build

Topsy ZL2LS

There were only three females in the class but we didn't care, we wanted



Photo 1: Dot VK2DB holding the squid pole for OM VK2ZOI.

to build a radio; we were really keen. We had a short presentation then we were handed our equipment and instructions. At this point we thought the instructors may have wondered what they had let themselves in for.

It was like paint by numbers but different, we had a diagram which indicated what needed to be done. After putting foil down on the diagram we found the correct components and placed them appropriately. Then we began our soldering, helped at times by the instructors. It was great fun. Despite hot glue on fingers, bits of solder here and there and a couple of broken components, I thought I was done. But when I turned it on the radio did not go. More help needed. After a few modifications and replacement of a broken component, this time we had sound. It was such a great moment to think that I had made this. Now I want to venture into building something else in the near future.

Comment: Topsy's enthusiasm

for a practical demonstration of soldering and making up radio components would be shared, I believe, by any number of YLs should the opportunity arise. Encouragement should be given to the various radio clubs to offer classes to their members both male and female to develop their basic technical skills.

Sponsor story 2

Dot VK2DB sent a photo forwarded from her sponsor Nina DL2GRC and her OM Holger who are seen encouraging their four year old son to develop enthusiasm for the fun of foxhunting. What a great photo!



Photo 2: Junior foxhunters in Germany.

For people with an interest in ATV

The second annual QSO Party was held on Friday 24th–Saturday 25th August. It was hosted by Peter VK3BFG. This year the ALARA President Jean VK3VIP took part and also promoted the coming ALARA contest which was held on 25th–26th August.

ALARA Contest

Catherine VK4GH – ALARA Treasurer.

I just wanted to thank all those who joined in the ALARA contest, and I know that some of you made a special effort, such as visiting



Photo 3: Jean VK3VIP and OM John VK3DQ as viewed in the USA during their ATVcontact.

another shack, operating from a club shack, or making contacts for the few hours you had available.

I thought you would all like to know that on Sunday afternoon I had two contacts with Christa DJ1TE and one with Evelyne F5RPB, both members of ALARA. I also had a contact with Christina PA0DOM.

Many of my contacts were on 20 metres during the two afternoons, long path to Europe, and although it is sometimes difficult to pick out the calls and make a proper contact, the OMs appreciate a YL voice from the other side of the world.

Cheers to all.



GCARSI HAMFEST – 3 November 2012

The President and Members of the GCARSI are hosting the Annual Hamfest at Albert Waterways Hall on the Gold Coast, SE Queensland.

A welcome is extended to all amateurs and potential amateurs to come and view equipment and accessories from businesses in Queensland and New South Wales.

Come along with your friends and families for an enjoyable day at the Gold Coast.

Tea, Coffee, pies, sausage rolls and other goodies will be available from 7:30 am

Traders can set up any time from 6:30 am Doors open at 8:30 am until 2 pm

Entrance Single - \$7 and Families \$10 Tables \$25 each



KENWOOD
COMMUNICATIONS

YAESU
AMATEUR RADIO DIVISION

ICOM

Silent Key

Ian L Herrmann VK3YDY 1933-2012

Ian Herrmann VK3YDY passed away on 8 July, 2012.

As a radio amateur, Ian was for many years a regular member of the Dads Army Radio Group (DARG), which is a radio chat group that takes place most evenings. His unflinching good humour and

extensive knowledge of the technical side of the hobby earned great respect.

Our sympathies and prayers are for Mervyn and family.

We felt privileged to have Ian accept us as friends and colleagues.

Contributed on behalf of his DARG colleagues Mike VK3WW, Pete VK3JN, Brian VK3ADV, Peter VK3ACJ, Roy VK3ZCU, George VK3DS and Bob VK3BWZ.



Ray Dobinson VK4HOT
Vice President



Photo 1: CQARA at the Emergency Services Day. From the left are Jack VK4JRC displaying radio tracking equipment and a working repeater station on the day, Bob VK4HRC, Ray VK4HOT and Don VK4BY displaying two portable self-contained stations with solar panel assisted batteries. Others present were Jeff VK4NBJ, Graham VK4NFZ, Lyle VK4LM, Merv VK4DV, Jason VK4FJGS and Richard VK4FRIK. Photo courtesy of Brian VK4MBG XYL Dell Groskoph.

This year has flown by so quickly, and the Central Queensland Amateur Radio Association (CQARA - www.cqara.org.au) has not stopped long enough to write an article for the news, but now comes the time to rectify that. In the last few months the CQARA has had so many activities, sending members far and wide enjoying this marvellous hobby.

Some activities that the CQARA have participated in recent months include the Rockhampton Emergency Services Day, a Bunnings sausage sizzle, moving of new club assets to Weasel Park, Rockhampton Heritage Village support and activities and participation in the ILLW at Sea Hill Lighthouse AU0060.

The Rockhampton Emergency Services Day allowed our members

to prepare an amazing emergency radio display for the local community's benefit. Unfortunately our Christmas in July event was cancelled due to bad weather, however this event will run on 23rd September and will include another round from our very competitive and popular annual fox hunting calendar.

A Bunnings sausage sizzle was also a highlight which produced welcome cash for our association and some interested people who may not have known we existed and what amateur radio is all about.

A donation of a caravan by Les VK4QI and his lovely wife June Berryman, to our association's base of operations at Weasel Park, saw members moving and updating the grounds. Life member Jack VK4JRC once again has shown exceptional commitment to our association by continual maintenance of this facility, with the help of Ray VK4HOT and Graham VK4NFZ.



Photo 2: The CQARA Bunnings hot snag day, from left are Bunnings staff member, Graham VK4NFZ, Lee VK4YLW, Brian VK4MBG, Ray VK4HOT, Bob VK4HRC, Dell Grosskoff and Barbara Kocho. Members who helped out and are not in the photo were Frank VK4FLR, Jack VK4JRC, Mick VK4 NHX and Lyle VK4LM. Photo courtesy of Beth Mave.



Photo 3: Jack VK4 JRC removing a caravan with a Dingo machine for Weasel Park, the CQARA's new acreage and club house.

Many members have used this area for radio activities and continue to look forward to further events held there.

The Rockhampton Heritage Village radio display and open days brings invaluable exposure to our hobby that no other facility could provide.

Finally some of the adventurous members made their way to Sea Hill Lighthouse AU0060 at Curtis Island for the ILLW event. It is pleasing



Photo 4: This photo was taken by Rob VK4TW at the house that was used by the staff of the Sea Hill Lighthouse when it was manned. From the left are Ray VK4HOT, Jason VK4FJGS, Jack VK4JRC, Graham VK4NFZ and Richard VK4FRIK, and the bucket of crabs.

to inform all that over the last 12 months this lighthouse has become heritage listed. This event would not have been as successful without the support from locals of Curtis Island, Clare who allowed us to use her house, and to Pat and Jo Carrol who provided marine transport from Port Alma.

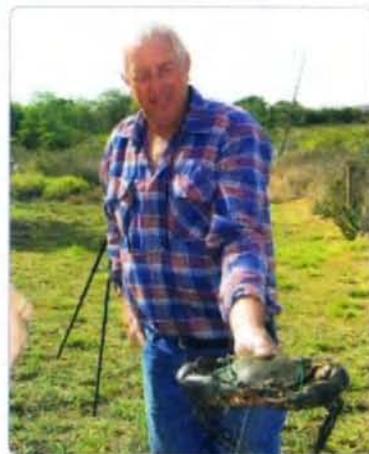


Photo 5: Graham VK4NFZ with the catch of the day at Sea Hill Lighthouse.



Yarra Valley Amateur Radio Group Inc.
www.yvarg.org.au PO Box 346 Healesville Vic. 3777

VK3YVG's

Hamfest

Sales
of pre-loved
Ham equipment,
components &
computer gear

Free tea and coffee

Light refreshments
available

Hire of tables
\$15 each

Ample parking
\$5 entry

Open to traders
at 8:30 am

Sunday 11 November 2012

10 am to 2 pm at the new venue

**Garry Cooper Pavillion, 16 Anzac Avenue,
Yarra Glen Melways 274 K1**

SALE

Call in on VK3RYV Repeater 146.725 MHz

For booking of tables and further information contact yvarg@yvarg.org.au
Gavin VK3GH on **5968 8482** or Steve VK3TSR on **0418 103 487**

VK6news

Keith Bainbridge VK6RK
e vk6rk@wia.org.au

Well I had almost a year off! I received an email from John asking me to take over the notes again as his work commitments up north and family commitments when home were making the VK6 notes a task rather than a pleasure. So what could I say but, yes I'll give it another go.

I'd like to start off by thanking John for his columns over the past year, I know how hard it is to get input from the local VK6 groups; but you are all going to change that problem for me aren't you!

Well done John, your work was much appreciated.

Hamfest 2012

I suppose I should start off with a 26th NCRG Hamfest report as its now over a week past and the facts and figures are coming in to the NCRG committee. It seems it was an improvement on the year before with over 320 people through the doors, up about 25 on last year. Perhaps the hobby isn't dying in WA.

This year was the first in many where we did not have a physical representation by the leading three manufacturers in amateur radio equipment. John from Tower Communications has retired and there are no longer any companies selling Yaesu, Kenwood or Icom amateur radio equipment willing to come along to Hamfest.

Perhaps it's because they don't attend that many amateurs these days buy their equipment direct from the USA or elsewhere or is it just a sign of the 'internet age'?

However Tet Emtron and Outbacker antennas did attend and both had a very successful day.

Icom were very happy to supply a selection of prizes for us to raffle including a 70 cm handheld, caps, and a good selection of posters to adorn the prize table, we do really

appreciate their support. Yaesu and Kenwood please take notice for next year!

There were many flea market tables, over 50, and they were full of the usual junk, sorry, priceless items in the eye of the beholder! The food was excellent. Luckily an alternative supplier was found and everyone agreed it was up to or beyond our usual standards; these last minute dramas cause heart attacks.

So the raffle prizes and winners were as follows:

1st: Icom ID-31A donated by Icom and won by Harry VK6BB.

2nd: Outbacker Perth mobile HF antenna donated by Outbacker and won by Julie VK6TTT.

3rd: Soldering station donated by Alek VK6AP and won by Wes VK6WX.

4th: 4:1 balun donated by Tet Emtron and won by Tony VK6HAM.

5th: Well I was drawing the prizes and I drew my own ticket so it was

redrawn and won by Joe VK6BF1 who also re donated it. It was a multimeter donated by Alek VK6AP and it was eventually won by Harry VK6BB again!

6th and 7th: Were screwdriver sets won by Steve VK6SMK and Ken VK6CO.

The home brew competition was judged by Steve VK6VZ and was won by VK6AAK (a \$40 voucher for Altronics), with 2nd place going to VK6CG.

Well that's it for another year. The hall is booked for the first Sunday in August 2013 so see you there.

Travel news from Mirek VK6DXI

I have been recently on a business trip to Oman. As this trip literally happened overnight I had no chance to apply for a visitor licence. But I always try to get on the air from places I visit. So I contacted local amateurs and I was able to



Photo 1: Harry VK6BB receives his Icom ID-31A.

get on the air a couple of times. First was the station of Mohammed A41TT in Sohar and then Mohammed A41NN in Muscat. The hosts were extremely hospitable, though it was a time of Ramadan. A41NN took me for the night tour (on my last night in Oman) of Muscat, showing me a night market, Kings Palace and Mohammed's and his uncles' houses. We also visited A47RS, Royal Omani Amateur Radio Society station.

I was not aware of it but H.M.Sultan Qaboos Bin Said, Sultan of Oman has an amateur radio licence and a call, A41AA. He was not at his palace at the time so I missed out on this important meeting. By the way A41NN works for His Majesty.

It seems it is possible to arrange an Omani licence. It is only necessary to contact Royal Omani Amateur Radio Society for the procedure and give some time for it. Attached are some pictures from my visits.

As it was my first ever visit to Oman, I could increase my DXFC score (<http://www.dxfc.org/>). It is DXCF visit number 66 and 51st DXCF QRV. Till next one. 73. Mirek VK6DXI.

Thanks Mirek for the report on one of your many travel locations, shame it's for work!

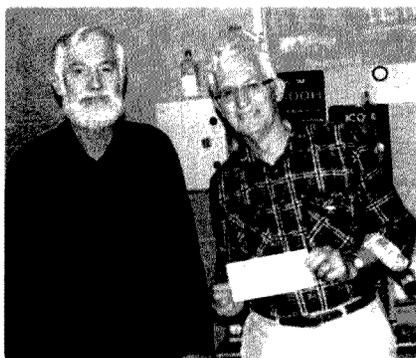


Photo 2: VK6AAK with his homebrew prize, a \$40 voucher for use at Altronics.

Now from the VHF Group - contributed by Bob VK6KW, President VHF Group Inc.

VIP Centenary

The West Australian VHF Group Inc is running in top gear with another public AR display station similar to the VK100WIA Super Springtime. As many of you know, September 2012 will see the centenary of the establishment of our nation's coastal radio station network.

VIP Perth on Wireless Hill, Ardross, is believed to be the only remaining survivor in public hands. The WA VHF Group was instrumental in the preservation of the buildings to house a Telecommunications Museum and now has almost certainly secured a permanent Hamshack as part of the re-vamping. This was the site of the

2010 WIA Centenary celebration airing the VK100WIA call for 12 consecutive days in a co-operative venture by nine local radio groups.

In coordination with the Melville City Council, the WA VHF Group has made application to again air the commemorative callsign VI6VIP (previous occasions being 1992 and 2004) for this station which will be open to the public from 0100Z to 1000Z daily, from Saturday 29 September to 13 October, inclusive.

Of course in true ham fashion we expect the station to be active well beyond these hours. So here is our invitation to you. If you're interested in promoting amateur radio to the public and helping to increase our numbers, please contact the WA VHF Group via <http://www.wavhfgroup.org.au/> where you will find more information about the event and some future plans for Wireless Hill.

Bob VK6KW, President VHF Group Inc.

This is one of those historical events that needs the support of the amateur fraternity in general, so if you can help please contact Bob.

That's it for this month.

I'm pleased to be back with you, but as always, I need your input to produce this column every month.

I look forward to hearing from you. Vy 73 and gd DX.

Silent Key

John van Staveren VK7JV, 1938-2012

John was born in the Netherlands and migrated to South Australia with his family at age 17; they settled first in Balhannah, then Peterborough and later Adelaide. While in Peterborough, John worked as a mechanic in the local garage.

When they moved to Adelaide, John started work with Cyclone Scaffolding; it was during this time he met and married Joy. John and Joy moved to Launceston in the mid-1960s when John was transferred by Cyclone Scaffolding to manage their Launceston depot.

He became licensed as VK7JV in about 1968 and shortly after became heavily involved in the activities of the WIA Tasmanian Division, Northern Branch (now

NTARC). He was the branch's equipment officer for a number of years and the founding editor of the branch's newsletter 'QRM', which later became the VK7 newsletter then the VK7 column in AR Magazine for many years.

Being adept at scaffolding, John proved a most useful help in assembling antenna towers and similar structures. He also ran Morse code classes at their home; these became a social event and, thanks to Joy, many an enthusiast spent evenings enjoying tea and cakes, whether studying Morse code or not.

He was a keen participant in contests and a pioneer of slow scan TV, digital photography and early computers. He operated on bands

from 160 to two metres.

His other interests included photography, caving, slot cars, fishing, scuba diving, rifle and pistol shooting. His skills and patience as a teacher were appreciated by many in several of these pursuits.

Although not very active in recent years, John kept in touch with a few local amateurs. He is survived by his wife Joy. Vale John, we'll miss your humorous email messages.

Contributed by Peter Dowde VK7PD.



VK2news

Tim Mills VK2ZTM

e vk2ztm@wia.org.au

These notes have to be compiled one or more months before you get to read them and the most regular material source is from the VK2WI broadcast notes. With these long lead times there can be changes of dates or activities. Sometimes the projected events will differ from what finally happened. What I consider important in these notes is that a lot of history can be recorded in the printed word in a magazine like *Amateur Radio*, rather than the seemingly more ephemeral web page. The article on Wally Hannam would not have been as easy if those stories/reports had not been preserved originally in the printed newspaper format.

The Fishers Ghost ARC has recently been celebrating their 30th Birthday. They were honoured by the Mayor of Campbelltown who had a civic reception for members of the Club in recognition of the Club's achievements. FGARC will be operating in this month's JOTA from two locations being the Cataract Scout Park for the Scouts and Kentlyn for the Girl Guides. FGARC will be holding a 30th Birthday Dinner next month, advises Lynn VK2FLMK.

To provide suitable publicity for JOTA operations would clubs and groups setting field stations please advise VK2WI News locations and times.

Blue Mountains ARC was forced to cancel Winterfest they had scheduled for the end of August. They will use the time till next August to plan an even bigger event advises publicity officer Erik VK2EJH. Their new club location in Moore Street, Glenbrook is still being established and fitted out.

VK2WI received a CD recording of their 40 metre AM transmission that

Spanish SWL Luis EA3-5154 copied last February. Not a bad signal. It was nice to hear the signal from the other side of the world. A new transceiver has been placed in service on the 20 metre 14.170 MHz broadcast channel and has made callbacks practical again. ARNSW will have the final T&T for the year on 25th November. Some planning into 2013 has a Members Anniversary BBQ on Sunday, the 10th March. The AGM is set down for Saturday, 20th April. ARNSW has added a disabled toilet unit to the site, adjacent the Centenary Building. This supplements the existing on-site septic facility. Also recently commissioned has been a set of three fire hose reels with a pump connected to the rain water tank. The VK2WI site is a bushland site with a good cover of trees.

VK2RWI has upgraded the six metre repeater on 53.850 MHz. This should provide much improved coverage of Sydney, extending into the central and south coast.

WICEN NSW have a lot of activity this month including the on-going search for missing aircraft VH-MDX on the weekend of the 20th and 21st. The following weekend, the 27th and 28th is the annual Hawkesbury Canoe Classic. Last month they held their AGM. VK1 WICEN also has several events before the end of the year.

Strong winds across Sydney in August were a problem for the Waverley ARS and their club rooms in the eastern suburb's location of Rose Bay. Two trees within the property came down, one of which made a mess of the roof top antenna system.

The Oxley Region ARC held their AGM in early August. Henry

VK2ZHE continued as President and also found he had the position of Secretary. Bruce VK2HOT is Vice President and Keith VK2FKJA is Treasurer. Committee members Bill VK2ZCV, Arthur VK2ATM and Larry VK2CCL make up the team. Stuart VK2KSM has recently offered to assist with some of the secretarial duties. The Club station VK2BOR operated in both the RD Contest and the Lighthouse weekend. The APRS unit installed at the VK2RCN site to the north west of Port Macquarie has been very successful in filling areas not covered by the APRS system at VK2RPM in the south.

The Hunter Radio Group contest members took part in the RD from the Luskintyre Airport which is also the Tiger Moth Museum. This is a regular contest site for the HRG with its on-site accommodation and good antennas between tall pine trees.

The Illawarra ARS held their AGM in August. They are settling in well at the new meeting location at the Figtree RSL Bowling Club. A current project has been to install a repeater at Jervis Bay down the south coast. During the testing stage advises Ross VK2VVV it will be a stand-alone repeater, but will eventually be conferenced into the Coast Link network.

The Snowy Mountains ARC, while being a small group, has developed an extensive repeater network in the south east corner of VK2 advised President Bill VK2ZZF. Their several two metre repeaters are also linked to a far south coast system.

73 - Tim VK2ZTM.





Spotlight on SWLing

Robin L Harwood VK7RH.
e vk7rh@wia.org.au

Well it is October and that usually means that we have frequent rain squalls and wind. It is also the month when the clocks go either forward or back, depending in which hemisphere you are in. Here we advanced the clocks on the first Sunday of the month in NSW, Victoria, Tasmania, the ACT and South Australia. NZ advanced theirs on the last Sunday of September. European nations wind theirs back at 0200 LT on the 28th of October. North America winds theirs back on the 4th of November. It really would help if there was a worldwide standard date yet this is wishful thinking.

October is also the commencement of the B-12 schedules. It also sees the end of transmissions from Bonaire in the former Netherland Antilles. This relay station used to provide strong signals into Australia for Radio Netherlands but it was a victim of the substantial budget cutbacks to that organisation in 2011. The senders and antennas are likely to be dismantled because

no other broadcaster had shown any interest in taking them over. This is what happened to the RCI Sackville transmitters and antennas. Radio Netherlands also operated a relay station in Madagascar but this was purchased in a local management buyout. The site now broadcasts commercially for other organisations.

Two religious shortwave broadcasters have also left the airwaves, in August. WTJC in North Carolina closed down quietly at the beginning of the month; it was occasionally heard here in Australia on 9370. In its last weeks, the senders really began to malfunction and put out spurious signals as well as drifting. So the decision was made to close down. I guess they could not 'Wait Till Jesus Comes', which was their slogan!

The other station was Christian Voice from Santiago, Chile. This was rarely heard here and like HCJB in Ecuador, the station opted to provide a feeder service via satellite for rebroadcasting on local stations and networks across Latin America.

Programs originate from Miami and not from Latin America. The closure of CVC from Santiago also means that another nation has left shortwave.

I recently discovered this link to a SDR receiver online from the Netherlands. It is <http://websdr.ewi.utwente.nl:8901/> It is based at a university and has previously been active yet mainly over the HF amateur bands. Now it has continuous coverage from 9 kHz to 29 MHz but only has a small whip antenna on the roof. Surprisingly it works well and there are numerous operators simultaneously using the facility. The Globaltuners site with many receivers located throughout the World can only process one user per receiver. I have personally found though the audio on the latter is better. The SDR audio can chop in and out, which can be quite annoying, as are my continual hearing hassles!



WIA Member Price: \$30.00
Retail: \$35.00

Get on the Air with HF Digital

It is a step-by-step guide that will get you started in the fascinating world of HF digital technology.

Written in an easy to understand, conversational style, this book will show you how to set up and operate your own HF digital station.

The text includes instructions for configuring software programs for popular modes such as RTTY, PSK31 and JT65.

You'll also learn about other digital communication modes such as MFSK, Olivia and FACTOR.

VHF/UHF - An Expanding World

David Smith VK3HZ
e vk3hz@wia.org.au



Weak Signal

Spring has arrived and has brought some more interesting weather patterns. Across the south of the country, there have been several high-pressure cells that have produced some lift in propagation. Unfortunately, there have only been a few contacts - perhaps people are not on the lookout yet.

The evening of August 26th did produce some good contacts on 2 m from the Adelaide area across to the NSW coast. At 1020Z, Phil VK5AKK reported hearing the Newcastle Ch 5A TV vision carrier (we will miss that when it shuts down on November 27th). At 1115Z, he worked Steve VK2ZT near Newcastle with 4x1/5x1 reports - a path of 1244 km. At 1130Z, Bill VK5ACY and Peter VK5PJ also worked Steve with 5x1 reports. Nothing on any higher bands.

50 records and counting

Congratulations to fellow columnist and microwave rover Rex VK7MO for achieving his 50th Australian VHF-UHF distance record.

His first record was set in January 1964 when, as VK3OB, Rex set the first ever National distance record of 156.6 km on the then-newly-created 70 cm band.

In June 2012, his 50th record is for 24 GHz Digital Modes over a distance of 461.7 km - in 48 years, three times the distance at 56 times the frequency!

I'm sure there'll be a few more yet.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au



Digital DX Modes

Rex Moncur
VK7MO

FSK441

Welcome to Mick VK4NE who has joined in the weekend activity sessions and completed his first meteor scatter with Arie VK3AMZ.

A few years ago Meteor Scatter was predominantly centred on VK3 but over the last six months VK4 has come to dominate the scene as a result of efforts by Kevin VK4UH to encourage activity - well done Kevin.

10 GHz Home station VK3BQJ

Rod VK3BQJ has been experimenting with aircraft scatter from his home station down to Rex VK7MO over a 567 km path using JT65c. The only useful aircraft are three flights that leave Launceston for Sydney/Brisbane each day. Alignment is a major issue with Rod's 850 mm dish above his roof on a HF type rotator - but he is making progress by incrementing azimuth in small amounts and seeing when an aircraft produces a signal - rather painful with only three aircraft a day. Once azimuth is optimised, Rod will look at elevation which at present is controlled by wedges in the clamp that holds the dish. To date Rod has received only two decodes and nothing the other way but hopefully once alignment is optimised a QSO can be completed.

My steady adventure into 2 m digital EME

Ross VK2DVZ sent in the following item:

Back in time in the mid 1980s I built a bay of 4 x10 element DL6WU design Yagis (see below) and installed them onto a then new 13.7 m Nally tower that I had purchased. I later added a 2 m PA that used a pair of 4CX250B tubes. The performance of that set-up soon became apparent with many enjoyable SSB contacts being made on the 2 m band, using various means of propagation which included tropospheric ducting across to New Zealand, aircraft enhanced signals to the north to Maleny and beyond and to the south to the ACT and beyond. Throw in many 'local' contacts and some inland ducts and some aurora into the mix and a curiosity with 2 m EME followed on.

I had heard/copied other's signals off the moon. I would try to hear my own 2 m CW signals on moonrise, sometimes successfully sometimes not.

It wasn't long before David VK3AUU, who at that time was running a big 2 m station, found out that I was hearing a few stations off the moon, arranged a multi-station schedule with Dave W5UN, each to try and work him on 2 m CW on a pre-arranged date and time. If my memory is working, there was a ZL, a Fijian station, myself, a VK4, I think Ed VK1VP and David VK3AUU - there may have been others, but as best I can recall all stations worked W5UN on CW, as arranged.

On that contact I recall being able to hear then read the W5UN

signal before I had moon rise and before it was my turn to try to work Dave. What a thrill it was to succeed and to see an S5-6 signal on the meter - off the moon!

Back then there was no Internet logger to check into to see who was on air or 'on the moon' at a given time. All contacts were either pre-arranged or made by chance. I used a Commodore 64 or a very early version of a pocket computer to track the moon, both used a 'type-it-in-yourself' simple tracking program to determine the moon position. Not having any elevation capability at that time, only the rise and set times of the moon were needed.

I did not pursue 2 m CW.EME any further after I had worked about six stations scattered in the US or Europe.

Fast forward to 2010 and after a change of QTH some 10 years earlier and still using the same tower, antennas and PA and having better computers, digital programs, loggers and the like, it was time to try 2 m EME again using a much easier means of communication via the moon - namely JT65B, one of the WSJT suite of digital modes, rather than CW. So still without any elevation I started to listen to and decode digital signals off the moon at moon-rise and moon-set.

In November 2010 I worked my first 2 m station, namely I2FAK. Over the next few months I managed to work about two dozen stations. One early morning I announced on the N0UK 2 m logger that I was going to Tx as a test running 50 watts only. Back came RT4I off the moon whom I worked and on the logger he asked was my PA broken. That was a real QRP thrill for me. Quite a number of stations have now been worked off the moon.

An elevation actuator and 2 m mast mounted pre-amplifier were subsequently added to the station, giving greater flexibility to operating times and performance improvement. Many EME stations have now been worked around the

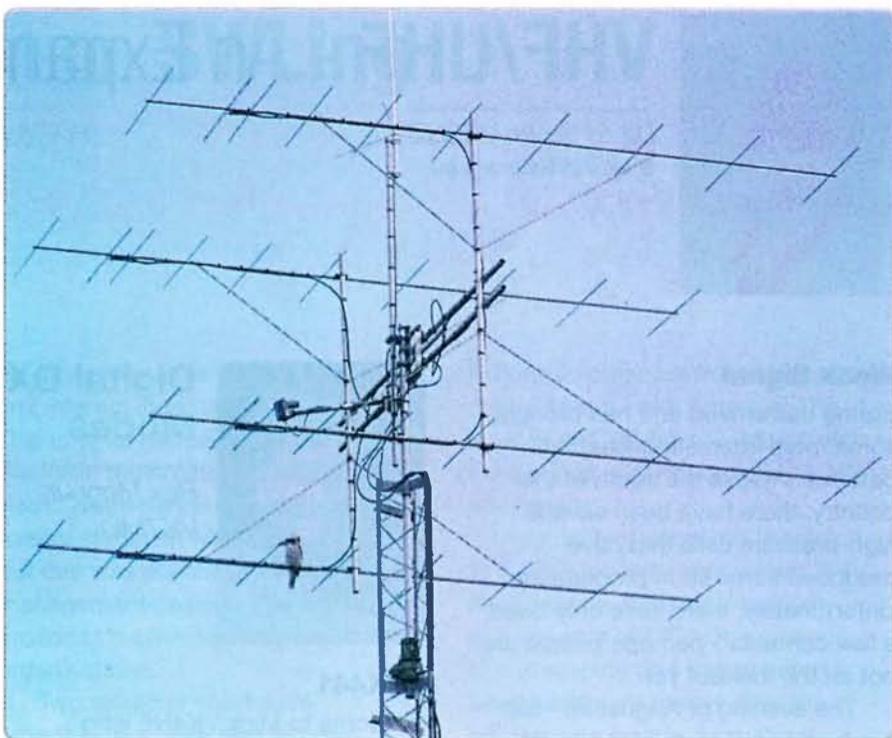


Photo 1: VK2DVZ 2 m EME array.

world, with more to come.

Meteor scatter contacts using FSK441 mode are regularly made with Bob ZL3TY in Greymouth at a distance of 2026 km and with a number of VK stations also, mainly on weekends - it is good fun.

Come and join me some time on 2 m EME or meteor scatter, you too may get the real digital buzz!

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au



The Magic Band - 6 m DX

Brian Cleland
VK5BC

August produced very little in the southern areas of VK but in the north several good TEP openings occurred to the north, Japan, China etc. with contacts also being made into the Middle East by Gary VK8AW in Darwin.

Gary VK8AW is now well and truly settled into Darwin and has a great 6 m station setup running an Icom IC-7700 into a 9-element M2 Yagi 50 feet (15.2 m) above ground level and is now reaping the rewards of the propagation that can be experienced from Darwin. Gary reports:

4 August - Chinese TV arrived around 0700Z and then the A6 TV from Qatar on 48.250 appeared around 1227Z but was not very strong. The band opened with JI1CUL, JA3MDG and JF2WXS all worked on SSB at 1115Z from central Japan. Then BV3CE from Taiwan was worked at 1150Z and it was over to China with BA4SI who was S9. Many beacons were heard with JA6YBR, JA2IGY, JR6YAG, DU1EV and BV2YA all between S2 - S9. Conditions fluttered around with 9W6RT (Roger) and DU1GM (George) both worked around 1300Z.

On 10 August the band opened a little later at 1204Z with BV3CE and JM1XRL (Taka) both worked at S9. The Chinese TV was its usual +20 dB and faded out around 1300Z, but returned at 1400Z a lot

weaker and 'hollow' sounding. The Middle East TV (48.250) pegged 20 dB over at 1115Z but nothing was heard from that direction.

17 August was a quiet one with BG6CJR being worked on CW at 1140Z and a few weak JAs heard but not worked.

On 19 August, many weak JAs were heard on 50.055 CW around 1156Z in what appeared to be a contest of some sort and I tried to work JM2CAN but no response was received. I then worked JR3UPT (Jack) at 1212Z who was S9 with the usual JA2IGY, JA6YBR, JR6YAG and BV2YA beacons all between S1 – S5.

On 26 August I copied VK4TVL on 50.293 (WSPR) at 0741Z. Lloyd's 5 watts to a vertical came stomping thru with the digital signal very 'crisp/clear' on Spectrum Lab for a good hour. Then 9V1TT (Andrew) from Singapore came in at 1240Z and we chatted on SSB for about 30 minutes on 50.130. BV3CE from Taiwan appeared at 1315Z and then DU7/PA0HIP (Willem) made the log at 1330Z. Then BX4AG was worked at 1345Z and I was surprised when A45XR (Chris) from Oman turned up at 1355Z who was quickly worked on CW. 9M6YBG from East Malaysia came in at 1415Z on CW for the last contact of the evening. The BV2YA beacon was logged at 1323Z but no JA beacons were heard that night.

29 August was a quiet one with 9W6RT (Roger) appearing at 1345Z and was worked on SSB. The Chinese TV made its usual appearance but there was no sign of Middle East TV on 48 MHz.

The month was nicely rounded out on the 31st with A92IO (Dave) from Bahrain appearing and being worked at 1320Z on SSB. Then conditions went short with BV2DQ from Taiwan at 1328Z and then 9W6RT (Roger) at 1345Z and YB0CBI at 1400Z. Conditions shifted and JM1SZY made the log at 1417Z and then 9M2/JG3TTO appeared at 1440Z for a very late contact. The BV2YA, DU1EV and JA6YBR beacons were all S5 – S7. 9M2/JG3TTO is



Photo 2: The 6 m Yagi at the station of Gary VK8AW.



Photo 3: The VK8AW shack.

running a beacon on 50.025 CW and is heard most evenings around 1300Z. The highlight of the month was hearing the Middle East beacon A47RB on 50.004 around 1400Z. Middle East TV has been getting stronger and often peaks 20 dB over several times during the evenings. This is getting louder as the weeks pass and September is looking very promising with the A47RB beacon already logged.

Meanwhile news from Rod VK6KP/VK3TG in Karratha North West WA: The band was very quiet over

the winter months but things are improving rapidly on 6 m. The band is now open most afternoons around the normal 2 pm local time, if only the TV from BA, which tends to disappear and then reappear around 5 pm local (0900Z). Band is open most evenings to JA/BA and BV. I have not heard anything from Oman or Dubai on 48 MHz yet but most evenings I have to give it away around 9 pm local (1300Z). Work commitments have limited my time on 6 m but looking back in the log for August the following was logged:

1st Aug 0930UTC BA TV full scale in-band with a number of JA beacons. 0935 UTC worked JA1RJU on 110 at 5/9.

No activity from here (due to work) until 21st August when I caught up with Li BA4SI at 1139Z on 110 at 55 both ways.

22nd Aug - JH4GJR 0841 UTC 50.120 59+ plus many other JAs operating all the way up to 50.250.

23rd Aug 0930UTC BA TV in-band and a number of JA beacons.

Next chance was on the 29th August 1136 UTC BX2ACM 50.110 at 53 both ways, then 1139 50.110 BM2KUR at 53 both ways.

30th Aug 1231 UTC JE6AZU 50.110 at 599 both ways. Many other JAs calling.

31st Aug 1200Z BV/B many JA/B up to S7 plus inband BA TV.

1st Sept 0800Z Wide opening to JA CW/phone up to 50.240 S9+.

As I said conditions improving daily and I hope maybe something from ME or EU in the next two months?!

Now the bad news ... after over two years here in the Pilbara I will be leaving mid-October (Needed

back on the other side - so much for retirement!!).

Six metres has been great. Running just a three element Yagi at 15 feet (4.6 m) then a four element Yagi at 18 feet (5.5 m), it has been amazing what can be worked. You just need some basic understanding about how the band works and anything is possible.

I have had great assistance from locals, Michael VK6BHY and Steve VK6HV.

T6MO would have to have been the most interesting contact from Afghanistan, along with A92IO and A65BP. Europe so far no luck! Wide space Yagi with some height might have helped! Will probably open the day after we leave!!

My wife and I have joined the "grey nomads" and will be mobile heading north via Broome, Darwin, then south via probably Mount Isa, Longreach and down the coast back to VK3. Will have 6 m and HF.

There has also been some TEP activity from northern Queensland with beacons and TV reported from Japan and China and on the 31st Aug it extended down as

far Ray VK4BLK in Yeppoon and Brian VK4EK in Sapphire who both reported hearing JA beacons and Ray working JR6EXN 559 CW and 5/9 SSB.

In some good news, Craig VK6JJJ advises he will be travelling to the Australian Antarctic Station "Mawson" by the ice breaker Aurora Australis mid-January 2013 as an expeditioner on the 2013/14 Australian National Antarctic Research Expedition and will be wintering at Mawson Station for approximately twelve months, then returning to Australia around January 2014. Whilst there, Craig plans to be operational as VK0JJJ on bands 160 m to 6 m with some priority given to 6 m operation where he is planning to run 400 W into a 5-el Yagi. Craig also hopes to have a 6 m beacon operational on 50.300 MHz, callsign to be advised. Keep a watch on VK0JJJ in QRZ for updates.

Please send any 6 m information to Brian VK5BC at briancleland@bigpond.com

ADELAIDE HILLS AMATEUR RADIO SOCIETY

Annual Buy and Sell Day

Sunday 4 November 2012

Goodwood Community Centre, Rosa St Goodwood

New and pre loved equipment for sale.

Doors open at 0900, selling commences at 0930.

Email David Clegg VK5KC vk5bar@ahars.com.au
to book a table

More info at www.ahars.com.au

David Clegg VK5KC

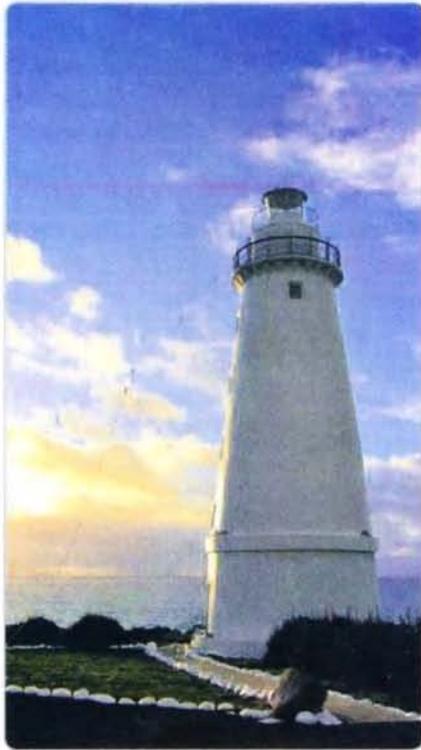


Photo 1: Dawn breaks over Cape Willoughby.

The August meeting was a talk by Keith Gooley VK5OQ on his visit to Bletchley Park in the UK. Keith illustrated his talk with photos of the reconstructed machines used for decoding the German messages encoded with the Enigma machines.

The September meeting was a talk on Codec 2 by David Rowe VK5DGR. David recently received the ARRL Technical award for his work. The October meeting will be our annual construction night. Graham Dicker, VK5ZFZ provides parts and expertise for a small project to be made on the night. Sunday, 4 November will be the annual Buy and Sell, held at the Goodwood Community Centre, Rosa Street, Goodwood. Seller access from 9.30 am. Contact David VK5KC or Roy VK5NRG to book your table.

Several members activated the club call VK5BAR at the Shack for the Remembrance Day Contest.



Photo 2: The storage rack for the signalling flags.



Photo 3: Paul VK5PAS and Lesley VK5LOL at the operating desk.



Photo 4: The Cape Willoughby backup generator, now sitting idle.

Operation was on Saturday, and we had 164 contacts.

For the lighthouse weekend several of us travelled to Cape

Willoughby, at the eastern end of Kangaroo Island. The special callsign VI5CW was allocated for the weekend.

Over 400 contacts were made on bands from 80 to two metres. Operators were Paul VK5PAS and XYL Marija, Mark VK5VW and XYL Michelle VK5FERN, Hans VK5YX and Lesley VK5LOL, Trevor VK5ATW, Sasi VK5SN and XYL Ayswaria VK5FASH, David VK5KC and XYL Joy.

The ferry trip over to the island on Friday was in gale force winds, but all survived with breakfast intact. The maximum recorded gust that day was 53 knots. The lighthouse was first in operation in 1852. The high-power lights and rotating prism lens are now long gone. The light is now a circle of LEDs which flash three times in 30 seconds. The backup motor generator set now sits idle, with backup supplied by two 12 volt batteries. ABC radio 891 called Paul for a phone interview on Sunday morning, and this is now featured on the AHARS website. The weekend was a great success, with good food, drink and company. Thanks to Paul VK5PAS for arranging the weekend. All contacts will be sent a beautiful QSL card.

Our regular scribe Christine Taylor has been unwell, but is now recovering.



Photo 5: Trevor VK5ATW in the operating chair.

Contests

Phil Smeaton VK4BAA
e vk4baa@wia.org.au

Welcome to this month's Contest Column.

Oceania Contests

A shameless plug for the Oceania contests as the 2012 Oceania contests are almost upon us, with the first two weekends of October putting our area of the world on centre stage. Once again, clubs are able to enter teams and have a go at competing for the VKCC Club award, and VK entrants need to remember to include the name of their club when submitting a log.

The Australia Club plaque is awarded to the local club from Australia with the greatest number of member stations participating in the contest. In order for a club to be eligible there must be at least five logs submitted by member stations, with each log containing a minimum of 50 valid QSOs. This is not all that difficult to achieve and is a realistic target for club members to strive for. Why not form a team and get something to put into the club trophy cabinet?

Get on air and have some fun!

Yet more CQWW rule changes

Along with instituting a new five day log submission deadline, the CQ WW Contest Committee has included a specific rule change for the 2012 CQ WW DX Contests that seeks to crack down on post contest log changes.

13. Post-contest correcting of call signs by using any database, recordings or confirming QSO's is not allowed (Rule XII.2 always applies) reads the new language in the CQ rules.

The message there is very clear, that post-contest log clean-up by using outside aid - whether it is call sign databases or recordings of the contest - are now clearly considered against the rules.

Contest Calendar for October 2012 – December 2012

October	6/7	Oceania DX Contest	SSB
	13/14	Oceania DX Contest	CW
	20/21	Worked All Germany Contest	CW/SSB
	27/28	CQWW DX Contest	SSB
	27/28	ARRL International EME Competition	CW/SSB
	27/28	CQWW SWL Challenge	SSB
November	10/11	Japan International DX Contest	SSB
	10/11	Worked All Europe DX Contest	RTTY
	3/4	ARRL International EME Contest	All
	24/25	Spring VHF/UHF Field Day	CW / SSB / FM
	24/25	CQWW DX Contest	CW
	30	ARRL 160 m Contest	CW
December	1	RTTY Melee	RTTY
	8/9	ARRL 10 m Contest	CW/SSB
	21/22	OK DX RTTY Contest	RTTY
	Jan 2013	Ross Hull Memorial VHF Contest (VHF/UHF)	CW / SSB / FM

Note: Always check contest dates prior to the contest as they are often subject to change.

The reference to "Rule XII.2" is important as well, because that contains new language that could mean a variety of things to CQ WW competitors and their logs:

2. All sent and received exchanges are to be logged. In addition to the number exchange, the call sign sent by an entrant during a completed exchange, must be logged as sent by the entrant. All QSO exchanges must be logged upon QSO completion. The new language there includes the final two sentences: In addition to the number exchange, the call sign sent by an entrant during a completed exchange, must be logged as sent by the entrant and then All QSO exchanges must be logged upon QSO completion.

The release of the rules on the CQWW web site was not accompanied by any public explanation of the changes from the CQ WW Contest Committee, but this rule seems to indicate that the CQ WW Contest Committee is ready to use SDR recordings of the contest to check the **transmitted** signal of someone in contention for a top award, to see what has been sent in the exchange.

Other changes in the 2012 CQ WW rules are visible almost

immediately, dealing with power, as the committee refined the language that warns about excessive power in your contest category:

You must not exceed the total output power limitation of your chosen category on any band. Total output power on any band at any time is measured at the output of the active amplifier(s), reads the new language, emphasizing the precise point where power is to be measured.

There is also new wording on multi-op efforts:

Multi-Operator Categories (all-band operation only): Any public QSO spotting help is allowed. Any number of operators is allowed. Total output power must not exceed 1500 watts on any band at any time.

From "Fair Play" to a Ban on Log "Massaging"

A year ago, the CQ WW Contest Committee rolled out a public relations campaign designed to publicly pressure contesters over the idea of post-contest log changes, often referred to as "log massaging," arguing it was against the spirit of true competition.

Your contest result is a measure of your contesting skill, argued CQ

WW Contest Committee member Doug Zwiebel KR2Q in a 2011 CQ WW webinar, where the CQ WW CC argued to contesters that changes to a log - with outside aid after a contest - is considered outside the bounds.

But in 2011, the CQ WW Contest Committee only called the use of post contest data sources "unsportsmanlike" - now there is a specific new rule meant to make entrants think twice about using the internet, a recording, or other sources to fix some mistakes in their log. Not much that the Committee can do about any checks taking place *during* the contest if sufficient resource is available - nor can they shut down LoTW, eQSL etc.

Many have been following this subject matter with amusement for some time now. I for instance, have come to realise that these debates, to the best of my recollection, have been around since I first got onto the various Net forum facilities in the early 1990s. The rules have changed to accommodate technology, in some cases maybe for the better and others maybe not. However the rules are what they are and are meant to be adhered to by all that want to participate. Given that, I find that most hams are an honourable breed and hold themselves in high stead and will follow the rules. There are those that inadvertently misread the rules or submit logs inappropriately by accident. I have done this myself, and got hold of the sponsor, discussed the issue and all was okay to submit again. There are also those who wilfully do not or cannot follow the rules, and those that don't I feel should be DQ'd after appropriate adjudication.

However, any rule change that cannot be effectively policed and monitored is a waste of time in my humble opinion. It'll be interesting to see how they propose to enforce it.

CQ to revamp schedule for contest results

In yet more news from the CQ camp, CQ magazine will embark on

a major reorganization of its editorial content in order to publish contest results significantly sooner. On average, contest results will appear four months sooner than at present. The new schedule will be phased in over the course of 2013 and will be fully in place by 2014.

The schedule change has been made possible by the fact that the vast majority of contest entrants submit their logs online, as well as advancements in technology for log-checking, earlier log submission deadlines and advances in publishing technology.

RD Contest 2012

The first trial of the new RD rules took place recently, with excellent feedback from participants. Some horses were led to water but seemingly didn't take a drink, as the new manager Alan VK4SN publicised the revised rules widely and extensively. However, many participants reported progressive serial numbers being utilised and an on-air learning exercise was embarked upon to re-educate said participants when the response was that they had not actually read the new rules. I note, that the response was seldom "I had no idea that there *were* new rules for this contest"....

After Alan's extensive restructuring and dissemination, whatever hair follicles currently remaining on his head are possibly in for tearing out in utter frustration.

Another down side on the contest, were the usual creatures that thought that dropping a carrier onto a CQing station's frequency was a fun thing to do. Exactly what pleasure this gives the perpetrator - I'll never know. There were also some reports of multi-operator stations using separate logs for each operator - which caused no end of hassle with stations being called for a QSO before they were permitted to do so.

Andre VK3FASW played in the RD for the second year, finding a few more station improvements

along the way. Andre bagged 100 QSOs with only 10 W of RF - a superb effort!

I've no doubt that a write-up is in the offing (if not elsewhere in this edition of *AR*) and it will be interesting to see the highest exchange number! One more variable in the exchange was that some clubs used the age of their club rather than the number of years that an operator had had his license - that made some participants think they were talking to someone over 90 years of age until it was explained. With in-excess of 100 logs having been submitted at the time of writing, Alan will have his work cut out as regards adjudication duties.

CQWW Committee scoring errors

Yet more news from CQ, in that a glitch in the software used to analyse logs submitted for the CQ World Wide DX Contest has resulted in errors in final scores for some participants in the 2011 CQWW DX SSB and CW competitions. These errors were discovered after the results of both competitions were sent to the printer, so some results published in the August and September issues of CQ will be incorrect. However, reportedly only one SSB certificate (out of approximately 1300) was affected by the error, and with the new, corrected, results, all affected stations' scores went up, not down. CW results were still being worked on as this is written, but a similarly small impact is suspected. According to the CQWW Contest Committee, "approximately one QSO in a thousand was marked as a bad call in error. The problem came about as part of a recent software upgrade, so no previous CQ contests are affected. It has now been fixed, so future contests also should not be affected. Hopefully.

Been a naughty boy or girl?

The CQ WW DX Contest Committee crackdown on rules violators has

snared several top operators, as five amateurs withdrew their entries after being asked about possible rule violations in the 2011 CQ WW SSB contest, including the defending SSB Assisted champ. The stations listed below withdrew their logs after they were contacted by the CQWWCC for violation of rule III.A. That 2011 rule says that for "all single operator categories, all band or single band, only one signal is allowed at any time."

The new rules for CQ WW allow a competitor to simply withdraw an entry, allowing them to avoid being officially sanctioned or disqualified for rules violations. The five logs that were "withdrawn" for CQ WW SSB 2011 were:

- ER4DX - operated by Serge Rebrov UT5UDX; he was the defending 2010 Assisted champ and had claimed the 3rd highest score in 2011.
- LZ8E - operated by Boyan Petkov LZ2BE; he had the 6th highest claimed score in Single Op Low Power worldwide.
- US1I - Roman Solop had the #2 world claimed score in 20 metre High Power.
- RC9O - Anatoly Polevik had the #17 world claimed score in Single Op High Power.
- RG3K - Igor Burykh had the #49 world claimed score in Single Op High Power.

The CQ WW Contest Committee did not issue any Red or Yellow cards for the 2011 SSB test. In 2010, no logs were announced as "withdrawn" - but the CQ WW Contest Committee did issue three Red Cards and two Yellow Cards for rule violations.

As for this year's post-contest log checks, the CQ CC paid special attention to SO2R entries, checking for multiple signals by single operators. It was reportedly discovered that several top scores did not have adequate protection against two signals at the same time. A single operator entrant can have only *one* signal on the air at *any* time. With the use of SDRs, the CQ WW CC can listen to the whole contest all the time, so violations are relatively easy to locate if/when present.

It makes me wonder how the results might've looked if this stance had been taken on the 2010 results, seeing as a 'champion' or two suddenly withdrew their entry in 2011!

All Asia SSB 2012

The bands seemed to be a little livelier for this one. This contest 'clashes' with the Region 1 Field Day in EU, but is often a good source of DX and prefixes.

Miles VK6MAB worked just over 400 stations (mainly on 10 m) for

a claimed score of 122,000. Nice going Miles - especially with 100 W. Catherine VK4GH stayed on 40 m and grabbed 220 contacts. Steve VK3TDX worked just over 1000 Qs for a claimed score of a little over 517,000 points. Steve had originally intended to work 200 or so due to family commitments, but once Steve gets into the contesting chair there's no stopping him! Similarly, Ken VK4QH netted just over 1000Qs for a claimed score of around 533,000. Ken suffered from a bad back during the working week and into the weekend (well, at least that was his excuse for not coming to the VK4KW working bee!) but a few hours in the chair was obviously very productive in another way. Scott VK4CZ came onto the bands for a social bit of contesting and found 10 m open to EU so he worked a few of the Region 1 stations while he was there.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk4baa@wia.org.au

See you on the bands.

73 de VK4BAA Phil Smeaton.

Silent Key

W.S. (Bill) Morrison VK7BM 1920 - 2012

It is with sadness that I report the passing of Bill Morrison VK7BM on Saturday, 7th July 2012, in his 92nd year. Bill passed away peacefully at his Lindisfame home.

Bill's interest in radio and amateur radio commenced at an early age, when Bill joined commercial radio station 7HO as a teenager, straight from technical school in 1937. Bill remained with 7HO until 1941 when he joined up for military service, serving in northern Australia, Papua New Guinea and New Britain. Bill returned to 7HO after his war service and

rose to the position of Chief Engineer.

In mid-1958 Bill was appointed Chief Engineer of Tasmanian Television Limited, the successful applicant for the Hobart Television Licence TVT6 and remained with the company as Chief Engineer, and in other senior management roles until his retirement in the 1980s.

Although Bill was not very active in recent years, with the exception of the war years he had held the call sign VK7BM continuously since the late 1930s. In later years Bill made a particular effort to be on the

air for the Remembrance Day Contest, even if it meant stringing a G5RV across the courtyard of his retirement unit in Lindisfame.

Bill's family was everything to him, and although he was a very private person who rarely spoke of himself, I know he will be sadly missed by the many people whose lives he touched.

Vale Bill VK7BM SK, RAOTC Member No 938.

Submitted by Winston Henry VK7WH.

DX-News & Views

Chris Chapman VK3QB and Luke Steele VK3HJ
 vk3qb@wia.org.au & vk3hj@wia.org.au

August and September report

Propagation conditions improved again slightly, with some good openings mainly on the 20 m band. Soiar activity has been fairly low, with the SFI taking a dive late in August, then rising again. The geomagnetic field has been quiet to unsettled for most of August, with some shortwave fade outs observed during the International Lighthouse weekend.

20 m has been solid into Europe on the long path, gradually later and later in the afternoons, but usually shutting down after sunset. The higher bands have shown some openings, but so far, are erratic and short. There has been some activity on 10 m during the day to North America and a little bit into Europe later in the afternoon, at times. 30 and 40 m proven to be quite reliable and always worth a look, particularly at sunrise.

A number of DXpeditions and IOTA activations took place during August, including RI0K Ratmanova I, 9M4SLL Spratly I, D64K Comoros I, VU7M Lakshadweep I, YW5B Isla de Blanquilla, V63PR Yap I, RI0FM Maneron I, and 5H3ME Tanzania. In September, NH8S Swains I, and 3D2C Conway Reef. It is interesting to note that nearly all the listed DXpedition activity is from islands.

Some Upcoming DX Operations

The following table summarises some of the DX activations that may be of interest to VK operators.

3D2C Conway Reef will be active through to 5 October.

J28NC, Djibouti. Look out for Christian (F5BMF) who expects to stay in Djibouti for at least two years. He will be mainly on CW, with some SSB.

Date	Call	QSL via	Info
3-16 Oct	TT8TT	I2YSB	Chad, DXpedition. Exact dates TBC
1-5 Oct	3A/G0VJG	G4DFI	Monaco, HF, SSB
1-15 Oct	7Z7AB	7Z1CQ	Al-Dhahrah Is AS-190 New
6-12 Oct	VK9XM	OH2YY	Christmas I, 40-10 m
8-17 Oct	CY0	OQRS, WA4DAN	Sable I, WA4DAN/CY0 and AA4VK/CY0
12 Oct – 1 Nov	V47JA	LotW	St Kitts & Nevis, W5JON, 160-6 m, SSB
15 Oct – 12 Dec	5X1NH	G3RWF	Uganda, G3RWF, 80-10 m, mainly CW, some digital & SSB
16-23 Oct	3B9SP	HB9ACA	Rodriguez Is, DXpedition
16-25 Oct	T30PY	OQRS, PY2PT	West Kiribati, Brazilian DXpedition
21 Oct – 4 Nov	S79	via home call direct	Seychelles, S79XX (IK5RUN), S79YY (I5OYY), S79LC (I5IHE), 80-10 m
23-29 Oct	KH8	JA2ZL	American Samoa, JA2ZL, 80-10 m
23-30 Oct	VP2MXU	G3NKC	Montserrat
26 Oct – 4 Nov	5V7TH	LotW	Togo, ON4CIT, 40-6 m
27-31 Oct	P29NI		PNG, Simberi Is, OC-099, then into November, Lihir, Buka and Manu Is.
10-22 Nov	PT0S	LotW	St Peter and St Paul Is
24 Nov – 10 Dec	5T0SP	LotW	Mauritania, Polish DXpedition, 160-10 m
28 Nov – 9 Dec	ZL9HR	EB7DX	Auckland & Campbell I, http://www.campbell2012.com/

ZD9KX (TBC), Gough I. Gerard ZS6KX will be on Gough I, AF-030 for the next year. He has applied for the call ZD9KX, and awaits confirmation.

VK0JJJ Mawson Base, Antarctica. From January 2013, Craig VK6JJJ will be at Mawson Base, for a year. He plans operation from 160-6 m on SSB and Digital modes, and will be setting up a 6 m propagation beacon. Further information will be posted on QRZ.com.

TT8TT, Chad. Dates for this I2YSB Team expedition are still to be confirmed.

3A/G0VJG, Monaco. 1-5 October. Nobby will be on HF SSB with 100 watts, and a number of different antennas. He expects to spend quite a bit of time on air,

without his XYL with him on this trip.

VK9XM, Christmas Is. 6-12 October. Pekka OH2YY will be active from 40-10 m. He is a very effective one-man operation, and has been active recently from Nauru, Cocos-Keeling Is, Christmas Is, and Spratly Is.

CY0, Sable Is. 8-17 October. Murray WA4DAN and Ron AA4VK plan to activate Sable Island. They have received approvals from the authorities, but as always, the expedition is subject to safe landing conditions on the beach runway. Previous attempts in December 2010 and December 2011 had to be abandoned due to unsafe runway conditions and aircraft problems.

5X1NH Uganda. 15 October – 12 December. Nick G3RWF is all set for two months in Uganda.

He'll be participating in the CQ WW CW DX Contest and the ARRL 10 Meter Contest. Nick will be working pro bono at Moon University in Fort Portal. QRV in his spare time with his K3 and wire antennas, and Moxon for 10/15 m.

S79 Seychelles. 21 October – 4 November. Three Italian operators will be conducting a holiday-style operation on Praslin I, AF-024. 80-10 m, CW, SSB, and RTTY.

KH8 American Samoa. 23-29 October. Anci JA2ZL will be active from Pago Pago, 80-10 m using CW, SSB and RTTY, with a Hex Beam and verticals.

5V7TH Togo. 26 October – 4 November. Wim ON4CIT will be operating on 40-6 m, CW, SSB and RTTY. He'll be using an IC-7000, 1K-FA, Hex Beam and verticals. Wim requests SSB callers use the International Phonetic Alphabet. This is a good principle, as one often hears other phonetics used, resulting in confusion and time wasted.

5T0SP, Mauritania. 24 November – 10 December. A group of Polish operators will be activating this Western African country from 160-6 m. Joining them will be the country's only radio amateur, Jean 5T0JL, who helped organise the licence for the expedition. If you haven't worked Jean already, this will be your best chance for putting this fairly rare country in the log.

ZL9HR Campbell Is. 28 November – 9 December. Planning is well underway for this major expedition. The landing permit and licence is in hand, and the logistics of this large and complex operation are being carefully arranged. Please consider a contribution to support the considerable costs of this expedition, then look forward to logging them on many bands and modes. Visit the website for updated information. <http://www.campbell2012.com/>

Call for topics and Q&A

In our previous column we asked for your feedback, requests

and ideas. What topics would you like to see covered in this column each month. We will, of course, continue to bring news of interesting DX, upcoming DXpeditions and propagation observations. However, if you are new to DXing and would like to see some more information a particular topic then please drop either of us an email. Equally so, you may just have a simple (or not so simple) question. We can't promise we'll have all the answers (maybe not even the correct one!) but we'll do our best.

We look forward to receiving your emails with news of DX from your QTH as well as any questions or suggestions you may have.

Until next month... good DX.

Luke VK3HJ and Chris VK3QB



Profile: Luke Steele VK3HJ

First licenced in 1981, while studying to be an Electronics Technician, at the Army Apprentices School, Balcombe, Vic. Active on and off over the years, until establishing a station at Benloch, near Lancefield in central Victoria. Then, discovering he could actually work DX, knocked over his first DXCC in 2009, at the very bottom of the sunspot cycle. At time of writing has 302 DXCC entities "in the bag" and is hungry for more. All antennas are home-made, and favourite mode is CW. Luke operated in DXpeditions to Lord Howe I - 2009, and Vanuatu – 2010, 2011 and 2012, and Cape Moreton Lighthouse for ILLW 2012.

Having left the Telecommunications industry at the end of 1999, he has worked with horses since, and now makes a living in Hoof Care.



Profile: Chris Chapman VK3QB

In 1984, Chris' High School Science Teacher, Tom VK3BMF asked him to write a computer logging program (on the old Commodore VIC-20) and assist with the Remembrance Day Contest. He was fascinated and intrigued by the FT-101E and the antennas - the magic of wireless! An intense study period lead to being licensed as VK3VCC later that year. He was particularly active in those early days on 80, 15 and 10 metres and has many fond memories of working DX well into the wee hours when he should have been studying. Having two teachers who were radio amateurs made for some interesting debates regarding the merits of homework instead of working DX – especially during the last year of high school where he upgraded to the unrestricted licence.

Over the years he has maintained his interest in DXing, contests and portable operation. In recent times he has been on a few DXpeditions (Lord Howe Island, Vanuatu and Fiji) and thoroughly enjoys being on the pointy end of the pile-up. However, only recently has he qualified for his DXCC Award and is now attacking the award with QRP, whilst continuing to plug away adding new ones as they appear.

Chris has worked in the IT industry for over 20 years, here in Australia and New Zealand, as well as a four-year stint in Sweden, where he held the call SM0YKS.





VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/

Repeater news

Firstly thanks to Paul VK5BX for answering my question posed in August *AR* magazine about whether the Ben Lomond repeater VK7RBH at 1,570 metres was the highest repeater in VK. The repeater VK1RGI on Mt Ginini in the ACT is believed to be the highest amateur repeater installation in VK at 1,762 metres. Thanks Paul for the info.

The D-STAR Repeater VK7RRR is now running in full duplex mode, so local QSOs are possible. The repeater is also connected to DCS014 (Module B), the new Australian x-Net reflector, located in Sydney. There is a D-STAR net, hosted by the Gold Coast Amateur Radio Society (GCARS), held on DCS014B every Wednesday evening at 19:30 AEST. Details of the group and information about the repeater can be found at <http://www.vk7rrr.info> Thanks to Don VK7YXX for that info.

A big thank you to Brian VK7RR and XYL Sue VK7KSU who, while visiting VK7 from their new home in VK4 installed the recently repaired VK7RIN repeater; thanks to Joe VK7JG and Tony VK7YBG for the repaired power supply. Four inches of snow and a howling gale did not stop Brian and Sue from their mission...HIHI.

Peter VK7PD, Dave VK7DD and Joe VK7JG reinstalled the upgraded two metre beacon along with the six metre beacon on VK7RAE at Don Heads in NW Tasmania. From all observations, the two metre beacon is at least 3 dB better than before. The 28 MHz beacon aerial was installed but unfortunately, the radio developed an intermittent fault

so stay tuned on that re-installation. Thanks to Joe and his team for their tireless efforts in keeping repeaters and beacons working around Tasmania.

The Table Cape repeater VK7RAC APRS digipeater received some much needed attention from Dion VK7DB and David VK7DC. It was found that a recently installed 3 kW FM transmitter was causing deafness in the APRS receiver. Installation of a single band pass cavity filter by Dion and subsequent tuning resulted in the full receiver sensitivity being recovered. David VK7DC installed a triplexer to the radio end of the repeater coax in preparation for the installation of the two and six metre repeaters. David also fitted lightening arrestors and battery backup for the new repeaters.

Cradle Coast Amateur Radio Club

Thanks to David VK7EX for the following report. The new DATV Repeater was demonstrated at a recent CCARC meeting by Winston VK7EM, Dion VK7DB and Dave VK7DC and by all accounts the picture and audio quality was excellent. CCARC are now on Facebook so why not have a look and leave a comment or three. At the time of writing this column the planning was well advanced for CCARC to be at the Burnie show in October to show off this great hobby of amateur radio to everyone. A huge thank you to Rick VK7FRIK, who donated a fully enclosed tandem trailer for use as a mobile communications centre on field events or for emergency work by CCARC.

Northern Tasmania Amateur Radio Club

NTARC's August meeting was a social dinner at the Queen's Head in Perth. This was a great night of excellent food, great service and company. The October meeting of NTARC will be the annual pilgrimage to Mt Barrow. The November meeting is a talk from David Murray from Centrelink, who will bring the attendees up to speed on current changes to benefits, etc and December's meeting is the Christmas BBQ and Slippery Trout award at Myrtle Park. The 55th Jamboree On The Air will take place on 20 and 21 October 2012 with NTARC's effort focused on Carnacoo camp site at Paper Beach, as part of a northern districts camp.

North West Tasmanian Amateur TV Group (NWT-ATVG)

The August meeting of NWT-ATVG was well attended with some old and new faces. The main order of business was the project to improve the coverage of the VK7RTV repeater on the NW Coast. NWT-ATVG will again be helping out at Paton Park Scout Camp for JOTA 2012.

Radio and Electronics Association of Southern Tasmania

REAST's presentation for August was something a little different and definitely not something you would try at home! Mike Harris, formerly VK7ACQ, took the audience through the manufacture of elemental sodium using a Castner Cell.



Photo 1: Mike Harris demonstrating the Castner Cell. Photo courtesy of VK7TW.

Mike took us through the history of manufacturing sodium and the Castner cell he built for the electrolysis of molten sodium hydroxide using a modified arc welder. In true Mythbusters style the presentation ended with a bang where Mike donned appropriate protective equipment and dropped 0.5 g of sodium into a bucket of water. The sodium skimmed the top of the water, burst into flames and

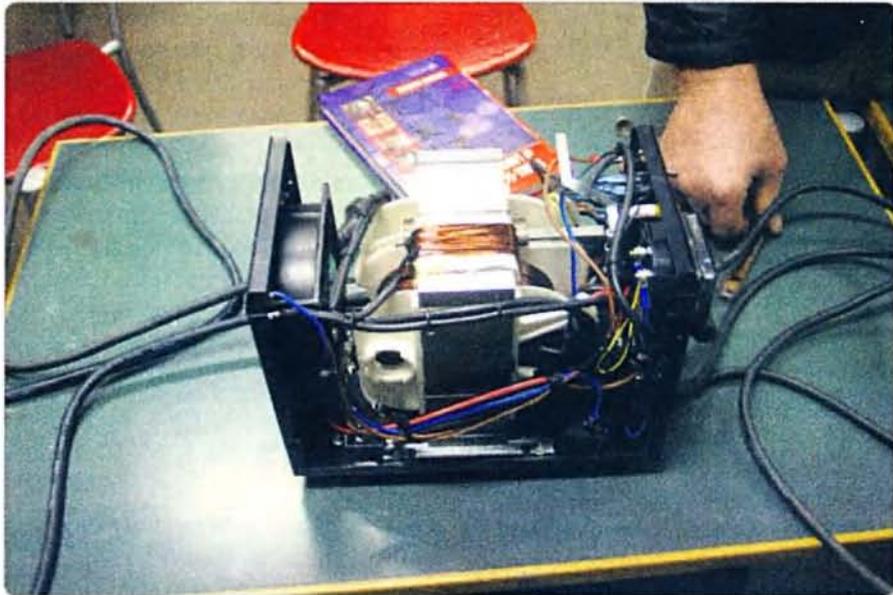


Photo 2: The modified arc welder for electrolysis of sodium hydroxide into sodium. Photo courtesy of VK7TW.

then exploded with a loud pop. This all took place outside via camera link to the audience inside the building. A great big thank you to Mike for sharing his experience (and sodium) with us.

The REAST club station VK7OTC was put to air for the 24 hours of the Remembrance Day contest and a big thank you to all who participated and helped during the weekend especially Warren VK7FEET who did the all-nighter with the author. The callsign VK7OTC got many comments and allowed us to let people know about the club callsign and that we were operating from the 100 year old Marine Wireless

Station (VIH) on top of the Queen's Domain in Hobart which was run by the Overseas Telecommunications Commission (OTC) until it was shut down in 1992, hence the callsign.

The DATV Experimenter's group also participated in the second world-wide DATV QSO party and showcased the DATV studio on the Queen's Domain via a Skype connection to Peter Cossins VK3BFG who was Master of Ceremonies. The video and audio then went out on VK3RTV and was streamed to the world via the batc.tv service. Thanks to Peter for allowing us to participate.



Over to you

Fatal foil

Hi Peter,

I've just read the article called "Fatal foil" in AR September 2012. I could not sit back and not send this email.

The article doesn't indicate if a Safety Switch was fitted to the house. If the foil was only connected to the Active (red) line, and the Neutral (black) line wasn't making contact to the staple, then the return current would have to have been through the body to an earth situation in the garage. A Safety Switch

also known as an Earth Leakage Circuit Breaker or Residual Current Device (RCD) measures the currents in the Active and Neutral lines. If the currents in the Active and Neutral wires are not the same, then the current that is in the Active line must be leaking through to Earth (ground) and not back through the Neutral wire. Whenever a current unbalance is detected, the RCD trips and cuts off the supply and possibly saves a life. I'm surprised that the coroner didn't indicate that a RCD device if fitted may have helped.

We all spend \$500.00 and more on our amateur radio toys to have fun. But it would only cost around

this much to ensure that a RCD is installed in our house. A RCD may help our family and ourselves to stay alive and for us to enjoy our radio toys. We all take the tops off our radios to play and adjust them, having a RCD may save our life. Of course we need to also remember that some radios produce high voltages and even if a RCD device is installed it may not help us. We need to be careful at all times.

Best regards,

Roderick Wall VK3YC.

See also item on page 60.



VK3news Amateur Radio Victoria

Jim Linton VK3PC

e arv@amateurradio.com.au

w www.amateurradio.com.au

The ILLW was successful

Although most of the usual people were not available, the activation by VK3WI of the Time Ball Tower at Williamstown went ahead for the International Lighthouse and Lightship Weekend (ILLW). In charge was Ian Downie VK3XID, familiar with the portable station having been there at the beginning some nine years ago, and having taken part in activations at the Point Gellibrand Coastal Heritage Park since then.

The homebrew multiband antenna was a centre fed and loaded dipole, tied to the adjacent flag pole and hung from the of the Time Ball tower at the feed point with its 4:1 balun, plus attachment to a PVC pipe at the boundary fence. A Yaesu ATU borrowed from Brian Richardson VK3CCR achieved an acceptable SWR on all HF bands in use. Forgone this time due to fewer operators and space was VHF and UHF operation.

On the Friday Ian Downie VK3XID, armed with a Parks Victoria permit, and Steve Barr VK3MEG located the antenna. The operation began at 8 am local time on Saturday. There was a howling wind, horizontal rain and temperatures around eight degrees with a wind chill factor of five degrees.

The operators sheltering in the bluestone tower on the first day were Ian VK3XID, Brian Hallam VK3DBH and joined later by Steve VK3MEG. At 4 pm the operation ended, mainly due to the cold weather.

After announcing our presence to the Tourist Information Centre at Saturday lunchtime, a steady stream of visitors arrived seeking information on the purpose and function of the Time Ball system and the involvement of radio amateurs



Photo 1: Peter VK3BFG working a few on 20 for the ILLW.

to highlight the need to preserve the historic monument. Ian VK3XID met and greeted the visitors and was very knowledgeable about the structure's history plus was able to explain the purpose of the weekend.

Arriving on Sunday was Jim Linton VK3PC, when the weather was far better with at least some sun. VK3WI started again and made a few more contacts to a total of 132 including 33 Lighthouses from VK and one NZ. The DX contact was with UU2JQ in the Caribbean.

The most productive band was 40 metres, although Peter Cossins VK3BFG worked a few on 20 metres but couldn't compete with an IC-706MKIIG and auto tuner into a helical whip mounted on a microphone stand. Not with only a few watts out and having to deal with cross modulation from the multi-band dipole plus a local high noise level. All things considered those involved had a great weekend and packed up for another year.

KRNPA update

The annual VK3 National Parks activation weekend will take place across three days from Friday 16 to Sunday 18 November.

Award Manager Tony Hambling VK3VTH said since the revival of the Keith Roget Memorial National Parks Award he has issued ten certificates so far for 15 or more parks, and other claims were in the pipeline.

Of particular note is Peter Fraser VK3ZPF who has completed the outstanding feat of achieving all 45 national parks, which includes an impressive run of them recently.

For hunters of the KRMNPA the weekend in November is the time to listen for activations from at least Heathcote-Graytown, Barmah, Gunbower, Terrick Terrick, Kinglake and St Arnaud.

If you intend to activate a park at this time have it included on a Master List that will be posted on the Amateur Radio Victoria website,

which also contains the KRMNPA rules and endorsements.

Website improvements

An overhaul of all the content and look of the website is nearly completed. After many hours of voluntary work the job is almost complete and all visitors should begin to notice a marked difference. Apart from the look and feel aspects of the site, a lot of attention has been paid to a new function that

allows members of Amateur Radio Victoria registered with their email address to be notified online when their renewal is due. Those members can then choose to pay the renewal amount by a credit card using PayPal, or by cheque in the post.

All members will be moved to this new database system. Those without their current email address which amounts to about 60, will continue to be handled by the less

efficient manual processes.

Soon there will be an on-line store from which users will be able to purchase the Callbook, Logbooks and the Foundation Licence manual.

We thank our Internet Website Development Officer Gary Furr VK3FX and the Treasurer Ross Pittard VK3CE, fully supported by the Council, for the introduction of the new features.



Over to you

More feedback on 'Fatal foil'

I shuddered when I read this article by Steve Mahony VK5AIM.

The details relating to the installation indicate numerous items of non-compliance, resulting in a horrific cost!

The long and the short of it is that if an RCD (Safety Switch) had been fitted as required, the boy would still be alive.

Various specifics quoted as requirements are not correct.

The following sections are of concern:

"An Electrical Contractor friend agreed to fit another power circuit along with extra lights. The boys could do the hard climbing work and he would do the final connections."

Electrical worker licensing in Australia is done by each state. In Victoria, any electrical work must be carried out by a licensed worker, and, where applicable, supervised by an A grade license holder. This means that even work experience kids cannot do actual electrical installation work.

In South Australia, to quote SA NECA:

Electrical work can only be carried out by a person with an electrical licence. It is an offence under South Australian legislation to ask a person to perform electrical work without the correct licence. Electrical contractors must be aware of these restrictions and implement measures to ensure electrical workers only perform work within the scope of their licence and are competent to do those tasks.

"When the power cable had been clipped along the side of the ceiling woodwork (joist), as it

neared the outside wall, it had been allowed to run level with the lower edge of the wooden beam – not up about one to two cm from its lower edge as required."

Note also the reference to TNS cable should be TPS (Thermo Plastic Sheath)

All electrical works in Australia is required to be completed to the current Australian Standard (AS/NZS 3000:2007). The following regulations have not been followed.

3.9.4.1 General

Wiring systems installed in positions where they may reasonably be expected to be subject to mechanical damage shall be adequately protected in accordance with Clause 3.3.2.6 and applicable requirements of Clauses 3.9.4.2 to 3.9.4.4.

3.9.4.2 Wiring systems near building surfaces.

Wiring systems shall be protected by one of the methods outlined in Clause 3.9.4.4 if they are

- (a) *concealed within 50 mm from the surface of a wall, floor, ceiling or roof; and*
- (b) *located more than 150 mm from the internal wall to wall or wall to ceiling corners" and*
- (c) *fixed in position by either fasteners or passing through an opening in a structural member.*

Exception: These requirements need not apply to wiring systems that can move freely to a point not less than 50mm from the surface in the event of a nail or screw penetrating the cavity at the location of the wiring system.

3.9.4.4 Protection methods

- (c) *protected by an RCD with a maximum rated operating residual current of 30 mA in lieu of mechanical protection.*

2.6.3.4 Alterations, additions and repairs

Socket-outlets that are added to an existing circuit shall be protected by an RCD

Note that 2.6.3 requires that all new domestic light and power circuits be RCD protected. Other installation types etc. are also applicable.

8.3.3 Mandatory tests

- (a) *Continuity of earthing system...*
- (b) *Insulation Resistance... Would have most probably detected the damaged cable.*
- (c) *Polarity...*
- (d) *Correct circuit connection...*
- (e) *Verification of impedance required for automatic disconnection of supply (earth fault loop impedance)...*
- (f) *Operation of RCDs ...*

8.3.6 Insulation resistance

8.3.6.1 General

An insulation resistance test is necessary to ensure that the insulation resistance between all live conductors and earth or, as the case may be, all live parts and the earth is adequate to ensure the integrity of the installation. This is to prevent:

- (a) *electric shock hazards from inadvertent contact; and*
- (b) *fire hazards from short circuits; and*
- (c) *equipment damage.*

In closing, whilst not a fan of foil insulation, it is the defective electrical installation that has resulted in the death.

Tony Middleditch VK3CAT

REC 7359



Remembrance Day Contest results

The 2012 RD Contest Results can be found on the WIA website:

<http://www.wia.org.au/members/contests/rdcontest/>

Look for a full report
in the November issue.



VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC

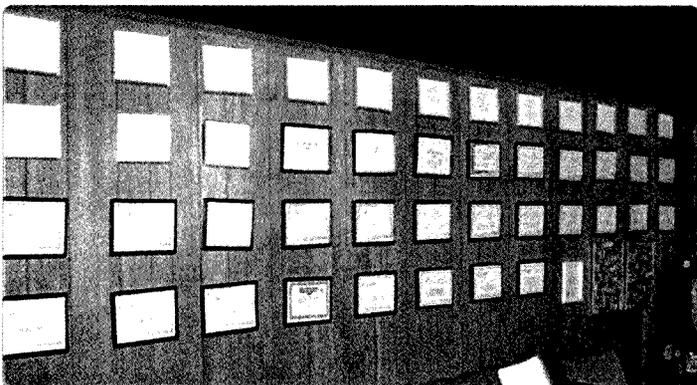


Photo 1: A view of the GARC Lounge.

A review of the GARC in the contest arena

Photo 1 is a view of the GARC lounge, showing some of the awards won by club members over the last couple of decades.

Within its membership the GARC has several interest groups and individuals that specialise in the UHF and Microwave field and figure prominently in all the contests that they participate in each year. They are:

- The established **Lara UHF and Microwave Experimenters Group** (LUMEG), which comprises Chas VK3PY, David VK3QM and Charlie VK3NX.
- The **Team GARC VK3ALB/p**, comprising Lou VK3ALB, Jenni VKFJEN, Michael VK3FMIC, Nik VK3BA and Peter VK3APW.
- Ken VK3AKK aka VK3NW.

For the wider Australian amateur radio community that view the numerous contest tables published in the *AR* magazine, particularly those that focus on the UHF and microwave activities, there is no correlation that can be readily drawn between the results and the

clubs that the individual competitors are members of, with the possible exception of the GARC VK3ALB/p team.

To put this into some sort of perspective then, of the

circa 150 amateur radio clubs registered with the WIA, that span VK1 to VK8, and then referring to the Grid Square contest in June of this year, members from the Geelong Amateur Radio Club took the top spot in ten of the nineteen bands that they participated in and second place in three others. These results were:

Charlie VK3NX topped the list in eight of those bands:

First in the 2.4 GHz EME, 3.4 GHz EME, 5.7 GHz terrestrial, 5.7 GHz EME and 10 GHz EME, joint first in the 3.4 GHz terrestrial with VK3QM, joint first in the 24 GHz terrestrial with VK3QM and VK3AKK, joint first in the 47 GHz terrestrial with VK3QM, second in the 144 MHz terrestrial and joint second in the 2.4 GHz terrestrial with VK3QM.

Chas VK3PY topped the list: First in the 2.4 GHz terrestrial band, joint first in the 1296 MHz terrestrial with VK3QM and second in the 432 MHz terrestrial.

David VK3QM topped the list: Joint first place in the 1296 MHz terrestrial with VK3PY, joint first place in the 3.4 GHz terrestrial with VK3NX, joint first place in the 47 GHz terrestrial with VK3AKK and VK3NX, joint first place in the 24 GHz terrestrial with VK3AKK and VK3NX, second place in the 5.7 GHz terrestrial and joint second place in the 2.4 GHz Terrestrial with VK3NX.

Team GARC VK3ALB/p managed a respectable placing of 17th in the 1296 MHz terrestrial, 6th in the 2.4 GHz terrestrial, 7th in the 5.7 GHz terrestrial and 10th in the 10 GHz terrestrial.

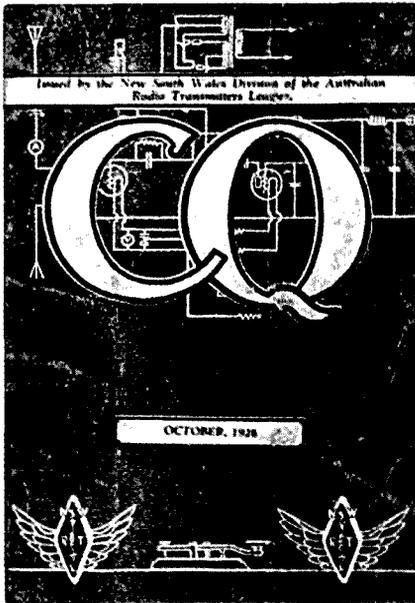
Ken VK3AKK jointly topped the list in the 24 GHz terrestrial band with VK3NX and VK3PY.



Photo 2: Charlie VK3NX.

Hamads

WANTED - NATIONAL



Copies of *Australian CQ* magazine.

The WIA Archive is seeking early copies of the late 1920s Australian CQ for copying and/or adding to the WIA Archive's shelves.

This magazine was published by the NSW Division of The Australian Radio Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrajong Radio Museum. Collectively, we wish to build up the issues extant.

The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.

FOR SALE - VIC

I would rather give it away than dump it, so this is FREE. National Electronic organ. Top G# working but others are not working. Has a 50 W (peak) solid state amplifier, 1 x 25 cm speaker, 2 x 20 cm speakers, 1 x 2.8 cm speaker, 73 IC's, 254 transistors (including 11 Fets), 408 diodes. Also plenty of useful parts if you don't want to repair it. Pick up from Cohuna.

Contact Norm VK3JAL, phone 03 5456 3122.

Kenwood two metre FM TX, TR-7950, S/N 4070886. Unused, and in original package. \$300.

AWA RT80 TX, model IM82002, S/N 203733, 148-174 MHz, complete with control unit. Unused, and in original packaging, \$200.

Philips (TCA) TX, FM1677C/25, S/N 7626, complete with mounting hardware, Suitable for conversion to ham band, \$100.

VK Powermaster power supply, 13.8 V, 20 A, \$150.

Contact Bill Adams VK3ZWO, QTHR or at waadams@dodo.com.au

I have for sale one Henry 1kd5 linear amplifier. Included is lots of information on the unit, plus the operating and maintenance manual. Also included is a spare '3-500Z' and spare tuning charts and information.

I have never used this amplifier since I purchased it almost a year ago, but I always turned it on and let it run for an hour or so each week to keep the tube in good shape. This is a very heavy unit, thus pickup would be advised; however, you pay for the post if required. The unit looks clean for its age.

Asking price is \$550.00 with a spare 3-500Z tube and all paper work.

Contact Cliff VK3CB, phone 03 5346 1534

WANTED - VIC

Handbook or copy of owner's manual for an Icom two metre TX, model IC-02AT.

Any information on an Alinco two metre linear amplifier.

A Citizen word processor, model CBM-10WP, working or not, but the LCD screen must be complete and not damaged.

A Voca-Phone answering machine, model 3200.

Call Brewster VK3YBW on 03 9527 2661 after 6.00 pm; if no answer leave a message.

FOR SALE - NSW

FT-1000MP, and FL-7000 amplifier, \$3,500.00.

Contact David VK2AYD on 02 6585 2647 or on dvdply@midcoast.com.au

WANTED - QLD

Kenwood two metre TX/RX, model TR-711. Complete with tone board. Please advise price, condition and relevant information.

Gwen VK4CB QTHR, on phone/fax 07 3202 7137.

WANTED - ACT

A printer compatible with Tono and/or Telereader series. Or information about same to assist in a purchase.

Contact Fred Ryan VK1RY QTHR or on phone 02 6247 9886, or by email to fwnryan@tpg.com.au

FOR SALE - SA

ESR meter parts - Complete parts kit, \$69.95 plus postage. Order on-line from Aztronics Pty Ltd, 170 Sturt St, Adelaide, 5000. Phone 08 8212 6212 or at www.aztronics.com.au

PCB only, \$10.00 plus postage. Order on line from VK5JST,

www.users.on.net/~endsodds

The VK5JST Antenna Analyser kits are available through the Adelaide Hills Amateur Radio Society.

Get in early as stock goes quickly at this time of the year. Order via website www.ahars.com.au or contact AHARS, PO Box 401, Blackwood SA. 5051.

WANTED - SA

Front protection cover for a WW2 3B/3BZ receiver.

Contact Malcolm Haskard VK5BA, email mhaskard@chariot.net.au or on 08 8280 7192.



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

AMIDON FERROMAGNETIC CORES



tts systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystem.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links related to Amateur Radio and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products

Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**

About Hamads

- Submit by email (**MUCH PREFERRED**) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

JACKSON BROS

www.jacksonbrothers.com.au

Highest quality products made by UK craftsmen

Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES



HAMMOND MANUFACTURING.. Large range of quality electronic enclosures for the discerning Radio Amateur. Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many APRIL projects



Cookson Controls CHARLES I COOKSON PTY LTD

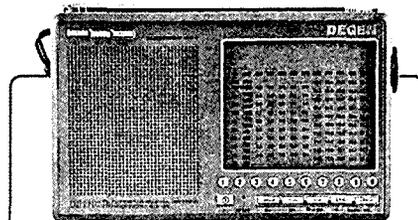
11-13 Port Rd Queenstown SA 5014

Tel: (08) 8240 3200 Fax: (08) 8240 3233

sales@jacksonbrothers.com.au

ccookson@hammfg.com

ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND



DEGEN 1103 HF Receiver

Pocket sized, 100 kHz - 29,999 kHz

LCD display, SSB, AM wide/narrow FM Stereo, DX/Local, 10 m long wire NiMH batteries & charger Earphone & Carrycase included Full review Silicon Chip Jan 2007



ONLY \$99
with 12 month warranty

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100

Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au

www.avcomm.com.au

ADVERTISERS INDEX

Av-com	63
ATRC	11
Com-an-tena	13
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	7
TET-Emtron	9
TTS	13, 63
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Directory

National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone 03 9729 0400 Fax 03 9729 7325
nationaloffice@wia.org.au
http://www.wia.org.au



The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au

- * John Bishop VK2BK
- Dominic Dahl VK2YDD
- * Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- * Bob Tait VK3XP
- Luka Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- * Michael Charteris VK4QS
- Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- * David Clegg VK5KC
- * Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- * Heath Walder VK6TWO
- * Craig Lamb VK6FLAM

Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- * Justin Giles-Clark VK7TW
- Peter Rumble VK7IY

Northern Territory Advisory Committee

Email: vk8advisory@wia.org.au

- * Peter Blackadder VK8HPB
- Garry Woods VK8GW
- * Alan Baker VK8AB
- Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board
(*Nominated Member)



Ballarat Amateur Radio Group Inc. (BARG)

HAMVENTION

Sunday 21 October 2012

At the Ballarat Greyhound Racing Club's Function Room
Rubicon Street, Redan

DISPLAY & SALES

Traders \$6.00 per person, Trade Tables \$10.00 each

GENERAL ADMISSION \$6.00

STRICTLY 10 AM START.

(Under 15 Years Free)

Food & Drink will be available on the premises

Enquiries To:

Roger 03 5330 3081 Email: roger@genette.biz

Ian 03 5341 3012 Email: igm@vic.chariot.net.au

Pictures From Our Past



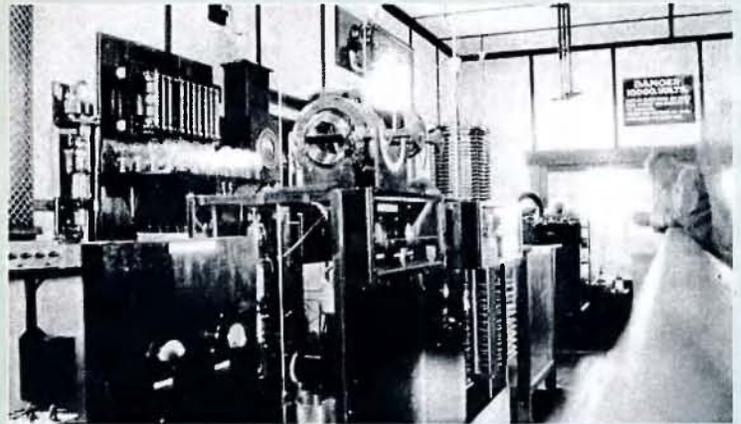
Gentleman operator VK7CW, C.A. Walsh of Hobart c1934 - all male amateurs are gentlemen - aren't they?

The following photographs were taken at about the same time, indeed all may have been "snapped" at the time of the WIA Convention in Hobart during January 1935.

We would like to know the following:

Was *Medhurst's Electrical* owned or operated by "Pop" Medhurst (XFM and XZD) who communicated with HMS St. George during the Duke and Duchess of York's visit for the Australian Federation celebrations in 1901?

Which building housed the Institute rooms?



Appears to be a low frequency transmitting station, possibly VIH Hobart.



Photo is endorsed "Outside Institute rooms before leaving" It was taken during the WIA Federal Convention in Hobart, January 1935.

Any information about these photographs or events is of interest to us.

Please contact the WIA Historian, Peter VK3RV on email vk3rv@wia.org.au or via the WIA Office in Bayswater.

Experience Icom technology in analogue & digital



ID-31A



IC-2820H



IC-RX7



IC-7700



IC-80AD

IC-92AD



IC-9100

ICOM

ICOM 657

To find out more about our latest products,
call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

Volume 80
Number 11
November 2012
Price: \$8 incl GST

www.wia.org.au



- RD Contest Results
- Build an FT-817 accessory box
- Does the OCF dipole work?

Vale Michael Owen VK3KI SK



ISSN 0002-6859

11



9 770002 685062

The radio... *YAESU*

HF/50 MHz 100 W Transceiver
FTDX 3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments



The amazing Crystal Roofing Filter performance

The Down conversion 9 MHz 1st IF frequency receiver construction, can realize narrow 300 Hz (optional), 600 Hz and 3 kHz bandwidth roofing filters.

Outstanding receiver performance, the heritage of the FTDX 5000!

The high dynamic range IP3 performance that was realized and proven in the FTDX5000.

IF DSP provides effective and optimized QRM rejection

Independent Frequency display

4.3-inch Large and wide color LCD display with high resolution

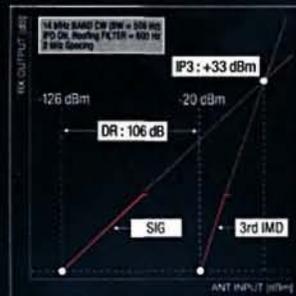
High Speed Spectrum Scope built-in

AF SCOPE display and RTTY/PSK encoder/decoder

Specifications subject to change without notice. Some accessories and options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.



Characteristics of the Crystal Roofing Filter (300 Hz)



3rd Order Dynamic Range (IP3) (3kHz Spanning)

YAESU
The radio

YAESU Authorized Dealer in Australia and New Zealand

Amateur Transceiver Radio Centre
Level 1, 141 Gilba Road,
Girraween NSW 2145
URL : www.atrc.com.au
Tel: +61-2-9896-2545

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street,
Greystanes NSW 2145
URL : www.andrewscom.com.au
Tel: +61-2-9636-9060

Strictly HAM Pty. Ltd.
14 Church Street,
Bayswater Vic. 3153
URL : www.strictlyham.com.au
Tel: +61-3-9729-7656

GEOPLEX DISTRIBUTION LTD
Level 1, 60 Cook Street,
Auckland 1010, New Zealand
Tel: +64-21 434342

YAESU Authorized Service Center in Australia and New Zealand

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
Tel: +61-2-9636-9060, Fax: +61-2-9638-1995
E-mail: radioandrews@hotmail.com

JNB Electronics Pty Ltd
St Kilda Rd Towers, Suite 1138, 1 Queens Rd, Melbourne, VIC 3004
Tel: +61-3-9465-9399, Fax: +61-3-8682-8718
E-mail: yaesu@jnb.com.au



Amateur Radio

Volume 80
Number 11
November 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor

Peter Freeman VK3PF
editor@wia.org.au

Technical Editor

Peter Gibson VK3AZL

Publications committee

Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters

nationaloffice@wia.org.au

How to submit material

Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor

Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising

All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office

Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines

All articles, columns, hamads and
advertising booking by **first day of
previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

Surviving the storms 15
Rob Norman VK5SW

Remembrance Day contest 2012 24
Alan Shannon VK4SN

Try something different 28
with amateur radio
Miles Burke VK6MAB

Columns

ALARA 40

AMSAT 36

Contests 52, 54

DX - News & Views 43

Editorial 2, 5

Hamads 62

Over To You 27, 58

Silent Key 57

Spotlight On SWLing 58

VHF/UHF - An Expanding World 47

WIA Comment 3, 4

WIA News 4

News from:
VK2 55

VK3 38, 42, 45

VK4 46

VK5 39

VK6 59

VK7 56

Technical

WA wheatbelt and regional 6
expansion projects

Craig Lamb VK6FLAM

Review: Goal0 Sherpa solar/lithium 8
ion battery system

Stephen Warrillow VK3SN

The 'Porta 40' - a direct conversion 10
receiver for portable use

Peter Parker VK3YE

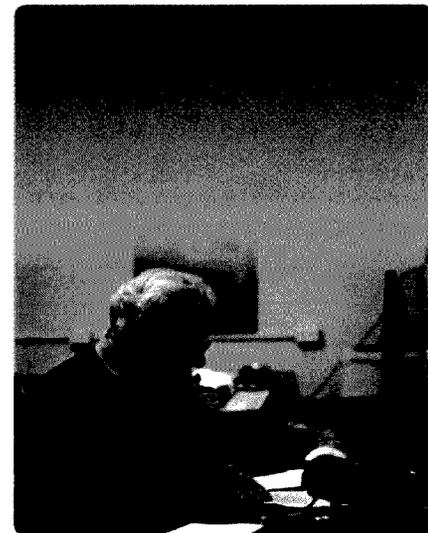
An FT-817 accessory box 17
Dale Hughes VK1DSH

Analysis of the Off Centre Fed (OCF) 21
dipole

Ron Sanders VK2WB

A linear amplifier for 80, 40 and 29
20 metres

Jim Tregellas VK5JST



This month's cover
Michael Owen VK3KI in contact with ARRL
President Kay Craigie N3KN during the last QSO
using the VK100WIA special callsign in 2010.
Photo by Robert Broomhead VK3DN.

Contributions to Amateur Radio



Amateur Radio is a forum for
WIA members' amateur radio
experiments, experiences,
opinions and news. Manuscripts
with drawings and/or photos are
welcome and will be considered
for publication. Articles attached to
email are especially welcome. The

WIA cannot be responsible for loss or damage to any material.
Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage
within Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are
available to members at \$2.50 each (plus an additional \$2 for
each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily
reflect the official view of the WIA and the WIA cannot be held
responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest

National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Andersson House

Unit 20, 11-13 Havelock Road

Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

Manager	Mai Brooks	VK3FDL
Administration Officer	Margaret Williams	
Examination Officer	Dianne Ashton	VK3FDIZ

Board of Directors

President	Phil Wait	VK2ASD
Vice-President	Chris Piatt	VK5CP
Directors	Philip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Trent Sampson	VK4TS
Secretary	David Williams	VK3RU
Treasurer	John Longayroux	VK3PZ

Coordinators

AMSAT	Paul Paradigm	VK2TXT
ARDF	Jack Bramham	VK3WWW
Australian ARISS	Tony Hutchison	VK5ZAI
Awards	Chris Piatt	VK5CP
Clubs	Ted Thrift	VK2ARA
Contests	Craig Edwards	VK8PDX
John Moyle Field Day	Denis Johnstone	VK4AE
Editor 'AR'	Peter Freeman	VK3PF
EMC/EMR	Gilbert Hughes	VK1GH
Standards	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
NTAC	John Martin	VK3KM
Historian	Peter Wolfenden	VK3RV
IARU Region 3 Liaison	Chris Platt	VK5CP
Monitoring Service	Peter Young	VK3MV

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
	National Office	
QSL Curator	Peter Mill	VK3ZPP
Repeater	Richard Cerveny	VK2AAH
Webpage	Robert Broomhead	VK3DN

Emergency Communications Group

Coordinator	Phil Wait	VK2ASD
Members	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

Vale Michael Owen VK3KI

It is with great sadness that we note the recent passing of Michael Owen VK3KI.

Most readers would be aware of the work done by Michael on the local amateur scene. In my view, Michael has been a key influence in our hobby over the past 10 years. Prior to that time, I was not really aware of his roles, but have been educated by reading the many tributes that have been published on the web. It is clear that Michael also performed important roles at the international level.

It was the action of Michael Owen that resulted in me being approached to become Editor about seven years ago. Once I accepted the position, the Publications Committee and I have received full support from Michael. He was a regular attendee at our Publications Committee meetings and would freely share his thoughts and offer guidance. Above all, he allowed us to make our own decisions. Of course, his guidance occasionally caused minor changes in direction, but all members of the committee were happy with all decisions reached.

On behalf of the Publications Committee, I publicly extend our condolences to Nanette and family.

I will be endeavouring to source appropriate material for a tribute to Michael for publication in the next issue of *Amateur Radio*. We have a brief tribute this month, within the President's Comment. We have also published a number of photographs of Michael on the Inside Back Cover of this issue.

2013 Callbook

The *Callbook* is currently in the final stages of production, running a

little behind schedule. It should be available shortly, if not yet in stock at the WIA Bookshop. Readers are reminded that the 2013 edition will include all issues of *AR* from 2011 in electronic format at no extra charge. It will also include the NZART *Callbook* in electronic format.

The *Callbook* Editor has advised that he will not be available to continue this role in 2013. The Publications Committee is therefore seeking expressions of interest from anyone who may be interested in taking up this volunteer task. The main role of the *Callbook* Editor is to source appropriate material and updates of content for inclusion in the *Callbook*, including suitable images for the cover. Feel free to contact me in the first instance if you are interested in the role.

A flurry of SOTA activity

Some readers will be aware of the Summits On The Air (SOTA) program, which started some 10 years ago in the UK. SOTA finally started in Australia in February this year, with the Victorian association becoming live on the SOTA system. The South Australia association was approved by the SOTA Management Team (MT) and became live on 1 October. The ACT association is close to having all of its paperwork approved and it is anticipated that VK1 will become live in the near future. Interest has also been expressed in VK2, VK6 and VK7, with a small group of amateurs in VK2 working to identify qualifying peaks in their local region as part of the overall task of documentation required by the MT.

Continued on page 5



WIA comment

Phil Wait VK2ASD

It seems rather surreal writing this President's Comment because I never expected to be in this position, but in accordance with the WIA Constitution, and following the tragic and unexpected loss of Michael Owen VK3KI, here I am, with Chris Piatt VK5CP as Vice-President.

I think we can all be certain that there will never be another Michael Owen. His dedication to amateur radio, like most things in Michael's life, is legendary. Michael, along with the late Chris Jones VK2ZDD, devised a new structure for the WIA early last decade which fundamentally changed the organisation from a Federal Structure with indirect grass-roots membership through State Divisions to a more effective National Structure with direct membership and affiliated local clubs.

One of the prime roles of the WIA as the peak body representing Australian radio amateurs is to liaise and negotiate with the regulatory authority, the ACMA. This Michael did masterfully. Bringing all the skills of an experienced corporate lawyer, Michael negotiated the introduction of a new Licence Conditions Determination (LCD), reducing the number of licence grades from five to two, abolishing the Morse code requirement, and removing some restrictions relating to 3rd party traffic and emergency operation.

I have never seen anybody work a room quite like Michael, one way or another managing to get everyone to agree with him, akin to getting six cats into a bucket of water. That's pretty much how I

became a Director of the WIA and later Vice-President, and how many people became WIA members at field days - we all simply gave-in to overwhelming persuasion!

Michael also championed the development of the WIA's Examination and Callsign Management Service and the introduction of the Foundation licence, a move which encouraged many new entrants into the hobby, many of them young, and bolstered the numbers of Australian radio amateurs while in other countries numbers were declining.

Amateur radio societies around the world also benefited from Michael's enthusiasm and experience. Michael was passionately involved in the IARU since his early days which trace back to the 1960s.

Internationally, he is perhaps best remembered for his work on Article 25 at WRC-03 where a package of revisions to the International Radio Regulations were introduced that are specific to the Amateur and Amateur-Satellite Services.

In the words of IARU President Tim Ellam, VE6SH:

I was only speaking to him a few days ago and he was very enthused about leading the IARU Region 3 Conference in Ho Chi Minh City in a few weeks. Michael was a good friend and mentor to many of us in IARU. His drafting skills were second to none, and his ability to clearly articulate his position on a number of issues was of immeasurable help to us. The IARU is indebted to his work at

WRCs and at many regional Asia Pacific Telecommunications (APT) meetings.

ARRL Chief Executive Officer David Sumner, K1ZZ, recalled first meeting Michael Owen 36 years ago:

IARU President Noel Eaton VE3CJ had called the first-ever meeting of representatives from all three IARU regions to coordinate global preparations for the 1979 World Administrative Radio Conference. WARC-79 is memorable primarily because it's where the Amateur Radio Service gained the bands at 10, 18 and 24 MHz, among other things.

Michael came to that meeting in Florida in April 1976 as a Director of what was then called the IARU Region 3 Association, which had been formed just a few years earlier to bring together the IARU Member-Societies of the Asia-Pacific region...

Among the assignments that Michael drew at WARC-79 was to draft a resolution to exempt the Amateur-Satellite Service from coordination procedures that otherwise would have bogged us down in endless paperwork and great expense. As an attorney it was just the sort of thing he was good at. His work has stood the test of time, and it remains in effect to this day.

Michael then went on to serve as Vice President of the IARU from 1989 – 1999 while he was living in London, President of the WIA from 2003, and as Chairman of IARU Region 3 since 2006.

Continued on page 4

New WIA President and Vice-President appointed

The WIA Board of Directors held an emergency meeting following the sudden and unexpected passing of WIA President Michael Owen VK3KI. Phil Wait VK2ASD was formally appointed WIA President and Chris Piatt VK5CP was appointed Vice-President.

Both Phil and Chris have strong interests in progressing amateur radio and also have a wide variety of other experience and interests outside amateur radio circles.

Phil Wait has been a radio amateur since 1967 and a Director of the WIA since its restructuring in 2003. Phil owned VitalCall Medical Alarm Systems for many years, and more recently FirstCall Medical Alarms, and is also involved in sailing and constructing valve (yes - valve!) audio equipment. Phil is probably best known in amateur radio circles for the WIA's advocacy role in relation to Broadband Power Line Interference (BPL).

Chris Piatt is a lawyer with over 20 years' experience in industrial relations in the agricultural and resource sectors and currently works for BHP Billiton supporting the Olympic Dam resource. Chris has experience in international labour relations having represented Australia at a number on International Labour Organisation meetings. Chris has an interest in HF DXing, contesting and high altitude balloons with AREG.

The vacancy created on the WIA Board can either be filled by appointment, or left vacant until the next AGM in May 2013.

LTE trial in Bendigo ends

The ACMA has advised the WIA that the 700 MHz LTE trial in the Bendigo region has now ended. In effect this means that Advanced amateur licence holders that were within the exclusion zone can now apply to the ACMA for a variation to their existing licences to operate up to one kW on the primary HF bands during the trial period. More

information on how to apply can be found on the WIA website.

The 700 MHz LTE trial in the Perth area is still continuing where an exclusion zone for High Power HF operation is in place. Details of the exclusion zone can also be found on the WIA web site.

EMR Calculator now on the WIA website

Doug McArthur VK3UM, a well-known Earth/Moon experimenter, has generously allowed the WIA to place his popular EMR assessment calculator on our website. The Calculator allows assessment of safe zones in the HF, VHF, UHF and microwave amateur bands for a variety of antenna situations, and covers a number of EMR Standards including the Australian Standard for EMR. The latest version of the Calculator can be downloaded from our website.

Doug VK3UM's website is www.vk3um.com



WIA comment

Continued from page 3

Dave Sumner sums it up well:

Michael Owen was a strategic thinker; he saw past short-term pros and cons and could envision how decisions made today would affect the distant future. He also understood that working in the background – doing one's homework – was essential to success. There is simply no way to replace someone with Michael's experience and wisdom. His death is a searing loss for both the IARU and the WIA, but both organizations are stronger today because of the enormous contributions he made to their well-being.

So, although I'm experienced with complex organisations, you can see

why I'm feeling a little apprehensive. Michael was a good friend and a tireless worker for amateur radio and impossible to emulate.

In many ways this is a watershed moment for amateur radio in Australia. Clearly there are significant challenges ahead, some related to Michael's passing, some not, and we need to think about how the WIA should progress in the post-Owen era.

Some things, like our relationship with ACMA and our advocacy work, are strong and robust; others like our communication with clubs and individual members, our need to rein-in escalating costs, and our

urgent need to lower the work-load on a few volunteers are all things we need to consider over the coming months.

As such, I would particularly like to use this President's Comment space to address some of those issues in future editions of AR, and solicit your responses.

On behalf of the Board and all WIA members, at the reception following Michael's funeral I expressed our deepest condolences to Michael's family and friends. Over the next few months the Board of the WIA will be considering how we can best remember the legacy of Michael J. Owen.



The rules of SOTA require that a peak must be officially listed with SOTA before a peak will earn the activation points for the summit. Peaks are given a points value based on the summit height above sea level, using bands of heights – broadly, the higher the peak, the higher the points, to a maximum of 10 points. An activator must work at least four different stations to qualify for the summit points, but each contact (chaser) only needs a single contact with an activator to gain the points.

We have seen lots of behind the scenes activity over the past month or two as the teams have worked on preparing the documentation to establish SOTA associations in some states. The generally improving weather in Victoria has also seen an increase in activation attempts. This flurry of activation activity has not simply been due to the improving weather – several activators have been attempting to activate high points value summits before the end of the winter bonus on 14 October. For peaks with points value of 8 or 10 points, an activator gains a seasonal bonus of

three points if the activation occurs during the period 15 June to 14 October for the VK3 association.

At the time of preparing this Editorial, three amateurs in VK3 have gained over 100 points – the first level of the awards scheme, which means that the activator can apply for a certificate. The first main award is the Mountain Goat Award, which needs 1000 points from summits activated. Wayne VK3WAM is currently leading the charge for activators. He has just achieved the 250 point certificate level.

Chasers can also accumulate points towards the SOTA awards. The recognition levels are 100, 250, 500 points. Once a chaser reaches 1000 points, they qualify for the Shack Sloth Award. In Europe, some chasers have very high totals – the top chaser has over 69000 points! Having been active as a chaser for 10 years helps, I am sure.

Good luck to those working on the documentation to establish new associations. For everyone else, you can help by listening out and working the activators, who must make the final ascent to the summit activation zone by non-motorised

means, carrying their radio gear with them. This requirement means that most operations are QRP. Personally, I feel much more satisfied if I have several stations in the log after climbing a summit, rather than just the minimum of four to qualify the summit!

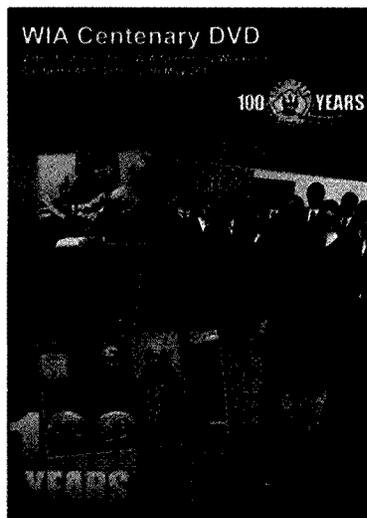
For those interested, simply search for SOTA using your favourite search engine. There is an Australia SOTA group on Yahoo groups, plus a large amount of information available from the parent SOTA organisation at <http://www.sota.org.uk/>

I will attempt to organise a more detailed article on SOTA for a future issue. My understanding is that SOTA has some parallels with IOTA, which has a strong following. It is another challenge for amateurs. In my case, it forms a stimulus to be more active both physically and on radio, combined with being in the great outdoors.

Hopefully I can work you from a summit in the near future.

Cheers,

Peter VK3PF



WIA Centenary DVD

Limited numbers of the **WIA Centenary DVD** are now available for purchase. This professionally recorded and produced three DVD boxed set includes footage from the Historic Presentations, Centenary Dinner, live VK100WIA news broadcast, plus Sundays visit to Dick Smith's property.

The boxed set of three DVDs is available for just \$25.00 plus postage.

Compiled by Ralph VK3LL, Jack VK3WWW and Robert VK3DN.

WA wheatbelt and regional expansion projects

Craig Lamb VK6FLAM

In the early hours of 20 November 2011, a party from WARG, the West Australian Amateur Repeater Group, hit the road from Perth and headed east towards the wheatbelt town of Kellerberrin, 200 km toward Kalgoorlie on the Great Eastern Highway. The party, led by WARG Technical Officer Craig VK6FLAM included WARG President Heath VK6TWO, WARG Treasurer and Membership Manager Monique VK6FMON and WARG Committee Councillor Martin VK6ZMS. Craig, Heath and Martin also make up the WA Advisory Committee for the WIA.

Local amateurs in Kellerberrin Peter VK6FUN and Bruce VK6LAW had lobbied the local council and were granted permission to use the council's 40 metre mast at Kellerberrin Hill on the outskirts of town to host a two metre voice repeater and APRS Digipeater to further cover the Great Eastern Highway between Cunderdin and Merredin.

The 2 metre repeater consists of two Phillips PRM80 mobile units through an NHRC4 controller coupled to a Diamond X-30 antenna mounted at the 40 metre level. The X-30 dual band was installed to accommodate UHF linking in the future. The APRS Digipeater consists of an AWA M8 mobile radio coupled to an Argent OT2m TNC and sent out through a Diamond E-23 antenna mounted at the 12 metre level.

Everyone on the day pitched in and the whole project was completed in four hours. Craig VK6FLAM said he had the best job working aloft away from the ever present cloud of flies that assisted in introducing a new version of 'The Great Australian Wave'...two hands!

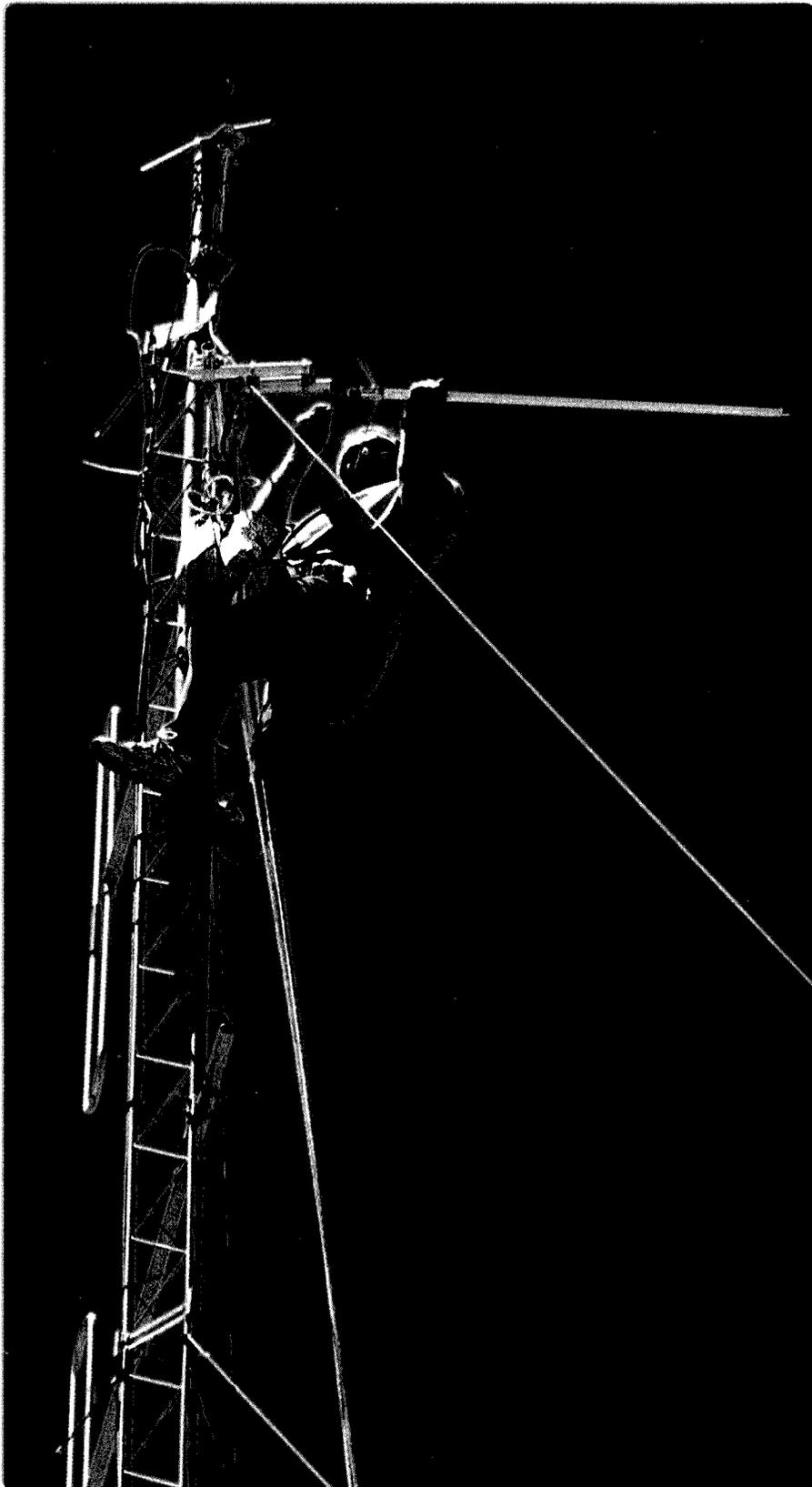


Photo 1: The two metre antenna installation in progress.

Thanks to Jenny, XYL to Peter VK6FUN, for the ever ready supply of refreshment's for everyone to indulge at their leisure.

VK6RKN 147.325+ and VK6RKN-3 145.175 were commissioned by locals VK6FUN Peter and VK6LAW Bruce at 0500Z that day.

Whilst on site, the team replaced the local UHF CBRS repeater antenna that had taken a lightning hit. With summer on the way, the community repeater is used extensively during times of bushfires and other local emergencies that arise. The team put together a temporary antenna on site by dismantling one of the members' vehicle installations to get the repeater working whilst a high gain replacement is sourced.

The WARG Expansion Project team have a number of items on their agenda within regional WA which will be keeping them busy well into 2012. The APRS and two metre coverage project for the Perth to Geraldton sector is progressing with propagation testing underway. Working with the Mid West Amateur Radio Group, the team hope to have infrastructure in place by the end of 2012.

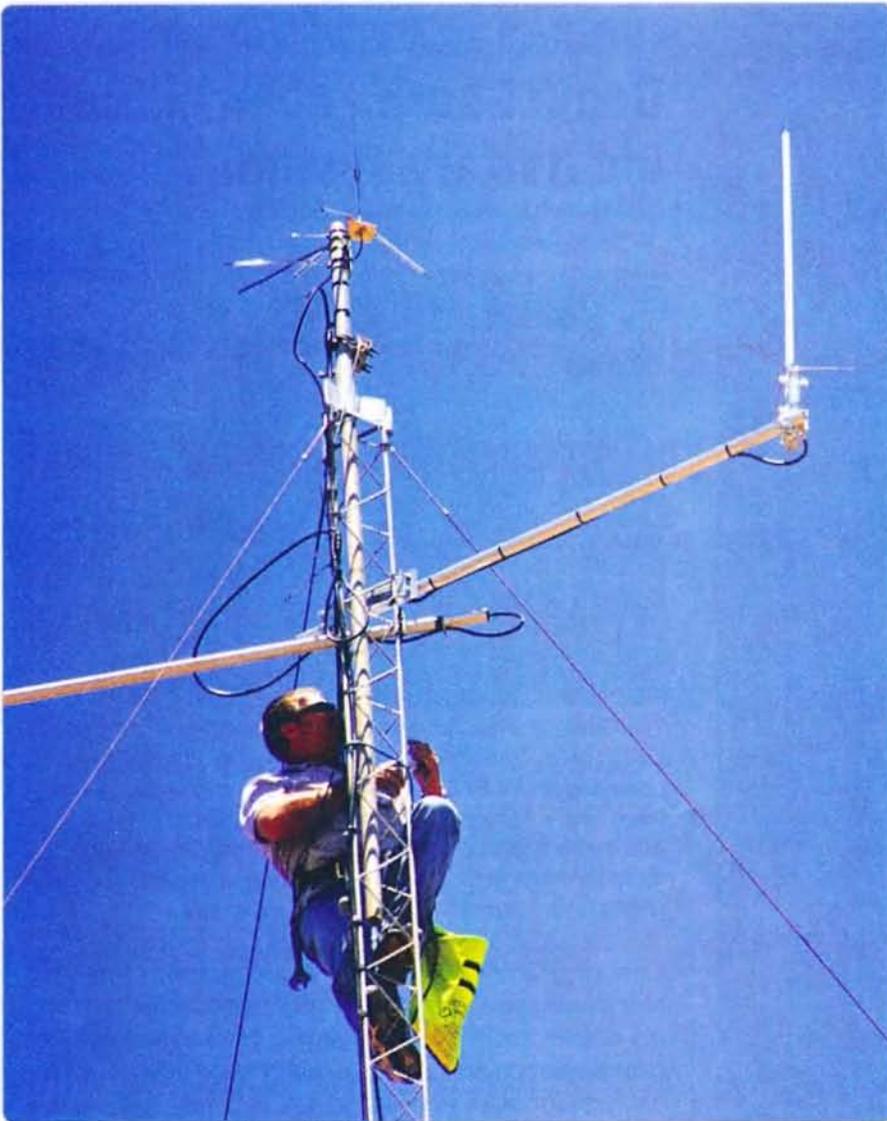


Photo 2: The completed two metre antenna installation.



Photo 3: The two metre repeater, controller, APRS digipeater and power supply.

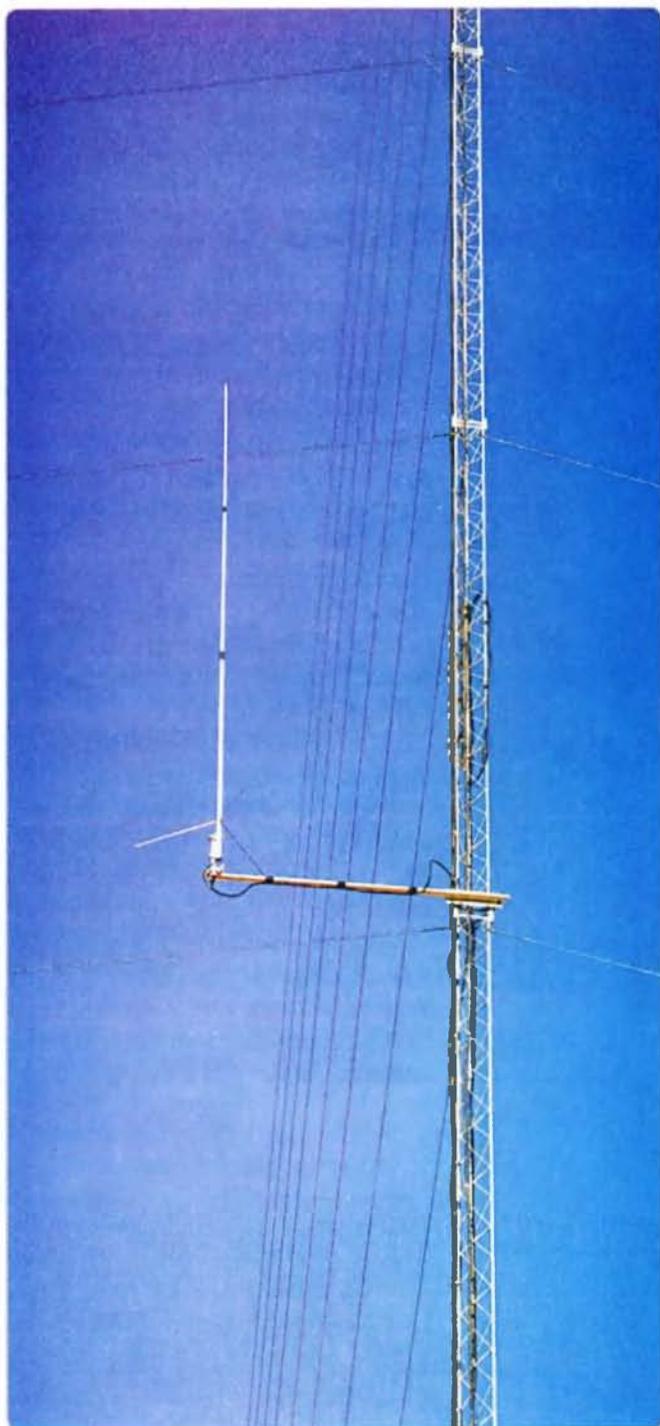


Photo 4: The VK6RKN APRS antenna.

Towards the south, and talks with the Great Southern Electronics Group will see APRS coverage increased throughout the southwest of WA. Turning back towards the east, new contacts out at Kalgoorlie will make the expansion east of Merredin a whole lot easier. Local input from regional amateurs into the Expansion Projects is encouraged and required to ensure a favourable outcome.



Product Review: Goal0 Sherpa solar/lithium ion battery system

Stephen Warrillow VK3SN



The Goal0 Sherpa Adventure Kit (50 Watt-Hours lithium ion battery with 13.5 watt mono-crystalline folding solar panel) powering an FT-817 in the field. The antenna attached to the rear is a Miracle Whip by Miracle Antenna, tuned for two metre operation. The battery and radio are strapped together making for a sturdy and highly compact ultra-light QRP station that can literally travel anywhere.

Operating QRP portable in remote locations is a lot of fun. Making amazing contacts from places that are 'off the beaten track' is very rewarding, but keeping the gear powered and still light enough to be truly portable can present quite a challenge. I have been using small sealed lead-acid batteries (SLA) and roll-up solar panels for many years and they work pretty well. The major drawback with this approach is the mass of the batteries, which remains considerable. Such considerations are especially important during multi-day bush walks or cross-country ski trips where self-reliance is crucial and every gram counts. One obvious solution would be to use better battery technology, such as lithium ion, but these are much more finicky to charge and have thus far proven difficult to readily adapt for amateur use.

I recently became aware of some new options manufactured by Goal0. They have designed a range of lightweight high output folding solar panels matched with lithium ion battery packs purpose built for use in tough environments. The Goal0 systems are modular, so that panels and batteries can be 'daisy-chained' in groups for greater capacity. There are also various accessories such as wall chargers, mini-inverters for 220 V and LED lighting systems that can be worked in to the system. All of these are small enough to carry on extended hikes. With internal regulation, charging indicators, replaceable fuse, USB outlet and weatherproof cables, the systems are easy to use and very robust.

I have used the Sherpa 50 system on several recent trips where it has charged handhelds and powered an FT-817 as well as charging phones, MP3 players etc. By my rough calculations, the lithium-ion battery has about 50% greater capacity than an SLA battery of the same mass. Since trying the system in the field, I have been impressed enough to purchase other accessories which have all proven very effective. I have also sourced the necessary plugs and made up various adaptors, which allow me to integrate my existing roll-up solar panels into the system.

Overall I can highly recommend the Goal0 solar and lithium ion battery systems to amateurs keen to operate for long periods remote from other power sources. While the gear is certainly not cheap (nearly \$500 for the Sherpa kit), the design and quality of each component is close to perfect. For more information, check out their Australian website: www.goalzero.com.au/



Technical specifications – from the Goal0 website

SHERPA 50 Battery	
Input Sources:	
AC wall charger	45 watts (15.3 V: 3 A)
DC 12 V	120 watts (12 V: 10 A)
DC solar panels	Depends on solar panels
Output Port:	
USB	2.5 watts (5 V: 0.5 A)
DC 12 V barrel	120 watts (12 V: 10 A)
AC inverter	100 watts (220 V: 0.9 A)
Fuse protection	20 A (protects 12 V barrel)
Internal Battery:	
Battery type	Lithium-Iron Phosphate (LiFe)
Battery capacity	50 watt hours (12 V: 4.2 A)
Battery voltage	12 Vdc (nominal)
Temp. controller	Shuts down input port if temp. is >50°C
Life cycles	2,000-3,000 (5+ years)
Shelf life	6 months ± (stored <21°C)
General:	
Mass	0.99 kg
Dimensions	21.5 x 15 x 4 (cm)
Charging Times:	
From AC wall charger	2 hours
From Nomad 13.5 (sunny)	9 hours
Operating Temperatures:	
Optimal operating	30° - 40°C
Optimal storage	0° - 30°C
NOMAD 13.5 solar array	
Input Sources:	13.5 watt Mono-crystalline solar panel
Output Ports:	
Open circuit voltage:	18 V
Charging voltage	12 V ± 2 V
General:	
Mass	0.68 kg
Dimensions	28 x 18 x 2.5 (cm)

Electronics Enthusiasts

In-Car Compact 5W UHF CB Radio

All the usual UHF CB features, such as channel scan, repeater access and CTCSS. Ideal as a vehicle unit for 4WD etc.

- 80 channel
- Up to 15km range line-of-sight
- Compact size for under dash mounting
- Mic and lead included
- Mounting bracket included
- Size: 142(L) x 140(W) x 43(H)mm

\$179



NEW

22 Piece Screwdriver Set

A selection of popular slotted, Phillips, Star and TRI bits.

- Case size: 135mm x 103mm

TD-2114

\$2995



3-in-1 Gas Iri

A handy unit with flame or flameless heat blower and soldering iron function. Great for general heating, drying, melting, soldering, heat shrinking etc.

- Piezo ignition
- Child resistant latch
- Up to 500°C
- Size: 148(L) x 35(W) x 23(D)mm

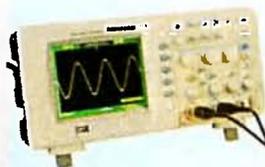
\$2995



Digital Storage Oscilloscopes (DSO)

25MHz Dual Channel DSO

An ideal DSO for the advanced hobby user or technician and is particularly suited to audio work. Full data storage capabilities and USB interface so you can store traces on a flash drive. Includes 2 x 10:1 probes, EasyScope software, and USB cable.



- Bandwidth: 25MHz
- Display type: Colour TFT LCD 145mm
- Size: 310(W) x 150(H) x 130(D)mm

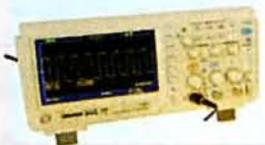
\$499

SAVE \$100

QC-1932 was \$599.00

100MHz Dual Channel DSO with 7" Screen

Enhanced performance, professional level test instrument for the technician, design engineer or development laboratory. Includes a carry bag. See online for more details.



- Bandwidth: 100MHz
- Display type: Colour TFT LCD 178mm
- Size: 340(W) x 150(H) x 110(D)mm

\$999

SAVE \$150

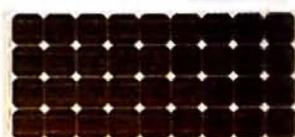
QC-1934 was \$1149.00

Powertech Monocrystalline Solar Panels

A range of efficient monocrystalline solar panels with reliable performance and robust construction using tempered glass and aluminium frame. Fitted with junction box. Come in store or visit online for our full range of solar mounting hardware, cables, connectors, batteries and inverters.

- 80W ZM-9097 was \$289, now \$229, save \$60
- 90W ZM-9086 was \$325, now \$259, save \$66
- 120W ZM-9098 was \$425, now \$339, save \$86
- 175W ZM-9099 was \$729, now \$499, save \$230

ZM-9097



FROM \$229

SAVE \$60

Prices valid to 23/11/2012

To order call 1800 022 888
www.jaycar.com.au



The 'Porta 40' – a direct conversion receiver for portable use

Peter Parker VK3YE

Introduction

Occasionally you haven't the time to transmit but still wish to snoop the bands. Examples are day trips, picnics, waiting for people or in the house. Or you might be looking for a no-frills but effective beginner or second receiver project.

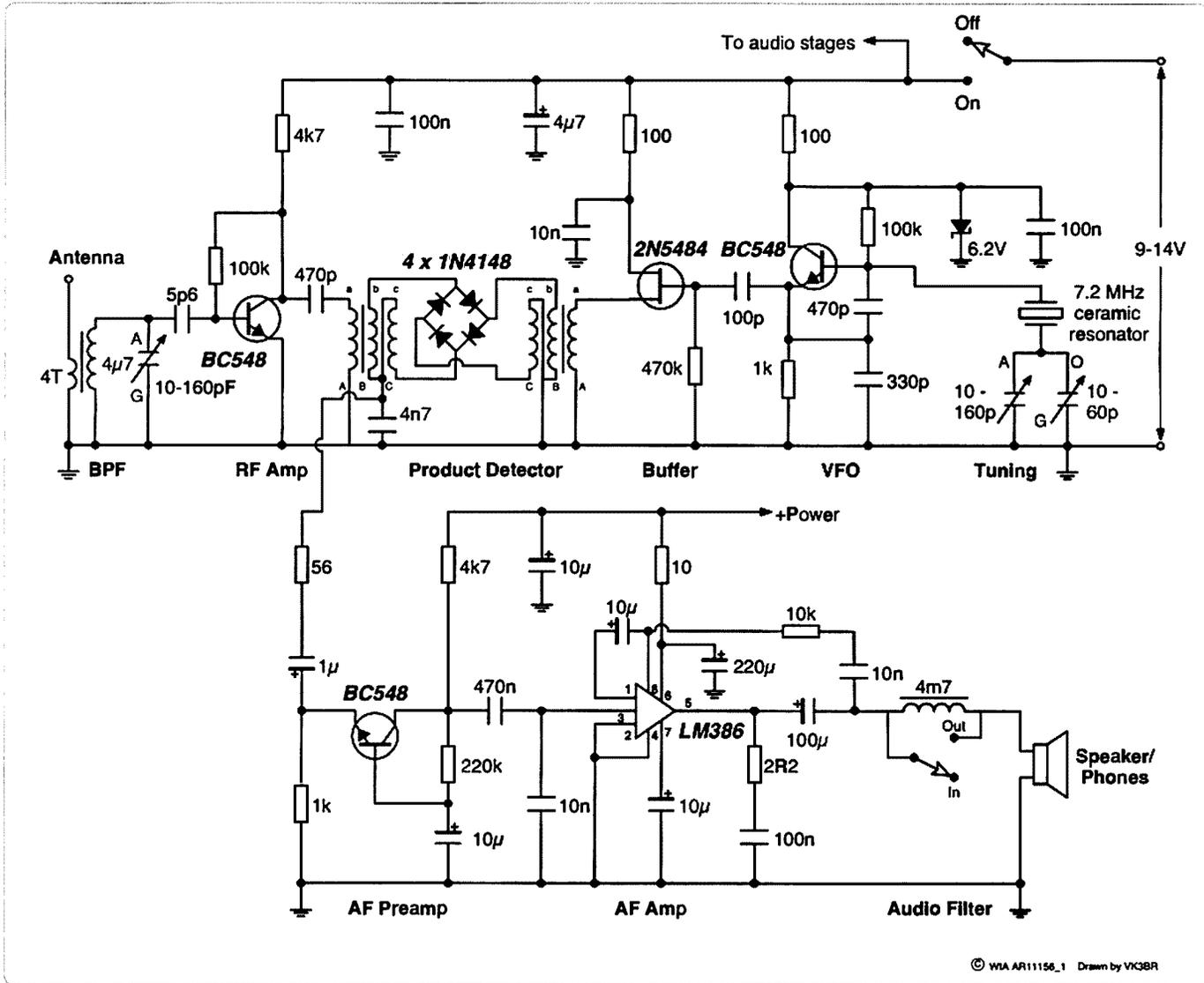
Either way the direct conversion set presented here is worth

attention. It is small, cheap and simple. After the day it takes to build you will be hearing local and DX signals on 40 and 20 metres. All parts are commercially available and there is no painstaking alignment required.

Circuit description

Incoming signals pass a tuned circuit before being amplified.

The local oscillator comprises a 7.2 MHz ceramic resonator pulled to cover most of the band. A buffer amplifier increases its level. A diode double balanced mixer mixes the incoming signal with the local signal to produce a weak audio difference signal. A BC548 and LM386 audio strip boost this to speaker volume.



© WIA AR11156_1 Drawn by VK3BR

Figure 1: Schematic.

It is worth mentioning a few design features:

The diode balanced mixer provides better strong signal performance than the sometimes expensive NE602 common in simple receivers. Its parts are also easier to find.

Band selection is simply by tuning the front end to the desired frequency. The resonant tuned circuit is formed by a transistor radio tuning capacitor and a 4.7 μH RF choke. Sensitivity is less on 20 metres (as you are relying on an oscillator harmonic) but Europeans have still been heard well.

Switched fixed capacitances of 100 pF for 40 metres and 25 pF for 20 metres could be used instead of the variable capacitor. However the variable offers more precise peaking (it varies slightly for different antennas) and doubles as a volume control (detune for loud signals).

For simplicity I avoided an active low pass audio filter. Some older designs used passive pi filters with



Photo 1: Front of set.

large inductors in the early high impedance part of the audio chain. The coils needed (in the tens of millihenries) are unobtainably large. Instead I filtered the low impedance

speaker audio with a series inductor. The 4.7 mH used provides useful switchable top-cut for a low price.

TET-EMTRON

Aluminium cut to order

Traps

Mobile parts

Insulators

HF Chokes

Dipole Centres

Codan and Barrett parts

450 Ohm Spreaders

Baluns

Copper Wire

Tester Gear

More & more Home Brew parts every month!!!

See our wide range of new parts & products at:
www.tet-emtron.com

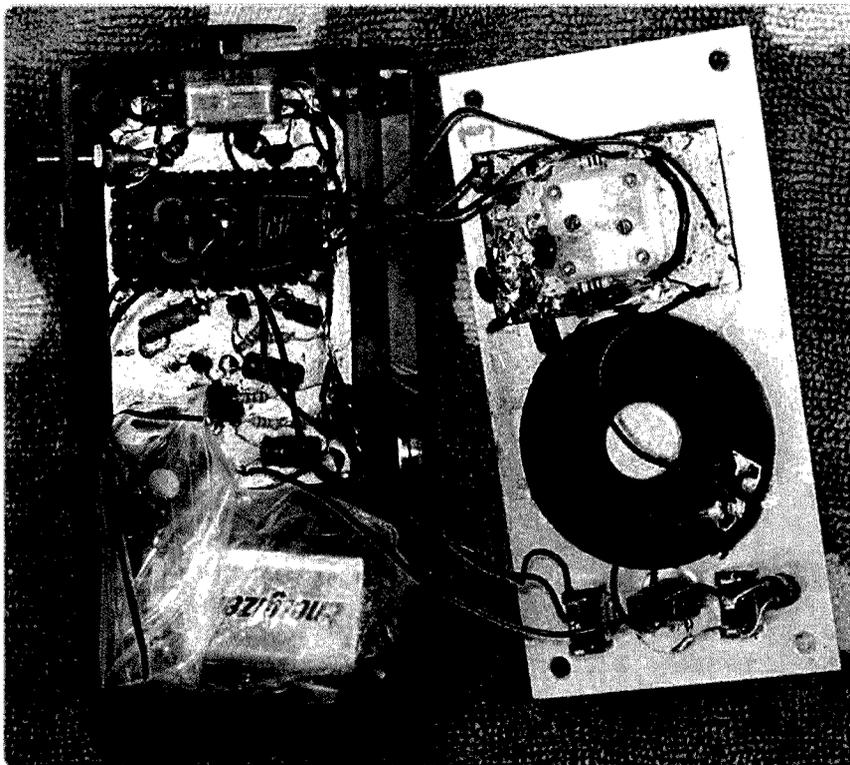


Photo 2: Inside of set.

A wire antenna at least 10 metres long is suggested for good performance. It can be thrown over low bushes but height is beneficial. If using a short telescopic whip you will need another RF preamp (not tried). The main trade-off here is that it lessens strong signal performance with a home antenna and you may need an RF gain control.

Obtaining parts

All but one of the components should be obtainable from Jaycar, Altronics or similar. The exception is the 7.2 MHz ceramic resonator which came from Rockby. Resonator alternatives include a free-running oscillator or two 7.159 MHz crystals in parallel. The latter provides a smaller pulling range but should still cover the VK2W1 broadcast on 7.146 MHz if a series coil is added.

Scavenge parts to reduce costs. Big savings can come from a salvaged case, sockets, speaker and tuning capacitors. The balanced mixer cost cents if old TV balun cores and transformer

wire are used. Extract resistors and capacitors from old radio, TV, video or computer circuit boards. To save space I usually discard the case and keep scrap boards in storage cubes, only desoldering parts when needed. Although do not overlook the usefulness of the metal in VCR covers for boxes and shielding.

Construction

Everything apart from switches and sockets were mounted on two pieces of unetched circuit board material. One for the local oscillator/buffer, and the other for the rest. The two boards fit into a plastic jiffy box with the metal lid forming the front panel. Leave room for an internal speaker and nine volt battery. Add an external 12 volt socket as gain is more with the higher voltage.

Oscillator

Assemble the oscillator and buffer board first. A hole in the middle of the board passes the tuning capacitor's shaft. All parts are soldered around the back of the

tuning capacitor, with the copper used as a ground plane, to minimise lead lengths. Link both sections of the tuning capacitor by bridging the two outer pins to provide adequate low-end coverage. Its rear trimmers affect top end coverage.

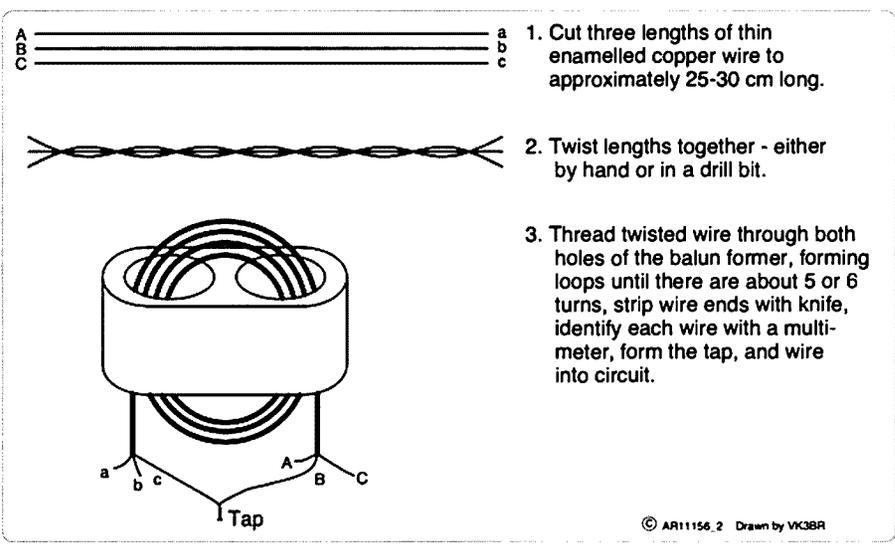
Oscillator testing is simple but needs a relative RF indicator (a germanium signal diode and RF choke wired on the back of a sensitive meter movement will do) and/or a 7 MHz receiver. Applying power to the oscillator and buffer should be rewarded by an RF signal that can be found on the receiver. Adjust the tuning and note the range; 7040 to at least 7200 kHz is satisfactory and covers 90% of SSB activity. Change the value of the 330 and/or 470 pF capacitors to alter the range slightly if desired. A small RF choke of a few microhenries in series with the resonator can extend coverage down to 7000 kHz if desired.

Audio stages

Start construction at the speaker end and work back. To lessen the chance of errors connect directly to the headphones, leaving out the audio filter choke and speaker/headphone switching for now.

The LM386 stage is straightforward, but avoid shorting the pins. If game you can solder direct to the chip instead of using a socket. The even more brazen mount the IC with its top against the board and bend pins 2 and 4 90 degrees to contact the circuit board material. It is a good idea to tin both these pins and the board with solder – this allows a fast joint without risk of overheating the IC. Blank matrix board is also OK but needs stand-offs to securely mount. If the amplifier is working there will be a click or hum in the headphones when you place a screwdriver on Pin 3.

The BC548 stage is next. It is very simple but note the audio input is applied via the emitter, not the base, unlike most amplifier circuits. Again touching the emitter should provide a click or a hum.



1. Cut three lengths of thin enamelled copper wire to approximately 25-30 cm long.
2. Twist lengths together - either by hand or in a drill bit.
3. Thread twisted wire through both holes of the balun former, forming loops until there are about 5 or 6 turns, strip wire ends with knife, identify each wire with a multimeter, form the tap, and wire into circuit.

© AR11156.2 Drawn by VK3BR

Figure 2: Winding the balun transformers.

Front end

Despite its few parts, building the balanced mixer is fiddly because of the need to wind ferrites and wire them to the diodes correctly.

Figure 2 shows how to do it. Start with three pieces of thin enamelled copper wire

(approximately 0.2 - 0.3 mm diameter – not critical) about 30 cm long. Lay them flat and parallel. Put one end of the three wires in a drill chuck (an egg beater style hand drill held between the knees is fine) and grip the other ends with pliers. Or if you have a workshop, hold the ends

in a vice and the drill in the hand. Either way, turn the drill until the whole length is twisted with about two or three twists per centimetre.

Loop these twisted wires through both holes of a two hole TV balun former. As the coil is broadband the number of turns is not critical; five or six turns is fine. Aim for the wires to come out the same side for easier mounting. Snip the wires so there is only about four cm protruding from each end and untwist.

From each wire scrape about five mm of enamel off the end. Use a hobby knife; dentists everywhere recommend not using teeth. Use a multimeter or continuity tester to identify each pair.

Connect two of these six wires – one from each side – to form the centre tap. These need to be different leads or otherwise you would just short out one. Test this with a continuity tester – from the centre tap you will find a short



New Products coming soon

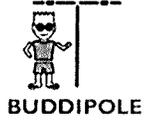
AVAILABLE NOW

Hard Drawn Copper Wire, Insulators, Dipole Centres
Open Wire Transmission Line, Spreaders, Kevlar Guy Line
Spiderbeam Fibreglass Poles, Baluns and Switches

www.ttssystems.com.au

Phone: 03 5977 4808 Email: info@ttssystems.com.au

Your Australian reseller for:



Meanwell power supplies
Diamond products
Daiwa products
Technical books
Amidon products
Custom cables made to order



We will be on the SPARC Hamfest on 25 November
and the Central Highlands Hamfest in Tasmania on 2nd December.

circuit to one other single lead on each side. Gently bend these three leads to one side; these form the connections to the diodes. Confirm that the remaining two leads form a circuit with one another but not with the leads connecting to the diodes or the centre tap.

Repeat for the second balun transformer as the mixer needs two.

Wire the balanced mixer, noting diode polarities and correct coil and centre tap connections. Finally assemble the RF preamp. Unlike the mixer the only coil winding needed here is four turns of enamelled wire over the body of the 4.7 μ H RF choke – this forms the antenna connection. 60/160 pF transistor radio tuning capacitors have two sections – for this stage only the 160 pF section (often marked 'A') is needed. The centre pin (marked 'G') is grounded.

Testing and use

Connect a home station 40 metre antenna, don headphones, apply power and tune the peak control. If all is well you will hear noise peak when it is around 1/3 the way from fully anti-clockwise. Provided it is not during a dead time, for example midday, you should hear 7 MHz SSB signals if within about 800 km of a major city. Another (quieter) noise peak will be audible near fully clockwise – this is 20 metres. You will have reception here but signals will not be as loud as 40 metres.

If nothing is heard use an RF generator (or HF transmitter into a dummy load) to generate a test signal. Likely reasons for no reception include wrong transistor polarity or incorrect wiring around the balanced mixer.

Once working add parts omitted before (for example, top

cut filter, switches, and sockets), tidy wiring and give it a test in the field – perhaps a park or beach. Ten metres of wire, preferably thrown up in a tree, should form a satisfactory antenna but more is better.

Results

The Porta 40 provides comfortable speaker reception of 40 metres and the stronger DX signals on 20 metres. It is pleasingly free of drift, microphonics and hum that sometimes plagues simple receivers. If made slightly larger it is also recommended as a 'first receiver' for a beginner. It can be heard demonstrated on the author's YouTube channel at www.youtube.com/vk3ye



Rosebud RadioFest 2012

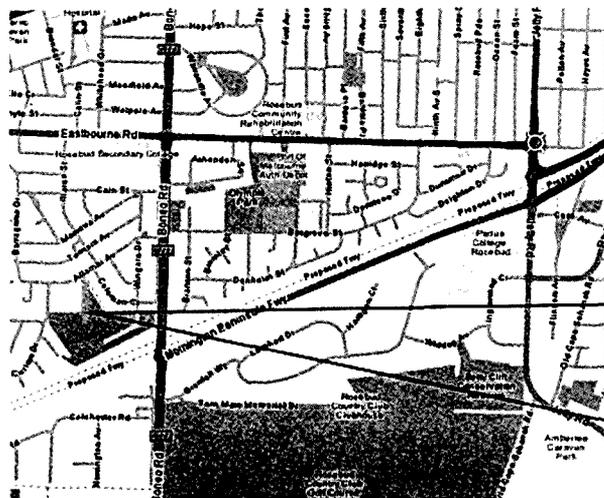
>>>> Sunday 25th November <<<<<

Eastbourne Primary School Auditorium Allambi Avenue Rosebud Victoria
Melway Map Reference 169: K5 More information on www.rosebudradiofest.com

Talk in on Rptr VK3RSP (146.675) from 7.30 AM



- Technical Forums - Digital comms; 10 watts and QRP; Amateur Television; ACMA compliance update
- Commercial traders & Pre - loved gear sales
- Great Door Prizes
- Activities for all—young and old!!
- Undercover Event + Outdoor Activities
- "Show and Tell" displays: Portable set-ups; "Trailer with the Lot"; QRP; MicroWave; ATV; Optical Methods; Fire and Rescue Comms
- REGISTER YOUR PLACE FOR "SHOW AND TELL"TODAY!
- Food and Drinks at very reasonable prices
- Plenty of off street parking



Rosebud RadioFest 2012
Eastbourne Primary School Auditorium
Allambi Avenue, Rosebud, Victoria.
(Via Boneo Rd)
Melway 169:K5
Enter looped driveway as shown on map.

Traders set-up from 7.00 am
Outdoor activities incl. Show and Tell from 8.00 am
Food sales and pre-entry ticket sales from 8.00 am
Entry to Main Show and Gear sales from 9.30 am
Forums commence at 9.45 am
Prizes drawn at 12.00 midday
Entry \$5.00 (Under 12's free)
Tables \$10.00 each: book at :
www.rosebudradiofest.com
or Les VK3MLM: lesmor1@gmail.com

Other Enquiries: Mark VK3PDG
markybradio@gmail.com or Phone 0407 844 063

Surviving the storms

Rob Norman VK5SW

When it comes to rough weather, antennas are a worry for the radio amateur. As with a lot of things in life, it pays to think in terms of the worst case scenario. The same principle applies to antennas.

Even though it can be very windy here, I decided to put up a two element five band HF Quad

antenna, for a number of reasons. Having had a Quad some years ago, I knew that they worked well at a low height. Although rather cumbersome, to me the advantages outweighed the disadvantages. One of the major disadvantages is their flexing in the wind.



Photo 1: The Cubex Quad antenna on top of the windmill tower.

COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$265
2 m 5/8 vertical	\$125
20 m 3 el. Yagi antenna	\$460
M B vert 6, 10, 12, 15, 17, 20, 30, 40 and 80 m Auto switch between bands	\$436
2 m & 70 cm 5/8 co-linear vertical	\$130
6 m 5 el. beam	\$326
23 cm 36 el. 2 m 1 boom n-con	\$249
70 cm hi/gain Yagi 3 m boom	\$170
2 m 10 el. hi/gain Yagi beam	\$207
Quad 2 el. 20 m heavy duty	\$596
Delta loop 2 el. 10/11 m	\$330
Log-periodic 7 el. 7.6 m boom	\$949
Tri band antenna 6.2 m 1boom	\$749
M.B. Vert 10 to 80 m 5 bands	\$370
40 m 2 el. beam	\$705

Guyed masts 13 or 21 metres

Winch up, tilt-over, aluminium and stainless steel three sided construction. Auto brake winches.

115 John Street
Glenroy VIC 3046

Phone
0419 542 437



Photo 2: The Hustler 6BTV vertical sits on top of the seven metre steel pole.

Even so, having done the homework I purchased a Cubex Quad antenna from the US and was pleased to see the quality of materials used and the design and engineering of the antenna was of a very high standard. One feature in particular seemed to be a good idea and that was that the wire elements passed through the fibreglass spreaders. The antenna was purchased three years ago and erected on a seven metre, four legged windmill tower with a 10 metre pole running through the centre of it. The height of the Quad was 10 metres above the ground. I had asked for heavier gauge wire than is usually supplied with the

antenna because of the strong winds in this area.

Another antenna here is a multiband HF ground plane using the Hustler 6BTV vertical up on a seven metre steel pole with 10 radials around the base of the radiator. Because of the windy conditions here I used high tensile steel fencing wire for the radials. The vertical itself is over 7 metres in length, so special Dacron rope was used to tie it to the ground in two places along the length of the vertical with a total of four ropes at each point. So, it was pretty well supported. This antenna had been in the air for four years.

Recently, another antenna was

erected. It was a multiband HF Vee Beam using 90 metre lengths of high tensile steel fencing wire for each leg. Not the most efficient radiator but robust though.

These antennas have recently been put to the test.

In November 2011, a rare event occurred in this area. It made the headlines of the television news here in South Australia. A 'mini tornado' roared through un-roofing houses, blowing over TV antenna towers and the like in the town of Morgan, in the Riverland, which is about 10 kilometres away. On the property here many trees were uprooted and blown over. Hundreds of branches were ripped from the trees, some blocking our roads. Glass windows were smashed; leaves were ripped off the 'blue' bushes and 'sheoak' trees. Tree trunks were sandblasted by the sandy soil whipped up by the winds. Bushes were uprooted, blown over and sandblasted. It was a war zone.

Fortunately these antennas survived it all. The Quad was facing side on to the winds when they tore through. Having said all this, the next storm to come through this way may well bring down the antennas but the experience has taught me that you can never over engineer them. It pays to think in terms of the worst case scenario. You never know what the future holds. You never know what is around the corner.



Photo 3: Damage done to a large native tree indicates the strength of the storm.



Photo 4: Another tree, one of many that came to permanent grief as a result of the storm.

An FT-817 accessory box

Dale Hughes VK1DSH

The Yaesu FT-817 transceiver is a compact multi-mode, multi-band radio which is ideal for field use due to its small size and remarkable capability. I have been using one for the last few VHF/UHF field days and have mostly found it a pleasure to use. It was apparent from the beginning that to simplify field use a number of 'accessories' could be usefully added and this project incorporates those accessories. These accessories are:

- Polarity protection for the supply voltage to the radio to prevent damage to the transceiver

due to inadvertent incorrect connection to the power supply.

- Automatic antenna switching so that the correct antenna is selected for the required operating band.
- Provide a band-switched 'Press-to-talk' (PTT) signal that can be used to operate external single-band amplifiers.

Figure 1 shows a functional block diagram of the box. These functions make field operation very quick and simple. The band-switching is especially useful as it eliminates the need to shuffle connectors when

changing bands. Figure 2 shows the accessory box with a companion power amplifier for the 2 metre band.

All the required control signals are available on the rear panel 'ACC jack' of the FT-817. A signal called 'BAND DATA' is a voltage that corresponds to the band to which the radio is currently set. The nominal voltages for the three bands of interest are shown in Table 1. In my case the measured voltage was about 0.2 V less than specified, so individual radios should be checked prior to use.

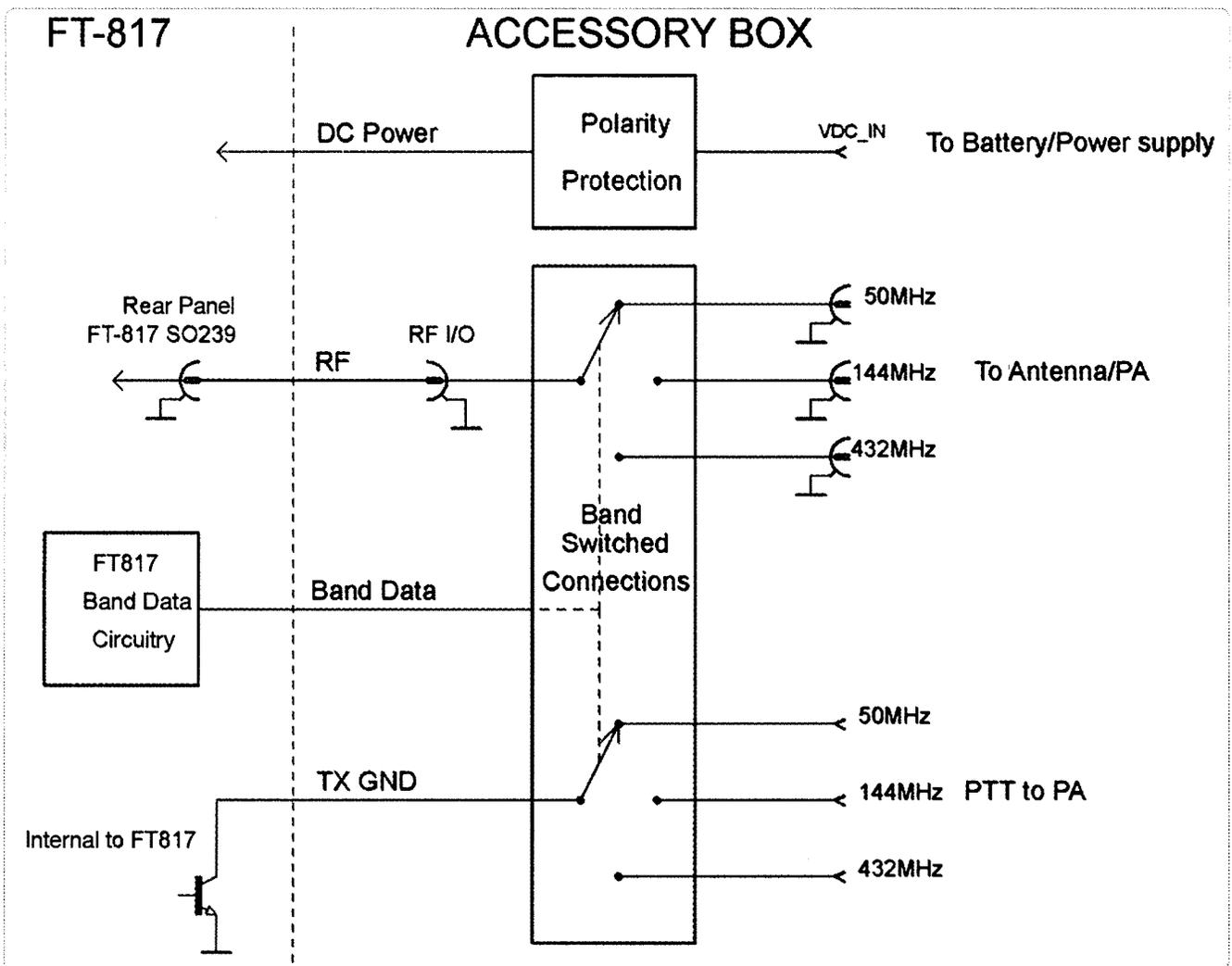


Figure 1: Functional block diagram of the accessory box. The antenna switches are relays, but the PTT switches are opto-couplers.

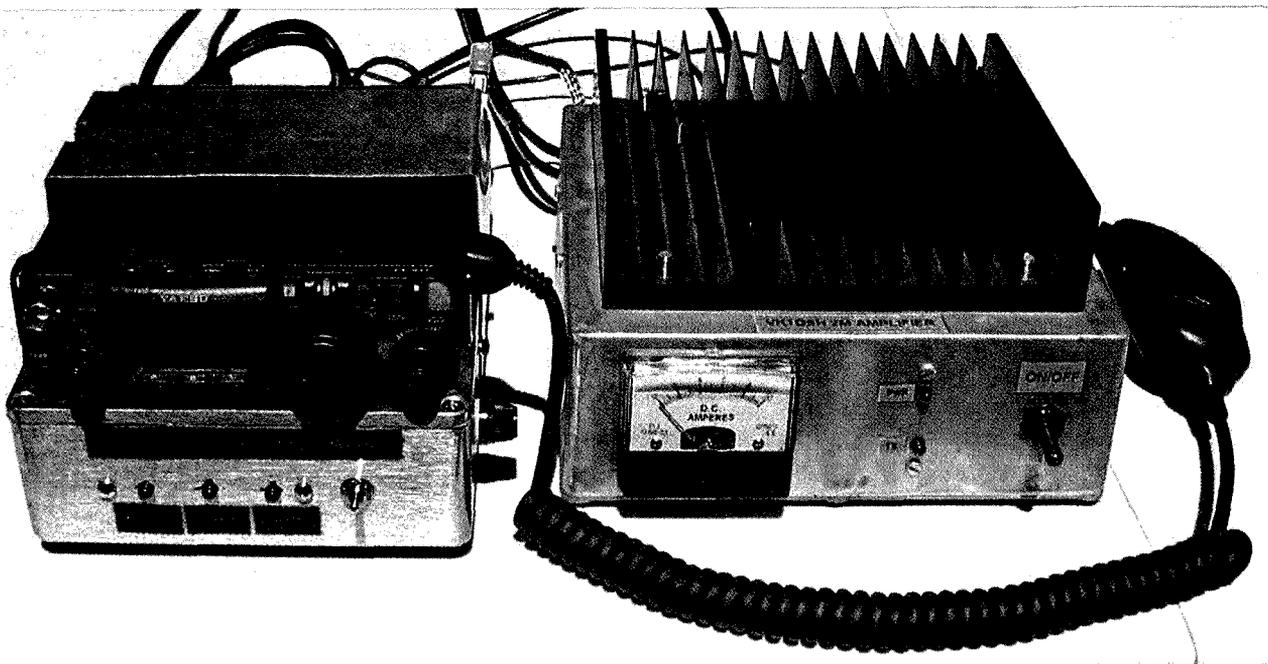


Figure 2: The FT-817 transceiver mounted on top of the accessory box which is connected to a power amplifier for the 2 metre band.

The other required signal is called 'TX GND' and this is pulled to ground through an open collector transistor when the FT-817 enters transmit mode.

Circuit description

Figure 3 shows the schematic diagram of the accessory box. Polarity protection is provided by a power FET (Q4) which will only conduct when the correct polarity voltage is applied. The advantage that this circuit has over a simple diode is that the voltage drop across the FET is only a few millivolts compared to the (approximately) 600 mV drop across an ordinary power diode. Fuse F1 and Zener diode D1 provide protection against over-voltage and over-current situations.

The BAND DATA signal is interpreted by U1 which is a LM3914 LED dot/bar driver. This chip contains a string of voltage comparators, a voltage divider and reference voltage source. In this application it is configured as a 'dot' driver which means that only one of its outputs are pulled to ground at any one time – depending on the

input voltage range. In normal use, the outputs would drive LEDs, but in this case the selected outputs drive relays via PNP transistors (Q1 through Q3). The internal reference source of the LM3914 is adjusted by means of resistor R1 so that it is within the range required for this application. In my case it is set to approximately 3.65 volts which results in outputs 8, 9 and 10 of the LM3914 pulling to ground when the bands 50 MHz, 144 MHz or 432 MHz are selected. Other radios may require slightly different settings. When the selected output goes low, the corresponding RF relay is energised by a PNP Darlington transistor. Each relay coil is fitted with an indicator LED and a diode to clamp the reverse EMF pulse generated by the relay coil when it changes state.

Press-to-talk switching and routing is done using a number of low-current opto-couplers (U2 through U4). When the required RF relay is energised, only the opto-coupler associated with that band can be turned on when the TX GND line from the FT-817 is pulled to ground. The opto-coupler

output is an open-collector which can then be used to control an amplifier or other device. Note that the maximum current that can be sunk by the specified opto-coupler collector is 50 mA.

Components and construction

None of the components used in the accessory box should be difficult to locate and, with the exception of the relays, indicator LEDs and FET Q4, all components are mounted on a small piece of Vero-board inside the accessory box. The relays I used were RF coaxial relays removed from old equipment and the relays used must be suitable for RF use at up to 432 MHz and there are many sorts of other suitable relays. Mini-Kits have a number of suitable relays; see <http://www.minikits.com.au> for more details of suitable RF relays. The opto-couplers are low current devices so that the current switched by the FT-817 output is minimised.

Conclusion

The accessory box has proven to be very useful for rapid band changes typical of field day operation.

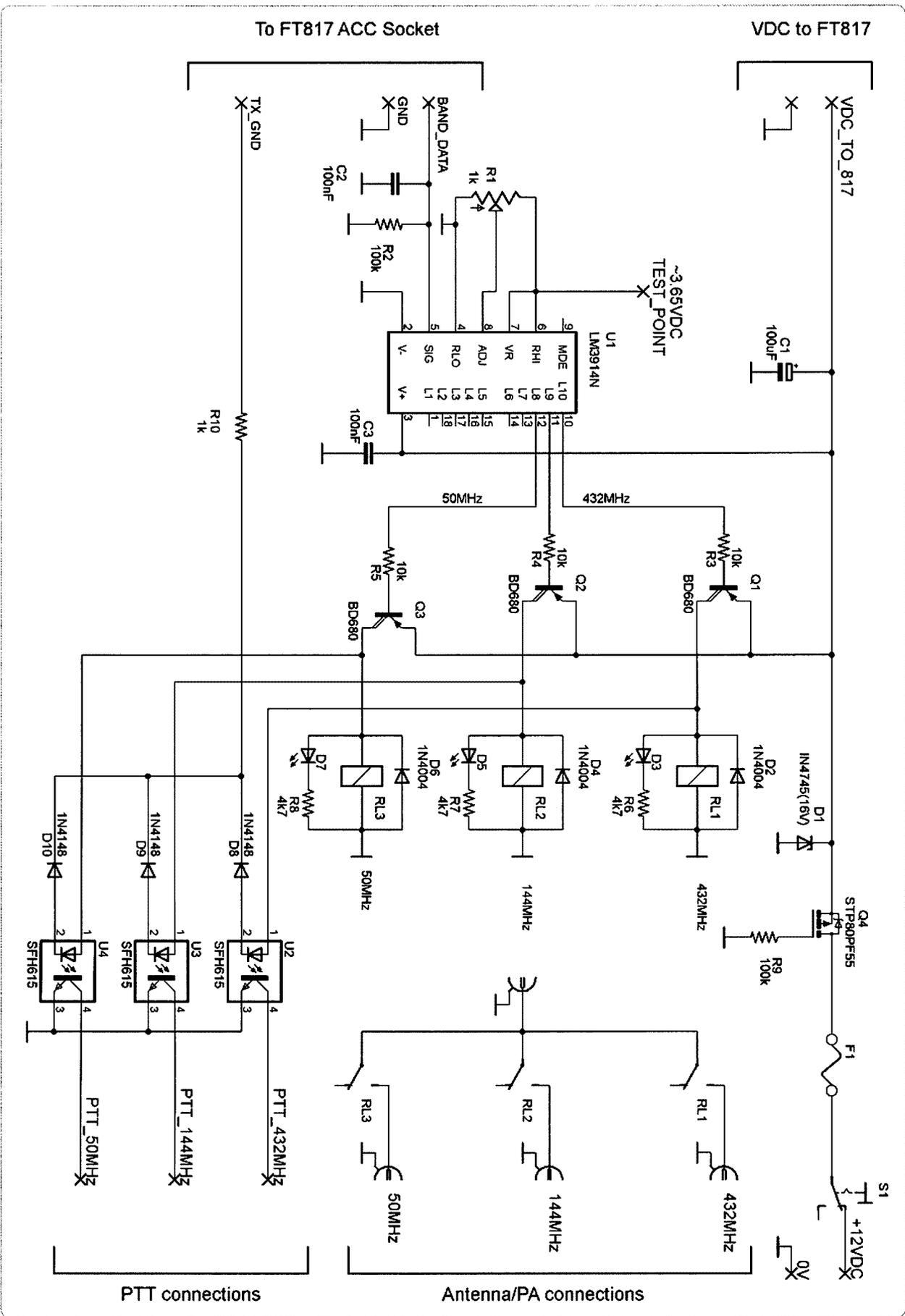


Figure 3: Schematic diagram of the accessory box.

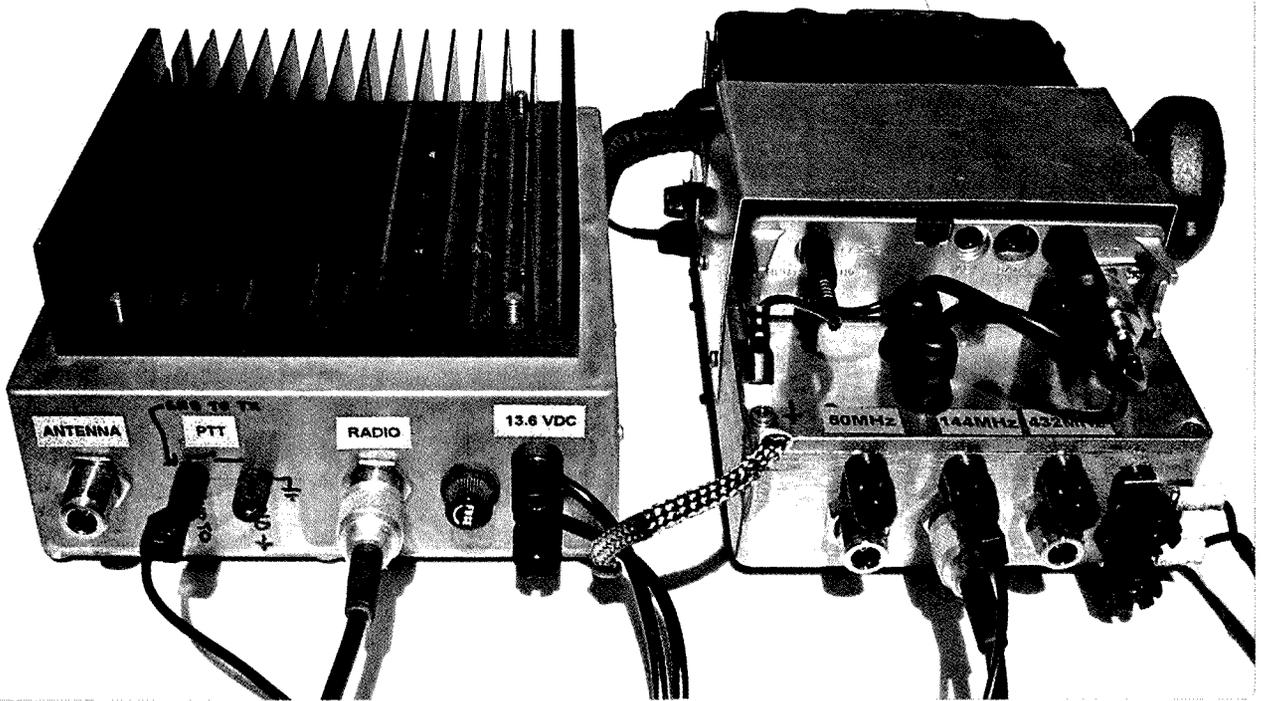


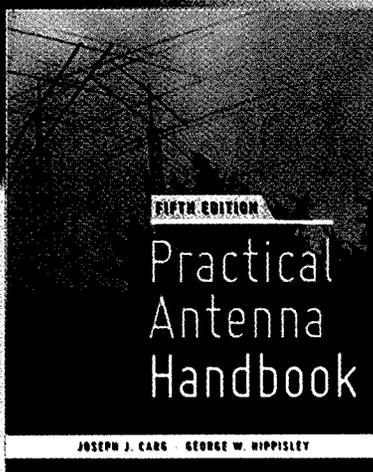
Figure 4: Rear view of the accessory box and amplifier. The coaxial connectors and associated PTT control lines for the three RF output bands can be seen on the rear of the accessory box. A heavy copper braid links the accessory box and amplifier to minimise any differences in earth potential.

Automatic switching of the appropriate antenna is very useful and makes sure the correct antenna is used for the band being used. The PTT line is similarly switched so that external single band amplifiers can be used if desired.

Band	Voltage
50 MHz	3.33 V
144 MHz	3.67 V
432 MHz	4.00 V

Table 1: Nominal BAND DATA voltages. A voltage greater than 3.33 V but less than 3.67 V signals that the radio is set to the 50 MHz band; similarly for the other bands. The exact value for an individual radio should be checked prior to use.

Visit our Bookshop



Practical Antenna Handbook

Reorganized to flow logically from broad physical principles to specific antenna design and construction techniques, the book begins by covering the fundamentals.

Then the half-wave dipole is discussed both as an excellent antenna in its own right and as a conceptual tool for predicting the performance of other designs. Transmission line impedance matching techniques—and a companion Smith chart tutorial—lead into “must have” accessories for tuning, monitoring, and troubleshooting antenna system performance.

Other tools, such as antenna modeling software and network analyzer add-ons for PCs and Macs, are addressed, and concluding chapters offer fresh insights into support structures and installation techniques.

Antenna topics covered include:

- › Dipoles and inverted-Vs
- › Quads, delta, and NVIS loops
- › Wire arrays (bobtail curtain, half-square, rhombic)
- › Verticals and shunt-fed towers
- › Rotatable Yagi beams
- › MF/HF receiving antennas (flag, pennant, K9AY, Beverage)
- › Mobile and portable antennas
- › VHF/UHF/microwave antennas
- ...and many more!

*Plus Postage & Packaging

Members: \$55.00 * Retail: \$65.00 *

Order your copy today! Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

Analysis of the Off Centre Fed (OCF) dipole

Ron Sanders VK2WB

Introduction

The following article attempts to analyse the Off Centre Fed (OCF) dipole in a typical amateur radio installation covering 7, 14, 21 and 28 MHz, with particular emphasis on the losses. The analysis is carried out by using programs which are available on the internet.

Editor's Note: The version of this article published here has been abridged. A full version is available on the AR pages of the WIA website.

The initial antenna design is done with **EZNEC**, which sets the basic antenna parameters, such as height, length, feed point, transformer ratio, transmission line and can calculate all intermediate impedances. See AR Jan/Feb 2011. Reference 1.

The program **TLDetails** calculates transmission line (T-Line losses) and SWR. Reference 2.

LTspice is a simulation program which can simulate the data obtained from EZNEC and calculate losses in the transformer, which is treated as ideal in EZNEC. Reference 3.

EZNEC data -- Reference 1 -- Figures 4 - 8

L single wire 1.5 mm diameter, 20.9 m long, 10 m above real ground.

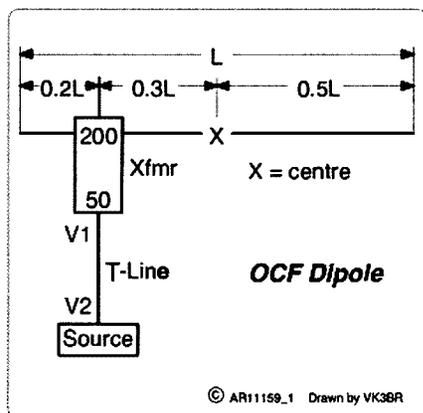


Figure 1: OCF dipole.

F (MHz)	Ant feed (0.2 L) r +/- jx	Xfmr input (V1) r +/- jx	T-Line input (V2) r +/- jx
7.1	276.3 + j139.6 (3.13 μH)	69.19 + j34.89 (782 nH)	85.70 + j15.15 (339.6 nH)
14.2	117.50 - j4.69 (2.39 nF)	29.47 - j1.17 (9.6 nF)	36.73 + j12.47 (139.8 nH)
21.2	110.3 - j22.96 (327 pF)	27.67 - j5.74 (1.3 nF)	36.82 + j15.16 (113.8 nH)
28.5	318.7 + j30.02 (167.6 nH)	79.78 + j7.51 (41.9 nH)	43.06 - j16.16 (336.4 pF)

Table 1

Xfmr 200:50 ohm impedance ratio - 421a (Figure 2), 421c (Figure 3).

T-Line 15 m of RG-58C, VF = 0.66, Loss = 8 dB/100 m @ 30 MHz

Table 1 shows source impedances at different points along the antenna system.

The equivalent component value for jx is shown in brackets.

Xfmr input (V1) is the impedance calculated by EZNEC with the source at V1.

Transmission Line (RG-58C) Loss - Reference 2

Power at source (V2) = 100 W

Table 2 shows power loss for T-Line = 15 m of RG-58C

F (MHz)	Power (W) @ V1	Power (W) Loss
7.1	84.6	15.4
14.2	79.0	21.0
21.2	74.0	26.0
28.5	72.4	27.6

Table 2

Table 3 shows the SWR readings at the source (V2) and at the far end (V1).

F (MHz)	SWR @ V2	SWR @ V1
7.1	1.79	1.98
14.2	1.53	1.70
21.2	1.63	1.90
28.5	1.43	1.62

Table 3

Transformer Design - Reference 3, Reference 4

Note: ECW = enamelled copper wire

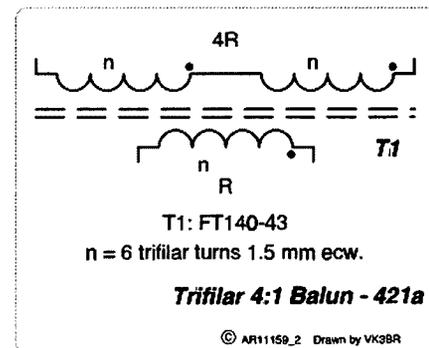


Figure 2: Xfmr 421a.

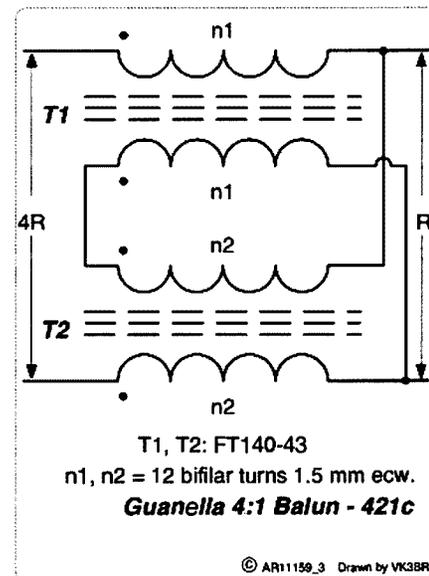


Figure 3: Xfmr 421c.

F (MHz)	Power (W) @ V1	Power (W) @ Antenna	Power (W) Loss
7.1	84.6	72.0	12.6
14.2	79.0	75.9	3.1
21.2	74.0	71.7	2.3
28.5	72.4	67.8	4.6

Table 4

F (MHz)	Power (W) @ V1	Power (W) @ Antenna	Power (W) Loss
7.1	84.6	83.2	1.4
14.2	79.0	78.8	0.2
21.2	74.0	73.9	0.1
28.5	72.4	72.1	0.3

Table 5

F (MHz)	Total Loss (W) 421a	Total Loss (W) 421c
7.1	15.4+12.6 = 28	15.4+1.4 = 16.8
14.2	21+3.1 = 24.1	21+0.2 = 21.2
21.2	26+2.3 = 28.3	26+0.1 = 26.1
28.5	27.6+ 4.6= 32.2	27.6+0.3 = 27.9

Table 6

The transformer core uses #43 ferrite material and therefore the winding inductance changes with frequency. Values were calculated for each band using the program FT_calc_1.1.xls. Figures 10 and 11 reflect the winding inductance (50 µH) for 7 MHz.

The common mode rejection can be checked with program Balun_cmr_1.1.xls.

Both programs are available on the internet – Reference 4.

Loss in xfmr 421a due to antenna mismatch – Reference 3 – Figure 10 – Figure 10a.

Power in column 2 of Table 4 is that available at V1 with 15 m of RG-58C.

Power in column 3 of Table 4 is that actually dissipated in the antenna.

Loss in xfmr 421c due to antenna mismatch – Reference 3 – Figure 11 – Figure 11a.

Power in column 2 of Table 5 is that available at V1 with 15 m of RG-58C.

Power in column 3 of Table 5 is that actually dissipated in the antenna.

Total OCF Power Loss – 100 W input

Table 6 adds losses from Tables 2, 4 and 5 for T-Line = 15 m RG-58C.

Conclusion

The OCF dipole is a compromise design HF antenna which allows operation on several bands without using an antenna matching unit (ATU). Using EZNEC, the design of an OCF dipole allows many variations in overall antenna length, height and feed point to achieve the desired result. To accommodate the four bands, the overall length of the antenna (20.9 m) was made longer than that for a resonant dipole (20.2 m) on 7.1 MHz. The demo version of EZNEC is restricted in the number of wire segments.

The design aims to keep the SWR at the T-Line source (V2) below 2:1 on the bands of interest. Apart from T-Line loss, most losses are due to the inevitable mismatching between the transmission line and the antenna feed point impedance via the transformer. Use of RG-213 will reduce the T-Line

loss. Losses are reduced by using the Guanella 421c transformer design, which also has a better CMR, so reducing feedline radiation and receiver noise.

References

Ref 1: EZNEC: www.eznec.com and AR Jan/Feb 2011

Ref 2: TLDetails: www.ac6la.com/tldetails.html

Ref 3: LTspice: www.linear.com/designtools/software/#LTspice

Ref 4: FT_calc_1.1.xls, Balun_cmr_1.1.xls: <http://www.vkham.com/Software/downloads.html>

Suggestions for building an OCF dipole – Figure 12 and Figure 12a.

Most amateurs have space limitations for erecting an antenna, so I suggest you first determine maximum antenna space available, particularly heights of the wire ends and any necessary bends. This is true for any antenna simulation program. In EZNEC a wire is a straight length, so the number of horizontal and vertical bends will determine how many wires are required.

In my example I have used a simple single wire where ends are at the same height and there are no bends, so the co-ordinates in the Wires table in EZNEC will be the true wire lengths.

If you have the wire ends at different heights, the actual wire lengths will not correspond to the co-ordinates entered in the Wires table. Figure 12 shows the

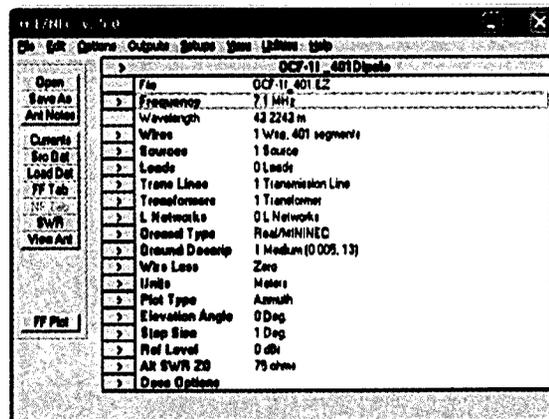


Figure 4: EZNEC main screen.

corrected co-ordinates for an antenna with a bend in the middle and the ends at different heights.

Figure 12a shows the antenna and that EZNEC has correctly calculated wire number 1 as 10.4502 m using the data in the Wires table of Figure 12. In this case data will be different compared with our simple example and would require all new EZNEC calculations.

Comments: ron.kiama@gmail.com

Program screen shots using 7.1 MHz examples – Figures 7, 8, 9, 10, 10a, 11, 11a and 12 appear on the WIA website, under Amateur Radio, referenced to this month's issue of AR. The captions are, however, detailed below:

- Figure 7: EZNEC source at antenna feed point.
- Figure 8: EZNEC source at xfmr input (V1).
- Figure 9: TLDetails T-Line SWR and loss.
- Figure 10: LTspice Xfmr 421a power transfer from T-Line (V1) to antenna.
- Figure 10a: LTspice plot Xfmr 421a input (V1) and output (Antenna) power.
- Figure 11: LTspice Xfmr 421c power transfer from T-Line (V1) to antenna.
- Figure 11a: LTspice plot Xfmr 421c input (V1) and output (Antenna) power.
- Figure 12: EZNEC wires table with ends at different heights.

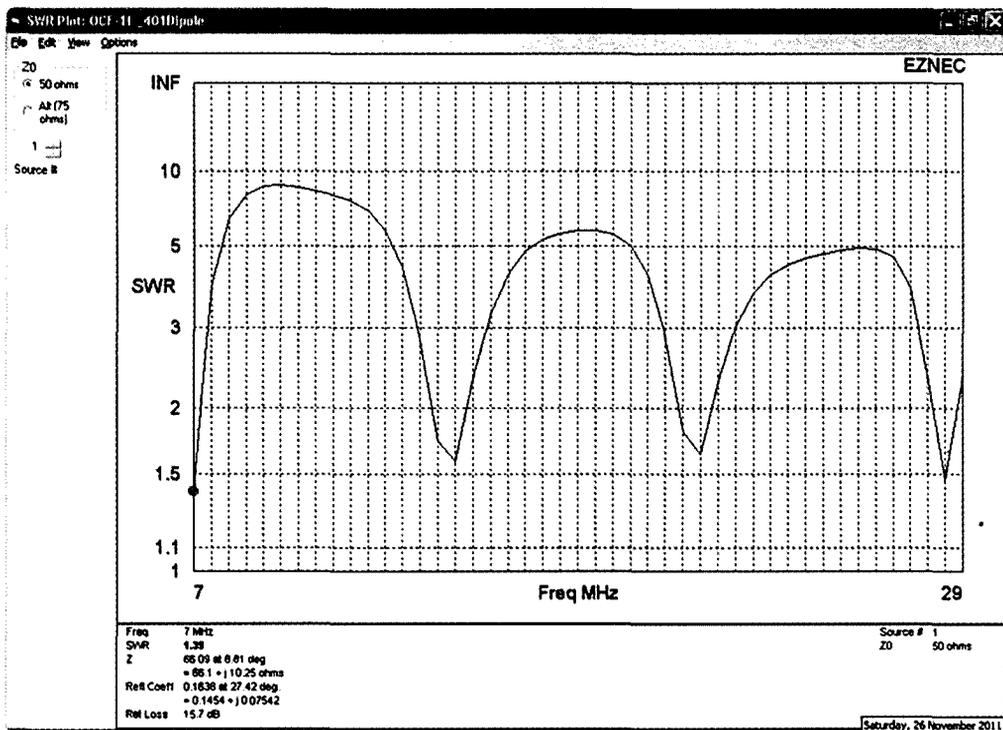


Figure 5: EZNEC – SWR 7-29 MHz.

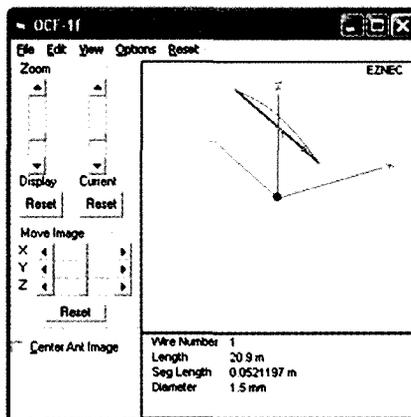


Figure 6: EZNEC antenna view.

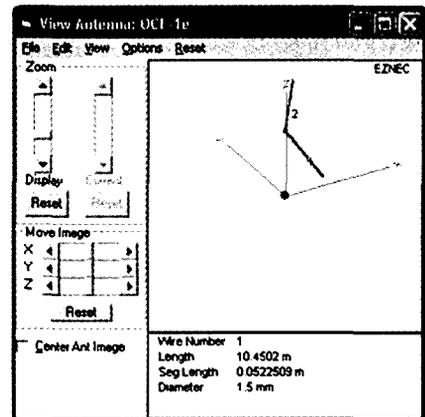
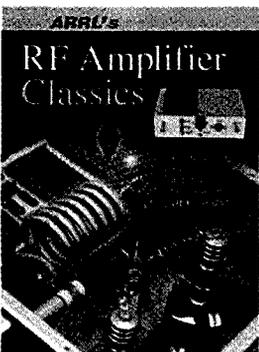


Figure 12a: EZNEC antenna view with wires at different heights.

Visit our Bookshop



RF Amplifier Classics

Includes two-dozen projects and articles from the pages of QST and QEX, published between 1980 and 2003. There are amps for HF, MF, VHF and microwave. These are high quality works from respected authors such as Gary Breed, K9AY; Jerry Pittenger, K8RA; Bill Sabin, W0IYH; Al Ward, W5LUA; Dave Meacham, W6EMD and others.

Use this book and:

- Shorten your discovery work.
- Find practical designs and construction details for classic tube and solid-state amplifiers at power levels from 5 W to 1.5 kW.
- Build safe and reliable amplifiers.
- Produce loud and clean signals.

176 pages. Second printing 2005, © 2004-2005. Published by American Radio Relay League (ARRL).

MEMBER PRICE: \$35.00* RETAIL PRICE: \$42.00*

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

Remembrance Day contest 2012

Alan Shannon VK4SN – RD contest manager

What a great weekend the Remembrance Day contest was. There were 1346 unique stations on air and with excellent propagation and low noise, made for a large quantity of contacts. 38,000 log entries in fact.

The new rule structure bought activity levels back to where it was many years ago. The new three hour re-contact period did what it was meant to, and made activity shift to different bands for new contacts. (Under the old two hour rule, it was too easy to sit on one frequency without having to look for new stations to work.) Many logs show run rates of working one to two contacts per minute for most of the weekend's busy periods. Several soapbox comments reflected appreciation of rule simplification and brought new and long lost participants back to the fold. Those who may not have participated due to the VHF/UHF amalgamation with HF sorely missed an opportunity to join in the busiest RD seen in a while.

Although log submission fell just short of last year's entries, the logs this year contain many more contacts resulting in 5165

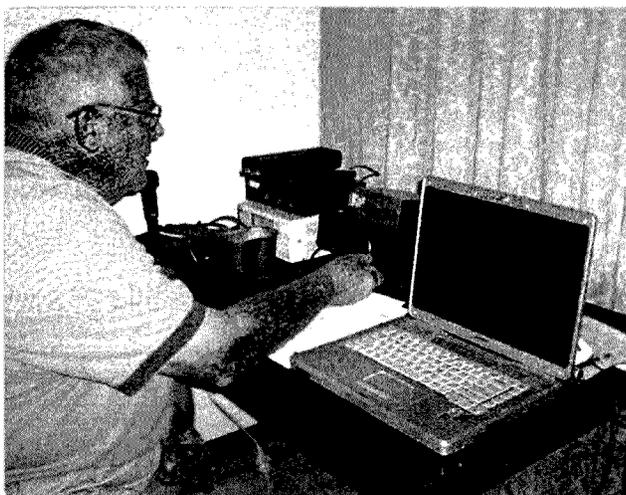


Photo 1: Mark VK4ADX at his operating desk.

more points than last year. Logs were received from 16 Foundation, 25 Standard and 183 Advanced licences making up 16.6% of actual participants. There were 133 unique Foundation licence calls logged, 45 QRP stations, 51 portable, and 16 mobile. 18 paper logs and 211 electronic logs were received. Of these, five were treated as check logs. 155 operators used VKCL Logger, 46 RD Logger, eight Excel and the rest unknown. 133 logs contained HF contacts only, 78

contained HF, VHF & UHF contacts, and only 12 VHF and above logs.

A contest is where one's skills as an operator and logging accuracy are tested. Points will be lost and one may have their log certified as a check log due to poor logging or if failing to abide by rules is not met. It became very obvious with some of the logs

received, that some participants did not read the rules – to their detriment. Logs became a check log because of:

- a) Rule violations (serial exchange for example)
- b) Major logging errors like missing columns (frequency, date, or time for example)
- c) Totally unreadable / unusable for paper and electronic entries.

Some had downloaded the cover sheet and did not download the log book provided, and then

State	Total logged participants	% who submitted a log	Logs submitted	* Logged contacts	Phone	CW	Raw score	Weighted score
VK 1	28	32.1	9	1309	1308	1	1318	1.5
VK 2	279	11.5	32	7398	7010	388	9260	2.15
VK 3	287	11.5	33	4335	4128	207	5288	1.25
VK 4	248	16.1	41	7599	7406	193	9134	3.13
VK 5	200	20	41	7261	7079	182	8367	5.37
VK 6	129	35.7	46	6329	6256	73	8334	6.11
VK 7	93	18.3	17	3191	3072	119	3989	7.15
VK 8	8	12.5	1	86	86	0	85	0.52
ZL	73	4.1	4	614	583	31	885	0.56
P2	1	0	0	0	0	0	0	
TOTAL	1346	16.4	224	38122	36928	1194	46660	TOTAL

* Net of check logs

Table 1: RD 2012 contest log analysis.

missed relevant info. If you have a computer and can download the files provided, please use them as making your own format up can easily lead to missing information and loss of points or having your log delegated a check log. Points were deducted for miss-logged calls, but this year I have been forgiving where /M2 /P1 type entries were incorrectly entered. Correct logging examples are now on the WIA RD website. 36 logs were score corrected for incorrectly logging calls, scoring for duplicates, only scoring one point during the three point session, and not having scored where the contact was allowed and not logging the receive exchange.

Finding log errors was made easy by Deane VK3TX's Cabrillo checking software. The software produces a report showing wrongly logged calls, duplicates, and a host of other possible problems. Mike VK3AVV and John VK5DJ worked closely with me to bring the logging software up to speed. Except for a couple of minor issues the loggers and checking software made log checking very easy and saved many hours in the checking process. My sincere thanks to all involved for being the first to bring Cabrillo log checking into Australian domestic contesting.

The new scoring system developed by Andrew VK1DA sees state scores running very close indeed. VK7 is this year's winner with very close runners up VK6 and VK5. The scores are totally dependent on the operator sending in their log, and the percentages are



Photo 2: The VK4ADX shack.

very poor as can be seen in Table 1. Submitting a log is the only way to support your fellow hams with the state score.

Individual Efforts

As mentioned earlier, logs contained many more contacts on average than previous years. Great efforts were received from Wayne VK7NET and Ken VK4QH with 1055 and 948 points respectively for the SO Phone category. Ray VK6ZRW had a superb lead to take 1st place with 891 points in the SO Mixed category which produced six more entries than last year.

105 operators were spread over 10 Multi single and 12 MM stations. VK2GGC Multi-Single station operated by VK2SJK, VK2HFP, VK2SD, VK2FDXR, VK2ZMT and VK2MOR produced a massive 1148 points to win their section and produce the best score overall. VK4XA recorded another great

score of 935 taking 1st place in the Multi-multi section.

The new QRP section was well represented with a total of 45 taking part and 16 submitting logs.

Onno VK6FLAB won the section with 259 points with Bob VK4BYX runner up. Bob was reported by many as having a great signal. Bob's OB2040 beam sits 25 metres in the air on top of a narrow mountain ridge. Who said free space antennas don't perform?

Although there was no Rookie category (that is, first year as an amateur), VKHAM (.com) has kindly sponsored an award for the highest scoring Rookie. This year eight Rookies, VK2FNJW, VK2FWWD, VK3FEZZ, VK3NCC, VK4FAAS, VK4FPDG, VK4FABF and VK6FAAW submitted scores from 23 to 354. Congratulations to Doug VK2FWWD with his excellent score of 354.

Seven teams were submitted, with team Wallaroo Trent VK4TS, Catherine VK4GH and Wayne VK7NET taking honours followed by the Lockyer Legends Ken VK4QH, Peter VK4MN and Alan VK4SN, and Elizabeth ARC VK5LZ, Paul VK5NE and Peter VK5KX for third place. One team seemed to disappear in battle leaving six in the end. See Table 2.

TEAM NAME	OP 1	OP 2	OP 3	TOTAL
Wallaroo	VK4TS	VK4GH	VK7NET	1898
Lockyer Legends	VK4QH	VK4MN	VK4SN	1819
Elizabeth ARC T1	VK5LZ	VK5NE	VK5KX	1506
Wait-A-While	VK6ZRW	VK6TWO	*VK6IR	1460
ACT Contesters	VK1MT	VK1HW	VK1PAR	992
Elizabeth ARC T2	VK5ZD	VK5UE	VK5AIM	336

* VK6IR did not submit a log.

Table 2: RD 2012 contest team information.

Band usage

A full list of statistics is on the WIA RD website in PDF format. Soapbox comments have been copied and pasted from logs and emails, and are also available.

From this year onwards, awards will be sent from the WIA office for all major 1st, 2nd and 3rd place winners. Downloadable PDF certificates for individual state placing are available.

In closing, everyone reflected a very positive outlook and acceptance of the rules and by next year the word will have spread. As others have said, "Can't wait till next year's RD".

The full operator's rankings in Table 4 below.

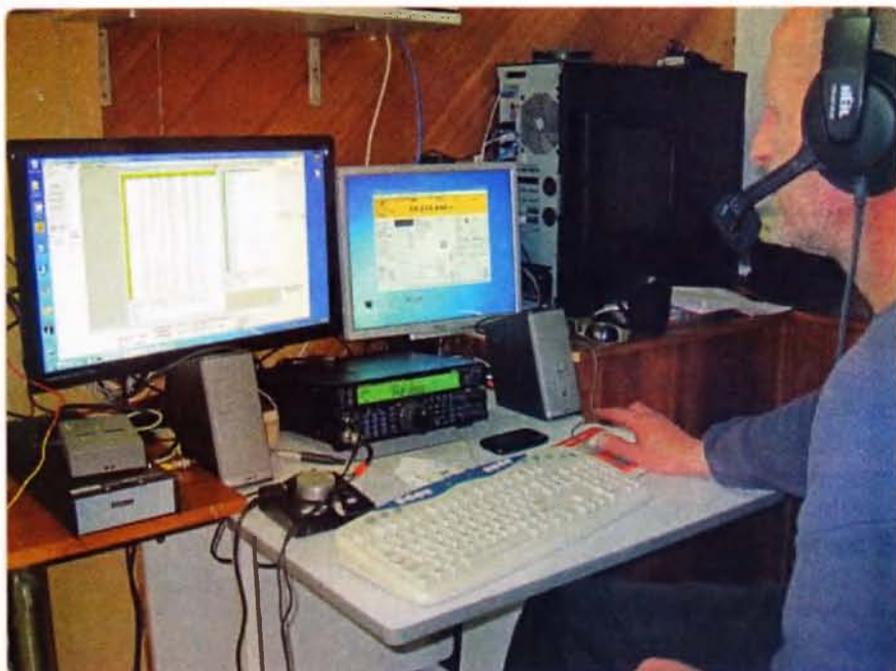


Photo 3: Wayne VK7NET - Single Op winner.

Band	Contacts	Phone	CW
160	906	818	88
80	9236	8690	546
40	17365	16849	516
20	4280	4257	23
15	420	414	6
10	204	199	5
6	496	490	6
2	3416	3416	0
70 cm	1780	1776	4
23 cm	18	18	0
Total	38121	36927	1194

The ratio of phone to CW was 31:1

Table 3: RD 2012 contest contact analysis by band and mode.

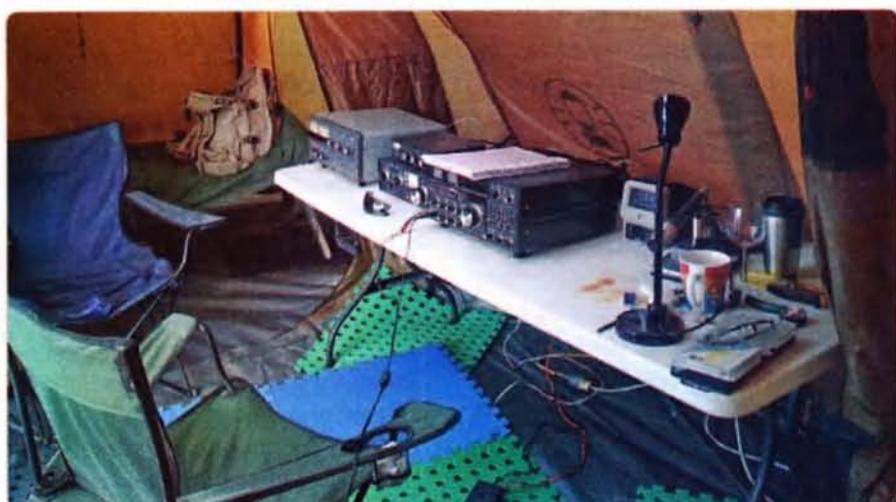


Photo 4: The VK2AWX shack.

Single Op Phone

Callsign	Points
VK7NET	1055
VK4QH	948
VK5CB	728
VK2XN	686
VK5BC	649
VK6AXB	631
VK3CKC	619
VK5LJ	591
VK6CSW	584
VK2HBG	564
VK3LDR	530

Callsign	Points
VK4KRX	517
VK4GH	516
VK1HW	504
VK5KX	491
VK4GMH	471
VK7OO	463
VK6MAB	461
VK5UV	406
ZL2TZE	385
VK4MN	384
VK7HW	374

Callsign	Points
VK2FWWD	354
VK6HAD	351
VK4TS	327
VK5KBJ	318
VK6BDO	318
VK6AH	307
VK6FMON	307
VK5MK	294
VK4FAAS	287
VK3TCX	286
VK6MM	286

Callsign	Points
VK3SIM	283
VK4JRO	277
VK3GC	273
VK6FLAB	259
VK1PAR	256
VK3MEG	255
VK4MON	253
VK4MAD	252
VK6AIF	249
VK7HDM	241
VK6KTV	239

Callsign	Points
VK5MCB	220
VK6USB	216
VK4KKN	216
VK2BGL	210
VK3TKO	208
VK5BWH	200
VK4TAA	195
VK5FCJM	188
VK7DG	185
VK6JP	181
VK7FB	179

Table 4: RD 2012 contest full operator's rankings.

Callsign	Points
VK5ZD	173
VK6DT	172
VK2EJW	169
VK6KMC	169
VK6LV	169
VK7VH	167
VK5DJ	162
VK3AKT	161
VK3AMW	159
VK3LM	146
VK5DMC	146
VK5OQ	145
VK6NI	138
VK2BAM	134
VK6NWK	131
VK1DW	122
VK5AIM	119
VK3YE	118
VK5JW	118
VK2LEE	118
VK6FAAW	116
VK4GLC	115
VK4VBU	112
VK5AR	112
VK3XH	110
VK6RC	110
VK7KC	110
VK3NRW	104
VK1WX	103
VK4BLP	102
VK3BPN	101
VK3ASD	100
VK3FASW	100
VK2VE	99
VK5ALX	98
VK3FCAA	96
VK3TWR	95
VK5RV	91
VK5STU	90

Callsign	Points
VK5EE	86
VK8DA	86
VK4FOXS	84
VK5PAS	84
VK6HDX	81
VK7AJ	81
VK6AR	80
VK6ST	80
VK4FPDG	79
VK5ZT	78
VK6OK	76
VK6DDX	75
VK4FABF	73
VK4FSCR	72
VK4FLR	70
VK7HK	68
VK2IO	68
VK5AV	67
VK4SR	65
VK3DY	65
VK6DF	65
ZL3IO	65
VK5MAK	64
VK5LSB	62
VK5JR	60
VK2HV	59
VK6AB	58
VK4GQ	57
VK6CG	56
VK1EY	54
VK2FNJW	51
VK5HR	50
VK6FJA	47
VK5UE	44
VK4FNQ	43
VK4BL	42
VK3ZPF	42
VK4PB	42
VK6POP	41

Callsign	Points
VK2QH	40
VK6MJC	38
VK3FABW	38
VK6OE	37
VK3NCC	36
VK6SN	36
VK4AMM	35
VK5ZKK	35
VK6ADF	35
VK5YX	34
VK7FM	34
VK4IE	31
VK6AFW	30
VK4FSD	28
VK2OX	27
VK4ZUK	27
VK1ZHC	24
VK6GG	24
VK3FEZZ	23
VK4KML	22
VK3DGN	20
VK6FLMJ	20
VK4JAM	19
VK6IW	17
VK2ODD	16
VK3SM	15
VK4CZ	14
VK5SE	11
VK1CM	10
VK3YJ	3

Single Op CW	
Callsign	Points
VK7RF	180
VK2EL	150
VK2BJT	136
VK4WM	118
VK3TX	62
VK7AD	10

Single Op Mixed	
Callsign	Points
VK6ZRW	891
VK5NE	736
VK6TWO	569
VK4SN	486
VK5ATU	435
ZL3AKM	366
VK3IO	354
VK4AMG	199
VK6KY	177
VK4NP	151
VK6RZ	149
VK7GN/VK4	142
VK2AR	137
VK3LRE	134
VK6ZMS	105
ZL3VZ	71
VK1SV	22

QRP Phone	
Callsign	Points
VK6FLAB	259
VK4BYX	194
VK4ATH	162
VK5UU	65
VK2HAZ	47
VK6OE	37
VK7KPC	27
VK6LO	22
VK3XY	20

QRP CW	
Callsign	Points
VK3QB	222
VK2ACL	88
VK3AGQ	86
VK5CYM	60

QRP Mixed	
Callsign	Points
VK2IG	176
VK5CZ	122
VK2PN/5	35

Multi-Single	
Callsign	Points
VK2GGC	1148
VK2ACW	752
VK2ATZ	600
VK2MA	429
VK2WG	412
VK5LZ	279
VK1MT	232
VK6AHR	184
VK2AFY	181
VK2BOR	149

Multi-Multi	
Callsign	Points
VK4XA	935
VK2AWX	862
VK4HH	636
VK2CL	618
VK7OTC	581
VK2AWA	523
VK4WIS	505
VK3CMZ	459
VK5MTM	314
VK2AMW	208
VK5GRC	187
VK5BAR	177

Check Logs	
Callsign	Points
VK4XY	
VK6KHZ	
VK3FMPB	
VK2KF	
VK6CN	

Over to you

A transmitter to match a DDC?

The Editor,

Now that digital down conversion (DDC) receivers are coming down in price and up in capability and Laptop Computers are also coming down in price and up in capability, we have available a first class receiver for the shack and the field.

What I would like to have is a design for a 100 W CW Transmitter operating off 12 VDC. Looking through the Web I find lots of old style simple transmitters using glowing Bottles and 700 VDC which is not attractive though tempting. CW is not dead and still serves to break through the mush in the sky. The DDC receivers are giving us the

capability to hear stations and what we need now are some transmitter designs to match these receivers.

Has anyone such designs? Even a one-band Tx would be a step forward.

Regards,

Ken Fuller VK4KF

Try something different with amateur radio

Miles Burke VK6MAB

In the two years I have been licensed, I have heard amateurs often refer to radio as a fantastic hobby. That's certainly true, however I believe it's also a misnomer; amateur radio really is an entire mélange of interesting hobbies.

I've been lucky to having met a wide variety of amateurs from all walks of life, which has proven to me that the amateur radio fraternity really is a great cross-section of society in general. As a fairly recent inductee to this fantastic pursuit, I've been keen to explore all aspects of amateur radio; from rag chews on two metres to working pileups on HF. What I've found is there are seemingly as many differing perspectives on what makes amateur radio interesting, as there are operators.

There are obviously the differences in phone, Morse code and digital modes. I recall reading up on novice theory and being put off by the CW component back in the early 1980s; needless to say I've yet to try my hand at that mode. I've spoken to a few hams in the last year that tell me that phone isn't 'real radio', and plenty more who have held their ticket for decades, yet haven't considered trying out one of the many digital modes.

Your preference in bands seems to be a large divider as well. I spoke to a long time operator who has recently moved into a lifestyle village environment, and who seemed aghast at my suggestion he could at least stay in the hobby by using UHF. He was content in no longer using radio than ever

considering frequencies outside of the HF bands.

Conversely, a few days later I chatted to another amateur who couldn't understand how anyone could put up with the noise floor on HF, and said the higher frequencies were far superior for their lack of static.

Then there's the social ragchew versus the quick 'swapping numbers' preferences. This seems to really divide lines, with some people I've spoken to saying they detest the succinct DX details swapping, and much prefer a good old chat, and I've had just as many on the opposing side; who couldn't think of anything worse than being 'stuck in a long-winded chat' with others, when there are still entities and prefixes to chase on the cluster.

The topic of QSL cards is a strong debate, with some who love checking their mailbox every day, and meticulously indexing their collections through to those amongst us who see little point in swapping bits of paper to confirm a QSO.

There's those who like to chase DXpeditions and special calls, often staying up all night or getting up at unreasonably early hours to hunt down that elusive entity whom they have been chasing for months. I'm certainly keen on obtaining the coveted DXCC certificate in the near future.

Who can ignore contesting? It's apparent there are many people out there who live for the excitement of the points tally, and switching on the radio during any major contest is testament to this. Finding a

frequency that's not yet taken can be quite the challenge during these times!

I've met a few operators who spend more time working on their homebrew equipment or antenna arrays than actually switching their rigs on; getting far more satisfaction by completing their transceiver or antenna construction projects, than actually communicating with anyone on the bands.

Satellite, EME and other such interests are also an interesting direction the hobby can take you. Tracking when that bird will be overhead, and putting out a few calls, or receiving telemetry can be quite a fun experience.

Foxhunting is a great combination of both radio interests and physical activity (or even challenges at times); this is certainly a great way to introduce youth to the hobby, as I've found running foxhunting activities for Scouts.

These are only just some of the aspects to amateur radio that I've been exposed to since I obtained my licence in 2010. There are so many fascinating hobbies within the umbrella of amateur radio that I believe I've only just scratched the surface.

I'm lucky that I'm relatively new to the hobby, so I'm still exploring what gets me excited and what doesn't. I truly hope that you, dear reader, even if you have decades of experience under your belt, may grasp that wonderment as well, and I urge you to try something different with amateur radio in the near future.



A linear amplifier for 80, 40 and 20 metres

*Jim Tregellas VK5JST
endsodds@internode.on.net*

With the ACMA trial period for one kilowatt power levels now agreed and commencing in March 2012, thanks to the WIA, I felt it was probably worth publishing broad details of a linear amplifier I have been working on, including some of the reasoning behind the design. Please note that this is not a construction article, but simply something to start minds working along the path to designing and building one's own linear. Parts for these beasts are not that readily available, and the junk box of each builder will probably have unique and expensive parts which can be used, and around which a particular design will evolve.

Warnings

Linear amplifiers with this level of output power are thoroughly dangerous animals, whether based around tubes or semiconductors. 1000 watts of RF (630 V p-p into 50 ohms) no matter how it is generated, will do a great job of killing you, and finding or creating weak points in your antenna system. Tube amplifiers add the perils of high DC voltages to the list of dangers, and there is no such thing as a small mistake with these amplifiers. They are LETHAL, and you should not attempt construction of an amplifier (or even open a commercial unit) unless you are thoroughly competent to do so. Transmission lines to antennas and antenna tuning units etc. should be regarded with similar caution. Finally, also remember that the intense fields these powers produce around antennas should be regarded with considerable conservatism and suspicion.

General concepts

I have built a number of linear amplifiers in the past, and generally these are not simple structures. The

complexity normally starts in the power supply, and this is particularly so if the active device in the linear is a power tetrode or pentode. For tubes such as the 4CX1000 and 4CX1500, a highly regulated screen supply is necessary in order to create an amplifier with good intermodulation performance. This screen supply must hold the screen voltage constant within a few tens of millivolts whether the screen grid is sinking current, or later in the tube life, sourcing current. Such a supply is complex and expensive, and produces plenty of waste heat.

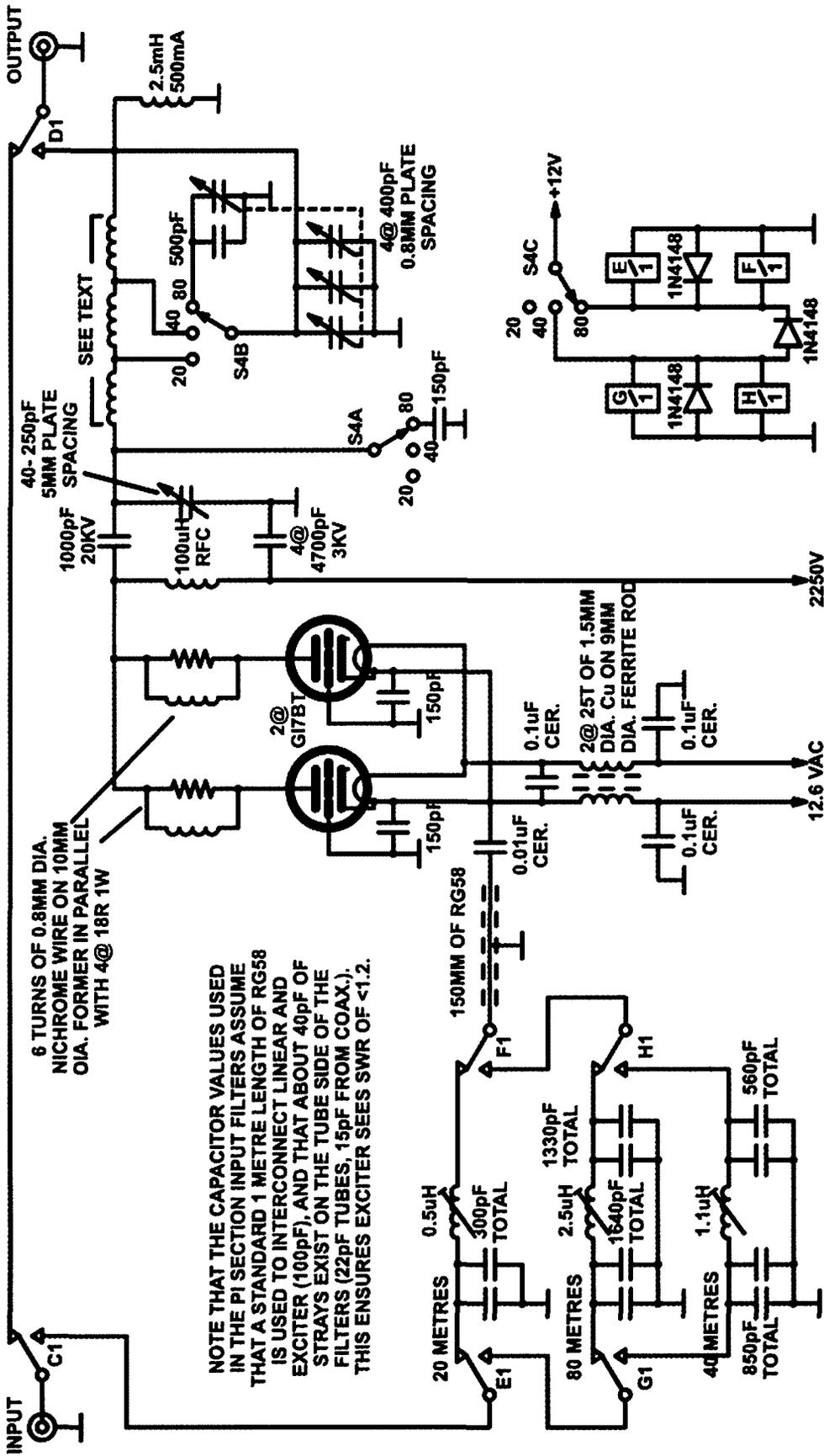
In these amplifiers, protection circuitry must be provided in case the plate supply fails, leaving the screen to absorb large amounts of current. Without protection, the screen grid will rapidly melt through over dissipation, destroying a very expensive tube in seconds.

Use of a triode overcomes these problems, massively simplifying both the power supply and control circuits. The price of course is a dramatic drop in the tube power gain, leading to an increase in the drive power required from the exciter. These days this is not much of a problem, as the common transceiver typically provides 100 watts of RF output. To produce 1 kW thus requires the builder to find a triode with a power gain of just 10 dB and this is not difficult.

The question of overall cost raises its head too, and one of the major items is the main power transformer. I ended up winding my own to keep costs down but this is way beyond the scope of this article. If one is aiming for an amplifier with an output power of 1000 watts, then with the tube running in class AB for reasonable linearity, the overall efficiency will probably be around, say, 55%

meaning that the power supply will draw about 1.8 kilowatts. However, this is only true for FM or the unrealistic situation of continuous single tone testing at full power. If the linear is going to be used for SSB speech, then even with considerable amounts of speech compression, the average total power draw is unlikely to exceed 500 watts. This simple fact allows massive amounts of weight and cost to be saved. In the amplifier design following, the power supply is rated at 1050 watts continuous which at around 50% duty cycle allows continuous single tone and FM operation for quite long overs. This makes it a very heavy duty design, and many commercial 1000 watt units on the amateur market have supplies rated at only 500 to 600 watts continuous.

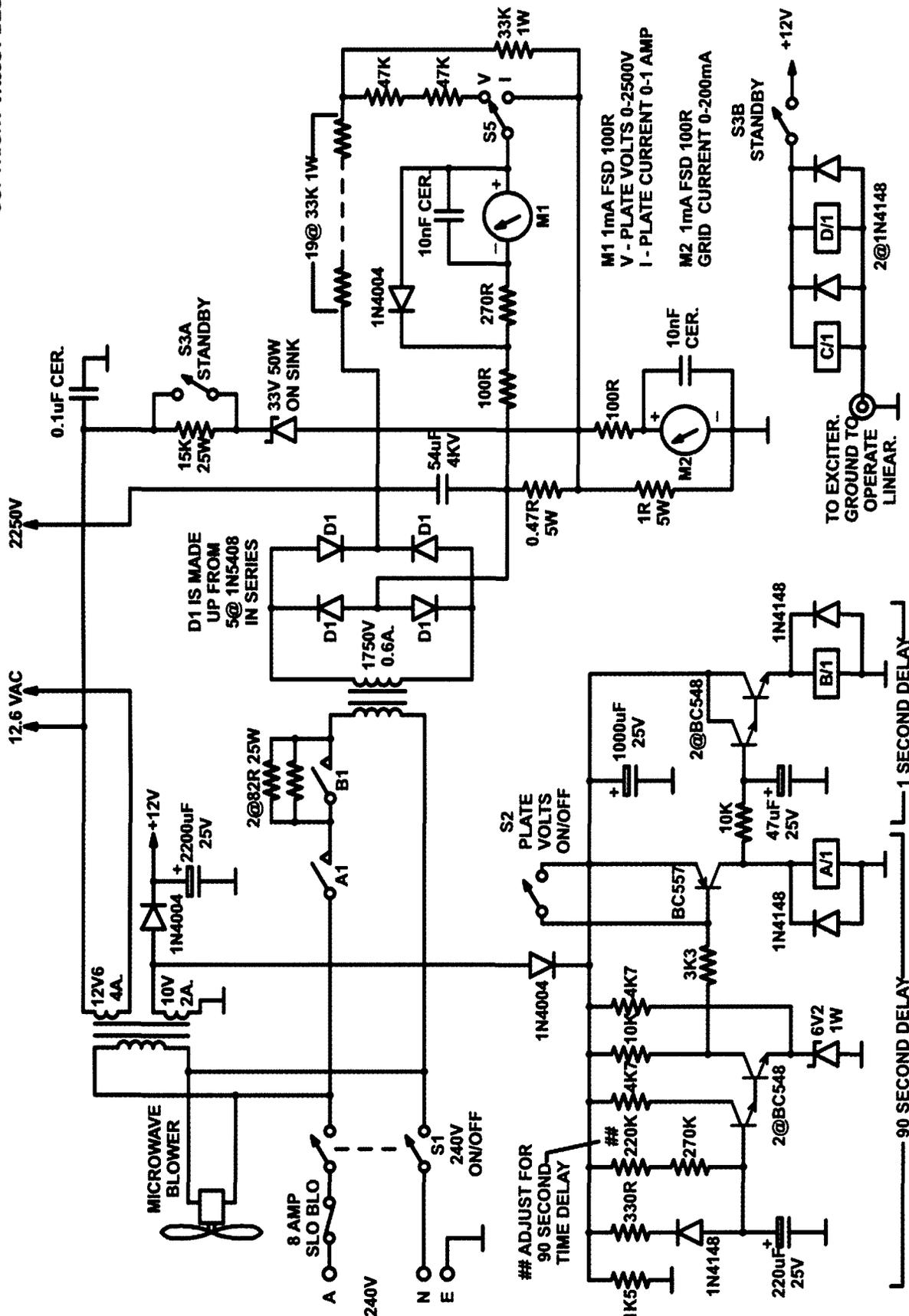
A comment on how a high power linear should be used is probably in order here too. First, it is rarely necessary to use a linear at all, as 100 watts and a good aerial system generally deliver the goods. The only normal exceptions to this rule typically occur when one is trying to control a national or international net, or when trying to make oneself heard on an ultra-noisy band or during a large dog pile in a competition. Next, it is wise to run large amplifiers conservatively so that distortion and intermodulation products are minimised. A one kilowatt unit run at a 400 watt level is very neighbour friendly, and the difference in received signal strength between 400 watts and one kilowatt as shown on an S meter is minimal. The writer regards those who use linears simply to demonstrate that 'mine is bigger than yours' as complete idiots, unworthy of an amateur licence.



20/40/80 METRE LINEAR AMPLIFIER PART 1- RF SECTION

WHERE NOT OTHERWISE SPECIFIED, ALL CAPACITORS ARE 600 VOLT SILVER MICAS.

Figure 1: The RF section circuit.



20/40/80 METRE LINEAR AMPLIFIER PART 2- POWER SUPPLY AND CONTROL CIRCUITS

Figure 2: The power supply and control circuits.

The Published Design

After a lot of back and forth, I finally settled on the GI7BT triode as the basis of the design. These are a microwave triode offering around 14 dB of gain and are available very cheaply on the 'net. A brand new set of four can probably be obtained for around \$100, providing two tubes for the amplifier and two spares. Sockets for these tubes can be very simply fabricated from scraps of fibreglass PCB and fingerstock, see Photo 1, or alternatively the real thing can be obtained on eBay.

A couple of these tubes carefully used will give at least 850 watts on HF. Unlike American military practice which generally uses specialist parts to do a particular job, Russian military authorities of this era were very conscious of the need to use general purpose parts, which in turn greatly simplified field service of military gear. The GI7BT is an excellent example of this philosophy with its primary application in tank borne radar. The T in the type number indicates the super rugged version of this tube developed for this brutal application. A less rugged but still very tough version is sold under the type number GI7B on the 'net. In its radar use as a pulse tube, 12 kV is applied to the anode.

When used in linear applications, the manufacturers recommend anode voltages of not more than 2400 volts DC. Unlike most common RF power triodes, there is thus a tremendous safety margin built in against internal tube flashovers. The fifty watt series resistor normally included in the anode voltage supply line to limit current during flashovers can probably be quite safely omitted, which is another simplification and cost saving. Nonetheless, a sacrificial resistor of 0.47 ohm five watt rating has been included in the negative high voltage return line to provide some protection in this most unlikely event.

Yet another simplification has been the omission of ALC circuitry,

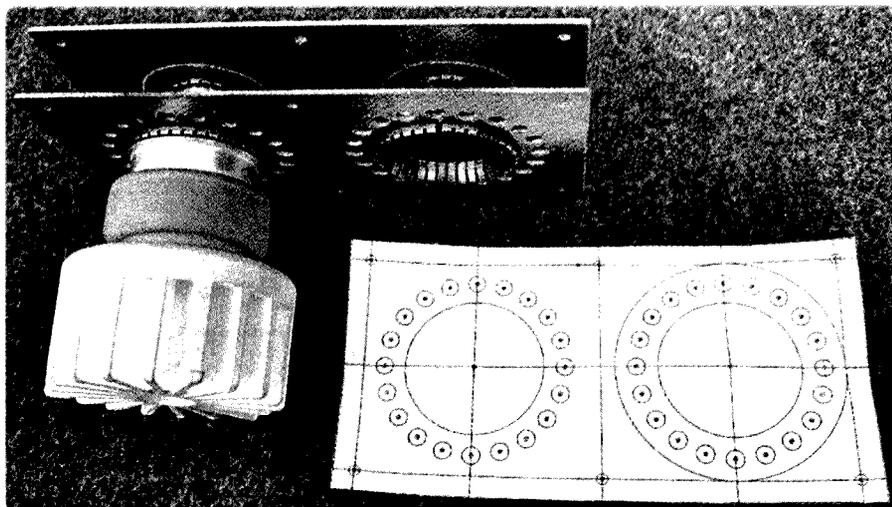


Photo 1: The socket.

A much better solution is to operate the amplifier and exciter intelligently in conjunction with a modulation monitor so that any overdrive is immediately visible and can be avoided. ALC does not necessarily prevent improper operation or the excessive production of spurious outputs.

Running through the power supply system first, at switch on power is supplied instantly to the blower and tube filaments. Without air, the tubes will rapidly overheat, but no protection system has been provided because the design is based on the KISS principle. Put simply, the operator has a pair of ears and a brain, and all common microwave blowers use shaded pole AC motors

which are incredibly reliable. It is very easy to bury a linear design in an overly complex microprocessor based control system, which will probably do something stupid in the middle of the QSO which is getting you your 200th country.

Immediately power is applied, a 90 second delay starts which prevents high voltage being applied to the tubes before they have reached proper operating temperature. This prevents cathode material being ripped from the cold tube cathodes, completely ruining them. In the control circuitry, a 220 μ F capacitor charges towards the 12 volt rail via a series combination of 220 and 270 k resistors, and when the voltage across this capacitor

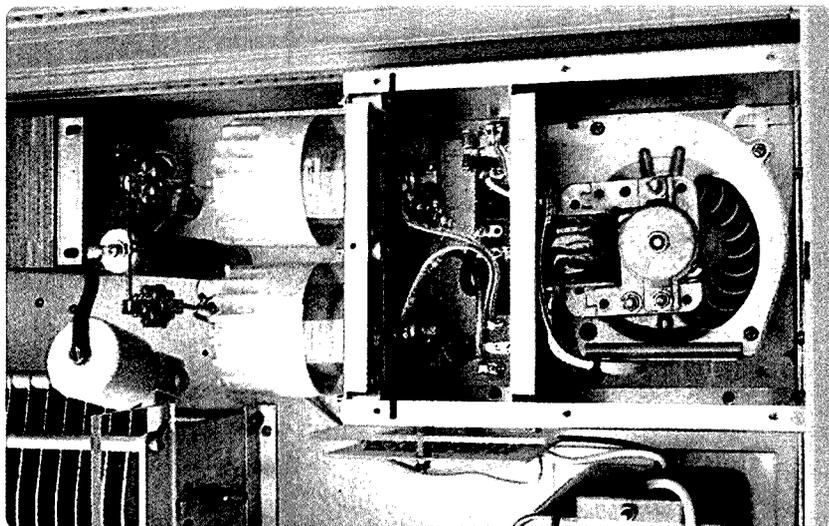


Photo 2: The GI7BT tubes in position.

reaches about 7.3 volts (after 90 seconds), the collector voltage of the second BC548 in the Darlington pair moves down from 12 volts turning on the BC557 and operating relay A. Relay contact A1 closes, applying 240 volts to the primary of the high voltage transformer via two 82 ohm resistors. This limits the surge current that can flow in the transformer secondary while the main 54 μF filter capacitor is charging up, giving a 'soft start'. When relay A operates, the full 12 volts appears across its winding and this voltage is then applied to the base of the second Darlington pair via another time delay circuit. It takes about six to seven volts to cause a typical 12 volt relay to work, and so the base of the second Darlington pair of BC548s must reach about seven to eight volts before relay B will operate. This takes around one second due to the 10 k resistor and 47 μF capacitor, at which point relay B operates closing the contact B1 and applying the full 240 volts directly to the primary of the high voltage transformer. Note that the high voltage can be switched on and off with S2, any time after the filaments have reached operating temperature, and that a 'soft start' will always occur. If S2 is left closed during start up, the filaments will warm up but no anode voltage will be generated until the operator chooses.

The rest of the power supply circuitry is quite simple. A 33 volt 50 watt zener diode sets the grid cathode bias of the tubes, ensuring that the cathode potential is 33 volts below ground and setting the no signal standing current through the tubes to about 40-50 ma. With the STANDBY switch open and the 15 k resistor which it normally shorts now in circuit, additional negative bias is then developed totally cutting the tubes off (about 1 mA of standing current). All metering is done at potentials very close to ground, meaning that you can fall against the front of the linear and break a meter face without the risk of electrocution. The voltage used to indicate anode current is derived across the 0.47

ohm five watt resistor in the negative supply line from the bridge through the zener diode to the tube cathodes. As pointed out previously, this resistor is sacrificial in the event of a tube flashover, as is the 100 ohm resistor in series with the meter, if the meter happens to be switched to monitor anode current. The voltage indicating anode voltage is derived across the bottom 33 k resistor in a chain of 20 such resistors. It is vital that this many resistors appear in such a chain. If manufacturer's specifications are consulted, the maximum DC voltage which should appear across a typical one watt resistor is limited to 250 volts. This produces intense electric fields along the length of the resistor which with time will actually cause the resistive material in the element to shift towards one end of the resistor, causing it to go open circuit. Another very substantial danger is the possibility of flashovers occurring between adjacent turns in the spiralling in the resistor element if too much voltage is applied. Once this occurs, extra stresses are applied to all the other resistors in the series chain, which in turn can lead to catastrophic breakdown of all resistors. For these reasons in this design the voltage across each 33 k is limited to around 120 volts DC. Finally, the grid current flowing during normal class AB2 operation (150 mA maximum) is monitored using the voltage developed across the one ohm five watt resistor in parallel with M2.

Turning now to the RF section of the amplifier, the first section worthy of comment is the pi input filters. Because the tubes are operating in class AB, for about half of each cycle they will be off, causing a cathode input impedance of infinity during this time. For the other half of the cycle the tubes will be on, conducting varying amounts of anode current as the half cycle progresses, and causing the input impedance at the cathode to vary wildly. Some energy storage system is consequently necessary to even out these hugely varying demands for energy from the exciter.

Modern semiconductor rigs will not tolerate this form of abuse which shows up as high SWR, and will simply shut down to protect themselves.

The perfect energy storage system is of course a tuned circuit which can store up energy when the tubes are off and deliver it back when the tubes demand current (the flywheel effect). The pi section low pass filters fill this role and are designed to have an operating Q of between 1.5 and 2.5. This low Q provides a nice flat input response across each band while at the same time providing just enough flywheel effect to nicely smooth out the variable energy demands of the tubes and present the exciter with an SWR of less than 1.2. Trying to calculate the average input resistance over the cycle from the limited tube characteristics available proved very difficult indeed, but the calculations did get me into the ballpark. After some empirical optimization, the average input resistance at full power over the cycle turns out to be 110 ohms.

Note that the capacitors used in the filters are all silver micas. While the temperature characteristics of these capacitors are very good, these are not terrific components to use when high RF voltages and currents are around. I have had some very bad experiences with silver, which like the resistive film previously mentioned in the paragraph on one watt resistors, tends to wander about in the presence of high level currents and fields. For this reason, each capacitor used in the filters is fabricated from two silver micas of about equal value in parallel so that RF current flow in each capacitor is minimised. Finally the coils for the filters were made up from a few turns of 1.6 mm copper wire wound around those wonderful little ferrite rods which master scroungers can obtain from inside the steel filament enclosure of dead microwave magnetrons. These little bits of low loss ferrite (five mm diameter, 20 mm long) can be slid into each coil until a very low SWR is reached across each band and then locked into position with a dab of paint.

The position of the filters turns out to be vitally important too. Big pulses of anode current flow through the capacitors on the output side of the filter in use. If the filters are physically located far away from the cathodes which they drive, then the series inductance introduced in the connection between filter and cathodes can badly reduce the drive available at higher frequencies, dropping the power output. This is the reason that the output capacitors of the 20 metre filter are located right at the tube cathodes. This underhand dodge allows the filter PCB to be located outside the tube enclosure and be connected to the cathodes using a short length of coaxial cable without loss of output.

The last part of the circuit is the tank section. The switching here could have been dramatically simplified if I had been able to source a 400 pF variable capacitor with two mm or more plate spacing. But I had the 250 pF unit, so it got used. The tank coil is the first thing to comment on. After some careful calculations using the tube plate characteristics downloaded from the 'net, I settled on a plate load resistance of 1950 ohms, which turned out (amazingly) to be spot on. Normal design practice is to design the tank system for an operating Q of about 12, but this has no bearing

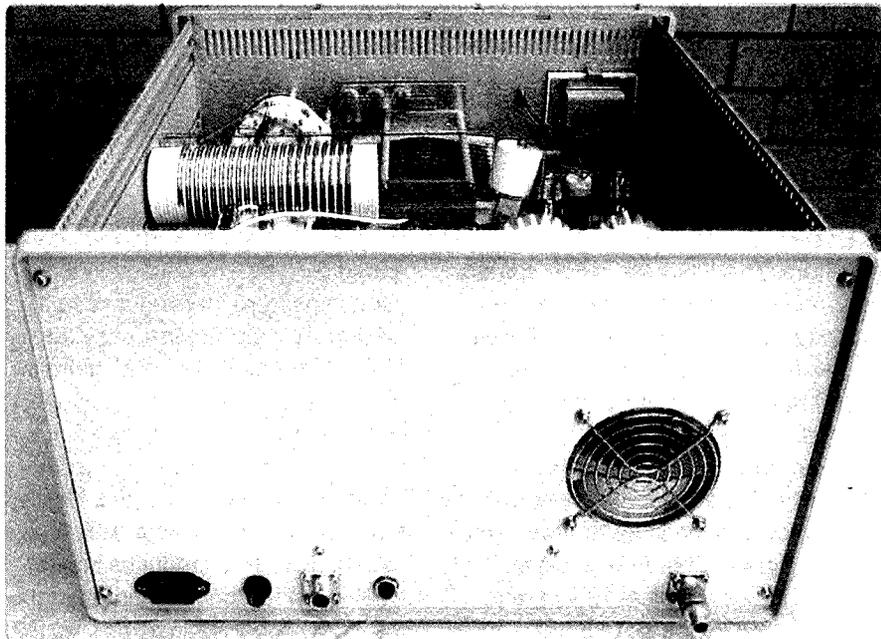


Photo 4: The back panel of the amplifier.

on the unloaded Q required for each tank coil. In fact there is no such thing as an unloaded Q which is too high for these coils. The lower the loss the better, and the acid test is that at full power, the coils do not get hot. Having previously fabricated coils from six mm diameter copper tube, there had to be a better way. At 80 metres and these power levels, efficient coils can be made from bare copper wire 1.8 mm diameter (available as single core 2.5 mm square millimetre mains earth wire at your local Bunnings), and as

the frequency moves up, heavier copper conductors will be needed to minimise skin effect losses.

As I have a lathe, the solution to this was to cut a double start thread of 4 TPI (my lathe is Imperial) with a semicircular thread cross section on a piece of 60 mm diameter plastic sewer pipe so that both strands of copper would lie side by side and just touch. This approach allows parts of the coil to be made up from a single conductor, two conductors, or three conductors by stacking to form a triangular shape. It works very nicely, and is very much easier to wind and solder than a piece of 6 mm diameter tube AND the material is readily available in the length you want. The entire tank coil comprises 19 turns. I settled finally for 14 turns of two wire conductor and five turns of three wire conductor. The entire coil of 19 turns is used for 80 metres, with taps at five turns for 20 metres (the three wire section), and 11 turns for 40 metres. In fact it would have been better to just make the entire coil up as a three wire animal.

Setting up the tank system was a snap when an antenna analyser was used. First, all power was turned off and the analyser was connected to the amplifier output. With the tubes in their sockets so all stray



Photo 3: The front panel of the amplifier, showing metering and switching controls.

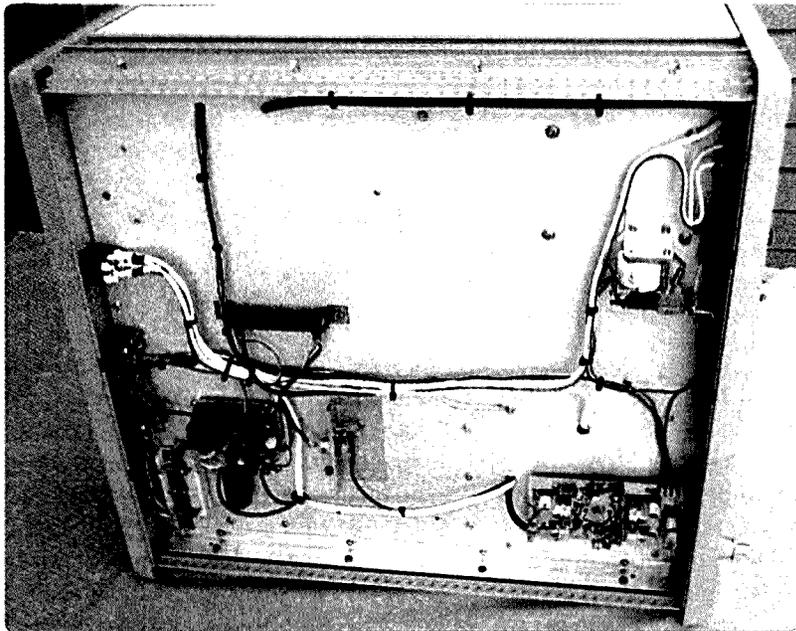


Photo 5: The internals of the amplifier viewed from 'underneath' the amplifier.

capacitances were present and correct, a physical resistance of 1950 ohms (with short leads) was connected between the plates and ground. It was then just a matter of adjusting plate tuning and loading capacitors and the coil tap at the centre and ends of each band until a pure 50 ohm resistance was seen on the analyser. Of course, calculations had to be done so that approximately the right amount of capacitance and inductance was there initially, but the whole process for optimising the tank circuits for three bands

took just 20 minutes and very closely confirmed the calculations.

The last item is the RF plate choke. K.R. Sturley's old but magnificent book 'Handbook of Radio Receiver Design' Book 1 has a section in it which allows the resonant frequencies of single layer RF chokes to be accurately estimated and this was used to select 100 μH as the value. The choke was wound using 153 turns of 0.5 mm diameter copper wire on a Delrin rod former 20 mm diameter with the winding ending up 86 mm long.

That's it. Proceed very carefully if you are going to build something at home. You have been warned. It is your life and your responsibility and there are simply no excuses. Use the very best safe working practices so you are alive and can brag to your mates about what you did ...

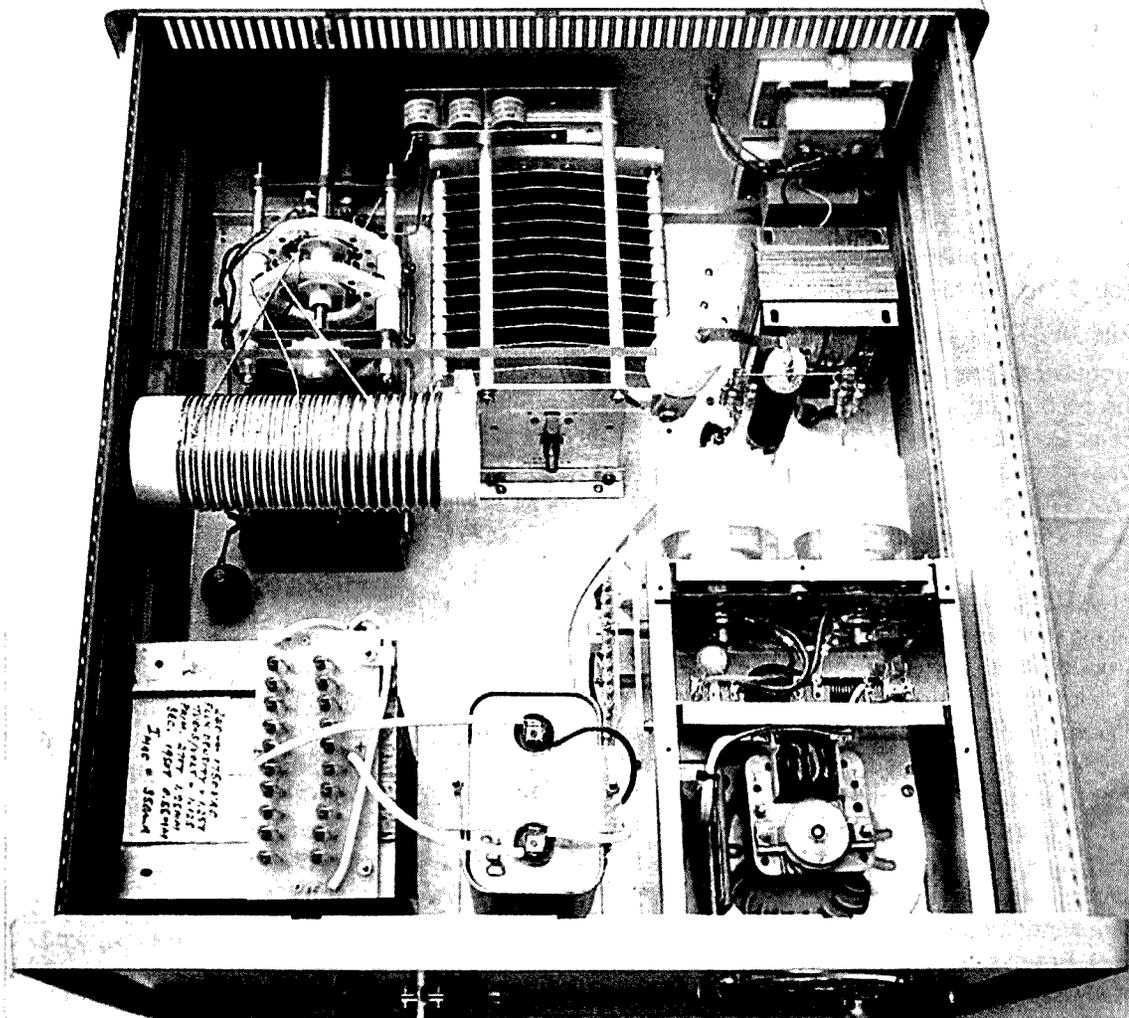


Photo 6: Last, but certainly not least, a view of the inside of the amplifier, highlighting the neat, very functional but nonetheless minimalist approach of the design.

AMSAT

David Giles VK5DG
e vk5dg@amsat.org



The 2012 AMSAT-UK colloquium

The 2012 AMSAT-UK colloquium was held from the 14th to 16th of September. Here I present details of some of the presentations given.

The British Amateur Television Club provided live streaming of the event over the Internet. Fifteen of the presentations are available for download from their website [1]. To view these click on 'Film Archive', select 'AMSAT: 2012' in the category box and click on 'Select category'. Select one of the presentations in the 'Stream' box and click on 'Select stream'. Then you have a choice of watching the presentation on the flash box provided or downloading it. The file sizes vary from 72 to 190 MB.

AMSAT-DL news

Probably the biggest news item of the colloquium was presented by Peter Guelzow DB2OS. The news was not good in that the German Space Agency DLR had finally rejected the P5A/Mascot-2 mission. P5A was to be AMSAT-DL's first interplanetary mission. The original destination was Mars but a later proposal was for a lunar mission – as it turns out there isn't much difference in cost, just travel time. The later addition Mascot-2 was a robotic lander that would have been put on Mars' moon Deimos. In his 45 minute presentation Peter goes through the roller coaster ride of negotiations between AMSAT and DLR. But this will not mean the end of AMSAT-DL or the P3E mission. P3E is mostly built and AMSAT-DL are still in negotiations for a launch.

Currently they are in talks with the Chinese Space Agency. AMSAT-DL is still daily using their 20 metre dish at Bochum to get telemetry from NASA's twin solar observatories STEREO. Another project they are currently investigating is an amateur payload for a geosynchronous satellite. Their current design has a 2.4 GHz uplink with downlinks on 10.5 GHz and 24 GHz as well as a beacon on 76 GHz. Antenna space on the satellite has become the biggest problem so far. I would have thought getting enough transmitter power on 76 GHz to be heard 36000 km away would have been a challenge. If it happened then the transponders would only be useful over Europe, maybe only over Germany.

AMSAT-SA news

Hans van de Groenendaal ZS6AKV gave a presentation focussing on a new 1U cubesat called KLETskous (Afrikaans word for 'Chatterbox'). The aim of KLETskous is to provide a LEO satellite that would be more accessible to amateurs in southern Africa. One problem with Sumbandilasat SO-67 was that whenever it was over southern Africa the main payloads were in full use and the amateur payload was rarely turned on. Amateurs in other parts of the world had far more access. KLETskous is at the early stages of design but will probably have a mode U/V linear transponder (though FM is also likely) with a 20 kHz bandwidth. A proposed scientific experiment uses a high power LED on the satellite but this is still only at the design stage. He

also described how one amateur has provided a prototype aluminium spacecraft frame for KLETskous he built in his garage workshop. Another option for KLETskous is that the transponder may become a payload for a government satellite.

UKube-1 news

UKube-1 is a demonstration satellite being produced for the UK Space Agency. It is a 3U cubesat incorporating four scientific payloads, three deployable solar arrays, two transponders and a high speed 2.4 GHz transmitter. One of the transponders has been supplied by AMSAT-UK and is a copy of the one that will be used on FUNcube (it will be known as FUNcube-2). Steve Greenland of Clyde Space (the main constructor) gave a presentation of UKube-1's progress and to announce that it will be launched in March 2013 on a Soyuz 2. The four main payloads are TOPCAT (using GPS to measure plasma-spheric space weather), JANUS (random number generator for encryption using space radiation), C3D (CMOS radiation damage monitor) and MPQ442 (myPocketQube pico satellite) [2].

AMSAT-UK news

Graham Shirville G3VZV gave a very quick rundown on other projects in which AMSAT-UK is participating. There has been the proposal of an amateur television package put on the ISS for some time. Graham outlined how AMSAT-Italia are now helping to develop a digital television transmitter on 2.4 GHz with an output around 10 watts that will use the antennas on

the Columbus module. It may also have a 2.4 GHz beacon and a FM repeater. Other projects include another cubesat for an ESA launch, getting more allocation on two metres for the UK, and involvement with other university projects in Europe.

FUNcube-1 update

Members of the FUNcube team gave an update on FUNcube – AMSAT-UK's 1U cubesat. Graham Shirville G3ZVZ started with the progress of the satellite. It is nearly flight ready as it was expected to be launched in September 2012. Now it is expected to be launched early in 2013. Jim Heck G3WGM then gave a talk on the DNEPR rocket. The DNEPR is a converted intercontinental ballistic missile that is launched from an underground silo. It is ejected from the silo by an explosion of steam and only fires its motors when clear of the silo.

Graham came back on with a live demonstration of the engineering stack (bare circuit boards fed from a power supply and transmitting into a dummy load) and the 'dashboard' ground station software. This was to show what to expect in your shack when FUNcube-1 is in orbit. FUNcube has two modes-telemetry and transponder. The telemetry mode will be mainly used during daylight hours when FUNcube-1 will be available for education institutions and transmitting telemetry at 300 mW on two metres. At night (or on weekends, or when requested) the U/V linear transponder will be turned on for amateurs. Telemetry will still be transmitted but at a much lower level (probably 50 mW). The demonstrated dashboard software (currently written for Windows but will be made open source) showed the current telemetry values

received, and a spectrum display for tuning. Clicking on a telemetry value will bring up a trend display so you can see how the satellite is behaving throughout the pass.

Other presentations

These range from activities at SSTL and AMSAT-NA, satellite missions such as STRaND-1 and STRaND-2, a new FUNcube dongle receiver, and applications for Android phones and tablets.

Final Pass

Another successful colloquium showing current and future missions as well as the things that go on behind the scenes to get satellites built and into space.

References

- [1] www.batc.tv
- [2] <http://www.uk.amsat.org/10497>



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU
email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz
VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 m. Repeater 146.775 MHz IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

VK3 news Amateur Radio Victoria

Jim Linton VK3PC

e arv@amateurradio.com.au

w www.amateurradio.com.au



Michael J Owen VK3KI – SK. Michael was at the microphone making the first of many calls from the special callsign VK100WIA.

Vale Michael J Owen VK3KI – SK

Michael died suddenly on 22 September, aged 75. He has left behind a worldwide legacy to amateur radio.

A life-long contribution included founding an amateur radio club at the University of Melbourne where he studied law, the early space exploration days at RMIT (that carried through the years by leaving us out of the need for costly satellite frequency coordination), a WIA Victorian Division Secretary and Federal Councillor, WIA President, and vast IARU work.

He authored the WIA Federal company constitution in 1972 that assumed responsibility from Victoria for *AR* magazine and the membership database, among other things.

On his return from overseas, he constitutionally changed the WIA from its federal structure to one of a national body in 2004 and at the same time presided over the changes to our licensing and assessment system.

He will be sorely missed. His enormous experience and adept skills are irreplaceable. We have lost someone who made a truly remarkable difference to amateur radio here and overseas.

The Council of Amateur Radio Victoria expresses its condolences to his family and friends.

Education record shows success

With 40 assessments in the past 12 months, we continue to show some leadership in the activity of education with the final Foundation

licence weekend for 2012 to be held this month.

Although down on earlier years, we have held a regular series of weekend courses on the Foundation licence which includes quality instruction on the Saturday, followed by a written 25 question paper and a practical test on Sunday. Through those classes we have had 20 candidates found competent at both the written and practical elements, and helped them to get their own Foundation licence.

We also held a Bridging Course to

take those with the beginner's licence qualification up to the Standard licence. Through that course we had eight individuals advance to the Standard level, four to Advanced and eight Regulations assessments completed.

Thanks go to the instructors Kevin Luxford VK3DAP/ZL2DAP and Peter Cossins VK3BFG, the regular WIA Assessors Barry Robinson VK3PV, Terry Murphy VK3UP and Jim Linton VK3PC, with help from Ross Pittard VK3CE and John Fisher VK3DQ.

Enrolments are closing soon on this final Foundation licence weekend for 2012, which will be held at the centrally located **Amateur Radio Victoria office at 40G Victory Blvd, Ashburton on November 17 and 18.**

To enrol or obtain the Foundation licence study and

operational practice guide book contact the Education Team Leader Barry Robinson VK3PV on 0428 516 001 or foundation@amateurradio.com.au

Special KRMNPA weekend

The regular gang plus, hopefully, some new portable operators are ready to venture out into the Victorian National Parks for what promises to be an excellent opportunity this month to activate some of those areas.

The special VK3 National Parks Weekend is November 16 through to 18. The Keith Roget Memorial National Parks Award Manager Tony Hambling VK3VTH has created a master list of activations and welcomes more entries. The master list so far has the National Parks at Heathcote-Graytown, Barmah, Gunbower, Terrick Terrick, Kinglake and St Arnaud.

If you intend to be in a National Park at the time then get listed on the Amateur Radio Victoria website www.amateurradio.com.

au which contains the rules and endorsements.

Speaker meeting upcoming

Council has introduced quarterly meetings giving the members the opportunity to ask questions of the Council representatives present, learn more about some of the activities being undertaken and listen to expert speakers on various topics.

At the next meeting at 8 pm on Tuesday November 13, the topic is 'Demystify SWR' by presenter and educator Peter Cossins VK3BFG and is sure to be very interesting.

Centre Victoria RadioFest

The Centre Victoria RadioFest will be at the Kyneton Racecourse on Sunday February 10, 2013. Can you be involved with the many set-up tasks from early on the Saturday? Then contact Ross Pittard VK3CE on 0408 533 107, who is handling all inquiries.

The Club Corner Liaison is Tony Hambling vk3vth@amateurradio.

com.au and details of the program will progressively appear at <http://radiofest.amateurradio.com.au>

History detail being sought

The grandson of Herbert William Maddick 3EF of Elwood, also known as 'Cockatoo Maddick' is being researched. Some members may remember him and his radio exploits.

Andy Maddick has found a reference to the relative, who died before he was born, in a July 1923 edition of The Australian Wireless Review. Working from a poor photocopy of the article he has started to piece together a bit of the history. Missing from the copy is a picture taken on the 'Bulla' in the winter of 1916, at Cardiff in Wales, Great Britain.

If you can help Andy with any information he can be contacted by email at oxyandy@gmail.com

The ARV website is at www.amateurradio.com.au and the email address is arv@amateurradio.com.au



VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

The September meeting of AHARS was addressed by David VK5DGR. He has been involved for a number of years in developing a system of voice communication for amateurs that is based on a type of VOI protocol. To this time, all VOI systems are expensive to buy. As David pointed out most of the protocol is open source but the small part that is proprietary is where the cost is involved. David and the team with which he works is close to developing an open source that will be available to amateurs at no cost.

For his work to this date, David was presented with an ARRL Innovation Award recently which

suggests that his approach to the VOI is new. The team's approach is compressing the frequency range of the voice so that it can be transmitted at just 300 bits per second without loss of intelligence. They are trying a number of different methods to achieve this, all of which David demonstrated for us. It was interesting to hear the differences and to realise how little of the original sound needs to be transmitted.

A special modem, of the FDMDV type, has been developed. Once the system is up and running, it will be able to be used with SDR and will effectively give us voice in an FSK type transmission.

They are already testing an HF digital voice system and are working on the VHF version. A very interesting, and thought provoking talk. Amateur radio still has areas open for experimentation.

During the JOTA weekend AHARS operated a station at our Shack at which some of the Girl Guides were involved.

For the last Saturday (as this month has five Saturdays in it), there will be a breakfast and auction at the Shack. The contents of the auction will include items from several recent shack clearances and SKs.



ALARA

Margaret Blight VK3FMAB – Publicity Officer



Photo 1: The Deans Marsh PPP location – with antennas at the ready.

Over the past few months I have been going through the process of preparing my house for sale, purchasing a new property and finally preparing to move in. During the early preparation stage, my helpful handyman decided to remove the wires and poles at the rear of my house; unfortunately this resulted in taking me off the air as they had not realized it was my radio aerial. So I am looking forward to being able to operate again when I move into my new home. I have had offers of assistance from radio club members to help me set up at the new address: offers which I will gratefully accept.

At present, I can visit a friend and speak on the ALARA Net on her radio and I can still participate in the monthly ALARA committee meeting which is now on EchoLink. I know this is regarded by many as not really radio, but for the purpose of the meeting, it is wonderful to be able to have a clear conversation with members from Queensland, New South Wales, and other distant States, when previously it could be impossible to hear what someone was saying and there would need to

be a relay of the conversation from an operator who might catch some details and would try to pass the information on to others.

Propagation Party

On Friday morning 31st August, nineteen radio enthusiasts, including myself, set off for a weekend at King Parrot Cottages in the beautiful Otway Ranges. The event was known as the Pennyroyal

Propagation Party. Planning had been underway for a number of weeks beforehand, the location had been thoroughly investigated and declared most suitable, supplies of food and drink had been purchased and we were all looking forward to an enjoyable and productive experience.

We occupied two of the dwellings on the 27 acre site, The Lodge and Manna Gum Cottage. The Main lodge was the centre of activities. Shortly after arrival aerials and radios were unpacked and assembling commenced. Everyone joined in to establish the stations. Within a short period of time all was ready to go on the air.

While aerials were being set up and tested, the food supply was being unloaded and packed into refrigerators. It looked like we had enough to feed an army, so no-one was concerned about there not being enough to eat. Nourished by a hearty soup for lunch, everyone stepped in to get the operation underway.



Photo 2: Jean VK3VIP and Jenny VK5FJAY at the operating position.



Pennyroyal Propagation Party 2012

Photo 3: The Pennyroyal Propagation Party participants.

The station operated on most HF frequencies from 160 through 10 metres and on both six and two metres, and 70 cm with contact to the Melbourne area via the Geelong two metre repeater. All operators participated including Jean VK3VIP and Jenny VK5FJAY.

Luke VK3HJ was our main CW operator. It was hoped that a link could be made to the VK3RTV repeater from a nearby high point but unfortunately this failed to eventuate. The weather was all we could hope for. Cool at night so we could appreciate keeping warm with fires and heaters, but during the day the sun managed to shine and the sky remained clear. Those who did not have accommodation in The Lodge were located at nearby Manna Gum Cottage. From The Lodge the view was overlooking a large valley. There were many sightings of kangaroos and a wide variety of bird life. There were

also domestic animals to observe, including alpacas and horses and our very own companion animals, Taro and Carlos, two canines who accompanied their respective owners and became very much a part of the scene.

Radio reception was excellent. The DX was plentiful and at times there were even dog piles into Europe on 17 metres. I was fortunate to speak with a couple of Japanese operators who were participating in a Pacific contest. I was interested to note that instead of using H-Hotel as we do, they say H-Honolulu so we had a little confusion over that.

Monday morning came too soon and we reluctantly ended our stay and began the journey home satisfied that we had enjoyed the weekend thoroughly.

VK3 News

ALARA President Jean VK3VIP manned the ALARA table at the

Shepparton hamfest in September. Jean said there was a lot of interest and she managed to sell a few items as well as speaking with people. She also met up with Monica VK3FMON and Heidi VK3FHID from the Midland Radio Club. There also was interest shown by prospective ALARA members who were studying for their Foundation licence.

VK3 ALARA luncheon

On Saturday 29th September there was a gathering of ALARA members and OMs for a congenial lunch which was held in a restaurant in Pinewood. It was good to meet up with people again, some of whom had returned from trips abroad, and a number of stories were told so we could all catch up on the news.





VK3news

Tony Collis VK3JGC

Geelong Amateur Radio Club - The GARC



Photo 1: Lee VK3PK introducing the ILLW.



Photo 3: The campsite as set up over the weekend near the Point Lonsdale Lighthouse.

Point Lonsdale ILLW

Prior to the address the Point Lonsdale lighthouse gave a long burst on its 'fog horn'. Lee VK3PK then gave an address to the attendees on behalf of the Geelong Amateur Radio Club (GARC).

The GARC were again pleased to have the cooperation of the Borough of Queenscliffe and Ports and Harbours which has considerable maritime infrastructure in the Port Phillip Bay region.

During the weekend, the GARC logged over 200 contacts, mainly on the 80, 40 and 20 metre bands working 30 lighthouse stations throughout Australia and New Zealand, including one ship at sea whose radio operator also operates an amateur radio station. In addition the GARC also worked on two metres, D-STAR and IRLP. Further details of this and previous years operations of the Lighthouse weekend can be found at <http://illw.net>

Those in attendance were Lee VK3PK, Vanessa VK3FUNY, Gary VK3FWGR, Nik VK3BA, Dallas VK2DJ, Ken VK3NW, Lou VK3ALB, Jenny VK3FJEN, Michael VK3FMIC, Jarrod VK3FJDD, Craig VK3VCB, Kevin VK3FKEV, Russell VK3KRS and VK3BFR.

Those interested in amateur radio are welcome to visit the Geelong Amateur Radio Club. Further information may be found at <http://www.vk3atl.org>

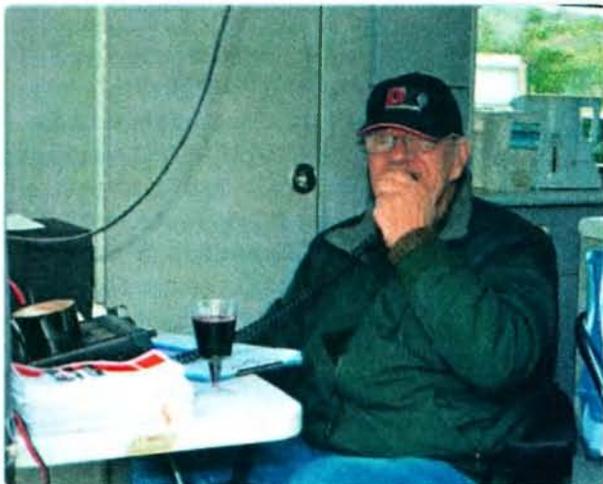


Photo 2: Ken VK3NW operating the station at Point Lonsdale.



DX-News & Views

Luke Steele VK3HJ & Chris Chapman VK3QB
 vk3hj@wia.org.au & vk3qb@wia.org.au



September and October on the bands

The Spring Equinox has seen conditions steadily improving, with activity on all bands looking up. Mornings have seen some activity on 15 metres to north and central America, 12 metres and 10 metres to the Pacific and north America. The higher band activity has continued through to early evenings to Asia and Europe. For the Night Owls, look towards Europe on the short path on the 20, 17 and 15 metre bands, which have been opening quite well after midnight. Anyone still up will be rewarded with much interest from European operators.

There have been no major solar events though September, but we may see some activity in October. Solar flux and sunspot numbers have been fairly low again, but as always we live in hope of an increase! One must not simply look at 'bad numbers' and not bother to turn the radio on. Often some quite interesting DX can be missed by making assumptions.

The Swains Island DXpedition (NH8S) filled the bands for ten days in September. The team made an amazing 105,517 QSOs! In fact, the team went QRT a couple of days early, due to fatigue and a few minor health concerns. The American operators are now back home and the European operators chose to spend a few more days relaxing in Pago Pago, with some radio operations from there also.

Over 100 VK operators made it into the log, with multiple QSOs.

The not quite yet Republic of Kosovo was activated by some prominent European DXers in September. There has been very

Date	Call	QSL via	Info
26 Oct - 4 Nov	5V7TH	LOTW	Togo, ON4CIT, 40 - 6 metres.
27-31 Oct	P29NI	G3KHZ	PNG IOTA, Tatau I, OC-099.
1-9 Nov	ZL7A	LOTW	Chatham I, OC-038, JF1OCQ, 80 - 6 metres.
2-4 Nov	P29VPB	G3KHZ	PNG IOTA, Lihir I, OC-069.
3-10 Nov	YJ0AFU	NA5U	Vanuatu, OC-035, 160 - 6 m.
5-19 Nov	VP2M	DL7AFS	Montserrat, NA-103, 80 - 10 m, RTTY, PSK, SSB.
5-22 Nov	5Z4/SM1TDE	LOTW	Kenya, 40 - 10 m, CW.
6-9 Nov	P29VCX	SM6CVX	PNG IOTA, Buka I, OC-135.
9-12 Nov	P29VCX	SM6CVX	PNG IOTA, Manus I, OC-025.
9-17 Nov	PJ4/PE2MC		Bonaire, PE2MC using Radio Nederland array.
9-17 Nov	3A	M0URX	Monaco, 3A/ON5UR, 3A/ON8AK, 80 - 10 m
10-22 Nov	PT0S	LOTW	St Peter and St Paul I, 160 - 6 m.
11-23 Nov	V84SMD	LOTW	Brunei, OC-088, Mediterraneo DX Club.
12-14 Nov	P29VCX	SM6CVX	PNG IOTA, Loloata I, OC-240
17-27 Nov	VK9	Home call	Lord Howe I, OC-004, VK9/OH1VR, VK9/OH3JR, 160 - 6 m.
18 Nov-8 Dec	E51TLA	LOTW	South Cook, Rarotonga I, OC-013, OZ6TL, CW, RTTY.
21 Nov-3 Dec	VP2V	LOTW	British Virgin Islands, NA-023, N3DXX, AA7V.
23 Nov-3 Dec	7P8D	LOTW	Lesotho, 160 - 6 m.
24 Nov - 10 Dec	5T0SP	LOTW	Mauritania, Polish Dxpediton, 160 - 10 m
28 Nov - 9 Dec	ZL9HR	EB7DX	Auckland and Campbell Islands, http://www.campbell2012.com/
- 15 Dec	5H3NP	WB0VGI	Tanzania, Noel WB0VGI, 30 - 10 m, CW/SSB/PSK

little activity from Kosovo for over 23 years, as there was much conflict in the region, and many of those former YU8 operators had their equipment confiscated during this time. Eleven resident former amateur operators were issued new licences, in a ceremony televised on the evening news.

The purpose of the trip was to re-establish administrative systems for amateur radio infrastructure

similar to other IARU countries, to establish an amateur radio society for all Kosovar radio amateurs, to train new licensees, and to have in place a robust society to eventually apply for membership of the IARU. Whilst Kosovo is not yet recognised by IARU, or ARRL for DXCC purposes, it does count for the Worked All Europe award and contest, and the CQ DX Marathon.

At the time of writing, the 3D2C Conway Reef expedition is in full swing, with massive pileups and good propagation. One point of concern is the callers in the pileup spreading out over the top edge of 17 metres in particular. Emissions must remain below 18.168 MHz. That means the upper sideband of a transmitter with VFO set much above 18.165 MHz will be transmitting out of band. Also noted were a couple of VK operators transmitting 5 kHz above our band limit of 3.800 MHz.

Some upcoming DX operations

The table on page 36 summarises some of the DX activations that may be of interest to VK operators.

5V7TH Togo. Wim ON4CIT will be active from Togo, west Africa until 4 November from 40 – 6 m. He specifically requests use of the International Phonetic Alphabet when using SSB. QSL via ON4CIT direct/bureau, and LoTW.

P29, Papua New Guinea. The IOTA DXpedition continues, with the team activating Tatau, Lihir, Buka, Manus and Loloata islands. See the website for full information. <http://p29ni.yolasite.com/>

ZL7A, Chatham I. Hiro JF1OCQ will be activating the Chatham islands between 1-9 November. He will be operating 80 – 6 metres, CW, SSB and digital mode, with emphasis on 80 and 6 metres. He will have a beacon on 50.117 MHz around the clock.

YJ0AFU, Vanuatu. Daniel VK4AFU will be operating from Port Vila from 3-10 November. He will be operating mainly JT65A on 80-10 metres with a little on 160 metres. Six metres will be his priority when open, mostly CW and SSB, with JT65 on request. QSL via NA5U.

VP2MYL, VP2MGZ Montserrat. DL7AFS Babs and DJ7ZG Lot will be operating as VP2MYL and VL2MGZ respectively from 5-19 November. They will be on 80-10 metres mainly in RTTY, PSK and SSB. QSL via DL7AFS.

5Z4/SM1TDE, Kenya. Eric SM1TDE will be operating 5-22

November from Diani Beach, Mombasa on 40 – 10 metres. CW. QSL via SM1TDE or LoTW.

PJ4/PE2MC, Bonaire. Marco PE2MC hopes to use the Radio Nederland antenna in Bonaire, 9-17 November.

3A, Monaco. Max ON5UR and Marc ON8AK, after months of work and hundreds of phone calls, have organised a base for their DX trip to Monaco. They will be using the callsigns 3A/ON5UR and 3A/ON8AK, running SSB only, from 80-10 metres, 9-17 November.

PT0S, St Peter and St Paul I. A reconnaissance trip was made to survey the site for operating positions and RFI. The Rocks are barely above water, and most of the level spots are already occupied by the scientific station's equipment. This will be a very difficult activation. See the website for information. <http://pt0s.com/> 10-22 November, pending the forces of Nature. Good luck with working this one!

V84SMD, Brunei. Members of the Mediterraneo DX Club and the Gemilang Radio Club will be joining together for a DXpedition in Brunei Darussalam OC-088, 11-23 November. They will be operating from 160 – 6 metres with CW, SSB and RTTY. They will be focusing on WARC and low bands, and RTTY.

VK9, Lord Howe I. Seppo OH1VR and Henri OH3JR will be operating from Lord Howe Island from 17-27 November. They will be on 160 – 6 metres, CW, SSB and RTTY, and will be participating in the CQ WW CW contest. QSL via home calls.

E51TLA, South Cook I. Henrik OZ6TL will again visit Rarotonga. Look for him 18 November to 8 December on CW and RTTY.

VP2V, British Virgin I. AA7V Steve and N3DXX Art will be operating in the CQ WW DX CW contest. QSL via LoTW or NR6M direct. No bureau cards.

7P8D, Lesotho. ZS2DL Donovan will lead a team of South Africans, Germans and Americans, to activate the Kingdom of Lesotho,

160 – 10 m, CW, SSB and RTTY. They plan to run three stations 24/7 from 23 November – 23 December. QSL via LoTW or OQRS. See their website: <http://www.zs2dl.co.za/7P8D.html>

5T0SP, Mauritania. Plans continue with this west African activation between 24 November and 10 December. See their website for further information. <http://5t0sp.dxing.pl/>

5H3NP, Tanzania. Look for Noel WB0VGI until 15 December. He plans to be operating from Iringa on 30 – 10 metres using CW, SSB and PSK. QSL via home call.

VK0JJJ, Mawson Station, Antarctica. Craig VK6JJJ will be spending 12 months at Mawson from January 2013. He plans 80 – 6 metres operation, with priority to 6 metres. Modes will be SSB and digital. A 6 metre propagation beacon is also planned. See QRZ.com for further updates.

To finish, here is an update on the ZL9HR Campbell I expedition, from VK2ARE Ed Durrant, Publicity Officer for ZL9HR.

Fifteenth most wanted DXCC location entity – Campbell Island will soon drop down the charts as many, many radio hams work ZL9HR between November 28th and December 9th. Campbell Island is at IOTA OC-037 600 km south of New Zealand in the Great Southern Ocean. While the equipment makes its way down to New Zealand, I wanted to highlight some essential parts of the DXpedition organisation that are not always obvious.

DXpedition 'Pilots'

The 'pilots' are assigned. For Europe it's Col MMONDX, for Australia and New Zealand it's Peter VK2NN, for Africa it's Andre V51B, for the Pacific region Stan KH6CG is doing the honours and last but not least we have Richard KY6R in western USA.

For those who haven't come across pilots before, they act as a conduit between amateurs trying to contact the DXpedition and

the DXpedition leaders. The pilot doesn't play God - but is a faithful 'technical support agent' whose boss is the leader of the DXpedition. The pilot may tell the DXpedition that he is receiving a lot of requests for a particular mode or band from a certain area of the world and if justified, the DXpedition may look at changing planned operations to fit this need as much as they can. Pilots often have to put up with abuse from idiots. It's not an easy job! Pilots are volunteers and form another part of the DXpedition that is crucial to its success. All amateurs owe a vote of thanks

to the pilots of this and all other DXpeditions for the work they kindly perform. So if you communicate with a DXpedition pilot, show them some respect - remember they don't have to do this work!

Please refer to the web site ZL9HR.COM for the full, up to date, information about the major ZL9HR DXpedition to Campbell Island.

Special thanks to the authors of The Daily DX, 425 DX News, DX World and QRZ.DX for information appearing in this month's column. Interested readers can obtain a free two week trial of The Daily DX from www.dailydx.com/trial.htm

As all amateurs will know by now, it is with great sadness we hear of Michael Owen's VK3KI passing. We extend our condolences to his wife Nan and the family, and on behalf of amateurs all around the world we gratefully acknowledge Michael's lifelong passion and support for amateur radio. We especially note his contribution to the IARU and WARC 1979 where his efforts in no small way gave us access to three (new) bands we now take for granted. Vale Michael.



VK3news Sunraysia Radio Group September Meeting

John Sutcliffe VK3TCT

A top day was held mid-September at the home of Terry VK3ATS and Jill VK3FJSP for a homemade 'pizza' afternoon with much socialisation, all members enjoyed themselves and a sale was held of second hand equipment. The sale went well as members were noted loading their vehicles with their bargains. Mid-afternoon a raffle was held and I believe Jill won the prize.

The Sunraysia Radio Group (SRG) annual general meeting in May saw a change in the group executive, Max VK3ZMT was elected President, Jill VK3FJSP Secretary and John VK2AWJ Treasurer. The new team is settling in well and Max has some good ideas for our club as:

- Bringing Swan Hill members closer to our main group.
- Technical lecture evenings in the 'Sid James' hut to make better use of that facility.
- We should attend 'Kyneton' hamfest as a group and set up a second hand stall.
- Cameron one of the younger members has installed a ten metre beacon locally and has verified reception reports from the US.



Photo 1: Ray (VK3HSR) selling the gear.

The SRG is integrating well with the local Scouts several are training for their Foundation licence, currently six candidates are being trained for the foundation licence and Max expects eight to sit for the exam in October 2012.

Altogether a good start for a new year and we look like having a growing membership; well-done team.



Photo 2: Terry (VK3ATS) grabbed the money instead of the ticket.



Ray Dobinson VK4HOT
Vice President



Photo 1: The CQARA QSL card.



Photo 3: Les Berryman VK4QI being presented with the club's second life membership by Andrea Williams VK4FROG, the club President, at our annual dinner at Weasel Park.

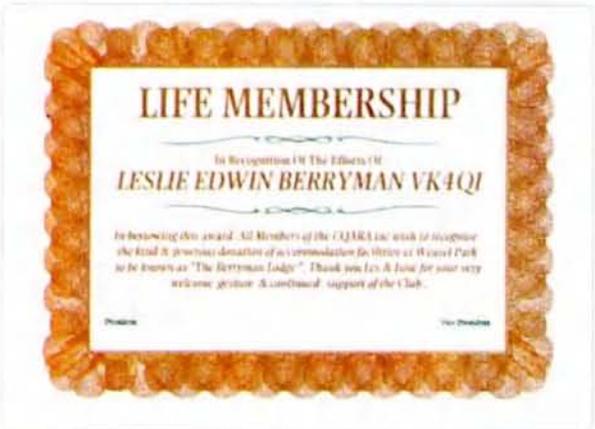


Photo 5: The life membership certificate presented to Les Berryman and his wife June.

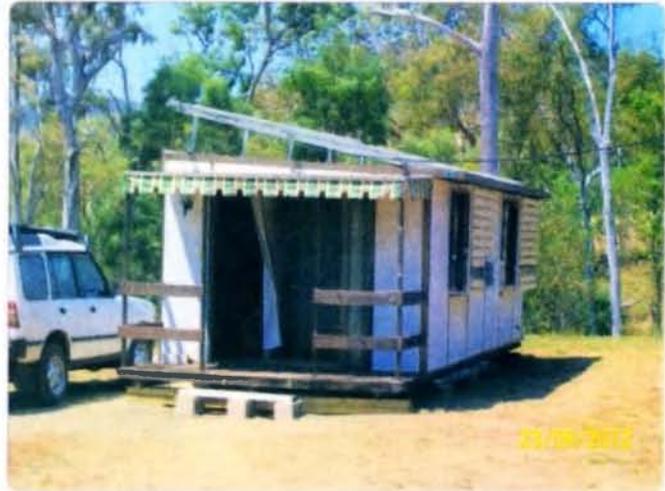


Photo 2: Part of the donation made by Les and his wife June for Weasel Park for the enjoyment of club members. It is still work in progress to establish two bedroom bunk house at Weasel Park.



Photo 4: Our first Life Member Jack Chomley VK4JRC being presented with his life membership certificate by our club President Andrea Williams VZK4FROG.





VHF/UHF - An Expanding World

David Smith VK3HZ
e vk3hz@wia.org.au

Weak Signal

There has been a bit of tropo action during September. The weather in Melbourne has been up and down like a yoyo – summer one day and winter the next. However, we've had some good high-pressure cells pass over giving good radio conditions.

On the evening of September 8th, conditions were good from Adelaide into eastern Victoria with Phil VK5AKK and Peter VK5PJ hearing the VK3RGI beacon on 70 cm for an extended period. The following morning at 1000Z, Bill VK5ACY worked Joe VK7JG on 2 m at 5x5 over a path of 980 km. They repeated the contacts on the 14th (5x1) and 15th (QSB up to 5x9).

On the afternoon of September 28th, Bob ZL3TY reported hearing the Newcastle Channel 5A TV at 5x7. At 0800Z, he worked Steve VK2ZT (5x9+) and Ross VK2DVZ (5x7) on 2 m. They then switched to 70 cm with 5x3 reports. Bob then worked Mark VK2AMS on 70 cm (5x5) and 2 m (5x1). Unfortunately, Bob was not operational on 23 cm.

AIS

With the imminent demise of the analogue TV transmission network, we will lose some important propagation beacons. As mentioned above, the Newcastle Channel 5A transmitter provides a good indication of conditions from VK to ZL. However, this will be shut down by the end of November.

A few years ago, the aircraft system ADS-B on 1090 MHz was looked at as a possible indicator of good tropo propagation. However, having run an ADS-B receiver here for several years, I have seen little

extension of ADS-B coverage in different conditions. It's possible that for aircraft flying above the tropo layer, the signals passing through the inversion to ground may in fact be degraded by good tropo enhancement.

Another promising substitute is AIS (Automatic Identification System) used by ships to transmit information including their current location. AIS uses 162 MHz for signalling, so could be a good indicator for conditions on the 2 m band.

Bob ZL3TY recently started using AIS and reports:

Last week I installed a five element Yagi and AIS receiver on 162 MHz. AIS (Automatic Identification System) is an automatic tracking system used on ships. The Yagi is aimed west at the eastern side of VK while the receiver is connected via the Internet to MarineTraffic.com. The receiver was supplied at no cost by the University of the Aegean in Greece who run the MarineTraffic project.

Initially I was receiving some Korean fishing boats working off the coast, out to about 100 km maximum, with one spot 300 km to the NW from a ship heading to Port Nelson. The ships logged are displayed on a world map on the MarineTraffic.com site. There are several receivers around the NZ coast, mostly logging ships near ports.

On Friday afternoon at 4.00 pm I noticed a spot from a ship in the Tasman from a VK2 near Sydney, then later at 4.50 pm there was one in mid-Tasman logged by my receiver. I checked Channel 5A and

it was about S5, soon rising to S9.

Later in the evening at 8.00 pm I worked VK2ZT on 2 m, followed by VK2DVZ and VK2AMS, and shortly afterwards worked all three on 70 cm. The AIS reports kept coming all along the VK2 coast from Sydney northwards, the furthest north being a ship about 100 km east of Brisbane.

Most of the ships transmit 12 W, however there was one ship logged with a class B TX running 2 W, located near Newcastle.

By Saturday morning the VK AIS reports were gone, however there were reports from ships in the north Tasman, one being 400 km west of Northland. The last logged were two early on Sunday morning at 900 km in the north Tasman.

The AIS system will be a useful indicator of propagation in the Tasman for me; currently I use Ch5A at Newcastle but it will be gone soon. It will also be good for monitoring propagation north from here along the west coast to northern ZL. All international shipping is required to have an AIS beacon.

For more information on AIS look at Marinetrans.com and Wikipedia has extensive coverage.

Use of AIS is obviously limited to the paths containing some over-water sections where shipping is active, such as VK-ZL and the Bight. However, in VK, these are the paths that provide the longest distance contacts. Also, the relatively low power of the ship transmitters would not provide quite the early warning from the 100 kW EIRP of Ch 5A Newcastle.

For the last year or so, Leigh VK2KRR has been experimenting

with AIS signals from his inland location near Wagga and has been reporting his findings on the Logger. His experience seems to show that even if the ships are at the end, or beyond the path of interest (for example, to Adelaide), the AIS still provides a very worthwhile indication.

For more information, see the VK Logger Forum:

<http://www.vklogger.com/forum/viewtopic.php?f=47&t=10161>

VK3 Microwave Test Day

Planning for the VK3 Microwave Test Day has advanced. The date has been set to Sunday November 4th starting at 10 am. Yes, that's in the middle of the Melbourne Cup Day 'long weekend' but hopefully will be suitable for most.

The EMDRC have very kindly offered the use of their club rooms and grounds at 13a McCubbin St, Burwood (see http://www.emdrc.com.au/club_rooms.html for details). We'll be locating the test range across the park at the rear. There is a BBQ in the clubrooms that we will fire up for lunch.

VK4 Microwave Test Day Video

Following the recent VK4 Microwave Test Day, Adam VK4GHZ (aka Mr Logger) has produced an excellent video of the day covering, in simple terms, many of the techniques used to tune microwave equipment - highly recommended viewing for microwave 'newbies'. You'll find the video, in two parts, on the VK Logger forum at:

<http://www.vklogger.com/forum/viewtopic.php?f=31&t=10884>

VHF/UHF Field Day Scoring

A proposal for a change to distance based scoring has been published by Andrew VK1DA and Colin VK5DK. It follows several years of discussion among some of the operators in the VHF/UHF Field Days, who have found that the scoring system used in these contests seems to have problems for operators in country areas.

This proposal has been developed recently after several months of discussion via email.

The sponsors of the proposal believe that instead of calculating scores on the basis of the grid squares worked, a distance based score would make more sense for vhf-uhf contacts and could be consistently applied in all parts of the country.

What about rovers? Rovers are stations who try to operate from as many different grid squares as possible, to maximise their grid bonuses. As a distance formula would not work well with rovers, it has been suggested that the rover stations would continue to use grid squares for their scoring. They would continue to make contacts with all stations, whether they were rovers or not, the contacts qualifying both operators for the points applying to their operating category.

The other major change proposed is the introduction of a separate category for the 6 m, 2 m and 70 cm bands. This category caters directly for the large number of operators who have multiband radios such as the popular FT-857, FT-897, FT-817, IC-706, IC-7000 and TS-2000 and who do not have equipment for any higher bands. This proposal suggests creating a separate category for stations limited to the 6 m, 2 m and 70 cm bands. Colin and Andrew believe this will boost interest in these events.

The proposal is available on the net for all to read. The web address is vk1da.net where you'll find a link to the proposal. The net-based survey was planned to run for a month ending mid-October, with a summary of views to be made available as soon as possible afterwards. Depending on the outcome of the survey, the proposal was to be updated to take up suggestions made, and a submission sent to the WIA contest manager and the VHF contests manager.

VK3 144.150 Net

The VK3 144.150 MHz Net held each Wednesday at 2030 local time continues to attract a good turnout. Michael VK3KH in Mt Eliza and Rob VK3MQ on Mt Dandenong jointly run the Net, sharing the call-in duties according to their respective coverage areas.

A recent Net included 12 participants braving the cold conditions in their shacks. Stations included Colin VK5DK in Mt Gambier and Rob VK1KW in Canberra via a convenient Aircraft Enhancement opportunity.

Beacons

The VK Logger includes a database of VHF/UHF/Microwave Beacons, including their current status. Unfortunately, the information for many of the beacons is quite old making the data much less useful - it's frustrating looking for a beacon that you later find is off-air. So, in preparation for the summer, could people have a listen for their local beacons and update the beacon database accordingly.

Alan VK3XPD advises that he has repaired the VK3RPL 2.4 GHz beacon, which had been out of operation for several years. It is currently undergoing testing at his QTH and will be re-installed at its Frankston location shortly. The beacon is nominally on a frequency of 2403.542 MHz.

Colin VK5DK reports:

Thanks to David VK3HZ and Graham VK3XDK, I can advise that a 10 GHz beacon for VK5RSE Mt Gambier is taking shape.

This beacon transmitter will operate on a frequency of 10.368550 GHz, using a modified VK3XDK PLL unit and programmed by David VK3HZ. It will be GPS locked. David has programmed the PLL to have two outputs, one on 1656 MHz which is multiplied by six to 9936 MHz, the second frequency from the PLL is on 432.550 MHz which has the CW keying programmed into it. These signals are then combined in a VK3XDK 10

GHz transverter (transmit side only) to produce the beacon signal.

The Beacon is planned to run around two watts output into an omnidirectional slotted waveguide antenna with around 10 dB antenna gain.

At this stage the beacon driver stage running around 20 mW is under test at my QTH into a HP432A power meter. The PA stage has not yet been added owing to availability from the chip supplier at this time.

Barring other issues, we hope to have the beacon installed by the end of November. Future plans may be to GPS lock our 144.550, 432.550 and 1296.550 beacons.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au



Digital DX Modes

Rex Moncur
VK7MO

FSK441 activity sessions

Welcome to Colin VK4MIL and George VK4AML who have both made contacts with Arie VK3AMZ. Also welcome to Wayne VK4NWH who is active and Norm VK3DUT has just got digital operational and reported copying Bob ZL3TY. Activity sessions are held each Saturday and Sunday morning from 0700 to 0800 local on 144.230.

FSK441 tropo-extension of meteor scatter

On 28 September Arie VK3AMZ and Bob ZL3TY commented on the VK Logger that there was the possibility of a tropo-extension as shown on the Hepburn chart at fig 1. The path is 2328 km and under normal conditions it is rare to get more than a ping in an hour. While most of the chart between Arie and Bob shows black for nil propagation, there is a good patch of yellow out for about a

third of the way from Bob. A meteor scatter QSO was quickly completed with Bob reporting "Thanks Arie, got 7 pings from you - outstanding!!". While it has been some time since we have experienced tropo-extensions of meteor scatter, this multi-mode propagation is well worth exploring for long paths of over 2200 km when there is an indication of good tropo at one end of a meteor scatter path.



Figure 1: Tropo extension of the VM3AMZ to ZL3TY path.

WSJT version 9.3

The experimental modes ISCAT-A, JT65B2 and JT65C2 have now been released as standard modes and are available in WSJT 9.3 version r2585 at:

http://physics.princeton.edu/pulsar/K1JT/WSJT9_r2585.EXE

The former ISCAT mode now comes in two sub-modes - ISCAT-A designed for microwave aircraft scatter and ISCAT-B which is the mode previously just called ISCAT which was designed for six metres meteor scatter but should also work well on six metres for tropo-scatter, ion-scatter and F2. It should also have potential for MS extensions of F2. ISCAT-B is thus a good general purpose digital mode for six metres as it can work with most types of propagation other than auroral. ISCAT-B works to about -18 dB on the WSJT scale for a continuous steady signal but will also decode short bursts of a second or so of stronger signal. It is possible to set ISCAT-B to run in 15 or 30 second periods.

Ross VK2DVZ and Rex VK7MO have been testing ISCAT-B on two metres meteor scatter and while it does work, it is not nearly as useful as FSK441 on two metres,

which can respond to pings of just a fraction of a second, which are typical on two metres. Tests with ISCAT-A showed it also worked but required burns of at least several seconds. While FSK441 should continue to be used on 2 metres, 6 metre operators are encouraged to try ISCAT-B.

ISCAT-A was designed specifically for microwave aircraft scatter such as at 10 GHz where it can cope with the very large changes in Doppler that occur when an aircraft crosses the path at right angles. ISCAT-A is about one dB more sensitive than ISCAT-B but takes twice as long at ISCAT-B, about six seconds, to send two callsigns and a report - this is generally sufficient for the short bursts of signal that result from microwave aircraft scatter where the aircraft crosses the path at near right angles.

Joe Taylor K1JT, advises that the primary purpose of the JT65B2 and JT65C2 modes is to speed up exchanges for EME contests in situations where both stations have good signals. The JT65B2 and JT65C2 modes are not compatible with the standard versions of JT65. Joe has suggested that the JT65B2 mode be used in the frequency range 144.100 to 144.115 MHz, to differentiate it from the JT65B mode which is used from 144.100 to 144.160. These new modes work in 30 second periods compared to 60 second periods for the standard JT65 modes. The cost is that performance is reduced by three dB. Signal generator tests show that for about 50% correct decodes in Deep Search, JT65C2 works to -24.7 dB compared to JT65C which works to -27.7 dB. For most VK operators the three dB performance reduction is likely to outweigh the advantage of making a few QSOs with large stations more quickly.

The spread of tones is identical between JT65C and JT65C2 but the rate at which tones are sent is twice as fast and thus the binwidth required for individual tones is twice

as wide. Doubling the binwidth, and thus the noise per bin, results in the three dB reduction in performance.

My small station on 23cm EME – by VK2DVZ

A few years ago, one of the newer local amateurs, namely Mark VK2AMS was showing signs of an interest in the 23 cm band, so I encouraged and assisted him in various ways as able. His interest mushroomed and soon he was planning to try 23 cm EME. The rest is history, as Mark runs a successful 23 cm EME station.

After seeing and hearing about his ever-increasing successes, it was time to 'have a go' and join in on the fun or be left behind. Yes, I had heard a few signals previously off the moon, mainly CW but did not think my station was 'up to speed' performance wise, even though I had participated in several 23 cm SSB and digital successes, some of which still stand today. My existing elevation system was not stable enough in breezy conditions. It was time to get busy.

Busy meant removing the dish off the 6.25 m tower, rebuild portion of the support structure that attached to the 2.4 m solid Andrew dish (see Photo 1) as corrosion had

taken its toll, remove the KR-500 elevation rotor that had served me well for many years and replace it with a HD linear actuator, build an OK1DFC septum feed and organise a different isolation relay, new preamp and rework the existing cabling. (I have always run separate TX and RX cabling, so most of it has been reused). Then it was time to put it all together in a workable and reliable state, so everything had to be spot-on first time!

A partial upgrade of some in-shack equipment and the re-use of my 25 year old SSB Electronics 23 cm-2 m and 2 m-28 MHz receive down converters and existing sequencing controller ensure the station performance is satisfactory for my small station, as determined by measured sun noise and confirmed by EME signals.

Initial EME contacts, using JT65C mode of the WSJT suite, have proved successful. My first 30 contacts off the moon were made using my single 2C39 water cooled PA that had literally gone off-the-boil as it must have a dying tube and was only producing 40-45 watts in the shack, about 30-35 watts maximum at the feed!

With that low power I was thrilled to work OK1DFC on JT65C

and to be asked to try CW off the moon. 'No' said I, as I had not yet figured out how to operate my station on CW mode following the station up-grade. I was then asked to try SSB, to which I agreed.

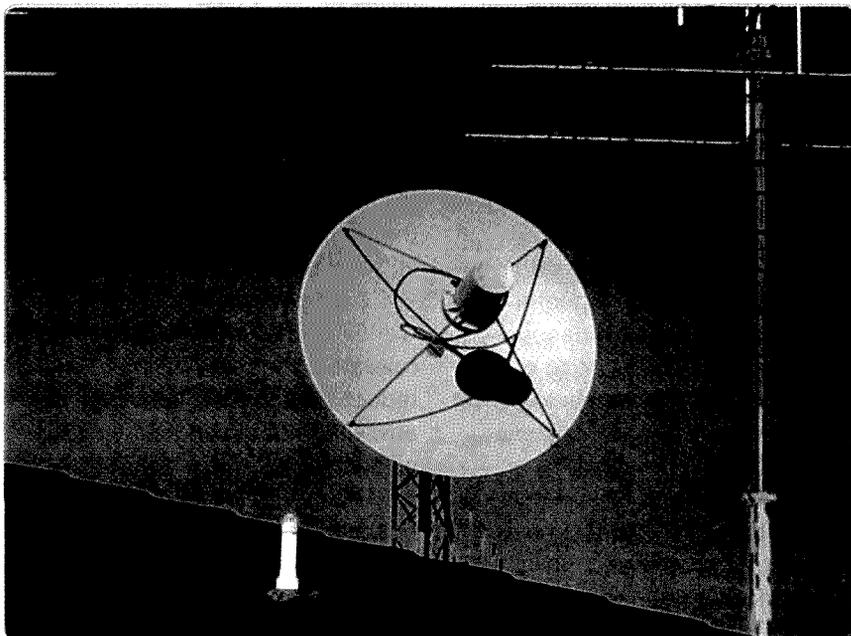
An SSB contact did result, taking me many minutes to complete the two way contact – it's times like that that a larger dish and more power would be extremely useful. I now have higher power capability, but will still continue to use the 2.4 m dish because it is elevated at about 6.5 m above the ground, lets me work the moon at moon-set down about seven degrees due to obstructions and to one degree elevation without obstructions. Moon rise is generally good and without obstruction. A larger ground mounted dish would experience far too much blocking by obstructions at my place and on neighbouring properties. A larger dish on the tower may not stand up to the wind forces.

Running 120 watts at the feed has made a lot of difference to the ability of other stations to copy my signals off the moon, but having a smaller dish than many other operators around the world means I have to try harder to work smaller stations – so that is my on-going challenge.

23 cm EME is totally different to 2 m EME as circular polarisation of the septum feed horn does not experience the severe QSB as on my 2 m linear polarised array, due to Faraday rotation. Do I have any complaints about 23 cm EME? Yes - it is not as 'busy' as on 2 m EME, so give it a try and come and join in on the fun. EME is a challenging facet of our amateur radio hobby, but very rewarding.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

Photo 1: The VK2DVZ 23 cm EME Dish.





The Magic Band – 6 m DX

Brian Cleland VK5BC

September began with good openings from VK4 to Hawaii and as the month progressed openings from northern areas of VK to Japan, China and Korea becoming more regular and the month ended with openings extending down to the Perth area. Contacts from the Darwin area were also made into the Middle East.

The month began on the evening of the 1st with Gary VK8AW hearing the A92 beacon and working Dave A92IO in Bahrain. Gary also heard the beacon again on the 2nd and worked DU7/PA0HIP.

On 4th September the southern areas of VK4, Hervey Bay to Brisbane started to hear Hawaiian beacons and several VK4 including Wade VK4WM, Scott VK4CZ, Brian VK4EK (Sapphire) and Wayne VK4WTN worked several KHs including KH6SIX, KH7Y and KH6HI.

The 6th September day started with Victor E51USA South Cook Islands working into Central America, Mexico and Southern

USA areas and then around 0300 UTC another opening from Hawaii to VK4. The opening extended from Scott VK4CZ in Brisbane to Ray VK4BLK in Yeppoon and west to Brian VK4EK in Sapphire with Wayne VK4WTN, Wade VK4WM from the Hervey Bay area also in the action. Several KHs were worked including Fred KH7Y, Ned KH7JJ, Albert KH6HI and Tets AH7C. Later around 0630 UTC Mark VK8MS in Darwin also worked KH7Y. Then in the evening Gary VK8AW in Darwin reported hearing the Oman A47RB beacon at 539 and working BA8ASG. Michael VK6BHY in Karratha also worked BA8ASG whilst Mark VK8MS worked BA8AT.

Following the above, on most days contacts were reported from VK4, northern VK6 and VK8 (Darwin area) to the northern countries including Japan, Korea, China and Philippines. Contacts of note were made by Gary VK8AW and Mark VK8MS to VK9CS in the Cocos Keeling Islands, on the 23rd September and Mark also working A92IO.

Late evening 18th September at 1311 UTC Brian VK5BC worked Roger 9W6RT in East Malaysia.

On the afternoon of the 28th September the band opened from VK4 but then switched to southern VK6. Andy VK6OX reports the following:-

At around 0430Z, with the rig monitoring R1/C1 TV, the signals suddenly increased. I gave a couple of CW CQ calls on 110 and quickly worked JR2HCB 559. A few minutes later, worked him on SSB, also S5.

Over the next few hours, the band opened to JA1, 2, 3, 6, 7 and 8 (from this QTH) along with various HL and DS (South Korea) stations joining in. Signal strengths were variable with peaks to S9+ at times over the period. Stations in the Perth metro and adjacent regional areas that joined in the fun included VK6s Glen IQ, Ken AKT, Graham RO, Peter KXW, John JJ, Barry ZSB, Jack KDX and yours truly. The opening faded out around 0830Z.

This was the first southern TEP opening of note this spring season and hopefully conditions will extend to the south more regularly during October/November.

Please send any six metre information to Brian VK5BC at briancleland@bigpond.com



CCARC

Central Coast Amateur Radio Club Inc.

Wyong Field Day

24th February 2013

Lucky Door prizes, Flea market plus much more!

For more information go to the website
www.fieldday.org.au

Be part of the largest Amateur Radio event in the Southern Hemisphere!

Contests

Phil Smeaton VK4BAA

e vk4baa@wia.org.au

Welcome to this month's Contest column.

Why are you reading this column?

At the time of going to print, it's the lull before the contesting storm. Should you not be outside, putting up that 4-over-4 quad stack on 160 metres, instead of sitting on the sofa reading this magazine?

Lots of preparation to do before the CQWW contests get underway, but at the time of writing in mid-September, the Oceania contests are just around the corner and CQWW SSB is only a few weeks away. By the time this magazine gets delivered, both Oceania contests will be history and CQWW SSB should have only just taken place.

For us in VK, the contest season hasn't really kicked-off as yet, with generally only a few northern hemisphere contests available to whet the appetite. Of course, there are domestic contests to participate in and the JIDX is closer to home – just let your QSL manager know in advance!

Yet more goings on at CQWW

Amidst all manner of revamps and alterations in the past couple of months, Bob Cox K3EST has retired as Director of the CQ World Wide DX Contest and as CQ's Director of Contesting, it was recently announced. Bob has been at the helm of the CQWW for 35 years, guiding the contest through massive changes in technology - both on and off the air - and CQWW's growth to become the world's most popular amateur radio contest. Cox's retirement is effective immediately. A successor has not yet been named. I suppose time will tell if he was pushed or

Contest Calendar for November 2012 – January 2013

November	10/11	Japan International DX Contest	SSB
	10/11	Worked All Europe DX Contest	RTTY
	3/4	ARRL International EME Contest	All
	24/25	Spring VHF/UHF Field Day	CW / SSB / FM
	24/25	CQWW DX Contest	CW
	30	ARRL 160 metre Contest	CW
December	1	RTTY Melee	RTTY
	8/9	ARRL 10 metre Contest	CW/SSB
	21/22	OK DX RTTY Contest	RTTY
January	2013	Ross Hull Memorial VHF Contest (VHF/UHF)	CW / SSB / FM

if he jumped, as the rumour mill continues to peddle comments on the amount of change and the method of implementation...

CQWPX log checking

Log Check Reports for all entrants to the 2012 WPX SSB Contest have been available for participants for some time now. An email with a link to the Log Check Report has been sent to everyone who submitted a log. The emails include a private link to the report file. If you submitted a log and did not receive an email, you might want to check your junk mail folder. You may also request your report from director@cqwpx.com

The organisers did a deeper level of log checking this year than ever before. There were 34,837 unique callsigns among the 2,866,408 QSOs. 74.4% of those unique QSOs were determined to be incorrect. The median score reduction was 8.5%, which hits the bottom line hard. WPX is usually a little higher than other contests since many busted calls create prefix multipliers that the logging software attributes points for. Log checking is getting much more organised in recent years, with technology allowing more in-depth and widespread checking to take

place. Thankfully, gone are the days where a number of contest organisers would simply publish claimed scores in the final results and not perform any checking at all. No checking of logged data makes a mockery of the contest that they purport to be an ambassador for and diminishes the validity of taking part in the contest exchange as regards accuracy.

Oceania certificates

For quite a number of years now, NZART and the WIA have been sponsoring the cost of printing and posting the OCDX certificates. However, as expected, with the introduction of the on-line certificates the size of this task and associated costs is rapidly reducing – thankfully!

Recent requests for award sponsors produced an overwhelming response for a new sponsor for the plaque awarded to the top entrant from Asia in the Single Operator All Band Phone category. There were a number of offers but Lee VK3GK was the first one to put his hand up, so he is the new sponsor of this plaque.

Additionally, the Central Coast Amateur Radio Club Inc has kindly offered to sponsor a new plaque for the top entrant from Australia in

the Single Operator Low Power All Band Phone category and at the same time Tony VK3VTH has agreed to modify the scope of the plaque that he sponsors so that it now covers the top entrant from Australia in the Single Operator High Power All Band Phone category. There are also a few other plaque sponsorship proposals in the pipeline which the OCDX Contest committee are working through and hope to be able to announce shortly.

In summary, the OCDX contest committee is pleased to announce that new plaques will be available for winners of the following categories in the 2012 contest:

- Top entrant from Oceania in the Phone M2 category (sponsored by the South Pacific Contest Club).
- Top entrant from Oceania in the CW M2 category (sponsored by the South Pacific Contest Club).
- Top entrant from Asia in the Phone M2 category (sponsored by QRO Communications and OM Power).
- Top entrant from Asia in the CW M2 category (sponsored by QRO Communications and OM Power).
- Top entrant from VK in the Phone Single Operator All Band Low Power category (sponsored by the Central Coast Amateur Radio Club).

- Top entrant from VK in Phone Single Operator All Band High Power category (sponsored by Tony Hambling VK3VTH).

Additionally, Lee Moyle VK3GK is the new sponsor of the plaque awarded to the top entrant from Asia in the Phone Single Operator All Band category, and the rules for the Australia Club plaque have been updated so that a club now only requires three participant stations in order to compete for this award.

CQWW RTTY 2012 results

The following VK stations participated in the CQWW RTTY contest this year and produced the following results:

VK2CA (All Band) 130,152; **VK2GR** (All Band) 13,908; **VK2KDP** (All Band) 2,028; **VK3TDX** (All Band) 1,490,832; **VK3FM** (All Band) 167,717; **VK4IU** (All Band) 867,200; **VK4UC** (All Band) 697,175; **VK4CC** (All Band) 1,610; **VK4FNQ** (28) 1,026; **VK4BL** (All Band) 20,898; **VK4FJ** (21) 242,046; **VK4IMX** (14) 3,360; **VK6XX** (28) 96,822.

Well done all!

CQWW CW 2011 results

The following VK stations participated in the CQWW CW contest last year and produced the following results:

VK6AA 7,024,050 (OP:VK2IA); **VK2IM** 4,992,237; **VK4UC**

3,961,848 (OP:N6AA); **VK8GM** 2,755,360 (OP:OZ1AA); **VK3TDX** 1,183,028; **VK3IO** 351,747; **VK7ZE** 315,861; **VK4IU** 116,590; **VK2PN** 16,380; **VK2AYD** 245,127; **VK4BUI** 211,792; **VK6XX** 114,608 (OP:VK6HZ); **VK6LW** 1,349,341; **VK2GR** 111,690; **VK4TT** 52,038; **VK2BNG** 8,883; **VK3GDM** 6,413; **VK6HG** 112,302; **VK3FM** 64,930; **VK8AV** 41,400; **VK4IMX** 92,625; **VK2NU** 284,328; **VK6DU** 132,343; **VK5DC** 4,158; **VK4KW** 8,685,372.

VK stations really hit the limelight in this 2011 contest. Kevin VK6LW achieved world first on 14 MHz; the VKCC teams came world 5th and world 16th and VK2NU broke the Oceania 14 MHz Low Power record. Well done VK!

This will be my penultimate offering to AR, so if you have a passion for contesting I'm sure that the Editor would be happy to hear from you as regards potentially taking over the reins of this column. In the meantime, as always, if you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk4baa@wia.org.au See you on the bands.

73 de Phil Smeaton VK4BAA.



Bunya Mts & District AmCom Inc

Ham & Wine Fest 2013

Saturday 2nd February 2013

At the Maclagan Hall Margaret St Maclagan

About 45 minutes drive from Toowoomba.

Doors open at 0900 hrs Stand holders 0700 hrs

All the usual goodies on sale, new and used gear.

Wine tasting and sales. LED lighting.

Scrapbooking and crafts.

For more information and updates on this event please contact
Ricky VK4NRL: ricketanne@bigpond.com Phone 07 4662 6651 or 0429 726 833
Neil VK4NF: holmzie@bigpond.com Phone 07 4662 4950 or 0488 687 649

Admission just \$5
Book a table for \$10

BBQ Breakfast and lunch
0800 to 1400 hrs.

Cold drinks tea & coffee
all day.

Don't forget the big
Auction around 11.30 hrs.

Multi draw Raffle.
Lucky door prize.

Come along and
join the fun

Spring VHF-UHF Field Day 2012

Contest manager: John Martin VK3KM

F Call Challenge

As in the Winter Field Day, there will again be an "F Call Challenge", with special certificates for Foundation licensees who participate in any of the single operator sections of the Field Day.

Operating periods

Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

Entering more than one section

If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station, he may also enter the home station section.

Two operators

If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other.

Multi-operator stations

Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

Rover stations

The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

Dates: Saturday and Sunday 24 and 25 November 2012

Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.
Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

- A: Portable station, single operator, 24 hours.
- B: Portable station, single operator, 8 hours.
- C: Portable station, multiple operator, 24 hours.
- D: Portable station, multiple operator, 8 hours.
- E: Home station, 24 hours.
- F: Rover station, 24 hours.

General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled each time it moves. You may work stations within your own locator square. Repeater, satellite and cross band contacts are not permitted.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange.

Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat

contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table (shown on right side column).

In this example the operator has operated from one locator and worked four locators on each band.

A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, PO Box 2042, Bayswater Vic 3153.

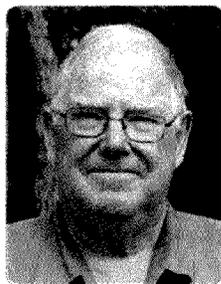
Please email electronic logs to vhfuhf@wia.org.au Acceptable log formats include: ASCII text, RTF,

Band	Locators Activated (10 points each)	+ Locators Worked (10 points each)	+ (1 point each)	QSOs	x Multiplier	=	Band Total	
6 m	10	+ 40	+ 40	40	x 1	=	90	
2 m	10	+ 40	+ 40	30	x 3	=	240	
70 cm	10	+ 40	+ 40	20	x 5	=	350	
etc.								
Overall Total							=	680

DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. Logs must be received by Monday, 10 December 2012. Early logs would be appreciated.

Field Day Web Site: <http://www.wia.org.au/members/contests/vhfuhf/>

This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.



VK2news

Tim Mills VK2ZTM.
e vk2ztm@wia.org.au

ARNSW in recent weeks has been providing a name badge to all current financial members. If by the end of November any member has yet to receive theirs please let the office know at office@arnsw.org.au The VK2RWI six metre repeater on 53.850 MHz has settled in well with a stronger voice and better ears. Similar improvements have been made to 7000 and 8525 in recent times.

ARNSW final activities for the year will be a Foundation Course, most likely Sunday, 18th November and all grades of assessments on Sunday the 25th. Also on this day will be the final Trash and Treasure for the year.

At month's end ARNSW Life Member Bill Hall VK2XT celebrates his 100th birthday. Bill was licenced in 1930 under the call VK2BH but the then soon to be established commercial AM station for Broken wanted 2BH and as was the practice in those days call letters used by a broadcast station could not also be used by an amateur.

The PMG gave Bill several choices of alternate call and he chose his present VK2XT. Bill has had a very active life in amateur radio, including several years providing the QSL Bureau operations to the NSW Division.

WICEN NSW held their AGM last September with Crompton Allen VK2HRX in as President, and Steven Heimann VK2BOS Vice President. Steve Diekman VK2FSDO continues on as Secretary but no one volunteered for Treasurer. The committee comprises Mai Alexandra VK2YVA, John Harper VK2FCOM, Andrew Vaughan VK2XPT and Al Hirschel VK2VEC. 16 operators took part in the recent Trek for Timor. Next year in September it will be held in Kangaroo Valley.

Waverley ARS has repaired the club room roof top antenna system damaged by winds a couple of months ago. New masting has even gained a bit of height for them. The Central Coast ARC has embarked

on a kit building series of projects. These include 40 metre and 20 metre SSB QRP transceivers and an antenna analyser. They are looking for suggestions for other projects; check out www.ccarc.org.au They announced the 2013 Field Day last month in AR. The famous Wyong Field Day will be on Sunday, 24th February, 2013. Check out www.fieldday.org.au

Westlakes ARC, which provides the Outwards QSL Bureau for the WIA, is an active club who meet on Saturday from 12 noon. Contact them by phone on 02 4958 1588.

The Hunter Radio Group meets monthly on the second Friday at the NBN Studios, Mosbri Crescent, Newcastle, except for January, July and December. They provide a news bulletin Monday evenings from early February to early December on 3593 kHz, and operate repeaters on 146.900, 438.025 and 146.725 MHz.





VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/

Michael Owen VK3KI SK

It was with great sadness and shock that we learnt of the sudden death of our President Michael Owen VK3KI. A great man and the driving force of modern amateur radio in Australia and internationally. On behalf of all interested in amateur radio in Tasmania, the VK7 Advisory Committee extends sincere condolences to Michael's family and friends at this difficult time. Michael will be greatly missed. Vale Michael Owen VK3KI SK.

Miena Hamfest

Saturday 1st December 2012 is the biennial VK7 Hamfest and it happens at the Miena Community Hall in the Central Highlands of Tasmania, thanks to the Central Highlands Amateur Radio Club of Tasmania. Many traders are making the journey across Bass Strait and there may even be a Kenwood TS-990 on display. There will be lucky door prizes and excellent BBQ food available. Entry fee is \$5.00 per family or person and this enters you in the raffle. If any club or individual would like a display table could they please contact Dave VK7OB on 0429 123 080.

Repeater News

The Don Heads VK7RAE 2 metre (144.474 MHz), 6 metre (50.057 MHz) and 10 metre (28.267 MHz) beacons are back on air thanks to Peter VK7PD, Dave VK7DD, Scott VK7NWT, Tim VK7TIM, Bob VK7BOB, Mark VK7KMA and Joe VK7JG. Many reception reports have already been received. The VK7RIN repeater levels have been adjusted to improve the weekly broadcast levels along with the

installation of a higher powered UHF transmitter section providing future ability to cross band using this repeater; thanks to Joe VK7JG for all this work.

Cradle Coast Amateur Radio Club

Congratulations to Eric who has upgraded to VK7EK, Steve who has upgraded to VK7BI and new Foundation Licence holder Kevin VK7FKEV who were all successful at recent assessments. During September CCARC helped out with an 80 km equestrian endurance ride near Wynyard by providing safety, checkpoints and base communications. About 40 riders participated and good use was made of the UHF repeater VK7RAC on Table Cape and the communications trailer kindly donated by Rick VK7FRIK.

Northern Tasmania Amateur Radio Club

NTARC's September meeting saw guest speaker David Long from

the ACMA give a presentation on the role of the regulator of our radio spectrum and provide some interesting stories of a day in the life of a technical ACMA field representative. A big thank you to David for his time and presentation.

North West Tasmanian Amateur TV Group (NWT-ATVG)

The NWT-ATVG has been experimenting with Digital ATV transmissions from Ulverstone using a TECATEL unit. The group is currently organising a linear power amplifier to increase coverage around the Ulverstone area. If you watch the NWT-ATVG broadcasts on analogue ATV in the Ulverstone area why not try tuning your set-top box or TV to 446.5 MHz with a 7 MHz bandwidth and see if you can receive the digital ATV signal. All signals reports to Tony VK7AX.

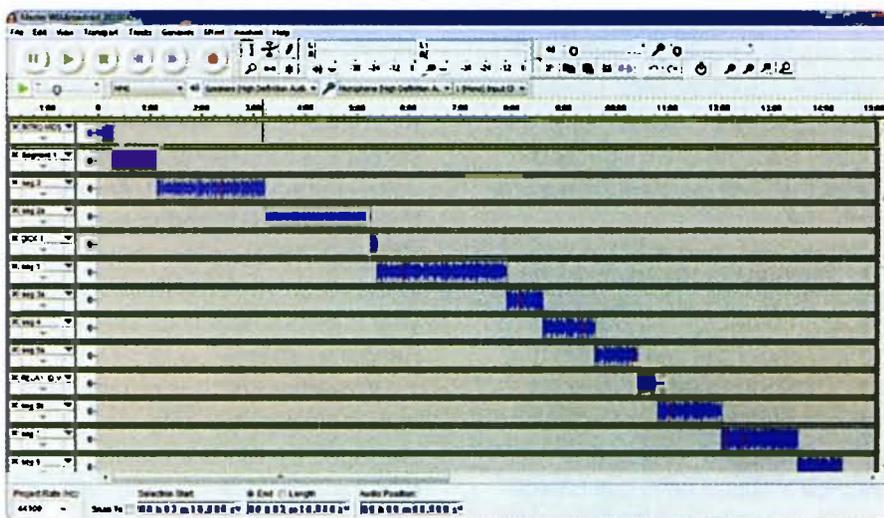


Photo 1: The Audacity audio manipulation application. Photo courtesy of VK7TW.

Radio and Electronics Association of Southern Tasmania

Due to popular demand, REAST's September presentation saw the author and Brian VK7TX give a demonstration of digital audio and video manipulation. The author used the freeware multi-platform application, Audacity, for recording, processing, editing and manipulating audio files and used a multitrack WIA National broadcast as a demonstration file. Brian used the Avid - Pinnacle Video editing application and used a recently produced Scout Regatta promotional video to demonstrate the editing, adding effects, titling and music to the video clips to create a very professional end result. Thanks to Brian for sharing his video editing skill and knowledge.

REAST's DATV Experimenters' nights have seen an ex-TV linear PA, QSL card from Raleigh Stout AC5JW who was a participant on the world-wide ATV QSO Party,

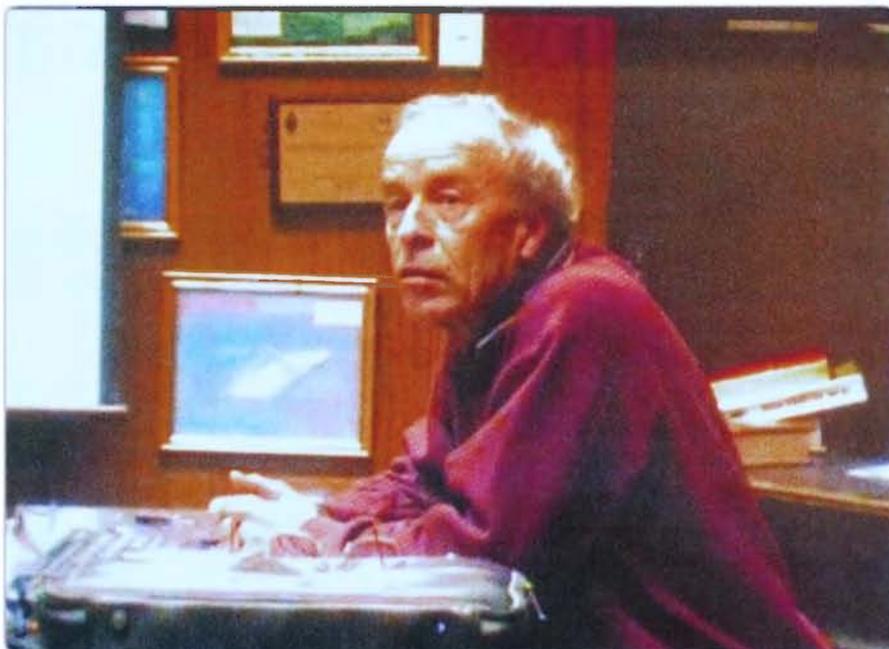


Photo 2: Brian Muir VK7TX taking the audience through a video editing sequence. Photo courtesy of VK7TW.

building a high power switch mode 13.8 VDC 75 amp power supply, dangerous fuse holders, x/y/z movement motors, RaspberryPi implementation of XBMC and our new QSL cards. Video presentations

have included ships – AIS, planes – ADS-B and autos – APRS presentations and talks from the WIA Centenary weekend. We stream our content on batc.tv – members stream VK7OTC – see you there!

Silent Key

Dick Highway VK3ABK

It is with regret that we advise the passing of Dick Highway VK3ABK on 3rd August, 2012. Dick was one of the founding members of the Geelong Amateur Radio Club.

Dick was undoubtedly a pioneer in the amateur radio field. His interest in radio was first apparent during WW2 when his father caught him monitoring Japanese broadcasts on a home brew radio. He then went on to demonstrate 405 line TV to the public for a Melbourne company, before 625 lines arrived. After this he worked for CSIRO in Geelong, in the electronics laboratory of the textile division, where RF played an important role.

In the late 1940s he was issued the call sign of VK3ABK and so started his love and involvement with amateur radio. Although he built and operated equipment on the HF bands his primary interest was VHF. In 1956 he applied for and was granted a licence to transmit television.

Dick then built a home brew 70 cm amateur TV station.

When in the 1960s commercial car phones were being modified for two metres Dick had one installed in his car. He was also heavily involved in the joint GARC/GRES project to build one of the first repeater stations in Victoria. He was also involved in the 'packet revolution' using the Dove satellite and took great pleasure in setting up long digipeating terrestrial paths, and this he used till the last BBS available to him was shut down. About this time his hearing deteriorated and he dealt with this typically, by making his own hearing aid, but even with a commercial one the problem persisted. Undeterred Dick then set about, with Barry VK3SY, writing the first 50 years of the Geelong Amateur Radio Club, to which he was now a life member.

In later years he became interested in global warming and was of the opinion that it was an insult to mankind to hold them responsible, and so started to look

at natural occurring events such as meteors and lightning strikes, building his own equipment to monitor these occurrences. This equipment included a Geiger counter, from his CSIRO days, to monitor background radiation. Dick was a classic old style amateur, believing that all equipment should be home made, as a consequence of which there was little commercial gear in his shack.

During the last months of his life he was confined to bed and was compelled to use oxygen 24 hours a day. All in all he was a remarkable person and the above does not do justice to his significant contribution to the furtherance of the world of amateur radio.

This obituary on the life of Dick Highway VK3ABK was sourced from information kindly supplied to the GARC by Rod Green VK3AYQ.

Contributed by Tony Collis VK3JGC on behalf of the Geelong Amateur Radio Club.



Spotlight on SWLing

Robin L. Harwood VK7RH.
e vk7rh@wia.org.au

I was shocked and very saddened to hear of the sudden death of Michael Owen VK3KI, the WIA President, on 22nd of September. I had only briefly met him on one occasion at a divisional hamfest here in VK7, but the date eludes me, probably in the mid 80s. I think he was an IARU representative at the time. My condolences go to his family and to the wider WIA family, as they mourn an inspirational leader who led the WIA into becoming a truly national organisation.

Bonaire has finally gone silent after nearly three decades of broadcasting on HF. This indeed is sad as signals came in here consistently with excellent relays of Radio Nederlands and, later, relaying of other broadcasters. As you are aware, the Dutch Government dramatically slashed RNW's budget so that it became no longer viable to continue broadcasting. A new free press format was to replace it but not affiliated to the Dutch government, although minimal funding was allocated. I am aware that there has been an irregular Spanish broadcast from Bonaire, ostensibly for Cuba. Support was also available for programming for greater Sudan

and Zimbabwe, utilising the Talata relay in Madagascar, although RNW no longer owns the relay station as it was purchased by local management, and manning the senders. I believe that programming to Sudan and Zimbabwe continues from Talata.

The Montsinery site in French Guiana is now one of the few remaining high-powered transmitting senders on continental South America. Clients, who were formerly using Bonaire, will probably sign up to utilise it.

Radio Liberty (R. Svbodya) has been broadcasting to Russia for 60 years and for the past 20 years or so was able to broadcast via medium wave and FM with Russia and some CIS nations. This dramatically changed on the 1st of October as the Russian Government refused to allow RL to hire transmission time or broadcast locally. They cited the reason as being interference in the internal affairs of the Russian Federation. I believe that the American broadcaster employed local staff to produce programming and to assist with administrative duties. I believe that the Americans sacked the staff and closed their offices. It is not known what alternative

arrangements have been made to overcome the Russian decision, which is a throwback to the Cold War, which ended just over 20 years ago. Will this see the reactivation of increased shortwave output? I cannot say as the IBB, which is the parent organisation, appears fixated on streaming output on the Internet.

There are also indications that the Spanish Foreign Radio (REE) in Madrid may also be quitting shortwave by the end of 2012. Spain has been severely hit by recession and a very unpopular austerity plan has been implemented to curb spending. REE operates from Nobejlas and also has a relay base in Costa Rica. Greece has also been battling a severe austerity regime that is highly unpopular but the Greeks shortwave service continues, with reduced output.

Russia decided to revert to standard time on the 28th of October after the decision to permanently advance clocks by one hour proved highly unpopular. It also decided to revert to 11 time zones instead of nine. Russia will reintroduce DST in March along with the rest of the northern hemisphere.



Over to you

Help needed

I have two issues with which readers and WIA members may be able to help:

1. Has anyone fitted electric winches that can be remotely controlled to a Nally tower to raise and lower it and to telescope the inner section up and down. I would be grateful for any advice on this issue.

2. Can anyone tell me where one can get printed circuit boards for ETI projects?

73, Scotty VK2KE
vk2ke@wia.org.au



VK6news

Keith Bainbridge VK6RK

e vk6rk@wia.org.au

I'm sad to start off this month's VK6news with the news that WIA President Michael Owen VK3KI passed away suddenly at home. I had just sat down to start producing this month's column when that news came in by email.

I'd like to offer all VK6 amateurs condolences to Michael's family and friends; we have lost a tireless worker for amateur radio in this country.

I worked with Michael on several projects over the years, and you could always count on his commitment to the amateur radio cause. Vale Michael VK3KI.

Peel Amateur Radio Group (PARG) news, contributed by Paul VK6LL, Secretary PARG.

PARG members recently assisted with emergency communications for the local (Mandurah) State Emergency Services unit. Over a two day period the WA coastline was hit by extensive storm damage, and the Mandurah SES received over 400 requests for assistance. Radio amateurs provided much needed relief to the hard working SES operators. Assisting in times of emergency was a rewarding and exciting experience for the amateurs involved.

The PARG is currently preparing for the running of another hectic JOTA/JOTI station on behalf of the Peel Scouting District, on Saturday 20th October. For 2012 Scouts Australia has asked PARG to run the station from a new venue, that being the 1st Rockingham Scout Hall. Portable field testing is starting in late September to ensure reliable communications on HF, VHF, IRLP and EchoLink.

JOTA is probably the biggest annual event for PARG, and this year two portable station test days will be needed to prove in



Photo 1: The VK6BBS refurbishment under progress.

the communications at the new station QTH. JOTA provides an ideal opportunity for the group to fire up all of its radio gear, including the custom built 12 metre mast on the group's Mobile Communications Unit (trailer). VK6ARG will be working overtime down in Rockingham right through from midday to midnight on October 20th.

Thanks for the update Paul and best of luck with JOTA.

Now it's the Hills Amateur Radio Group's (HARG) turn.

The new committee for HARG is:
President: Martin Stretton VK6ZMS,
Vice President: Rob Nottage VK6UFO, Secretary: John Trimmer VK6JAT, Treasurer: Cliff Bastin

VK6LZ, Publicity Manager: Bill Rose
VK6WJ, Technical Officer: Heath
Walder VK6TWO.

Recently, the club purchased a very nice, second hand 100 MHz oscilloscope to add to its increasing range of test gear, some of which is available for members to borrow. Richard VK6BMW gave us a driving lesson on the new CRO and explained the basic functions including how to safely display and analyse the output waveform of a transceiver using dummy loads, modified T pieces and sniffer coils. We now also have an Ameritron linear amplifier and this was demonstrated to members at recent meetings.

At our General Meeting on Saturday 25th August Lee VK6TY and Jon VK6MAD entertained a large group of members with a demonstration of their recently built magnetic loop antennas. As a result, quite a few club members have now built their own loops and there has been much discussion about suitable tuning capacitors.

At our General Meeting on 27th September Rob VK6UFO gave members and visitors a talk on the APRS system in general and also the HARG APRS unit set up in the club shack.

At our Social meeting on Saturday 10th November Ray VK6ZRW will take us on a tour of the Channel 2 television transmitting site at Bickley. That will be our last technical session for the year.

The club recently obtained a large number of second hand radio components from the estate of silent key Cliff VK6NK and these will be available for sale at every club meeting from now on.

Don't forget that we now have a midday sausage sizzle before every meeting and meetings then start at 2.00 pm. Social meetings are on the second Saturday of the month and General Meetings on the last Saturday. For more information go to www.harg.org.au 73 until next time from Bill VK6WJ.

Thanks to Bill for the update.

Glen VK6IQ and Eddie VK6YA have been busy!!

Here is their update. On Thursday 20th September Glen VK6IQ and Eddie VK6YA installed the VK6BBS packet system at Wireless Hill.

The delay in re-installing the packet system at Wireless Hill was due to all the work that the Melville City council had been doing there to celebrate the upcoming centenary of Wireless Hill.

There are new paths, barbecues, shelters and the whole ring road has been repaved, the Wireless Hill Museum has been cleared out ready for new displays and the radio shack has had new carpet installed. (I believe there will be more on this centenary celebration elsewhere in *AR*, VK6RK.)

This delay in reinstalling the VK6BBS packet systems meant that it did have an extended testing period at the home of Eddie VK6YA, with fine tuning the configuration of the BBS software. The original installation of VK6BBS had been removed by Glen in June as the computer had failed and on investigation it was found that both the hard disk and motherboard had died. This required a new computer be sourced, Linux installed, and the software configured to work with the available hardware.

After discovering that the TNC2 clone was faulty, Edie was supplied with a second KPC9612, and an edit to the main script written by him saw the BBS forward port function as intended.

VK6BBS runs on an Intel P4 computer, with a 40 GB hard disk, 1 GB memory and two serial ports. The radios on 144.725 MHz and 147.575 MHz are ruggedised FM828s and the radio used on the 9600 port of 441.050 MHz is a Tekk KS-900.

The TNCs used for all ports are the Kantronics KPC9612 dual port TNCs. The KPC9612 TNCs have one serial port and two connectors to connect to radios; one radio can run at 1200 the other at 9600. The

TNC is set into kiss mode, the AX25 software on the BBS creates two virtual serial ports and then the BBS software sees two separate TNCs, and uses them appropriately.

The antenna used for all RF ports on the BBS is a refurbished dual-band, and the radios use a set of cavity filters to isolate the two 2 metre ports and a duplexer to combine the 2 metre and 70 cm ports.

So those of you who have missed your fix of packet radio now have a working BBS system back again thanks to the efforts of Eddie and Glen.

On the subject of Wireless Hill, a few words from the *VHF Group*.

The WA VHF Group is preparing for the Wireless Hill Centenary and will be on air as VI6VIP from 29 September to 13 October inclusive. If the information I submitted last month is in the October edition of *AR* then readers will know that it is on. Unfortunately we cannot produce photos or news until it happens, so that will be for the December *AR*.

We mourn the loss of Michael Owen VK3KI, who was a great ambassador for the WIA and offer our sincere condolences to his family and all who called him friend.

We have our AGM in October and the new leadership will be working on taking up the offer of making this our permanent 'home' and securing this by MOU. 73, Bob VK6KW.

Finally, news from the *Northern Corridor Radio Group (NCRG)*.

Sunday September 23rd saw the AGM take place at NPSARC. It was well attended and a healthy discussion took place with the results being small changes to the Committee.

President is Keith VK6RK, Vice President is Stu VK6LSB, Secretary is Wayne VK6EH and Treasurer is Anthony VK6AL.

Our outgoing President Ian VK6TWJ was warmly thanked for providing a calming influence after the hectic 12 month period preceding the last AGM.



Photo 2: The very impressive NCRG antenna farm – but still a 'work in progress'.

The club is now a more relaxed place to be and all projects are running smoothly with far more group participation than in the past. Other positions will be filled as soon as the correct people can have their arms twisted.

Arthur VK6CY is making great progress on the 80 metre four square antenna and it should be ready for some of the upcoming contest activities.

On the subject of contests, the NCRG is now the proud holder of the callsign VK6NE, the late Neil Penfold's call. As Neil was a founder and champion of the OCDX Contest, we thought it appropriate

to use his call once a year in the SSB section of the OCDX Contest, on October 6th this year. So by the time this is published it will have had a good thrashing and hopefully achieved some good scores.

There has also been much progress on the re-installation of the late Don Graham's VK6HK excellent tower. A correction to a previous update on this tower is needed; the tower was designed and built by Bob VK6KRC and the late Harry Pride, not Don himself, though Don was indeed responsible for the impressive array of antennas that were on the top! The tower is almost up and the VHF/ UHF antennas will soon be back on air.

The NCRG is hosting a Car Boot Sale at the club premises in Whiteman Park on Saturday 17th November at 9 am. All are welcome and parking bays are available at \$5 each. Please note this is an outside event so bring suitable protection against sun or rain! Please contact Keith VK6RK to book a spot. There will be a sausage sizzle and cold drinks available on the day. We look forward to seeing you there.

That's it for the VK6news for another month, please keep the input flowing, especially information on your groups upcoming Xmas activities.



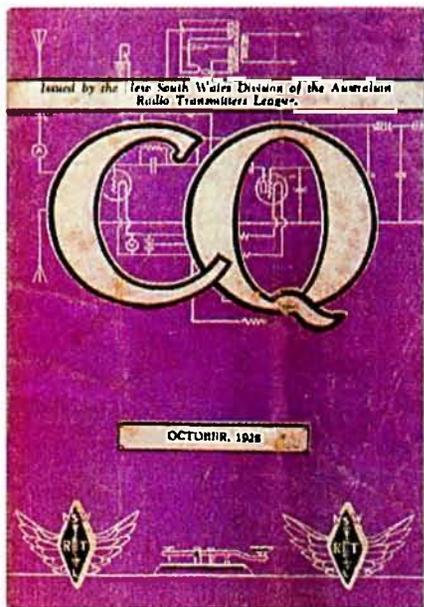
Plan Ahead

24 - 25 November
Spring VHF/UHF Field Day

January 2013
Ross Hull Memorial VHF Contest

Hamads

WANTED - NATIONAL



Copies of *Australian CQ* magazine.

The WIA Archive is seeking early copies of the late 1920s Australian CQ for copying and/or adding to the WIA Archive's shelves.

This magazine was published by the NSW Division of The Australian Radio Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrangong Radio Museum. Collectively, we wish to build up the issues extant.

The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email vk3rv@wia.org.au or c/o the National Office in Bayswater if you can help us locate this important part of our history.

WANTED - NSW

A 1155 RX or AR8 RX, or any other World War 2 receivers.

Contact Nick Pritchard on 02 9477 2134.

FOR SALE - SA

ESR Meter parts - Complete parts kit, \$69.95 plus postage. Order on-line from Aztronics Pty Ltd, 170 Sturt St, Adelaide, 5000. Phone 08 8212 6212 or at www.aztronics.com.au

PCB only, \$10.00 plus postage. Order on line from VK5JST, www.users.on.net/~endsodds

WANTED - SA

Front protection cover for a WW2 3B/3BZ receiver.

Contact Malcolm Haskard VK5BA, email mhaskard@chariot.net.au or on 08 8280 7192.



Yarra Valley Amateur Radio Group Inc.

www.yvarg.org.au PO Box 346 Healesville Vic. 3777

VK3YVG's

Hamfest

Free tea and coffee

Light refreshments available

Hire of tables \$15 each

Ample parking \$5 entry

Open to traders at 8:30 am

Sunday 11 November 2012

10 am to 2 pm at the new venue

Garry Cooper Pavillion, 16 Anzac Avenue, Yarra Glen Melways 274 K1

Call in on VK3RYV Repeater 146.725 MHz

SALE

Sales

of pre-loved Ham equipment, components & computer gear

For booking of tables and further information contact yvarg@yvarg.org.au Gavin VK3GH on 5968 8482 or Steve VK3TSR on 0418 103 487



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

AMIDON FERROMAGNETIC CORES



tts systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttsystems.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links
related to Amateur Radio
and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products
Visit the Hamak website at

Hamak.com.au

for

**Linear amplifiers,
Power supplies
and accessories**

About Hamads

- Submit by email (**MUCH PREFERRED**) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'

PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au



Tecsun PL 600 HF Receiver

**Easy to use
600 memories**

Large LCD display, direct frequency entry, LW, MW and continuous SW coverage to 29,999KHz, SSB, supplied with approved charger and NiMH batteries.



**ONLY \$139 +
shipping**

Av-Comm Pty Ltd
24/9 Powells Road
Brookvale NSW 2100

Tel: 02 9939 4377
Fax: 02 9939 4376

Email: info@avcomm.com.au
www.avcomm.com.au

ADVERTISERS INDEX

Av-com	63
Com-an-tena	15
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	9
TET-Emtron	11
TTS	13, 63
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

JACKSON BROS
www.jacksonbrothers.com.au
Highest quality products made by UK craftsmen
Variable and Trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES
HAMMOND MANUFACTURING - Large range of quality electronic enclosures for the discerning Radio Amateur.
Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many APRIL projects.

Cookson Controls CHARLES I COOKSON PTY LTD
11-13 Port Rd Queenstown SA 5014
Tel: (08) 8240 3200 Fax: (08) 8240 3233
sales@jacksonbrothers.com.au
ccookson@hammfg.com
ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND

Directory



National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
<http://www.wia.org.au>

The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee

Email: vk2advisory@wia.org.au

- * John Bishop VK2BK
- Dominic Dahl VK2YDD
- * Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- * Bob Tait VK3XP
- Luke Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- * Michael Charteris VK4QS
- Alan Shannon VK4SN

South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- * David Clegg VK5KC
- * Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- * Heath Walder VK6TWO
- * Craig Lamb VK6FLAM

Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- * Justin Giles-Clark VK7TW
- Peter Rumble VK7IY

Northern Territory Advisory Committee

Email: vk8advisory@wia.org.au

- * Peter Blackadder VK8HPB
- Garry Woods VK8GW
- * Alan Baker VK8AB
- Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board
("Nominated Member")



Wireless
Institute of
Australia

2013

Callbook



Includes: **Searchable CD** containing
The complete 2013 Australian and New Zealand Callbook
+ All Australian Amateur Callsigns
+ Printable Great Circle Maps

WIA 2013

Callbook

Available early November!

Members: **\$22.00*** Retail: **\$30.00***

* plus postage and packaging

Visit our online bookshop for details.

www.wia.org.au/members/bookshop/about/



Michael Owen VK3KI SK



Michael operating on the National Field Day in 1961 on Mt Blackwood with Michael Osborne VK3ZCZ. (Photographer not known.)



Michael presenting Tony Hutchison VK5ZAI with the Chris Jones Award.



Michael with Dick Smith VK2DIK and Geoff Atkinson VK3AFA at the Bowlyie Flying Club.



Michael and Peter Young VK3MV sign up new members at the 2007 Kyneton Hamfest.



Michael with Chris Chapman, Chairman of the ACMA, on the day of the signing of the ACMA WIA outsource agreement.



Michael shakes hands with Takashi Aoki during the presentation of D-STAR repeaters from Icom to the WIA.



At the NZART Conference held in Napier in 1978. From the left: ZL1HV President NZART, VK3KI, VK3ADW and ZL2AZ, Past President NZART and Director of IARU R3. (Photographer not known.)



Michael with Shizuo Endo JE1MUJ.



Michael outlining ideas during a Board meeting held at the home of the late Chris Jones VK2ZDD.



Michael presenting Fred Swainston VK3DAC with his Ron Wilkinson Award.

Photo credits: Photos by Robert Broomhead VK3DN and John Longayroux VK3PZ.

 ICOM

Experience Icom technology in analogue & digital

IC-80AD



ID-31A



IC-7100



IC-2820H



ID-51A



IC-9100



To find out more about our latest products,
call Icom on 03 9549 7500 or visit www.icom.net.au

Amateur Radio

Volume 80
Number 12
December 2012
Price: \$8 incl GST

www.wia.org.au



Microwave activity in SE VK4

- Amateur RADAR reveals new propagation information
- Foundation Corner: Navigating the second-hand VHF/UHF radio market
- Amateur radio to the rescue

ISSN 0002-6859



12

9 770002 685062

Season's
Greetings



The radio... YAESU

HF/50 MHz 100 W Transceiver
FTDX 3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments



The amazing Crystal Roofing Filter performance

The Down conversion 9 MHz 1st IF frequency receiver construction, can realize narrow 300 Hz (optional), 600 Hz and 3 kHz bandwidth roofing filters.

Outstanding receiver performance, the heritage of the FTDX5000!

The high dynamic range IP3 performance that was realized and proven in the FTDX5000.

IF DSP provides effective and optimized QRM rejection

Independent Frequency display

4.3-inch Large and wide color LCD display with high resolution

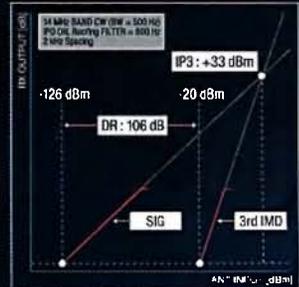
High Speed Spectrum Scope built-in

AF SCOPE display and RTTY/PSK encoder/decoder

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.



Characteristics of the Crystal Roofing Filter (300 Hz)



3rd Order Dynamic Range / IP3 (2kHz Spacing)

YAESU
The radio

YAESU Authorized Dealer in Australia and New Zealand

Amateur Transceiver Radio Centre
Level 1, 141 Gilba Road,
Girraween NSW 2145
URL : www.atrc.com.au
Tel: +61-2-9896-2545

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street,
Greystanes NSW 2145
URL : www.andrewscom.com.au
Tel: +61-2-9636-9060

Strictly HAM Pty. Ltd.
14 Church Street,
Bayswater Vic. 3153
URL : www.strictlyham.com.au
Tel: +61-3-9729-7656

GEOPLEX DISTRIBUTION LTD
Level 1, 60 Cook Street,
Auckland 1010, New Zealand
Tel: +64-21 434342

YAESU Authorized Service Center in Australia and New Zealand

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
Tel: +61-2-9636-9060, Fax: +61-2-9688-1995
E-mail: radioandrews@hotmail.com

JNB Electronics Pty Ltd
St Kilda Rd Towers, Suite 1138, 1 Queens Rd, Melbourne, VIC 3004
Tel: +61-3-9465-9399, Fax: +61-3-8682-8748
E-mail: yaesu@jnb.com.au



Amateur Radio

Volume 80
Number 12
December 2012
ISSN 0002-6859

The Journal of the Wireless Institute of Australia

Editorial

Editor
Peter Freeman VK3PF
editor@wia.org.au

Technical Editor
Peter Gibson VK3AZL

Publications committee
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Roper VK3BR
Ewen Templeton VK3OW
Ernie Walls VK3FM
Greg Williams VK3VT

All circulation matters
nationaloffice@wia.org.au

How to submit material
Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or armag@wia.org.au

Letters to Editor
Editor AR Magazine
PO Box 273
Churchill Vic 3842
or editor@wia.org.au

Hamads
'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising
All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or admanager@wia.org.au

Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines
All articles, columns, hamads and advertising booking by **first day of previous month.**

The contents of Amateur Radio are Copyright
Wireless Institute of Australia © 2012

General

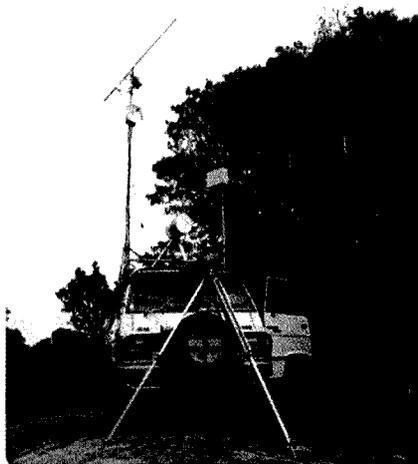
- Amateur radio to the rescue 23
Brenton Meadows VK5BM
- Maryborough to host Australian Scout Jamboree AJ2013 27
Geoff Emery VK4ZPP
- How a stray cat gave me some extra D-STAR contacts 28
Darren Glynn-Roe VK5DP
- Technical Advisory Committee Notes 54
John Martin VK3KM

Technical

- Growth in microwaves in SE Queensland 6
Doug Friend VK4OE
- Adventures with a bistatic chirp and CW radar 10
Andrew Martin VK3OE/VK3OER
- Foundation Corner 21: Navigating the second hand VHF/UHF radio market 20
Ross Pittard VK3CE
- How I built a dummy load from commonly available components, and why I did it! 26
Neville Chivers VK2YO

Columns

- ALARA 32
- AMSAT 30
- Contests 29, 48, 51, 52
- DX - News & Views 33
- Editorial 2
- Hamads 62
- Over To You 43
- Silent Key 47, 54
- Spotlight On SWLing 44
- VHF/UHF - An Expanding World 36
- WIA Comment 3, 5
- WIA News 4, 5
- News from:
 - VK2 58
 - VK3 43, 55
 - VK5 28, 29
 - VK6 45, 59
 - VK7 56



This month's cover
Summer is traditionally the season for VHF, UHF and microwave operations, with increased likelihood of enhanced propagation. Some prepare for the season by getting out for a fun day of checking the gear before the contest season commences. Our cover shows the set-up at VK4OE/2 during the recent Microwave Activity Day in SE Queensland. Antennas for all microwave bands from 1.2 to 24 GHz are visible. Photo by Doug Friend VK4OE.

Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's oldest
National Radio Society, founded 1910.

Representing

The Australian Amateur Radio Service

Member of the International Amateur Radio Union

Registered Office of the WIA

Andersson House

Unit 20, 11-13 Havelock Road
Bayswater, Victoria, 3153

Tel: (03) 9729 0400 Fax (03) 9729 7325

email: nationaloffice@wia.org.au

<http://www.wia.org.au>

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

<i>Manager</i>	Mal Brooks	VK3FDSL
<i>Administration Officer</i>	Margaret Williams	
<i>Examination Officer</i>	Dianne Ashton	VK3FDIZ

Board of Directors

<i>President</i>	Phil Wait	VK2ASD
<i>Vice-President</i>	Chris Platt	VK5CP
<i>Directors</i>	Phillip Adams	VK3JNI
	Bob Bristow	VK6POP
	Ewan McLeod	VK4ERM
	Trent Sampson	VK4TS
<i>Secretary</i>	David Williams	VK3RU
<i>Treasurer</i>	John Longayroux	VK3PZ

Coordinators

<i>AMSAT</i>	Paul Paradigm	VK2TXT
<i>ARDF</i>	Jack Bramham	VK3WWW
<i>Australian ARISS</i>	Tony Hutchison	VK5ZAI
<i>Awards</i>	Chris Platt	VK5CP
<i>Clubs</i>	Ted Thrift	VK2ARA
<i>Contests</i>	Craig Edwards	VK8PDX
<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
<i>Editor 'AR'</i>	Peter Freeman	VK3PF
<i>EMC/EMR</i>	Gilbert Hughes	VK1GH
<i>Standards</i>	Gilbert Hughes	VK1GH
	David Wardlaw	VK3ADW
	John Bishop	VK2ZOI
<i>NTAC</i>	John Martin	VK3KM
<i>Historian</i>	Peter Wolfenden	VK3RV
<i>IARU Region 3 Liaison</i>	Chris Platt	VK5CP
<i>Monitoring Service</i>	Peter Young	VK3MV

ITU Conference & Study Group

	David Wardlaw	VK3ADW
	Brett Dawson	VK2CBD
	Dale Hughes	VK1DSH
<i>QSL Curator</i>	National Office	
<i>Repeater</i>	Peter Mill	VK3ZPP
	Richard Cerveny	VK2AAH
<i>Webpage</i>	Robert Broomhead	VK3DN

Emergency Communications Group

<i>Coordinator</i>	Phil Wait	VK2ASD
<i>Members</i>	Ewan McLeod	VK4ERM
	Peter Young	VK3MV



Editorial

Peter Freeman VK3PF

Another year done

Where has the year gone – Christmas is almost upon us, with the New Year celebrations to follow shortly thereafter. As this edition of *AR* is being prepared, we have seen the running of “the race that stops a nation” and the hamfest season is back in full swing before its end of year pause.

I trust that you all managed to cross a few tasks off the “to do” list. Personally, several big items have not been tackled. However, I have managed to complete several tasks. Of course, several other new items have been added. As most will have gathered from my last missive, I have become bitten by the SOTA bug. That has also stimulated lots of thoughts and experimentation with antennas for human-carried portable gear, as opposed to operations based close to a vehicle. The latest effort is a lightweight Yagi for 2 m, based on a design by DK7ZB. The result, which I may write up down the track once its performance has been checked, is a seven metre mast for holding the centre of an inverted V HF dipole, or a 6 element Yagi for 2 m with a four metre mast, with a total mass of about 1.3 kg. Not bad when you consider that the core – a seven metre “squid pole” – comes in at one kilogram by itself. Add to that the mass of the HF antenna and feedline/s, plus the radio and at least one battery, and it starts to add up. If the Yagi works as expected, then it should all make a reasonable, flexible SOTA station which is not too taxing to carry up the hill.

Volunteers needed

As noted last month, Phil VK4BAA has contributed his last Contests column with this issue. So we need a new columnist ASAP. The next issue commences preparation at the start

of the New Year, so we do not have much time to ensure that we have an overview of upcoming contests and recent results. We will publish the rules and results that are supplied, but we really need someone who is willing to put together some words to give us the overview and perhaps some ideas and encouragement to participate.

Please direct your expressions of interest to me at editor@wia.org.au

The 2013 Callbook has been available for a couple of weeks and is hopefully selling well. As I have previously indicated, Greg VK3VT is unable to continue the task for next year and we are seeking a new Editor for the Callbook. Thanks to those that have already expressed interest. Anyone else interested needs to “put up their hand” very quickly to be in consideration.

Season's Greetings

Regardless of one's personal beliefs, the end of year is a season of celebration. One cannot escape the advertising promoting gift, food and drink purchases. Most celebrate the coming of the New Year, some more enthusiastically and “harder” than others. Some hope that “Santa” brings a nice gift for the shack.

Perhaps the key is to ensure that you enjoy the season and make contact with family and friends. It might also be an opportune time to revise that “to do” list and make more definite plans to ensure that more of the items are completed in the coming months!

I trust that you all have a safe festive season and a prosperous New Year.

Cheers,

Peter VK3PF

WIA comment

Phil Wait VK2ASD



Business as Usual

I can't say that this time has been a particularly joyful one for us at the WIA following the recent passing of our past-President, Michael Owen VK3KI (SK), although with a lot of dedication from WIA Manager Mal Brooks, our office staff Margaret and Dianne, and our team of overworked volunteers, I can say that the WIA is in fine shape.

For instance, in the last month we have participated in two very major international activities.

Dale Hughes VK1DSH attended an ITU working group in Geneva. Dale is the Chair of that working group which is investigating the possibility of a new amateur service allocation between 5250 & 5450 kHz. The ITU is also addressing issues associated with short-range vehicle radar in the 78 GHz band, and a telegraphic alphabet for data communication by phase shift keying at 31 baud in the amateur and amateur-satellite services.

As Chair, Dale's tasks include the drafting of several documents which will cover the characteristics of typical amateur operations and their compatibility with existing services within the proposed band. These 'sharing studies' are a very important aspect of the process as they will largely determine whether or not a 5 MHz amateur allocation is possible.

Dale's work is long and arduous, as everyone has to have their say and there is strong opposition from some prominent administrations to any new amateur allocations, largely depending on the politics and ideologies of various countries. Dale also keeps his ears to the ground

for any other emerging issues which may affect amateur radio.

Also last month, Geoff Atkinson VK3TL and Peter Young VK3MV represented the WIA at the IARU Region 3 meeting in Vietnam. The WIA seeks an improved funding model for Region 3 in order to ensure the Amateur Service continues to be adequately represented internationally on spectrum allocation issues, and is capable of protecting its primary spectrum allocations through an effective global intruder monitoring system.

Other IARU Region 3 issues of interest to the WIA are the development of better bi-lateral arrangements for amateur emergency communications and disaster recovery, and encouragement of amateur qualification training activities in developing countries.

Although this long-term international work is vitally important for amateur radio, and quite expensive, it often goes largely unnoticed. As a WIA member your money is going to these vital activities in support of amateur radio, and unfortunately you are in effect subsidising others who choose not to be WIA members. Such is the nature of the beast.

Closer to home, our activities are more tangible. I must say that this magazine is looking good, our training and assessment activities are continuing with excellent results, and our relationship with the regulator is strong.

Although membership continues to rise slowly, for the first time in

many years the WIA may show a small financial loss. Nothing serious, but a trend that must be addressed. The reasons are probably many and varied, but an ageing membership, the general economic conditions encouraging people to save rather than spend, and a fall in the number of new Foundation licensee's entering the hobby are all contributing factors.

It would be easy to simply raise membership and service fees, but given the profile of our membership and the tenuous state of the economy, that would probably be counter-productive at this time. We could reduce expenses by cutting activity and member services, but that's never a good plan for the health of any organisation.

The WIA Board has made a decision to introduce a new 'cloud' based membership management system called MEMNET. A cloud system is one where the information system is developed, provided, upgraded and maintained by an independent software company, thus relieving the WIA and its volunteers of that responsibility.

The MEMNET system will allow on-line membership access to all WIA services and facilities, and will also provide a targeted information service to members depending on their interests and activities. For instance if you are a contester, MEMNET can automatically send you emails about the latest contest and propagation conditions, or you might like to get news items about new wireless technologies.

Continued on page 5

Antenna masts in NSW – Another WIA submission

Roger Harrison VK2 ZRH provided us with the following update:

The WIA has lodged another submission to the latest stage of the NSW Planning System Review in a continuing effort to have amateur antenna masts classified under exempt or complying development.

This latest submission responds to the Draft Policies and Plans posted on the NSW Planning & Infrastructure department's website for public comment over 12 October to 9 November 2012.

The Institute has made two previous submissions to the Review; first to the Listening & Scoping Phase in November 2011, and second, in response to the Issues Paper, in March 2012.

The WIA's submission expresses disappointment that consideration of planning exemptions for amateur radio antenna masts was not included in the draft policy and reiterates the original proposal.

The latest submission can be downloaded and viewed from the WIA website.

Radio amateurs battle to get messages through council red tape

The following item by reporter Nicole Hasham appeared in the Sydney Morning Herald on 31st October:

With just a wire antenna, a slice of the airwaves and his own technical guile, Compton Allen is a one-man radio mogul.

He doesn't rely on the internet, or a mobile phone. From his home in Ryde, the amateur radio buff - call sign VK2HRX - can transmit messages to Parramatta or New York. Others contact the international space station, or even bounce signals off the moon.

But one source of earthbound interference impedes Mr Allen, and

many of the state's 4300 licensed amateur radio users - the burden of council red tape.

"[Council regulation] restricts the type of antenna I can put up ... I sometimes find it hard to talk to stations in northern Europe and Antarctica and some places in Australia," Mr Allen said.

"The application process for antenna towers can be long and laborious, cost considerable money and involve all sorts of technical requirements which are probably not necessary."

The century-old pursuit of amateur radio involves sending and receiving data over selected frequency bands. Traditionalists transmit Morse code or voice; the new breed either circumvents the internet by sending digital data over the airwaves, or uses the web to link radio systems around the world.

Far from simply a backyard hobby, amateur radio can be critical during natural disasters.

An amateur radio operator, Bob Hooper, was reportedly the first to tell the world Darwin had been hit by Cyclone Tracy, and enthusiasts helped authorities communicate during the Victorian Black Saturday bushfires.

"When the phone system melts or collapses or gets overused, we can go on to our radio frequencies and get messages through that way," Mr Allen said.

In a submission to the state government planning review, the Coalition of Radio Amateur Experimenters called for smaller antennas used by enthusiasts - those 10 metres from the ground, or five metres above the roof line - to be exempt from development consent. Masts up to 15 metres from the ground should be more easily approved, it said.

The CRAE convener, Roger Harrison - call sign VK2ZRH - said antennas rising above the

streetscape improved efficiency and avoided interference from sources such as electricity mains and household appliances.

Under state planning policy, council permission must be sought to erect aerials more than 1.8 metres above roof level, which can require an onerous development application.

Mark Plowman, an IT consultant from Davidson - call sign VK2MP - erected a taller-style lattice mast in his backyard, which he says falls under council height limits. He communicates as far afield as Russia and the Australian Antarctic base.

"You get to build your own antennas and experiment. It gives you a sense of achievement to contact someone across the world," he said.

A planning department spokesman said no change to amateur radio aerial regulation was proposed, and that "allowing higher aerials without a detailed development application process could cause unacceptable streetscape and neighbourhood safety issues".

Hurricane Sandy - an update

The death toll from Sandy continues to grow to 63 and it has caused billions of dollars of damage and economic disruption on its wide path of destruction. The super storm reached the northeast of the US to come ashore near Atlantic City closing that city including its famed casinos, heading for New Jersey and New York City forcing Wall Street with its stock exchange out of action. A huge storm with punishing winds, record flooding, heavy snowfall and massive blackouts, wiped out homes along the New Jersey shore, submerged parts of New York City, and dumped snow as far south as the Carolinas.

The Hurricane Watch Net was activated during the super

storm with amateur radio station WX4NHC, but has now closed down. It collected reports of significant damage both on air, and through VoIP, EchoLink and IRLP. Throughout the disaster numerous trained and well prepared ARES groups set up emergency communications nets to handle the storm in partnership with the relief agencies. They had plenty of advance warning to be well placed with equipment, go-kits and personnel at disaster shelters for evacuations, emergency operation centres, hospitals and other places.

Before reaching the USA it had already caused death and mayhem throughout the Caribbean including Cuba, Dominica, Haiti and Jamaica. Relief efforts are continuing with the flooding starting to subside and blue skies appearing. Flights are resuming slowly and the New York Stock Exchange got back to business on generator power. The railway subways were closed as people walked across the Brooklyn Bridge into Manhattan to return home and survey the damage.

IARU Region 3 conference

The IARU Region 3 conference was held in the Kimdo-Royal Hotel, Ho Chi Minh City from November 5 to 9.

A record number of 16 regional societies were represented by over 80 delegates and observers. Also attending were IARU President Tim

Ellam VE6SH, and representatives from Regions 1 & 2, as well as IARU Secretary Rod Stafford W6ROD. The WIA delegate was Geoff Atkinson VK3TL, together with Peter Young VK3MV, who is also the Regional Monitoring Service Coordinator.

The conference was hosted by the Vietnam Amateur Radio Club (VARC). This is a very small member society with some 50 enthusiastic members who did a magnificent job hosting this significant international event.

The theme of this conference was emergency communications and preparedness where a significant number of papers were submitted by member societies. Other reports from Regional Coordinators were also presented. A number of important administrative issues were discussed and agreements reached. Most notable was the decision to place the Region 3 finances on a more stable footing and the appointment of an additional Director, taking the number of Directors from 5 to 6.

At the conclusion of the conference six new Directors were elected for the next 3 years. The WIA is pleased to announce Geoff Atkinson VK3TL was appointed a Region 3 Director, Peter Young VK3MV will continue in his role as IARU R3 Monitoring System Co-ordinator, as will Jim Linton

VK3PC as Region 3 Chairman of the Disaster Communication Committee. The conference accepted the proposal from the Indonesian society, ORARI, the Amateur Radio Organisation of Indonesia, to host the next region 3 conference in Yogyakarta Indonesia sometime late 2015.

WIA president, Phil Wait, VK2ASD said that there were many good outcomes from the conference and it continues the long history of support by the WIA for the IARU Region 3 affairs.

Michael J. Owen, VK3KI, Award announced

The IARU Administrative Council announced a new award in memory of Michael Owen VK3KI. "The Michael J. Owen, VK3KI, Award" was established to recognize an individual or individuals that best exemplify the dedication and hard work of IARU volunteers.

In addition, at the Region 3 conference, the WIA proposed an annual award/trophy to be awarded to the highest individual operator score located in Region 3 in the IARU HF Contest. Further details will be announced before the next IARU HF Contest.

This proposal was warmly endorsed.



WIA comment

Continued from page 3

The MEMNET system will allow you to view and edit your personal details on-line, pay your membership account and enter your particular areas of interest. The MEMNET system is expected to achieve administrative efficiencies which effectively pay for the system in the first year of operation and then provide a significant saving in years to come.

Naturally a telephone service will also be available for people who prefer it that way, but the MEMNET system will be quicker and more efficient.

So, you can see there are a lot of things happening at the WIA. It's promising to be an exciting and busy year and our next issue of AR will have more details on our international work and the MEMNET

system. From all of us at the WIA, have a very merry Christmas and lots of DX. I would particularly like to thank all those people whose support and just plain hard work has ensured a very smooth transition over the past few difficult months.

Phil Wait VK2ASD



Growth in microwaves in SE Queensland

Doug Friend VK4OE

Sunday 28 October saw quite a number of VK4 radio amateurs interested in the microwave bands out operating on hilltops and other elevated places in the Brisbane VHF Group's 2012 Microwave

Activity Day. Here is a short report prepared by Doug Friend VK4OE, with input gratefully received from other fellows active on the day.

There is no doubt about it that amateur microwave activity is presently growing in SE Queensland. Several factors have been contributing to this definite growth in recent times. Aided by the availability of Australian designs and kits for several types of module that form parts of working microwave transverters and stations (VK3XDK and MiniKits), numbers of VK4s

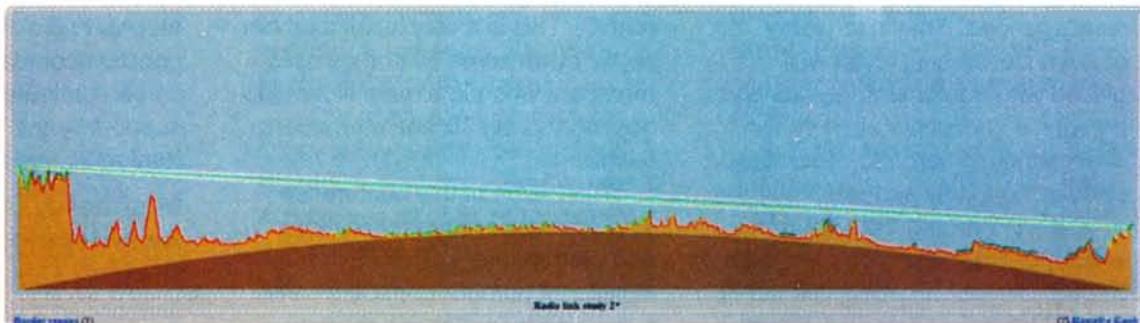


Figure 1: The profile for the 181 km path from the Border Ranges (VK4OE/2) to Howell's Knob in the Sunshine Coast Hinterland (VK4s WS UH & IIO with VK5s DK/4 NC/4 and EE/4). Graphic courtesy of VK4KJJ and VE2DBE's "Radio Mobile" software.

have 'caught the bug'. Different kits and ready-made modules available from Germany or the USA are also in use.

On top of that, in recent years two microwave test and tune-up days and three microwave activity days organised by the Brisbane VHF Group have helped inspire more folk to give microwaves a try, not to mention internet resources, VK-Logger facilities, GippsTech, etc. Building one's own equipment and successfully using home-built gear on the air is immensely satisfying whichever band it's for. Even more

so when the gear is for the microwave bands – 1296 MHz and above.

In 2012 two good microwave events have been run. First, in September, there was the test and tune-up day. A large number of amateurs brought objects and projects along for testing

and optimisation. This was a great day and some excellent videos relating to it have been produced by Adam VK4GHZ. They can be viewed by going to: <http://www.youtube.com/watch?v=gYDL3l0Sa2Y> for Part 1 <http://www.youtube.com/watch?v=dA4tGowO054> for Part 2.

More recently, at the end of October, there has been the Microwave Activity Day. A total of 15 stations are known to have been operating on 1296 MHz and above on the day. This is great considering that this was an event having no scoring of points associated with it – the activity was merely in order for radio amateurs to have some fun – sophisticated fun, for sure!

All six microwave amateur bands between 1296 and 24,048 MHz (inclusive) were used and station locations spread out from the greater Brisbane area to the Sunshine Coast in the North, the Border Ranges National Park close to the Qld-NSW border in Northern NSW, with Toowoomba and the Bunya Mountains to the West. A VK4GHZ video (like the others) should now be able to be downloaded at the VK4GHZ YouTube site.



Photo 1: Colin VK5DK/4 operating on 24 GHz in QSO with VK4OE/2 181 km away.

Electronics Enthusiasts

AM/FM/SW/AIR Band Radio with PLL

Receives FM, AM (MW, with 9k or 10k step), SW, LW and AIR bands. It uses Phase Locked Loop (PLL) technology to ensure rock-steady, drift free reception. Features sleep function, 500 programmable stations and manual, auto or preset station search.

- SW coverage: 2300 - 26100kHz
- AIR coverage: 118 - 137MHz
- Requires 2 x AA batteries
- Size: 120(W) x 75(H) x 30(D)mm

AR-1733



\$59.95



Mini Gas Soldering Tool Set

A handy gas soldering iron with flame or flameless heat blower function, suitable for general heating, drying, melting, cutting, soldering, heat shrinking etc.

- Adjustable temperature control
- Piezo ignition
- Burning time: 55-95min
- Flame temp: Up to 1300°C
- Power range: 25W to 70W
- Case size: 175(W) x 125(D) x 33(H)mm

TH-1606

\$44.95



Universal Drill Press Stand

Convert your standard power drill or rotary tool into a drill press with this adjustable stand. Built-in press depth gauge for accurate drilling, adjustable limiting brace and extra collars to suit smaller drills.

- Drilling depth: Up to 60mm
- Size: 497(H) x 350(W) x 160(D)mm

TD-2463

\$29.95



240 Mains LED Light Globes



SL-2210

FROM \$14.95

A range of mains LED light globes that are a true replacement for traditional lighting. Offers a brilliant lumen performance with wide, evenly spread light output across a 270 degree output angle, making them better than traditional light globes in many cases.

Watts	Lumens	Colour	Base	Cat.	
5W	300	Warm white	Bayonet	SL-2210	\$14.95
5W	300	Warm white	Screw	SL-2211	\$14.95
5W	360	Natural white	Bayonet	SL-2212	\$14.95
5W	360	Natural white	Screw	SL-2213	\$14.95
10W	820	Warm white	Bayonet	SL-2214	\$29.95
10W	820	Warm white	Screw	SL-2215	\$29.95
10W	900	Natural white	Bayonet	SL-2216	\$29.95
10W	900	Natural white	Screw	SL-2217	\$29.95

Arduino Experimenters Kit

Learn about the exciting new world of Arduino with these easy to build projects. From flashing an LED to moving things with a servo. Complete with instructions and a supporting web page and software examples.

- No soldering required
- Size: 340(W) x 165(H) x 36(D)mm

XC-4262

OVER \$120 TOTAL RETAIL VALUE!

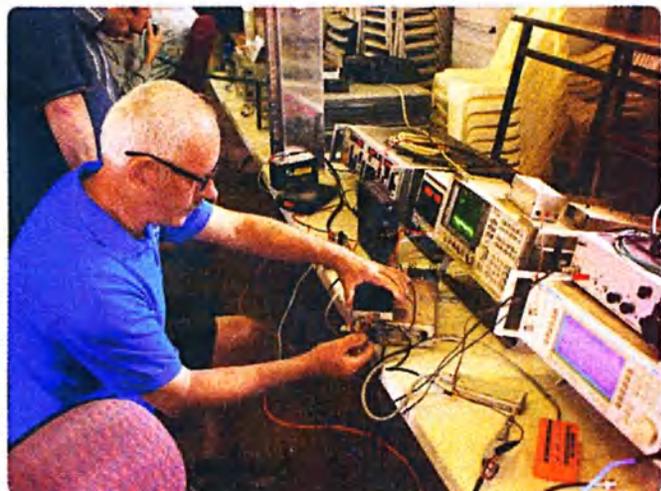
\$89.95



To order call 1 800 022 888
www.jaycar.com.au



Photo 2: VK4OEI2's view into the clouds at 1040 metres altitude. Direction is towards Sunshine Coast.



Photos 3 & 4: Two pictures of some serious microwave testing taken during September's Test and Tune-up Day. At the test benches are VK4ADC, VK4AQF and VK4CDI.

A real feature of the day's operating was the extension of two existing microwave distance records ('normal' not 'digital'). After some unsuccessful testing on 24 GHz between VK5DK/4 and VK4OE/2, contact was initially established on the 181.7 km path after Wayne VK4WS/4 arrived at the Sunshine Coast hinterland location called 'Howell's Knob'.



Photo 5: Roy VK4ZQ/4's 'loaded' mast partly elevated. Electrically-driven elevation and azimuth.



Photo 6: Adam VK4GHZ/4 set up for microwaves the side of Mt Mowbullan, Bunya Mountains.



Photo 7: Kevin VK4UH/4 operating with grid pack antenna on 2.4 GHz

After that, it was an easy thing for Colin VK5DK/4 to find the right frequency and bearing and to also join in on the new VK4 and VK2 distance record.

[Readers will be interested in the observation that a 600 mm diameter dish on 24 GHz is extremely sharp to point and it is very easy to be nearly right but not to hear anything

until the pointing is precise!]

The second record is the national mobile record for 3.4 GHz. Initially this was conducted very easily over exactly the same line-of-sight path as the 24 GHz record. After all other activity from Howell's Knob had ended (several microwavers in attendance!), Wayne drove a few kilometres to the North to a look-out that was no longer line-of sight. Signals on 3.4 GHz were dramatically attenuated but a contact was easily completed after Wayne moved his vehicle just a little. All very interesting and exciting!

So if you want to become involved in some immensely satisfying new area of amateur radio, the area of microwaves that's reported here could well be what you're looking for – give microwaves a go – you'll be so glad you did!



TET-EMTRON

More & more Home Brew parts every month!!!



Aluminium cut to order



Traps



Mobile parts



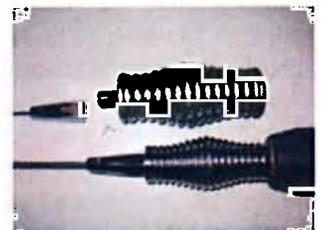
Dipole Centres



Insulators



HF Chokes



Codan and Barrett parts



450 Ohm Spreaders



Baluns



Copper Wire



Tester Gear

See our wide range of new parts & products at:
www.tet-emtron.com

Adventures with a bistatic chirp and CW radar

Andrew Martin¹ VK3OE/VK3OER

Introduction

Since the development of the chirp radar for amateur use was first reported on the VKLogger [1] in January 2010 together with the publication of the concept in DUBUS [2], many experiments and measurements using the SpectrumLab [3] software have been conducted to understand the capability of this radar. Some of these results were reported at the most recent GippsTech conference [4]. During this process some basic operating techniques have been developed to easily verify each measurement to be certain about what is being measured. Some surprising results have also emerged that show how capable is the chirp radar technique. These results could also serve as a basis for the revision of some Es theories, especially theories relating to long distance propagation on 50 MHz.

It has also been found that the combination of chirp and CW modes is very useful to ascertain the nature of the reflecting object. If the signal is returned from a stationary object, then of course it has no Doppler shift. But if the object is moving, the return signal will have a Doppler shift which, in chirp mode, will cause a range error. Objects such as aircraft have a very specific Doppler shift, while moving ionospheric irregularities can have a very wide range of Doppler shifts from one target. In these cases, the use of the chirp and CW modes is most helpful to ascertain the actual distance to the moving object.

During 2011, I developed a separate internet connected remote station (VK3OER), which is at a distance of 145 km from VK3OE. This station is very useful for receiving radar signals sent from VK3OE (in Bistatic Radar mode) and allows the received audio signals to be processed easily in real time.

The radar has been used on all the amateur bands from 14 MHz to 144 MHz to find out what can be achieved and what are the limitations. Most of the measurements have concentrated on the bands of 28 MHz and 50 MHz. 2 m has proved to be the most difficult band because there were only limited ducting opportunities available to test this band during the 2011-2012 summer ducting season.

The HPSDR group is developing the Hermes SDR transceiver with chirp mode built in, together with GPS timing and frequency control, which will enable direct and accurate measurement of distance to any chirp source or reflector. This development will significantly enhance the functionality of amateur chirp radars and

greatly assist in the more widespread application of the chirp radar capability [5, 6].

Doppler Shift Errors and System Values

Doppler shift is of great concern when using the chirp radar as any Doppler shifted returns will be subject to a range error during processing. These range errors occur because any frequency shift of the return signal makes the return signal appear in a different place than where it actually is. This range error can be readily calculated. The Doppler shift, Fd , is given by:

$$Fd = 2vFt / c \quad \text{Hz (1)}$$

where v is the velocity of the object (for radar, a receding object will produce a negative Doppler shift with respect to the transmitted signal), Ft is the transmit frequency and c is the speed of light. The Doppler shift is measured in CW mode.

The range error, Re , in seconds, when in chirp mode is then given by

$$Re = -Fd / (dF / dt) \quad \text{s (2)}$$

where dF/dt is the chirp rate in Hz per second.

The actual location of the object, Ra , with the measured Doppler shift is then given by

$$Ra = Rm - Re \quad \text{s (3)}$$

where Rm is the measured range (will be negative with respect to the direct signal if the Doppler shift is positive for a positive chirp rate dF/dt).

As the output from the chirp radar mode is in seconds, the distance can be easily calculated by multiplying the time by 150,000 to get km in the backscatter mode and by 300,000 to get distance in the forward scatter mode.

Doppler shifted returns can look like static reflections in chirp mode and may be misinterpreted as they can appear in odd places, such as earlier than the direct signal. To resolve this, it is necessary to turn the radar to CW mode so that any Doppler shifted return signals can be identified and the Doppler shift measured. The actual range to the object can then be calculated from the above equations, allowing return signals to be correctly located and identified.

The system gain, G_s , can be calculated from:

$$G_s = TXp + TXant + RXant - RXsen \quad \text{dB (4)}$$

where TXp is the transmit power, $TXant$ is the transmit antenna gain in dBi (cable losses included), $RXant$

is the receiver antenna gain in dBi and RX_{sen} is the noise power of the receiver in a 2 kHz bandwidth when connected to an antenna. TX_p and RX_{sen} are normally expressed in dBm.

The complex receiver chirp processing gain, G_p , is given by:

$$G_p = 10 * \log(BT) + 3 + 10 * \log(Nchirp) \quad \text{dB (5)}$$

where B is the chirp bandwidth, T is the length of the chirp and $Nchirp$ is the number of chirps averaged.

The chirp radar system gain, G_c , is then given by:

$$G_c = G_s + G_p \quad \text{dB (6)}$$

The path loss, Pl , in radar mode can be estimated from:

$$Pl = G_c - S/Nc \quad \text{dB (7)}$$

where S/Nc is the signal to noise ratio of the received chirp.

The estimated S/N for a one way contact is:

$$S/N = G_s - Pe \quad \text{dB (8)}$$

where Pe is the estimated one way path loss given by:

$$Pe = 20 * \log(d) + 20 * \log(f) - 147.55 + Es_l + Rd \quad \text{dB (9)}$$

where d is the distance in metres, f is the frequency in Hz, Es_l is the Es layer reflection loss and Rd is the D layer absorption loss, which applies for each D layer transit in daylight. The Es reflection loss for each reflection is assumed to be around 2 dB on 28 MHz and 50 MHz, while the D layer absorption loss is assumed to be around 1.5 dB at 28 MHz and 3 dB on 50 MHz for each D layer transit. The earth surface reflection loss is assumed to be close to 0 dB.

For all the 50 MHz radar measurements, $TX_{ant} = 12$ dBi Yagi @ 25 m with $TX_p = 50$ watts. The receive antenna is 145 km away, and $RX_{ant} = 12$ dBi Yagi @ 8 m. Assuming an RX_{sen} level of -129 dBm in a 2 kHz bandwidth (noise limited, not the receiver sensitivity), this gives a system gain G_s of 200 dB on 50 MHz. In chirp mode, a chirp from 500 Hz to 2500 Hz over one second is used, which, when averaged for ten seconds, gives a G_p of 46 dB. This is added to G_s to give a G_c of 246 dB on 50 MHz.

For the 28 MHz measurements, $TX_{ant} = 8$ dBi Yagi @ 24 m with $TX_p = 50$ watts. The receive antenna is 145 km away, and $RX_{ant} = 4$ dBi Yagi @ 6 m. Assuming a RX_{sen} level of -121 dBm in a 2 kHz bandwidth, this gives a G_s of 180 dB. In chirp radar mode, $G_p = 46$ dB is added to give a $G_c = 226$ dB on 28 MHz.



www.ttssystems.com.au

Phone: 03 5977 4808 Email: info@ttssystems.com.au

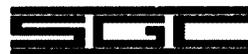
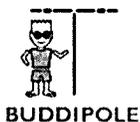
Your Australian reseller for:

YouKits

New Products coming soon

AVAILABLE NOW

Hard Drawn Copper Wire, Insulators, Dipole Centres
Open Wire Transmission Line, Spreaders, Kevlar Guy Line
Spiderbeam Fibreglass Poles, Baluns and Switches



Meanwell power supplies
Diamond products
Daiwa products
Technical books
Amidon products
Custom cables made to order

Compliments of the Season from TTS

In backscatter mode, the backscatter coefficient, G_b , required from the backscatter object to obtain the measured S/N_c , is given by:

$$G_b = P_l - 2 * P_e \quad \text{dB (10)}$$

The backscatter coefficient was measured on 14 MHz using the chirp bistatic radar and found to be close to 43 dB at a distance of 1300 km. This value compares favourably with the maximum value of around 40 dB measured on 16 MHz at a distance of 1500 km by Steele [22]. This result gives considerable confidence that the measuring techniques used here are reasonable.

The backscatter coefficient, G_b , of an area can be estimated from

$$G_b = 20 * \log_{10}(4 * \pi * A_b * C_c / \lambda^2) \quad \text{dB (11)}$$

where A_b is the backscatter area and C_c is the correlation coefficient for the backscatter.

A very convenient program for generating chirp and CW signals is SpectrumLab [3]. It also has a built-in chirp receiver. In the case where better analysis of the received signals is required, the received audio chirp can be recorded by SpectrumLab and then analysed in Matlab®.

Es Backscatter Measurements on 50 MHz

Backscatter measurements of Es using chirp and CW modes have been made on 28 MHz and 50 MHz. The 28 MHz measurements are relatively easier to make than measurements at 50 MHz because the probability of Es propagation at 28 MHz is higher than at 50 MHz. Further, it is often the case when using the radar at 50 MHz that no returns are received, even though there is 50 MHz propagation as evidenced by contacts. This is because of layer rippling and focusing [7], which is more evident at 50 MHz than at 28 MHz. The layer rippling and focusing often causes the remote receiver site to be in an Es "hole", especially when the radar transmitter is 145 km away.



Figure 1: 26 November 2011, open to WA on 50 MHz, VK Logger [8] showing spots and the location of the radar backscatter return, the radar reflection. Also shown is the chirp radar received data from the direction of 260 degrees using SpectrumLab. The noise level is about -55 dB.

Shown in Figure 1 is a radar result from the direction of 260 degrees on 50 MHz. The radar was first tried in the direct path to Perth at 275 degrees but no

backscatter return was received. The antennas were then turned further south and the maximum backscatter return was in the direction of 260 degrees. The direct signal is at 345 ms in Figure 1, with a chirp signal to noise ratio (S/N_c) of 30 dB, which is treated as zero distance, while the backscatter return is between 4.5 ms and 10 ms later than the direct signal, with an S/N_c of about 27 dB. This gives a backscatter footprint of between 675 km and 1500 km in the direction of 260 degrees, as shown in Figure 1, and indicates that the backscatter signal is most probably from an Es layer and not from the F layer. By using equations 4 to 10 above, the sea surface gain required for this level of backscatter at 800 km can be calculated to be around 42 dB. The VKLogger radar spot [8] is also shown for the same time.

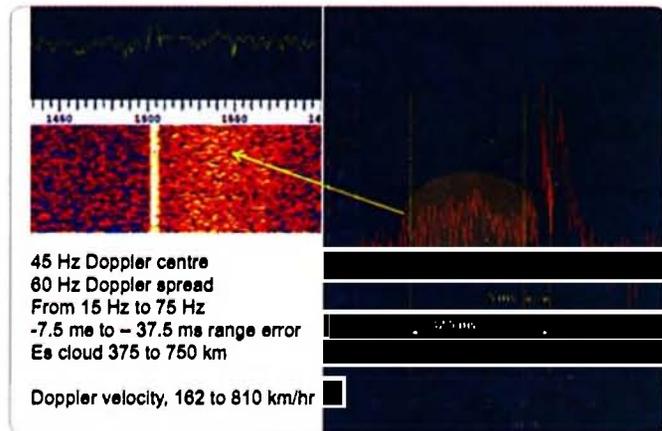


Figure 2: Measuring the Doppler shifted component of the return signal using SpectrumLab. The Doppler is centred at about +45 Hz from the direct signal with a spread of 60 Hz, from 15 Hz to 75 Hz. The direct signal with no Doppler shift is the bright line at 1505 Hz.

Also shown in Figure 1 is a spread out signal at up to 12 dB S/N_c , which appears before the direct signal. This is a Doppler shifted signal that is easily measured by changing the radar to CW mode. The result is shown in Figure 2. The direct signal with no Doppler shift is at 1505 Hz.

Using equation 1 gives the velocity of the backscatter object of between 162 km/hr and 810 km/hr. This velocity is close to typical wind speeds in the E layer and indicates that there is a large amount of turbulence and shear that is resulting in a backscatter signal from the Es layer. This backscatter is the mode often used for communication on 50 MHz and the Doppler shift causes the often reported distortion.

Equation 2 provides a range error value when the radar is used in chirp mode. This range error of between -37.5 ms and -7.5 ms can now be used in conjunction with equation 3 and the measured range of -32.5 ms and -5 ms to give actual ranges of 5 ms to 2.5 ms. This equates to the backscatter object being between 750 km and 225 km away. If these distances are doubled, we get distances of between 1500 km and 450 km, very close to the distances of the ground return footprint reported earlier. It is interesting to note that the highest Doppler frequency comes from the most distant part of the Es irregularity.

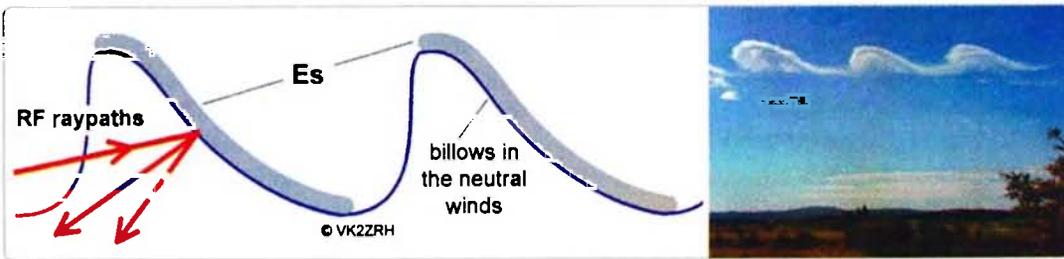


Figure 2a: From [9]. Illustration of Kelvin-Helmholtz billows in Es at around 100 km altitude as an agent of back and side-scatter. The picture on the right is a visual indication of Kelvin-Helmholtz billows in the lower atmosphere, probably around 3 to 5 km altitude. This is the mechanism that produces the billows, crinkles, ripples or wrinkles in Es (as various authors have described).



shown for a 30 minute period. The first record on the left shows a positive Doppler shift that evolves through zero to show a strong negative Doppler shift by record 4. At record 5, this has split into two, which is probably due to vortex-like structures induced by wind shear [11]. By record 6, the

The backscatter S/N_c from Figure 2 is about 12 dB at -18 ms from the direct signal. This part of the backscatter is about 500 km away. Using the above equations, we can calculate that the backscatter coefficient is around 17 dB to get the measured S/N_c . If it is assumed that the backscatter coefficient is around 0.01^2 for Es, then the backscatter object is about 10,000 m² in area (100 m x 100 m, equation 11) and seems reasonable, given a vertical wavelength of the Es ripples of about 2 km [21]. This is a rather different result for Es backscatter than for backscatter from the surface of the Earth, see later.

It is thus assumed that the Doppler backscatter is directly from the Es ripples; the mechanism is shown in Figure 2a [9, 10]. The picture (added by Harrison) is from Wikipedia Commons [10].

A further interesting issue is that the Es is south of the direct path to Perth for the contacts shown in Figure 1. This could indicate that the contacts were not made by the direct great circle path but by side-scatter from the Es by layer rippling [9] caused by the windshear at the height of the Es layer. This is further supported by the fact that the ground backscatter return is from a path further south than the direct path to Perth. The contacts to Perth shown in Figure 1 are probably via two hops via side-scatter from the irregularities in the Es layer.

This example has thus shown that backscatter with Doppler shift from Es is possible and that side-scatter from the Es ripples is also possible.

In Figure 3, recordings of using the radar in CW mode to measure the velocity of the Es ripples are

Doppler shifted signal is getting weaker, and by record 7 it has gone. This is explained as follows, from [11] "The Doppler width of the spectra is associated with the scatterers' velocity distribution inside the ionospheric volume illuminated by the radar beam. When turbulence is the main cause of backscatter, the spectral width gives an idea of the intensity of the turbulence." This is shown in Figure 4.

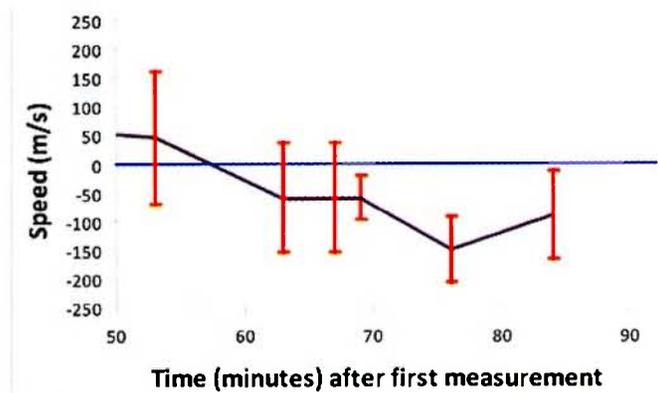


Figure 4: Doppler velocity evolution and spread from the backscatter 50 MHz CW measurements. Time is in minutes after first measurement of Figure 3 was taken.

In Figure 4, the maximum line of sight velocity is -150 m/s and is considerably higher than the velocities of 20 m/s reported in [11]. This probably because the measurement reported in [11] is from a vertically sounding (53 MHz) radar while the data of Figure 4 is from a horizontal measurement, probably indicating that the principal wind flow in the E layer is in the horizontal direction, producing higher line of sight Doppler shift. Speeds of up to 150 m/s were reported in [12].

The line of sight wind starts off towards the CW radar and then evolves to recede before disappearing. The measured speeds are probably the result of the crinkles moving in sheets of Es. Whitehead [13] states that "we may picture it as a fairly smooth horizontal sheet of ionization just a few kilometres thick, extending over 1000

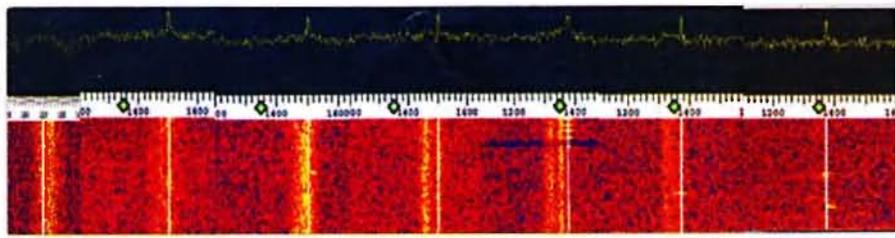


Figure 3: 26 November 2011, 260 degrees, 30 minutes of backscatter signals with 7 records showing Doppler shift measurement in 50 MHz CW radar mode. Records are 1 to 7 from the left. Recorded from 45 minutes after data of Figure 2. Direct signals with zero Doppler shift are the bright lines.

km in horizontal size but with these slight ripples in it". When the signals are focused in particular directions with moving ripples, the result looks like moving clouds. This is discussed in [14, 20]. Kennedy and Zimmerman [14] state that "As the free electrons are dragged across the magnetic field, at roughly a 90° angle to the field, this produces a sideways electromagnetic force that bends the electron paths either upward or downward into orbits circling the field lines rather than continuing to move along with the wind."

Further, the width of the Doppler in Figure 4, of up to 70 m/s, is in the range of 20 to 150 m/s reported in [12]. As the width of the Doppler spread is related to turbulence, it is reasonable that the Doppler spread will be similar for a horizontal or vertical measurement.

Further results similar to those above were obtained on 18 and 21 January 2012, which served to confirm that the measurement results described above could be repeated.

Es backscatter measurements on 28 MHz

The chirp radar measurement in Figure 5 shows Es backscatter returns obtained at an azimuth of 60 degrees out to a distance of 11,100 km. There are seven (7) distinct returns evident, indicating seven (7) hops. At the time of the measurement, there was a blanketing Es event on the Canberra and Sydney ionosondes, so no returns from the F layer are evident. The first two F layer hops' nulls would appear at around 3100 km and 6200 km. At both these locations, there is a clear return, which indicates that at these points, Es is involved. Further, all the hop distances are consistent with typical Es hop distances and are shown in Table 1. Because the average distances are shown in Table 1, it cannot be assumed that these are the distances of each hop. Indeed, it is most likely that multiple modes are occurring in hops 1 and 2 so that any assumptions about individual distances may be incorrect. It is also

obvious that the peak amplitude return for each hop is not at an exact multiple of any particular distance. If it is assumed that all hops have an equal distance of around 1500 km (10 ms) it is difficult to get a reasonable fit to match the distances shown for each return. There are also distinct nulls between each hop, reinforcing the fact that each radar return is a separate entity and that multiple backscatter signals are not overlapping, which would otherwise fill-in between each hop.

The signal returns out to 550 ms are all backscatter returns, so the distance is found by multiplying the time in ms from the direct signal by 150. The signal at 603 ms is a forward scatter result for once around the Earth, so the distance is obtained by multiplying the time in ms from the direct signal by 300. The signal at 603 ms in Figure 5 is from once around the earth and is probably achieved by mixed Es and F layer propagation with a dominant F layer guided mode; see the discussion later in this article.

Another interesting observation from Figure 5 is that between hops 1 and 2, the loss is very low. Further, there is a reduction in level between hops 2 and 3 of about 20 dB (10 dB in each direction), but after that there is only minimal loss between each hop for hops 3 to 7. The number of reflections for the 7th hop is a total of 14 Es reflections (out and back) and a total of 12 surface reflections. The return from each hop is by surface backscatter. The backscatter occurs only once for each return signal. The large number of out and back reflections illustrates that it may be possible to have 14 hops in a row, to over 20,000 km, it just needs the Es to be present as a sufficiently large horizontal sheet of ionization.

There will also be some signal attenuation in the D layer for each transit. At each reflection point, the loss is very low because of the almost grazing reflection angles [7, 15]. In order to make up the propagation loss from the radar over a distance of 22,000 km (which is twice the loss for 11,000 km) there needs to be some gain in the propagation path.

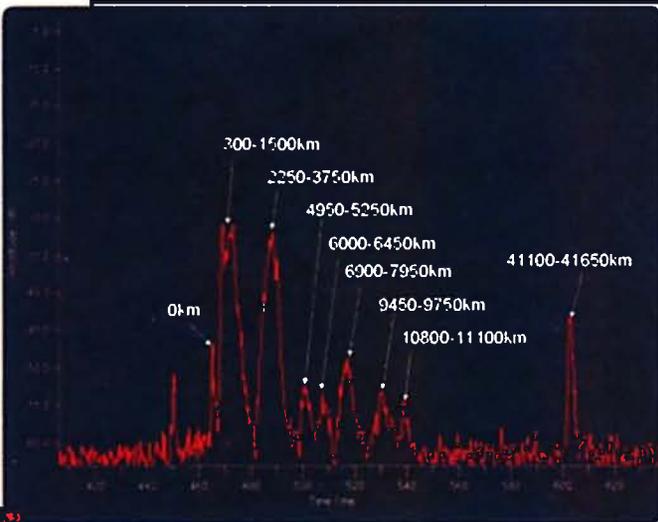


Figure 5: 28 MHz chirp backscatter measurement made @ 05:38UTC on 13 June 2012. The direction is 60 degrees. Distances are marked in km for each return, Zero distance is the direct signal. The signal at 450 ms arriving before the direct signal is a Doppler shifted return from an aircraft.

Hop	Distance of hop km	Time of day	Signal to Noise S/Nc
1	900	Day	35 dB
2	2100	Day	33 dB
3	2100	Evening	12 dB
4	1125	Night	10 dB
5	1227	Night	17 dB
6	2148	Night	10 dB
7	1350	Night	8 dB

Table 1: Hop distances for each of the 7 hops, together with S/Nc estimated from Figure 5. As the returns for the first two hops are spread, the hop distances are taken from the middle of each return for the first two hops and may not represent the actual path reflection point used to obtain the longer distance returns.

This probably occurs when the 10 m signal is backscattered from the sea surface at a low angle such as would be the case for Es originated signals. The backscatter surface needs to have scatters in the order of half a wavelength (5 m in this case) to be effective.

Hop	Calculated Path Loss	Measured Path Loss <i>Pf</i>	Backscatter coefficient required <i>Gb</i>
1	244 dB	191 dB	53 dB
2	268 dB	193 dB	75 dB
3	297 dB	214 dB	83 dB
4	305 dB	216 dB	89 dB
5	311 dB	209 dB	102 dB
6	318 dB	216 dB	102 dB
7	323 dB	218 dB	105 dB

Table 2: The calculated radar path losses assume free space path loss. Loss is also added to each hop to account for D layer transits and reflection losses plus a step loss of 10 dB between hops 2 and 3 to account for the step loss in between those hops Figure 5. Each hop loss is then doubled to get the total radar loss. The measured loss is calculated by using the received S/Nc in Table 1 together with the system parameters outlined earlier. The extra backscatter coefficient, *Gb*, required to get the measured S/Nc is shown in the last column.

The backscatter surface gain, equation 11, can be applied to estimate the size of the surface needed to achieve the backscatter coefficients required in Table 2. If the backscatter correlation coefficient, *Cc* is 0.001 (see footnote 1, earlier), an area around 10,000 square km (100 km x 100 km) is sufficient to provide the required gains. As the sea surface is involved for every backscatter point, these values seem reasonable. The sea surface roughness will also affect the backscatter level. There is an increase in the backscatter coefficient with increasing distance which is probably related to the spread of the footprint at increasing distance.

At the time of the measurements shown in Figure 5, there were Es contacts on 50 MHz between VK3 and VK4 at levels up to S9. The one way path loss to the 1st hop is estimated to be 122 dB on 28 MHz (half the calculated path loss for the first hop in Table 2). If the system gain of 180 dB is used for a 2 kHz bandwidth, then the one way signal level on 28 MHz will be approximately S9 (S/N = 180 dB - 122 dB = 58 dB), which is similar to the 50 MHz one way signal level at the time.

The S/Nc from Table 1 to the 7th hop at 11,000 km is 8 dB, giving a measured radar path loss of 218 dB (equation 7). An estimated one way path loss of 161.5 dB (half the calculated path loss for the seventh hop in Table 2), provides the calculated overall radar path loss of 323 dB, requiring a backscatter coefficient (*Gb*) of 323 dB - 218 dB = 105 dB. Thus, the estimated S/N for a one way 28 MHz contact (neglecting the backscatter coefficient as it is not used for a one way contact) is $G_s - 161.5 \text{ dB} = 18.5 \text{ dB}$ or close to S3 (assuming that the one way path loss estimate of 161.5 dB is correct).

The three longest hop distances shown in Table 2 are all over 2100 km. The fact that the hops are not all of equal length is attributed to the tilting and focusing that occurs due to wind shear and changes in the Es layer height over the 11,000 km path [7, 13].

From a conventional concept, for Es to support multi-hop propagation over 11,000 km suggests that seven Es "clouds" needed to be in exactly the right position at the right time. This is most unlikely and a better explanation may be that there was a wrinkled sheet of Es over the whole area ("crinkles, ripples or wrinkles" in the electron/ion sheet, as Prof. David Whitehead once put it [13]). As discussed earlier, the individual Es reflection points will then be controlled by the Es sheet height at each point, the nature of the "wrinkles" and the path geometry. As shown earlier in the section about Es 50 MHz, it is possible that Es side scatter is possible along the path so the results shown in Figure 5 may not be as a result of direct (great circle) path propagation.

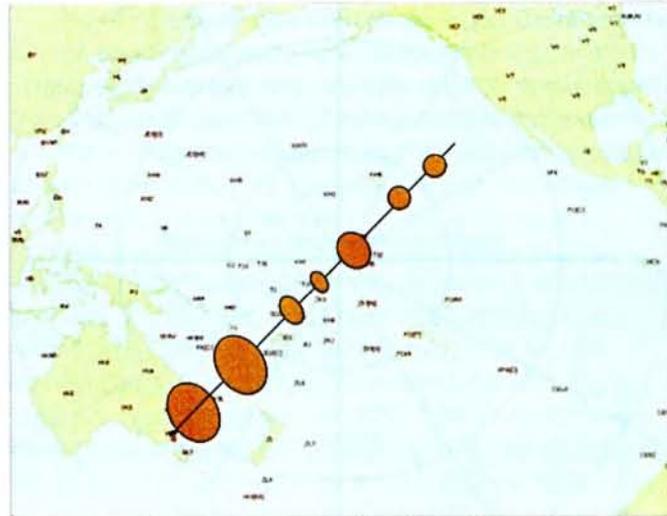


Figure 6: Location and approximate size of each of the Es hops in the direction of 60 degrees. The first four hops are before the equator crossing while there are three hops beyond the equator. The skip distances are typical of Es propagation and no F layer propagation is involved.

The result of Figure 5 also shows that there is multi-hop long distance nEs propagation during the Southern winter solstice. It is thus likely that the same mechanism is present around the summer solstice when many contacts have been made between VK and North/South America in recent years. Many of these contacts were made when the sunspot numbers were very low.

Figure 6 shows the approximate locations of Es hop together with the approximate size of each backscatter return. The seven hops measured clearly have a path that crosses the Equator. This has not previously been thought to be possible as it had been assumed that the F layer was required for the Equatorial transit. This is clearly not the case as the hop distances are typical of those seen for Es propagation.

Further, Figure 7 shows multi-hop Es on 50 MHz, possibly out to a distance of more than 10,000 km. The bistatic chirp radar provides further evidence that nEs is indeed one of the long distance modes, this time also crossing the equator on 50 MHz. The S/Nc at 10,000 km is 15 dB, giving a measured radar path loss of 231 dB (equation 7). An estimated one way path loss of 154.5 dB provides an overall radar path loss of 309 dB, requiring a backscatter coefficient (G_b) of 309 dB – 231 dB = 77 dB. Thus, the estimated S/N for a one way 50 MHz contact (neglecting the backscatter coefficient) is $G_s - 154.5 \text{ dB} = 45.5 \text{ dB}$ or close to S7 (assuming that the one way path loss estimate is correct). By the same process, a one way contact on 50 MHz at 1100 km made at the same time as the measurement of Figure 7 would give S/N of around 64 dB or S9+15 dB. In Figure 7, the filling-in between the principal returns indicates that multiple propagation modes are present so that, after about 5000 km, the radar returns are completely smeared out. This is in contrast to the returns of Figure 5 where the individual returns are very distinct.

It is thus likely that nEs is an often-used mode for long distance 50 MHz contacts and that the short-path summer solstice propagation (SSSP) hypothesis put forward by Higasa [16] has some limitations.

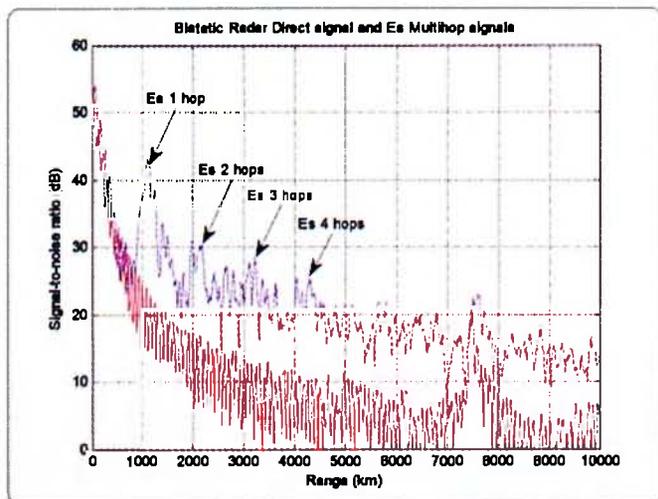


Figure 7: 0230 UTC on 22 January 2010 from a direction of 50 degrees. nEs measurement from [2] showing clear evidence of 4 Es hops. When the return signal is compared to the response with no signal (red) there is clear evidence of returns out to a distance of 10,000 km. The return at 7,600 km is an equipment spurious. After 1000 km there is a substantial amount of in-fill between each hop, indicating the presence of multiple propagation modes.

The nEs/SSSP is also discussed extensively by Harrison in [7] and he indicates that "To me, Higasa's hypothesis fails on too many key points. We know that the paths are not completed by F2 propagation or by tropospheric refraction/ducting. The remaining option is that SSSP propagation is supported by multi-hop Es (nEs, Figure 25). The next step is to find the evidence to match the

contacts." The nEs measurements shown in Figure 5 (28 MHz) and 7 (50 MHz) may indeed be the evidence that supports the nEs hypothesis put forward by Harrison in [7] and sought by Kennedy and Zimmerman [14]. If the 50 MHz long distance contacts reported were indeed by nEs, as this evidence suggests, then the concerns about distortion, excessive attenuation and scattering being limiting factors [14, 16] can be dismissed.

Comparing 28 MHz and 50 MHz Es measurements

The question that arises from the 28 MHz measurements is: can the 28 MHz backscatter measurements be used for an indicator for 50 MHz propagation? To try to answer this, closely-spaced chirp radar measurements (one minute apart) were made on 28 and 50 MHz, the results of which are shown in Figure 8.

The return signals are very closely aligned, indicating that very similar results for Es reflections and surface backscatter can be obtained on 28 MHz and 50 MHz. This is very encouraging. The concept is that the 28 MHz chirp radar can be used as an indicator for 50 MHz propagation.

The 28 MHz signal in Figure 8 (top) appears at a slightly shorter distance than the 50 MHz signal (bottom) by about 150 km, indicating that the skip distance on 28 MHz is shorter than the skip distance on 50 MHz. The same effect could also be present in the result of Figure 5, resulting in a slightly longer range for 50 MHz than was measured at 28 MHz.

By using the point for maximum S/Nc of 1500 km for 28 MHz and 50 MHz, the required sea surface

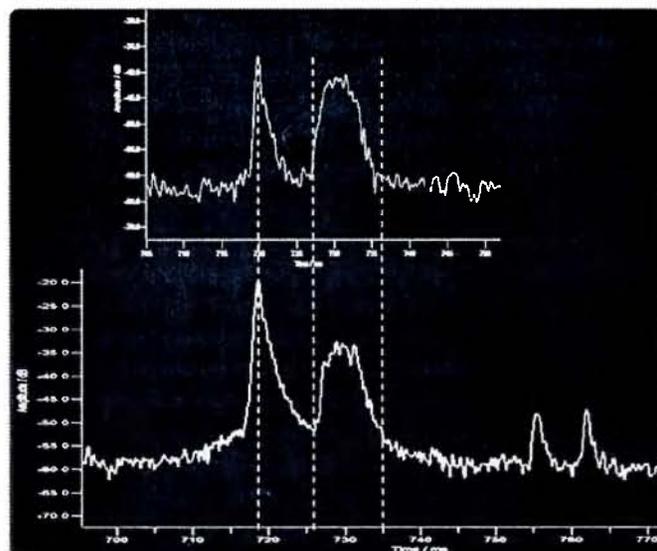


Figure 8: Closely spaced (1 minute) measurements using the chirp radar on 28 MHz (top) and 50 MHz (bottom) at 04:15 on 3rd July 2012. The two traces have been averaged so that the direct signals for each are in the same phase and the time scales are the same. The first return in both pictures is Earth surface backscatter via an Es cloud at around 700 km altitude. The ground backscatter return is seen between 7000 km with an angle of arrival of about 5 deg. and from 2400 km, with an angle of arrival close to 0 deg [4].

backscatter coefficient is estimated to be 56 dB for 28 MHz and 57 dB for 28 MHz. This represents an area of about 1 km wide and 75 km long (75 km is the minimum resolvable range), using the correlation coefficient of 0.001 as before. Contacts on 50 MHz at the time over the same path were producing S9 reports. A calculation using the measured results suggests S/N in 2 kHz of 62 dB, S9+10 dB.

The S/N on 50 MHz is around 27 dB, while the S/N on 28 MHz is around 22 dB. The two returns on 50 MHz at 765 and 762 ms are from aircraft, and appear to be at a great distance because of range errors due to Doppler shift.

Around The World in 137.83 ms on 28 MHz

Figure 9 shows a 28 MHz chirp radar measurement out to a distance of 100,000 km. Three returns are evident, at 7000 km, 41,350 km (137.83 ms) and 82,700 km (275.66 ms = 2 x 137.83 ms). Matlab® was used to obtain these values from the leading edge of the pulses. The first 'spike' is a first-hop surface backscatter via the F layer, while the second spike is a first *around-the-world* (ATW), and the third spike a second ATW. Such ATW signals were first measured by Hess in 1948 [17] where he reported a propagation time of 137.78 ms. Frequencies of between 10 and 20 MHz were used. The guided mode of F layer propagation is well described by Carera et al in 1970 [18]. The time measurements of first and second ATW signals shown in Figure 9 represent an error of 0.05 ms when compared to those of Hess, even

though the measurement of Figure 9 is at 28 MHz. This indicates that the ATW propagation mechanisms on 10 to 20 MHz are the same as those on 28 MHz. Further, there is no Doppler shift on the ATW signal as there are no other significant signals anywhere near the ATW signal position that would indicate a range error induced Doppler shift.

The first and second ATW signals are about 300 km wide (at the -3 dB points following the leading edge of the signal), which indicates that there are some delayed components up to 1ms following along from the first signal (dispersion). By comparison, the direct signal at 0 km is only 75 km wide (at the -3dB points), which is at the limit of the resolution for a 2 kHz-wide chirp. The fact that the first and second ATW signals have the same amount of dispersion indicates that once established, the ATW signals are not further dispersed by additional modes such as additional F-layer-to-surface hops. The direct result of this is that, once established in the F layer, the signals are guided by the F layer throughout the path.

The ATW signals travel from 1275 km to 1575 km further than the surface of the Earth, which represents an increase in the radius that the radio waves travel, ranging from 203 km to 250 km, at the height of the F layer. This is a further confirmation that the signals stay at or very close to the F layer indicating a guided mode of propagation and not a multi-hop mode as that would cause an increase in distance greater than that measured.

The azimuth angles used for the transmit and receive antennas are close to those reported by Fenwick and Villard [21]. The prediction of long path ATW signals by HamCap [19] also confirms that the azimuth angles used are close to correct. An ATW contact could have been made on 28 MHz CW as the S/N of -16 dB (30 - 46 dB) in a 2 kHz bandwidth is close to the minimum level useable for CW, for a 200 Hz bandwidth the S/N of the CW signal would be -6 dB: contact completed.

The result also indicates that ATW signals may also be present on 50 MHz and a measurement campaign is now in place to see if this can be achieved. If there is 40 dB extra loss on 50 MHz than on 28 MHz, then with 2 x 12 dBi antennas and 100 watts, the chirp radar S/N should be around 5 dB, which is detectable. The next step would then be to make a 50 MHz CW contact using this mode to make the longest possible long path contact of 40075 km. Time will tell.

Aurora backscatter measurements on 28 MHz

On the 29th of June 2012 I was looking for around the world signals when some extra returns were seen. The antennas were peaked on the signal at 220 degrees. There were three extra signals clearly evident in Figure 10, sea surface backscatter via Es at a distance of 1500 km, an auroral backscatter signal at a distance of 3900 km and a Doppler range shifted auroral signal a further 26 ms away.

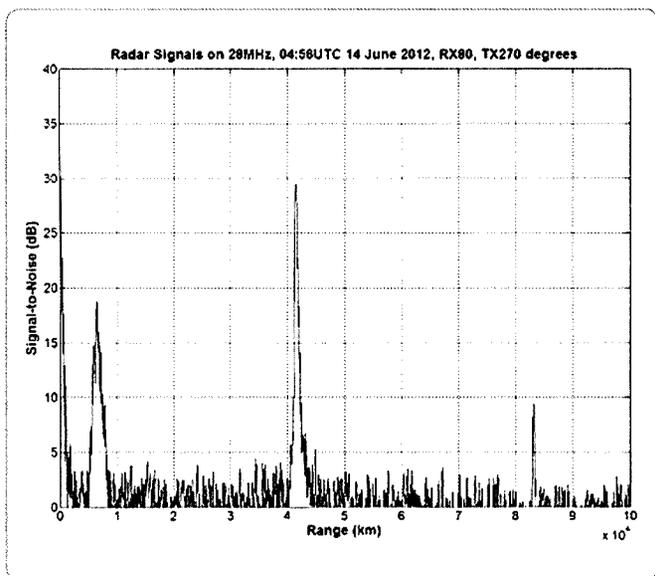


Figure 9: 28 MHz chirp radar measurements at 04:56 UTC on 14 June 2012. Transmitting at 270 degrees, receiving at 90 degrees. Signal processing gain is 46 dB, which would represent S/N of -16 dB in a 2 kHz bandwidth. X axis distance scale is 300 km/ms. The first around-the-world return has its leading edge at 41,350 km (137.83 ms) and the second around-the-world return has its leading edge at 82,700 km (275.66 ms). The signal at 7000 km is in fact a first hop Earth surface backscatter signal via the F layer at a distance of 3500 km.

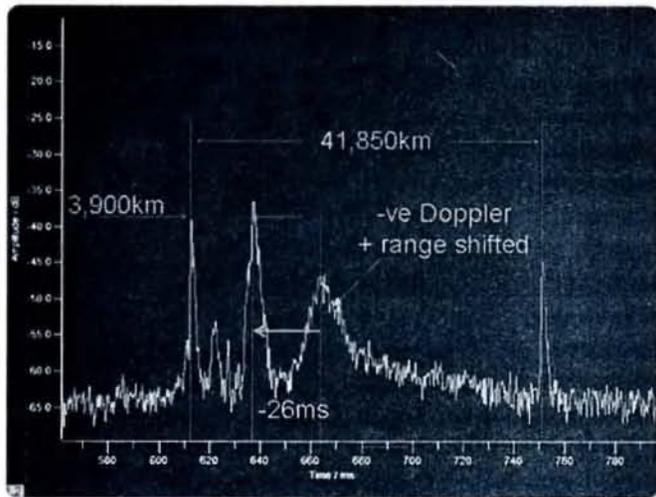


Figure 10: 28 MHz chirp backscatter radar measurements at 220 degrees, 04:40 UTC, 29 June 2012. The direct signal is at 612 ms. The signal at 622 ms is backscatter from the sea surface via Es at a distance of 1500 km. The signal at 638 ms is from the aurora at 3900 km. Signal at 664 ms is a Doppler shifted version of the signal at 638 ms. Signal at 752 ms is the first around the world at 41,850 km.

To verify what was happening, the radar was put into CW mode to measure the Doppler shift which is shown in Figure 11. The Doppler shift shown in Figure 11 can be used to calculate the range error of +26 ms on 28 MHz (a negative Doppler shift gives a positive range error). This shifts the Doppler signal back to exactly the position of the non-Doppler shifted backscatter signal thus verifying that the Doppler shifted signal results from the same area as the backscatter signal at 3900 km.

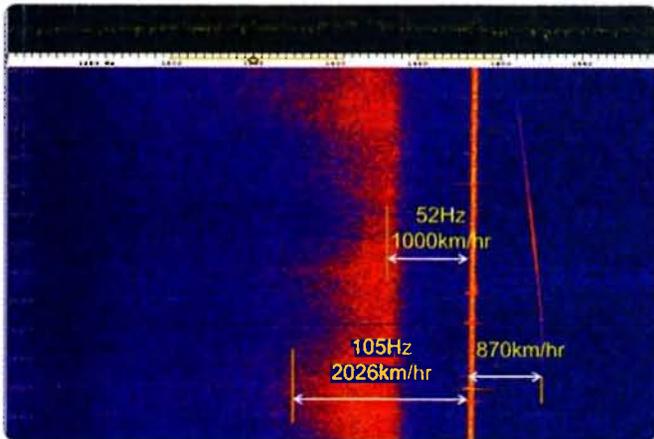


Figure 11: 28 MHz chirp backscatter radar measurements at 220 degrees, 04:40 UTC, 29 June 2012. Solar wind at the time was around 600 km/sec resulting in an unsettled geomagnetic field and associated extended auroral oval. The direct signal with no Doppler shift is shown as the bright line at 1485 Hz. The curved line to the right of the direct signal is an aircraft travelling at a maximum line of sight speed of 870 km/hr. The bright area to the left of the direct signal is the auroral Doppler shifted backscatter signal that has a line of sight velocity of between 1000 km/hr and 2026 km/hr.

The unsettled geomagnetic field at the time resulted in a strong movement of plasma away from the radar in the ionosphere which gives rise to the negative Doppler shift. Pointing the antennas further South resulted in a reduction of the radar return level from the auroral oval.

Strong, field aligned upward flow velocities of O^+ at times approaching horizontal velocities of 1 km/second (3600 km/hr) are frequently observed in the F region. There are indications in Figure 11 that velocities approaching 3000 km/hour could be present. The Super DARN radar was set up to measure the auroral effects seen here and a good source of information can be obtained from [23] as well as the many other readily available.

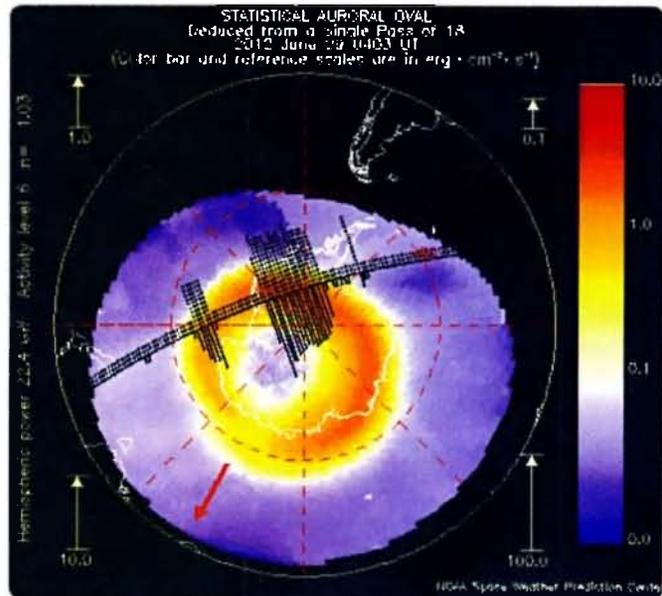


Figure 12: Satellite measurement of the Southern auroral oval at 04:03 UTC, 29th June 2012. The positions of the Es return and the Auroral return in the direction of 220 degrees are shown.

To measure to a distance of 3900 km requires that the radar signal is refracted by the ionosphere as the reflection from the ionospheric plasma irregularities is at a height of around 200 km which is not sufficiently high to be visible by line of sight. This is probably the first time that amateur radar technology has been used to measure Doppler effects from the auroral oval. I have offered only a brief description of the effects being measured as the details are much more complex and are the subject of much on-going research.

Conclusions

The chirp and CW radar has been used successfully in a number of modes to look at various propagation modes relating to Es and F layer propagation. For distances up to 11,000 km, nEs is shown to be a viable mode. It is also probable that nEs is responsible for many northern and southern hemisphere 50 MHz contacts. If this is the case, then the concerns about signal distortion and

excessive path loss with nEs propagation [14, 16] are unfounded. If the nEs mode is viable over the distances measured by the radar then it is entirely possible that the long distance VK/NA Winter/Summer solstice 50 MHz contacts are by nEs. It should thus be possible to make nEs contacts between VK and Europe on 50 MHz without the need to wait for the sun to deliver every 11 years.

It is also reasonable to assume that good radar returns on 28 MHz will indicate the possibility of 50 MHz nEs openings.

Around-the-world results on 28 MHz raise the possibility for investigating this mode on 50 MHz.

This work also shows that new discoveries and measurements can still be made by amateurs and that there are 50 MHz propagation opportunities still waiting to be explored. To take up these opportunities good antennas and higher power with common worldwide band plans would greatly assist especially given the propagation losses involved. It is also essential that the section of the 50 MHz band between 50.10 and 50.15 be kept entirely free from QRM caused by local VK/ZL Es contacts. This section of the band should be only for contacts between VK and the rest of the world.

Acknowledgement

I wish to thank Roger Harrison VK2ZRH for critically reviewing this article as well as providing many of the very helpful references.

References

1. A. Martin, "Backscatter Radar", <http://vklogger.com/forum/viewtopic.php?f=29&t=9002>.
2. A. Martin "A Bistatic Backscatter Chirp Radar For Amateur Radio Use", DUBUS, 2/2010, pp 24-39.
3. Spectrum Lab, <http://www.qsl.net/dl4yhf/spectra1.html>
4. A. Martin, "Adventures With A Radar, Es Backscatter Doppler Shift Measurements Using CW and Chirp Radar Techniques", GippsTech 2012, to be published in 2013.
5. P. Harman, VK6APH, "The Chirp Beacon Mode, A novel way to get high gain from a beacon transmitter, DUBUS, 4/2011, pp 45-48.
6. <http://openhpsdr.org/publications.php>
7. R. Harrison, "Sporadic E – MUF Myths, Summer Solstice Short Path Propagation and Forecasting Openings", Proceedings of GippsTech 2011, pp 91 to 123.
8. <http://vklogger.com/>
9. R. Harrison VK2ZRH, Sporadic E: turmoil, turbulence and torment, Proceedings from the GippsTech Conference 2007.
10. http://en.wikipedia.org/wiki/Kelvin-Helmholtz_instability

11. R.K. Choudhary and J.-P. St.-Maurice, "Quasi-periodic backscatters from the E region at Gadanki: Evidence for Kelvin-Helmholtz billows in the lower thermosphere?", Journal of Geophysical research, Vol. 110, A08303, doi:1029/2004JA010987, 2005, pp 1-19.
12. P.A Bernhardt, J. Werne, and M.F. Larsen 2006, "Modelling of Sporadic-E Structures from Wind-Driven Kelvin-Helmholtz Turbulence", Characterising the Ionosphere, Meeting Proceedings RTO-MP-IST, Paper 34, pp 34-1 – 34-14. At <http://ftp.rta.nato.int/public/PubFullText/RTO/MP/RTO-MP-IST-056/MP-IST-056-34.pdf>
13. W.R. From and J.D. Whitehead, "Es Structure Using an HF Radar", URSI-IPS Conference on the Ionosphere and Radio Wave Propagation, 1985. courtesy of Roger Harrison, VK2ZRH.
14. J. Kennedy and G. Zimmermann, "Extreme Range 50 MHz Es: East – West (EWEE)", DUBUS, 1/2012, pp 51 – 62.
15. K. Siwiak, "Optimum Height for an Elevated Communications Antenna", DUBUS, 3/2010, pp 86 – 93.
16. H. Higasa, JE1BMJ, "SSSP: Short-path Summer Solstice Propagation", at http://www.ha5hrk.hu/files/SSSP_JE1BMJ.pdf
17. H.A. Hess, "Investigations of High-Frequency Echoes", Proc. IRE, 36, 1948, pp 981 – 992.
18. Carera et al, "Guided Propagation of HF Radio Waves in the Ionosphere", Space Science Reviews, 11, 1970, at: <http://adsabs.harvard.edu/full/1970SSRv...11..555C> See page 557.
19. HamCap <http://www.dxatlas.com/HamCap/>
20. J. A. Harvey, 1955, "Movement of sporadic E ionization", Australian Journal of Physics, Vol. 8(4), pp 523–534; at: www.publish.csiro.au/paper/PH550523.htm
21. R.B. Fenwick and O.G. Villard Jr, "Time Variation of Optimum Azimuth for H-F Around the World Propagation", Radioscience Laboratory, Stanford Electronics Laboratories. At: <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=AD0274274>
22. Steele, J. G., "Backscatter of 16Mc/s Radio Waves by Land and Sea", Aust. J. Phys., 1965, 18, pp 317 – 327.
23. http://www.cawcr.gov.au/publications/technicalreports/CTR_045.pdf

Endnotes

- 1 VK3OE@bigpond.com. Copyright A. Martin 2012.
- 2 I have not found any information on the backscatter correlation coefficients of the Es ripples or for the earth surface for the context in which it is applied here.

Foundation Corner 21: Navigating the second hand VHF/UHF radio market

Ross Pittard VK3CE

For the newcomer to amateur radio buying a radio for the first time can be a daunting task particularly if you are on a budget and are looking in the second hand areas. A good place to start is your local radio club, as often other amateurs have unused gear for sale and the unit comes with plenty of instructions for the uninitiated. Other sources of pre loved gear are the local hamfests in all states, the regular disposal of deceased estates undertaken by ARVictoria and ARNSW; one major advantage here is that ARV and ARNSW test all their pre-loved gear before sale. *Amateur Radio* magazine still has the Hamads section near the back of the magazine, and there are occasionally bargains to be found there, but since the availability of the web most pre loved gear ends up on the VKHam website, and this site is probably the most popular web site for Australian amateurs looking for a bargain.

I am going to look at a few radios that often appear on the pre loved market, both ex commercial and amateur rigs. Remember as a Foundation callsign holder you are not allowed to modify radios, but most of the ex-commercial rigs will come already set-up for the amateur bands. The radios in this article are certainly not an exhaustive examination of what is available, but I hope it will give an idea of the type of gear that is around. An excellent place for information and basic functions of all amateur radios is the RigPix database, refer Reference 1; also many radios now have a dedicated Yahoo group with plenty of information, circuits and ideas from people who own these rigs.



Photo 1: Icom IC-22S

Before the introduction of VHF/UHF rigs by the Japanese amateur radio manufacturers in the early 1970s most amateurs either built or used ex commercial equipment at these frequencies. Once the big three manufacturers started selling VHF/UHF rigs it was quite fashionable to have an all mode VHF/UHF mains operated base station in the shack.

One of the most popular radios to come out in the early days was the Icom IC-22A VHF. This was a crystal locked radio with 22 available channels selected by a rotary switch on the front. It was replaced by the IC22S which had a diode matrix and frequency synthesiser replacing the crystals.



Photo 2: Yaesu FT-23R

Both of these can be picked up for a few dollars at hamfests but the 22A can be expensive for new crystals at around \$50 a pair (Tx and Rx) and the 22S can suffer from dry joints particularly around the diode matrix. Originally intended as a mobile, either model makes an ideal economical shack radio.

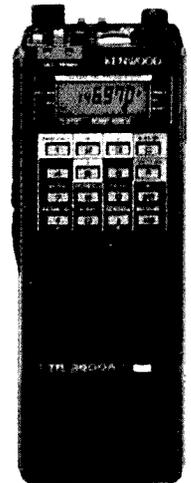


Photo 3: Kenwood TR-2600A

These days it is probably better to concentrate on radios with a few memories so it is easier to program popular repeaters in your area. Some early offerings in the hand held category were the Icom IC-02E five watt VHF, the Yaesu FT-23R five watt VHF and the Kenwood TR-2600A 2.5 watt; all having ten memories and a VFO. They came out in the early eighties and are available regularly on the second hand market for around \$100 complete with antenna and charger. When looking at any of the early handhelds one of the most important considerations is the condition of the battery, as most used NiCd packs and they can be expensive to replace.



Photo 4: Yaesu FT-290

It is possible to obtain battery cases that use standard AA batteries for most of these radios but because of their age the cases are increasingly difficult to obtain. One can use either rechargeables or standard alkalines in these cases. Other accessories which came out at the time include desktop charging stands, external speaker/microphones, leather cases and larger battery packs.

Another series from the early eighties offered by Yaesu was the FT-690R/290R/790R.

As the model numbers suggest these rigs cover the 6 m/2 m/70 cm bands and have the added function of all mode capability. They are true portable radios with an inbuilt telescopic antenna, internal battery compartment, ten memories and the ability to be externally powered from an 8.5 volt to 15 volt source and deliver 2.5 watts. The 2 m version is by far the most common and expect to pay around \$150-\$200 for a good working unit.

Following on from these Yaesu produced the FT-680R/480R/780R series; again all were all mode



Photo 5: Yaesu FT-480R

radios with four memories and 10 watt output.

These are considered to be base or mobile rigs and again the 2 m version is probably

the most common. Prices vary according to condition but expect to pay around \$200-\$250.

It is well worth investing in an all mode rig, even if your interest at the moment is only FM. An all mode radio can be useful in exploring satellites and also in contests as extra points are available for VHF/UHF long distance contacts. They are also handy if experimenting on the higher bands as an IF when used with up converters.

As well as the purpose built amateur rigs sold by the big three Japanese manufactures there are a number of ex commercial offerings readily available at hamfests and most will come already modified for the amateur bands.

While not offering all the bells and whistles of the dedicated amateur rigs they will perform well and in some respects outperform their amateur equivalents particularly in relation to pager overload. Here are a few of the more common commercial rigs found around the hamfests.

COM-AN-TENA

Australian made antennas setting a new standard

5/8 10/11 m vert 60 mm base h/duty	\$265
2 m 5/8 vertical	\$125
20 m 6 el. log - Yagi array gain 11.5 dB f to b 35 dB	\$892
2 m & 70 cm 5/8 co-linear vertical	\$130
6 m 5 el. beam	\$326
VSWR bridge 130 to 1300 Mhz	\$219
23 cm 36 el. 2 m 1 boom n-con	\$249
70 cm hi/gain Yagi 3 m boom	\$170
2 m 10 el. high gain Yagi beam	\$207
Delta loop 2 el. 10/11 m	\$330
7 to 30 Mhz log-periodic gain 7 dBd, boom 12.8 m 1	\$1720
M.B. Vert 10 to 80 m 5 bands	\$370
40 m 3 el. beam 11m 1 boom	\$1149

4 square phased vert array

360 degrees
electrical steering
Supply of control box with all info to build, or supply
Part/complete
40 or 80 m
CALL

115 John Street
Glenroy VIC 3046

Phone
0419 542 437

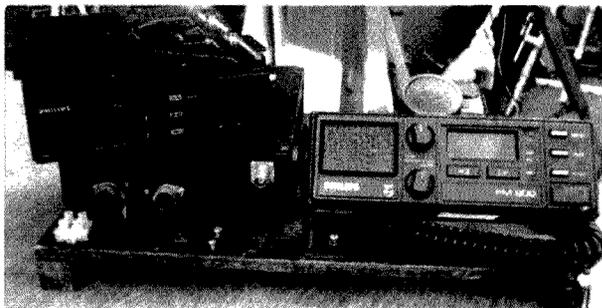


Photo 6: Philips FM92H

A regular seen on trash and treasure stalls is the Australian designed and built Philips FM92, part of the FM900 series; there were hundreds of these disposed of by the Victorian CFA amongst other organisations several years ago. They are fully synthesised and microprocessor controlled and the frequencies are programmed into an EPROM fitted to the radio base. They are available as a local or remote head version. Local head means the radio and controls are integrated in one unit whereas remote head means the control head is separated from the main body of the radio by an umbilical cable thus making it easier to mount in modern cars. Most offered for sale these days will be programmed with 99 channels on either the 2 m or 70 cm bands. Not all FM92s have CCTSS installed and as increasing numbers of amateur repeaters now use tones it would be advisable to try and find one with this function. Many older FM92s suffer from instability in the VFO, symptoms are varied but generally involve noise, crackling, micro-phony and in bad cases, the VCO dropping out



Photo 7: Motorola Syntrix

of lock. If possible, try before you buy, expect to pay anything from \$30 to \$100 for a good working one. The AWA RT85 series is another locally made radio, there are a number of these around which are programmed on the UHF amateur band and they should have CTCSS modules already fitted. They are probably not as common as the Philips offerings but are still a reliable rig. They are programmed by replacing the EPROM code with the desired amateur channels. Around \$50 should see one of these out.

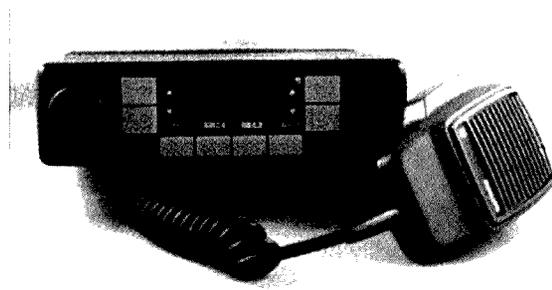


Photo 8: Philips PRM80

The Motorola Syntrix series of radios were Australian made and came out during the mid-eighties through to the mid-nineties. These pop up on the second hand market regularly and come in both VHF and UHF versions. They have a remote handset which encompasses a channel changer, volume control and microphone. There are a number of amateur 'kits' around to provide EPROM upgrades to replace the original PROMs and this makes it easier to program amateur channels. A modified goer should be in the range of \$80 to \$120.

The Philips PRM80 series of radios have been around for some time but are newer and more versatile than the earlier FM900 and are available in both 2 m and 70 cm versions, with up to 99 channels available and they can also have a simple 'S' meter indicator, hi/

low power switch and channel banks programmed on the function keys on the radio front panel. Some variants come with a remote head easily extended with a Cat 5 patch lead. These radios have all their frequencies and operating parameters stored in EEPROM which can be reprogrammed via a small interface connected to the microphone plug. Software for programming these units is available on the web. Prices are generally in the \$80 to \$200 range for a converted radio on the amateur band.

The rougher the radios appearance is inversely related to its price; don't be afraid to ask questions and if possible see the rig

in action before you buy. Dealers at hamfests will be happy demonstrating rigs providing there is power available. If buying on the internet ask for some high resolution photos before committing and see if you can negotiate a dead on delivery (DOD) return deal that may save you some heartache if you

find the rig does not work when it arrives. Most hams should be happy to oblige with this arrangement. If buying an ex-commercial rig don't forget to ask for a channel list as most of these radios only have channel numbers.

I hope this article helps in navigating the second hand VHF/ UHF market and good hunting.

Definitions

PROM: programmable read only memory, usually a one-time programmed device.

EPROM: erasable programmable read only memory, which are erased with ultraviolet light.

EEPROM: electrically erasable programmable read only memory, which are erased electrically.

Reference

<http://www.rigpix.com/index.shtml>

Amateur radio to the rescue

Brenton Meadows VK5BM

As a great number of amateurs around Australia have come to know, I am migrating to VK3, having purchased the property of my long term mate and fellow amateur radio operator, Mario Dolfen VK3NI. This has been no easy task with the enormous amount of logistics involved in transporting what has been a lifetime of collecting not only amateur radio hobby equipment but also over two tonne of XYL Samantha's scrap booking stocks. Whilst we are similar in nature and potentially should seek help in how not to hoard so much, we decided let's just do it and take as much stuff over, within reason.

So from an amateur radio point of view, this included nine rather large towers (two One Man Towers, three Nallys and four miscellaneous others), three large German engineered Optibeams, numerous VHF and UHF antennas and countless boxes of items incorporating 35 years of collecting amateur radio paraphernalia, and most definitely a ton of stuff that really should have been the subject of a massive garage sale.

So with the assistance of John VK5PO and Dale VK5FSCK we loaded two car trailers with numerous combinations of tower sections and antennas and copious amounts of Heliac and other coaxial cables that had collected over those 35 years.

With all the trailers strapped down and with a definite few tonne loaded on each of them, off we went. Now it should be pointed out that one of the trailers was brand new and was doing its first interstate trip; the other was a substantially older trailer that John VK5PO had his misgivings about from the start. I had borrowed the trailer from a contact of mine and by the time this story is finished, John's



Photo 1: John VK5PO – as always, quickly into action.

misgivings were shown as well founded. In regards to the trailer, I regrettably decided, in for a penny, in for a pound, and off we went.

The first obvious problem we had was that we had smoke pouring off the inside wall of one of the tyres; we corrected this on the side of the road with a spacer kit we manufactured.

So, thinking that we were well over any other problems, we set off for our 1000 km journey with radios on board and ready to DX while we travelled across the Riverland and then to northern Victoria. For quite a few hours, we conversed with loads of VKs all over Australia and we were all just having a great time knowing that in all probability, we would be into the VK3NI property in Tangambalanga around midnight, and able to unload in the morning.

Around 7.30 pm, we were around 75-80 km out of Mildura. Dale VK5FSCK and I noticed a slight problem happening that we alerted John VK5PO to on 7.073. The slight problem was that there

was smoke pouring off yet another tyre and we were compelling John on 40 metres to pull over. So now it is dark and we are assuming that we may need to set up some washer spacers once again to get us out of trouble.

No such luck. This time we had a completely collapsed bearing on the axle and it was all bad news. John VK5PO, who is incredibly mechanically minded said, '*mmmmm, Brenton, we are in quite a bit of trouble*'. I'm not sure but his words may have been a little more explicit – hi hi. John also commented that we would need a bearing, as it's the only way we are going to get mobile. He was completely right.

Dale and I looked at each other and agreed we were really in some big trouble but John said '*OK, calm down boys, let's get on 40 metres and start checking our options*'. Dale was also busy on his mobile trying everything he could.

This is where the spirit of amateur radio just gets incredible,

as 7073 kHz became the subject of an urgent situation and amateurs all over the east coast started discussing our options. Chris VK1GG, Peter VK2NEO and Steve VK3NF were all making phone calls to any possible providers of mechanical assistance for the next 60 minutes. Each of them was desperately searching for any way that any of the road assistance crowds could get us mobile.

Of course, it was now getting a bit later in the evening and somewhat colder and we were now starting to talk through our worst case scenario options, which included virtually needing to abandon the fully loaded broken down trailer. John VK5PO offered to stay and sleep in the car for the night until we could get back with a bearing but this was not a great option to leave him alone on the side of the road in the middle of nowhere.

Suddenly, Steve VK3NF became the start to what was the solution to the major part our problems. Steve said, ring these guys, they are a bearing company in Mildura and they are going to open their doors as soon as you can get in there to make the bearings and repair bits available.

Then the story gets even more exciting as Colin VK3UBY who lives in Mildura comes up on air and says, 'Gentlemen, I will be meeting you at the bearing company and then we will be venturing to my home QTH to gather tools and then head back to John VK5PO and get this trailer back on the road'.

This was a 160 km round trip that Colin was suggesting on a cold Saturday night. What a guy, absolutely incredible in our minds.

We arrived at the bearing company where we could not stop thanking the young chap who interrupted his Saturday night to come into the store just to sell us some fairly low cost bearings. Colin VK3UBY knew exactly what we needed; it turns out he has built the



Photo 2: Colin VK5UBY saving the day!

odd trailer, actually it turned out he has quite an extensive workshop with quite a few classic cars and loves tinkering.

We arrived at Colin's house in Mildura and were greeted by Sandra, Colin's lovely wife, who we then find out is also VK3LSC. And then, we are treated to cups of tea and food, Sandra was just not letting us leave until she was certain we had at least had a little break.

What a great couple to meet. These guys then loaded up all their tools, jumped in their car and followed us back to the breakdown site.

Back at the breakdown site, Chris VK1GG and Steve VK3NF were ensuring John VK5PO was both safe and being continually updated with the activities back in Mildura and various ETAs back to the site of the broken down trailer.



Photo 3: Sandra VK3LSC instructing Colin VK5UBY on wheel bearing repairs. Hi.

We all arrived back around 9.30 pm and Colin got cracking getting our problem sorted. By 10.30 pm, we were back on the road.

We decided to put John into a motel in Mildura and Dale and I carried on through to Hay and crashed around 4 am at a motel who was kind enough to let us check in at such a late hour.

You wouldn't think there could be any other problems after all of this, and for Dale and I there was no issue: we arrived in Tangambalanga mid-morning and unloaded a few towers.

John VK5PO was quite a few hours behind us and around 2 pm, we looked across the roadway and there he was, driving in with the towers on board and getting closer by the second. Then Dale and I said to each other, 'Is there a missing wheel'? Sure enough, yet another wheel had let go on the trailer and it was gone miles down the Hume Highway never to be seen again. This time, it was the studs that had broken off; unreal bad luck.

Being a mechanically minded person, John thought that as he was only a few kilometres away from the final destination, he could strap the axle to the trailer and drive on at a very slow pace to get the load successfully to its final resting place. His quick thinking was a credit to his ingenuity but the trailer had proven itself to be totally inadequate for the journey.

Once we had unloaded, I announced to John that he could take my brand new trailer back and I will stick around an extra day and get the wreck of a trailer in for repair in Albury or Wodonga.

John intimated the trailer should be driven off the nearest cliff. Hi...

We laugh about it all now but when we look back, what a horrendous journey with the mechanical nightmares we experienced.

However, the kindness shown by fellow amateurs is just hard to explain. It was a very emotional period when we considered the amount of amateur radio operators who took the time to care, to assist and to see us through to a successful conclusion. Special thanks must go to Colin VK3UBY and his lovely wife Sandra VK3LSC; these guys just are the most loving people on the planet; closely followed by Steve VK3NF, who was instrumental in the bearing supply; Chris VK1GG who made so many calls to so many possible suppliers and also would not leave his radio until he knew that John, Dale and I were safe.

I have now made six more trips covering over 12,000 km in the last month and with a few more, we will be finally settled in the most beautiful part of VK3 that I and Samantha have ever seen. We are already being made feel so welcome by quite a few amateurs from the Albury Wodonga Amateur Radio Club. Additionally, a special thanks to Rob VK5FRGM who also has been on numerous trips with me assisting with the move to VK3. Rob has decided to make the move to the Tangambalanga area as well, so there will be another VK5 coming to VK3. Once again, amateurs helping amateurs, it is a refreshing concept and an enjoyable reality based on our experience.

We love our hobby, we love the many facets that it offers, but essentially, John, Dale and I learnt that amateur radio operators are a group of people whose caring nature has touched our hearts. Thank you to everyone involved, the names mentioned above are only a few of those involved, the truth is there were many more, all trying to get us to safety. We will always remember the kindness of those who went the extra mile. Long live our great hobby and the fabulous people involved.

Postscript

After submitting this story, Brenton VK5BM commented: *Hindsight is wonderful but the truth is I should have spent more time investigating the condition of the wheel bearings before such a long journey. Whilst we knew we were not overloaded as far as weight on the trailer, the condition of the trailer needed more inspection prior to any transporting regardless of distance. Lives apart from our own could have been endangered and my lack of mechanical knowledge is no excuse. Over \$800 of repairs were performed in Albury, NSW prior to me allowing this trailer to be put back on the road. The owner of the trailer back in Adelaide was grateful that the issues had been fixed and he even admitted he was unaware it had got to the stage of such ill condition. I suppose the moral of the story is safety first and double check everything before any journey, whether it be interstate or a few suburbs away.*

The WIA office will be closed from 4:00pm Friday, 21st December @ will reopen 10:00am, Monday, 14th January, 2013.

Further details are available at our website www.wia.org.au

The Wireless Institute of Australia extends to all radio amateurs very best wishes for the festive season.



How I built a dummy load from commonly available components, and why I did it!

Neville Chivers VK2YO

I was in contact with a recently upgraded amateur on 40 metres. He had just purchased a new multi band transceiver without an internal tuner. He had been using an old five band transceiver and a trapped five band vertical with a well-known brand VSWR meter in line. When the coax from the vertical was connected directly to the new transceiver and the SWR read, it was higher than previously indicated with the SWR meter in line with the old transceiver. After careful checking the same result was again noted. Because his VSWR meter was an expensive one, he suspected his new transceiver was inaccurate in its display of VSWR.

I replied it was best not to jump to conclusions but to test the meter and transceiver individually on key down while connected to a 50 ohm non inductive dummy load. He replied that he did not have one and lived in an isolated location where help from another amateur was not readily possible.

On the next over I suggested he make one himself from commonly available parts. He did not seem keen on that idea, and replied that he may seek one in the 'Wanted' advertisements, and so the QSO ended.

On reflection I realised I had advocated a course of action I could not take myself, as I did not have the requisite dummy load either! But being a home brewer from way back I thought I should practice what I preach. So I did, and completed a very useful tool for the shack for about seven dollars.

To start with, I asked myself how hard would it be to source suitable carbon resistors to build a 50 ohm non inductive load? So, out with the Jaycar catalogue! I did not need a 100 watt dummy load, rather one of

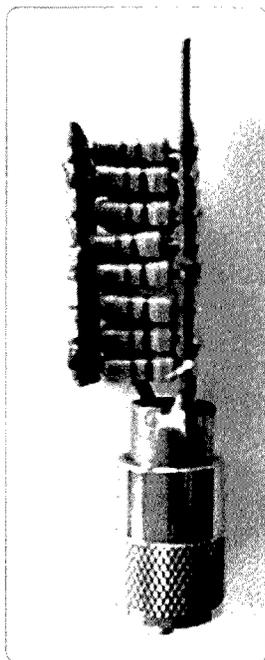


Photo 1: The completed 20 watt dummy load.

about 10 to 20 watts, given almost all modern transceivers can be comfortably wound down in output to around five watts. As you only need enough output power to calibrate the meter to full scale, I figured 20 watts would be about ideal.

Consulting the Jaycar catalogue I noted the highest rated carbon resistors carried in stock were one watt, but not every preferred ohms value was available. However, one with 820 ohms at one watt was available, catalogue RR 2772, and 16 of these in parallel would work out to be approximately 51 ohms. These resistors were 5% tolerance, and the final measurement after construction was 52 ohms. A PL259 plug suitable for RG8U cable, Jaycar PP 0682 was also purchased.

To solidly mount these resistors in parallel and heat sink them, I selected a piece of 12 mm OD copper water pipe, 100 mm long, from the scrap metal tin and

flattened it with a hammer, where it finished up 20 mm wide. I then polished one side to a mirror finish and cut a piece 40 mm long off one end. On the longer 60 mm plate I cut two grooves length wise in one end, of about 5 mm each, to slide into the rear of the PL259 plug. I also had to file away the chrome plating on the plug to expose the brass, so that it could be soldered to the 60 mm copper plate at final assembly.

Next I came 5 mm along the 60 mm plate and clamped the 90 mm and 40 mm plates together in a vice and bored eight by two mm (8 x 2) holes, equally spaced along each side. I separated the two flat pieces of copper and threaded the 16 resistors through the holes from the dull side of the 60 mm plate, bent the resistor leads flat against the shiny copper face and flow soldered them to the copper. A high wattage soldering iron was needed for this. When all had cooled I slid the 40 mm plate over the other end of the resistors and repeated the flow solder process. When this had cooled I slid the PL259 plug onto the 60 mm bottom plate and soldered it in place. Lastly, I soldered an insulated wire from the centre spigot of the PL259 plug to the upper copper plate.

All finished, I screwed the dummy load to the SO239 on the back of my transceiver and set the power level on 40 metres to 20 watts, and the bar graph to read SWR. After one minute at 20 watts input to the dummy load it was noticeably warm, but there was no SWR reading registered on the bar graph at all.

Now, the next chore is to test my external in line SWR meters against themselves and the transceiver.

To be continued!



Maryborough to host Australian Scout Jamboree AJ2013

Geoff Emery VK4ZPP



Figure 1: The official AJ2013 badge.

"This is one of the largest events to come to the Fraser Coast", said Geoff Emery VK4ZPP, President of the Maryborough Electronics and Radio Group. With an expected attendance of over 14,000 Scouts and Leaders, the Maryborough Showgrounds are being converted into an event village. Activities are for 10 days commencing on 2nd January 2013.

One area that is traditional to these Jamborees is the operation of an amateur radio station which both allows contact with the wider world to be made from the site and gives licensed amateurs the opportunity to operate from an unique event location. Application has been made for a special event call sign.

As many facets of the amateur hobby as can be accommodated are being followed through and invitations to the other regional clubs have gone out. It is hoped that apart from voice communications, using the standard Scout calling frequencies, there will be IRLP, Echolink, ATV through to fox hunting.

Site preparations have had to be undertaken whilst allowing the area to continue serving other



Figure 2: The badge adopted by the Victorian contingent.



Figure 3: The Queensland badge.

World Scout Calling Frequencies

Band	SSB (phone)	CW (morse)
80 m	3.690 MHz	3.570 MHz
40 m	7.090 & 7.190 MHz	7.030 MHz
20 m	14.290 MHz	14.060 MHz
17 m	18.140 MHz	18.080 MHz
15 m	21.360 MHz	21.140 MHz
12 m	24.960 MHz	24.910 MHz
10 m	28.390 MHz	28.180 MHz
6 m	50.160 MHz	50.160 MHz

Australian Scout Calling Frequencies

Band	SSB (phone)	CW (morse)
80 m	3.650 MHz	3.570 MHz
40 m	7.090 MHz	7.030 MHz
20 m	14.190 MHz	14.060 MHz
15 m	21.190 MHz	21.140 MHz
10 m	28.590 MHz	28.180 MHz
6 m	52.160 MHz	

local events and the concentrated effort of the AJ2013 team will be largely through December although commenced some months earlier.

For details of activities and general information on the Jamboree go to www.aj2013.com.au/ or aj2013.scouts.com.au/

MERG, Inc is a WIA affiliated club and is helping coordinate the set-up and running of the event station. A full report will be published in *Amateur Radio* in the new year. Updates to the schedule will be provided to WIA News leading up to and including the Jamboree.

Contact details for MERG, Inc. can be found on the Wireless Institute of Australia web site under affiliated clubs. Alternatively email vk4zpp@wia.org.au.

VK5news The 'Old Timers' luncheon, Adelaide, 2012

Christine Taylor VK5CTY

Held on the third Thursday in October each year, there were over 30 members and XYLS there, including Darcie Hancock at 102 years. Although you may only see people once a year, it is so good to be able to do so. Darcie was brought to the luncheon by Ian VK5IS along with the 20 metre transceiver Ian had built up from a kit. By a coincidence he sat beside Brian VK5NOS who knew him as a boy when he used to visit him in his shop for a chat whenever he had a chance. It is a small world.



Photo 1: Ian VK5IS, Darcie and Brian VK5NOS, with Ian's kit transceiver on the table.



Photo 2: Three 'Old Timers', Lloyd VK5BR, Ron VK5RV and Harry (Curly) VK5CL.

There were three ALARA YLs present too, to listen to Leigh VK5KLT talk about the vertical antenna he has designed and built on a high rise apartment in North Adelaide. Due to some fortuitous circumstances the antenna is almost invisible and it is almost noise-free despite being a vertical.

Ron VK5RV indicated that he would very much like someone to take over as President as he has many demands on him from his family. Please think about it.



How a stray cat gave me some extra D-STAR contacts

Darren Glynn-Roe VK5DP

This is a true incident during the 2011 D-STAR QSO party that was held on the weekend of 11 to 14 November 2011.

I had been on the radio on Saturday and Sunday and made some contacts. I decided that if I was awake on the Monday morning I would try and make a few contacts to increase my score but if I was still asleep I would not worry about it.

As it happened I had a chair delivered on the Monday morning and my father arranged its final location. Having been woken up and asked if the location of the chair was OK, I said yes and decided to go back to sleep when out of the corner of my eye I saw a black horizontal line which looked like a tail of some sort. There was an

empty box in the living room and I heard scratching sounds coming from the box.

Having been fully woken up now I went to investigate this and to my absolute horror I saw a black cat playing in the box. It then proceeded to the vertical blind on the side window and started playing with it. The task now was to get rid of this uninvited guest and do it as quickly as possible. After opening the front door I noticed that the cat had ventured to the vertical blind on the front window and had started playing with it. Not knowing how to get rid of the cat gently I did the only thing I could. I hissed at it and the cat left faster than I could say CQ. I quickly shut the front door before the cat decided to come

back inside.

There was no way I could go back to sleep now, so with an hour to go in the D-STAR contest I turned on the IC-92AD to hear an Irish station calling. I acknowledged his call and another station from Ireland was calling. After answering these calls I heard a station calling me with a prefix that I had never worked since I had gained my licence. After exchanging numbers with him I looked up the prefix in the call book to find that he was from Argentina.

If the cat had not come in uninvited, I would have never made these extra contacts. This may be a strange way to get extra contacts but that is how it happened.



Christine Taylor VK5CTY

The September meeting was a construction night. A number of members made an amplifier using a valve, perhaps for the first time. For others it was a blast from the past! As usual Graham VK5ZFZ provided the instructions and the components for the project. By the end of the night some people had a working microphone amplifier on its own circuit board.

Graham also brought along a number of IF strips for people to remove the components from, to obtain the valve base. There was also a pin straightener in case they were a bit rough disassembling the board. Everyone was free to take home the components they removed to add to their box of useful bits!

The project was a simple utility amplifier that could be used as a microphone amplifier or for other purposes. It included a single 6AU6 (courtesy of the AHARS valve bank) as the gain stage, and for safety runs from a 12 V DC power supply.

The preamp is triode strapped and as the plate supply is only 12 V DC the anode current works out to around 100 μ A, zero grid bias needed to even achieve this low figure (plate starvation). Regardless

the voltage gain of the amplifier is still around 10 times, quite a respectable figure. The input impedance is just under a M Ω and the output impedance around 40 K. The plate supply is decoupled by R2 and C2, and ensures no ripple or noise on the anode supply line even with noisy plugpacks. The filament voltage is dropped from 12 V to 6.3 V with a series resistor R3.

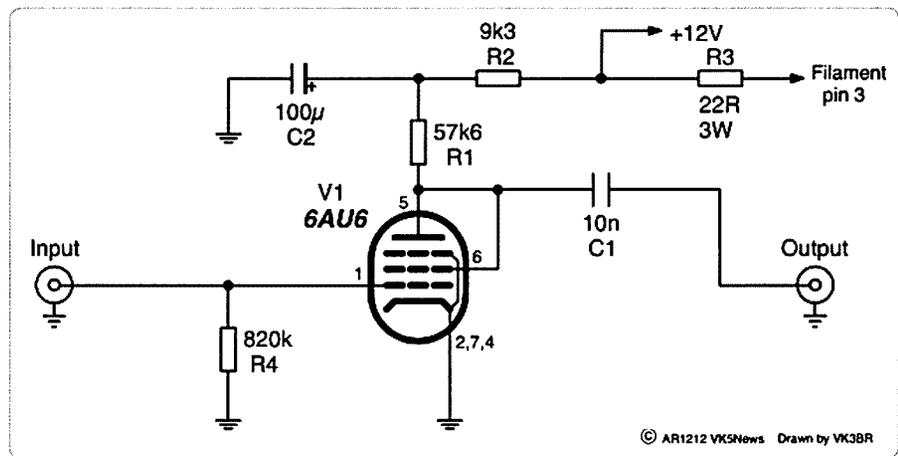
The whole amplifier was built on a folded steel chassis, the members having all of the fun using Q-Max punches to make the valve socket hole, and drill a few others (just for the experience). No specific component

layout was used as traditionally in most projects published in the 40s and 50s all you got was the circuit, leaving it up to your own ingenuity for the rest.

AHARS participated in JOTA at their 'shack' and were pleased with the day. The district Guide Leader was there to see what happens during JOTA.

By the time you read this the AHARS Buy and Sell will be over for another year and Christmas will be upon us.

On behalf of the committee and members of AHARS we wish you a 'Happy Christmas to all and to all a Good Night'.



The AHARS 2012 valve preamp circuit.

The Westlakes Cup 2012

David Myers VK2RD - Contest Manager WARC

First Place Standard and Advanced Section:	Dr. Kevin Johnston VK4UH	23 points
First Place Foundation Section and 2 nd outright:	Richard Osborne OAM VK2FRKO	21 points
Equal 3 rd Place:	Vince Henderson VK7VH	18 points
Equal 3 rd Place:	Keith Turk VK2PKT	18 points

Only four logs from a participation of 11 stations is very disappointing. The committee have decided that next year we will start promoting the Westlakes Cup from around

April through various amateur media publications and news casts Australia wide.

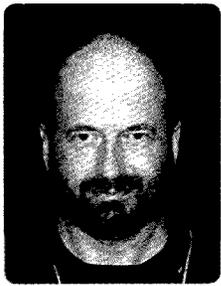
Thanks to Vince VK7VH for the suggestions and the

encouragement to continue this sprint contest.

Thanks to those who took part.

AMSAT

David Giles VK5DG
e vk5dg@amsat.org



A new BBS in space (sort of)

Apologies to those who are hoping for more digital BBS birds like UO-22. This month we look at the recent launch of some cubesats from the ISS, access to PRISM and the CAMSAT twins.

Cubesats from ISS

After some delays the group of five 1U and 2U size cubesats taken to the ISS in July were tossed out using the robotic arm on the 55th anniversary of Sputnik (4th of October). One of the astronauts

took a picture of the second lot of three leaving the ISS [1].

WE-WISH was the first to go and was deployed by astronaut Akihiko Hoshide. WE-WISH has a telemetry downlink on 437.515 MHz and also transmits SSTV images taken with its infra-red camera (using the Scottie 1 format). Mineo Wakita JA9PEL describes how to interpret the SSTV images on his website [2].

TechEdSat from the San Jose State University in the USA is being used to demonstrate technology for

communication satellite networks. It transmits telemetry on 437.465 MHz using AX.25 every 30 seconds. The data and telemetry format details are available on the TechEdSat website as well as decoder software. Any packets received can be submitted to the website [3].

NanoRack/F-1 is a 1U cubesat developed by engineering students at the FPT University in Vietnam. F-1 is supposed to transmit telemetry frames on 437.485 MHz CW (but use FM to receive) while in sunlight and 145.980 MHz (1k2 AFSK every



AMSAT-VK

AMSAT Co-ordinator

Paul Paradigm VK2TXT
email coordinator@amsat-vk.org

Group Moderator

Judy Williams VK2TJU
email secretary@amsat-vk.org

Website

www.amsat-vk.org

Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater:146.850 MHz
VK2RIS Saddleback repeater: 146.975 MHz
VK2RBT Mt Boyne Repeater on 146.675 MHz

In Queensland

VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia

VK5TRM, Loxton on 147.125 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz
IRLP node 6124
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

30 seconds) when eclipsed. So far no definite reception reports have been received by the engineering team.

FitSat-1 has probably been the most successful of the five. It transmits a loud CW beacon on 437.250 MHz as well as signals on 5.84 GHz and 474 THz (it uses LEDs). So far the 437 and 5840 MHz signals have been heard and it is expected to have the LEDs operational for Christmas. The website has details of the 5.84 GHz receiver at the ground station and pictures taken by the satellite as it left the ISS. Reception reports will earn a QSL card [4].

RAIKO doesn't have an amateur payload but will perform an experiment using Ku band microwave transmission. As I type it is three weeks since the launch and already the effects of the low orbit are being seen. From an initial altitude of 423 km they have dropped down to 410 to 418 km depending on the deployment. Due to their lower mass they are not expected to stay up there as long as ARISSat-1 did.

Access to PRISM

Built by the University of Tokyo and launched in January 2009, PRISM is a microsat with a telephoto lens for taking high resolution images. PRISM has been running a CW beacon on 437.425 MHz continuously since launch, and will continue to do so. But there has been the hint that amateurs will be allowed access to the digital side of PRISM. A test was made during May 2011 but only now have details been released to amateurs worldwide. PRISM now has a small message board that will allow up to 98 small messages per week.

These messages are up to 39 bytes long. Details are on the website and there is some detail to go through [5]. The first page outlines the 'Ham radio service' function of PRISM. At the bottom of the page click on the 'Read The Terms' box to get to the page with all the conditions of use. If you agree to the conditions select 'Agree' at the bottom of the page (left side) and click on the 'Agree' button on the right and you will be directed to a third page that gives you the necessary details on how to access PRISM. Not in the same league as the UoSats but may be worth a try.

Successors to HO-68

CAMSAT, makers of HO-68, have given more details of their new satellite project. Students at Qian Youth Space Academy are constructing twin satellites that will carry a comprehensive amateur payload. CAS-2A1 will have three beacons and three transponders. The beacons are all on two metres (CW, voice and AX.25), two mode U/V transponders (linear and APRS) and a mode L/S linear transponder. Its twin satellite CAS-2A2 has four beacons and a transponder. There are two beacons on 70 cm (CW and AX.25), and CW beacons on 2.4 GHz and 10.45 GHz. The linear transponder is a mode V/U. The satellites are planned to go in a 1000 km high sun synchronous orbit. The neat thing about these satellites is that they will be able to communicate with each other and extend the communications range. This would work like this: operator A uplinks to CAS-2A1 on 70 cm. The 2 m output is picked up by CAS-2A2 and transmitted down on 70 cm to operator B. Operator B then uplinks on 2 m to

CAS-2A2 which retransmits on 70 cm. This picked up by CAS-2A1 and retransmitted to operator A on 2 m. The distance between the two operators could be in the order of 10000 km, double that of one of the satellites. This all assumes the satellites are in range of each other and the operators can deal with four amounts of Doppler shift. There have been a few instances before with amateur satellites where it was possible to go through two at a time. The first example was back in the days of AO-6 and AO-7 where you could transmit on 70 cm to AO-7, then via the 2 m link to AO-6, then down on 10 m. But this was one way only. The CAMSATS should be able to have a two way conversation between them. As to how the problems with tracking two satellites and their transponders will be left to a later time.

Final Pass

Occasionally even some of my predictions do come true and there is now a satellite using C-band (see this column in the September, 2010 issue). FITSAT-1's high speed data downlink has been heard on 5840 MHz by Japanese and US amateurs. Unfortunately for us FITSAT-1 uses a magnet to orientate itself and its C-band beacon will only be on over the northern hemisphere.

References

1. pic.twitter.com/wZAX5qZL
2. <http://www.ne.jp/asahi/hamradio/je9pel/wishssste.htm>
3. <http://www.techedsat.com/>
4. <http://www.fit.ac.jp/~tanaka/fitsat.shtml>
5. <http://www.space.t.u-tokyo.ac.jp/prism/en/HAMservice.html>

Participate

**MIENA Hamfest Central
Highlands ARC VK7**

December 1, 2012

The Hills Amateur Radio Group VI6AHR30

January 1-31, 2013

ALARA

Margaret Blight VK3FMAB – Publicity Officer

Another year is drawing to a close and once again we can only marvel at how quickly time has passed. There will no doubt be the last minute Christmas shopping and posting of Christmas cards still to be completed. If you are struggling for an idea for a present for that ham operator in your family, perhaps you could consider a subscription to his or her favourite radio magazine or even pay the annual radio club membership on their behalf. Nice and practical! You could even wrap up the receipt in colourful paper and tie with a ribbon. It will be much appreciated I am sure. Hi.

There have been a number of important events this year. We not only had the YL International Meet in Adelaide SA but also the WIA Annual Conference which was held in Mildura only a couple of weeks later. Both these events were well attended by ALARA members. In August the 32nd ALARA Contest was held and participants between them made 852 contacts. Contest Manager Lesley VK5LOL hopes to encourage even more participants next year. The ALARA Table was set up at a number of hamfests and continues the promotion of women radio operators to the general public. ALARA celebrated its birthday in July at a number of interstate events. Look forward to the 40th birthday celebrations in 2015. We are also looking forward to the YL MEET to be held in Port Stephens, Nelsons Bay, in 2014. Planning is already well underway in NSW. For further details see www.alarameet2014.com

I wish all readers the compliments of the Season and better and better reception in the New Year.

News from VK2

Dot VK2DB helped at the JOTA station at the Mt Colah Guides Hall.

The station callsign was VK2MA and the Guide leaders were keen to show how women are involved in amateur radio. The two stations, HF and VHF, were busy most of the time and the girls did very well using the mike.

Dot also gave a talk and film show about our International YL Meet to her local National Seniors Group



Photo 1: Dot VK2DB with Georgina on the mike.

who are always fascinated and interested to hear of radio related activities.

News from VK4

Another resident of Sweers Island, YL and ALARA member Lee Davies, has also been active recently, with her own mini-pileup to Japan and the Canary Islands! Lee has been active for several years now as second operator, and has begun to study for her Foundation licence. Lee is already a competent CW operator, sending and receiving at 12 wpm, due to her own interest



Photo 2: Lee on CW.

in that mode. Who said CW was dead! She has carpal tunnel issues and has not been as active on CW this year, but recently she went on SSB with Col VK4CC and got her confidence back.

Lyn VK4SWE has also let us know of a young operator named Lily whose enthusiasm for radio is very encouraging. Lily is 13 years old. She hopes to fit in by applying for her Foundation licence soon, in between her schoolwork obligations. In her own words she outlines a recent experience.

My first pileup

I haven't been on the radio for over two years. I thought I would have



Photo 3: Lily operating on SSB.

forgotten all the signals, sayings and codes and would have made a fool of myself. When Lyn VK4SWE introduced me back to the radio we re-read over the phonetic alphabet, Q codes, RST reports and it all came running back to me.

Lyn announced me in her daily ANZA DX Net where I was introduced as the second operator of VK4SWE. As soon as I had my chance on air and started talking I forgot about my nerves. I talked to some amazing and dedicated operators who were really encouraging me. Then came the pileup. I felt like a new toy. People from all around the world were trying to get a chance to talk to me. I had countries



Photo 4: Lily operating on CW.

like Italy, France, Wales, Netherlands, America, Japan, Germany and several islands around the world trying to catch a look at my amateur skills. Of course we tried talking to everyone and as time passed I grew more and more confident. We talked about the weather, personal details, time differences, holidays and thanks to Ben, my next holiday to Japan, where I will be staying with him.

I was having a ball and even though I spoke to over 50+ people I still wasn't bored. Things started to get out of hand because so many people were shouting out their partial call signs. We had to call it quits because we couldn't hear anyone except bits and pieces of call signs. I never knew how many people use and operate radios and could talk to one another for hours on end. Definitely getting back on the radio was a great decision and I enjoyed it. I cannot wait to get back on the radio

and talk to many different people with the same interest.

73 for now, Lily.

Feedback from operators

She was fantastic in that pileup! She was looking up calls on QRZ, logging RST on paper, checking a world map to see where new countries were – I just hope we can keep her interested, she is very bright and busy! Lyn VK4SWE.

Yes the best I've heard in a long, long time, and did I hear you say she knows Morse as well? If so that is just brilliant and yes I hope she keeps up with it not only because we need YL and XYL operators, because Lily seems right at home with it and I feel a lot of Russian, Italian and other countries could learn by her lead into the Code-of-Conduct on amateur Radio, Tell her I said so if you like as I feel she could be a great ambassador for Australia in amateur radio as well. VK2NRB.

Yes, Lily was very amazing, and I say again what a great radio presence! Keeping up with callsigns, names, and where folks are located in the world. A wonderful geography lesson! She would be a really great spokeswoman for the hobby. K5CX.

News from VK5

Lesley VK5LOL and her OM, together with some other radio enthusiasts went to Kangaroo Island

for the ILLW lighthouse weekend. Despite a ferry crossing in very stormy weather everyone arrived safely and enjoyed their stay. After some manoeuvring with dipoles they obtained very good results. The ionospheric conditions were especially good on the Sunday afternoon and they even managed a pile up.

Shirley VK5YL would like to encourage YLs to come on the ALARA Net which takes place each Monday evening at 8.30 pm CST (9.00 pm during Daylight Savings Time) on 3.580 MHz.

VK3 News

The final ALARA lunch for the year was held at Gisborne. Everyone present had an enjoyable day catching up with friends and participated in the exchange of a small gift to celebrate Christmas.

Silent Key

We were saddened to hear that Valda Trenberth VK3DVT has become a SK. She held the post of ALARA's Treasurer from October 1981 to October 1986. Valda acted as Sponsorship Secretary, and Souvenir Custodian. She designed the ALARA Contest Certificate, notepaper, stickers and banner. ALARA extends our deepest sympathy to her family.



DX-News & Views

Luke Steele VK3HJ & Chris Chapman VK3QB
vk3hj@wia.org.au & vk3qb@wia.org.au

October and November on the bands

The quiet solar conditions ended with a couple of M-class flares and an X-1.8 on 23 October. This resulted in a short wave fadeout about mid-afternoon local time.

That evening the higher bands ran hot, with European stations worked on 10 m fairly late into the evening, whereas they had usually been fading out after dark in VK3. A quick check of 12 and 15 m saw they were running well after midnight into

Europe. Geomagnetic conditions settled nicely, with decent solar numbers, just in time for the CQ Worldwide DX SSB contest, 27-28 October. Saturday evening was good on the high bands, and Sunday even better, with many

worked on 10 m from Asia and Europe. 15 and 20 m was still going flat out after midnight.

There was plenty of good DX, and many DXpeditions on offer during October. 3D2C Conway Reef was putting great signals into VK, along with T30PY. Western Kiribati. ZD9UW Tristan da Cunha DXpedition was cut to one operator, Rob M0VFC, who was only able to operate for less than four days. TT9TT Chad made time to call for VK/ZL on 20 m. The Niger operation suffered fairly weak propagation in our direction, but a number of VK ops worked them. 3B9SP Rodrigues I seemed a bit easier to work, and were well heard on 40 m and up. XX9THX Macao also was not too difficult to work. OJ0R Market Reef came in well on the higher bands. Further north, JX9JKA Jan Mayen I has been workable on the higher bands in the late afternoon and evening. Svein LA9JKA is on Jan Mayen until March 2013, and may well be the last operator there for some time. At the other end of the world, Bob VP8LP Falkland I has been calling VK on 20 m SSB around 1030 UTC. 20 m has only been open to VK around October and November each year. Bob found an opening on the long path to south-eastern VK on 12 m 22 October. This was a surprise to Bob, who said he'd not worked VK on 12 m before.

The P29 IOTA expedition is in full swing, at the time of writing, with good signals on all bands. The Sable I activation by AA4VK and WA4DAN had to be cut short due to the approaching Hurricane Sandy, which affected almost the entire east coast of USA.

Some Upcoming DX Operations

The following table summarises some of the DX activations that may be of interest to VK operators.

ZL9HR, **Campbell I**. This operation should be on air around the time this AR reaches your mailbox. Have fun working a rare "local" entity. Signals should be

Date	Call	QSL via	Info
- 3 Dec	VP2V	LotW	British Virgin I, NA-023, N3DXX, AA7V. QSL also ok via NR6M direct.
- 3 Dec	7P8D	LotW	Lesotho, 160-6m.
- 8 Dec	E51TLA	LotW or OZ6TL	South Cook, Rarotonga I, OC-013, OZ6TL, CW, RTTY.
- 9 Dec	ZL9HR	LotW or EB7DX	Auckland & Campbell I, http://www.campbell2012.com/
- 10 Dec	5T0SP	LotW	Mauritania, Polish DXpedition, 160-10m
- 15 Dec	5H3NP	WB0VGI	Tanzania, Noel WB0VGI, 30-10m, CW/SSB/PSK
- 11 Dec	C6	Home Call	Freeport, Bahamas, NA-080. N4BP as C6AKQ, N4UM as C6ARU, K4RUM as C6AUM.
- late Dec	CY0/VE1AWW	VE1 Bureau	Sable I, NA-063. AI VE1AWW QRV till late December.
-11 Dec	8Q7AU	HB9OAU	North Male Atoll, Maayafushi I, AS-013, 80-10m; SSB.
1 Dec – 31 Jan	C6AGT	AK4BM	Bahamas, Green Turtle Cay, NA-080, 40-10m, SSB, Digital.
3 Dec – 12 Feb	EA8	Home Call	Canary I, AF-004, IK1PMR, PA3LEO.
5 – 12 Dec	V63XG	LotW	Micronesia, Yap I, OC-012, JA1XGI, 20-6m, mainly SSB.
7-11 Dec	C6AVA	N6AWD	Bahamas, NA-054, K6VVA, 40-17m, mainly CW.
10 – 13 Dec	JD1BLY	J15RPT	Ogasawara, Chichijima I, AS-031, J15RPT, 40-10m.
10 Dec – 5 Jan	E51E	EB7DX	South Cook I, Aitutaki I, OC-083, 5B4AIF, 40-10m, SSB, RTTY.
22 Dec – 07 Jan	H40FN	HA8DD	Temotu Province, Nendo I, OC-100, DK9FN, 160-6m, CW.
2013 5 – 18 Jan	6W7SK	LotW	Senegal, Saly Portudal, F6BLP, mainly CW.
12 – 20 Jan	ZF2PG	LotW	Grand Cayman I, NA-016, K8PGJ, 20, 15m, SSB.

strong all bands, and we should be able to beat the expected huge pileups from the Northern Hemisphere hordes!

VP2V, **British Virgin I**, NA-023. N3DXX, AA7V for CQ WW CW, and until 3 December.

7P8D, **Lesotho**. 160-10m, CW, SSB and RTTY. 3 stations 24/7, till 23 December. QSL via LotW or OQRS. See their website: <http://www.zs2dl.co.za/7P8D.html>

E51TLA, **South Cook I**, Rarotonga. Henrik OZ6TL will be operating again from Rarotonga, using CW and RTTY. until 8 December.

5T0SP, **Mauritania**. Till 10 December. See the website for

further information. <http://5t0sp.dxing.pl/>

5H3NP, **Tanzania**. Look for Noel WB0VGI until 15 December. He plans to be operating from Iringa on 30-10 m using CW, SSB and PSK. QSL via home call.

E51E, **South Cook I**, Aitutaki I. Norman 5B4AIF will be operating from Tautu Village on 40-10 m, and maybe 80 m, 400 W, SSB and RTTY. He will be uploading to LotW and ClubLog. See www.aitutaki2012.com for more information.

C6, **Bahamas**. There are three Bahamas expeditions that will be active in December:

C6AKQ (N4BP), C6ARU (N4UM), C6AUM (K4RUM) will be

in Freeport, Grand Bahama until 11 December.

C6AGT (AK4BM) Robert will be operating from Green Turtle Cay on 40-10 m, SSB, and possibly PSK31, JT65, during his evenings. He may be operating QRP on 20 m from some of the nearby uninhabited islands. During his daytime, Robert plans to have a 10 m beacon operating, and SWL reports are welcome. He'll be there until the end of January.

C6AVA (K6VVA) Eric will be operating mainly CW from Berry I, 7-11 December. QSL only via N6AWD.

CE0/VE1AWW, Sable I. Al is expecting to be active from Sable I until late December. QSL via the VE1 Bureau.

8Q7AU, Maldives. Claudio

HB9OAU will be on holidays on Maayafushi I until 11 December. Look for him on 80-10 m SSB.

EA8, Canary I. Andrea IK1PMR and Claudia PA3LEO will be operating from Canary I until 12 February. QSL to home calls, direct, via bureau or email request.

V63XG, Micronesia. Haru JA1XGI will be operating from Yap I 5-12 December. Look for him on 20-6 m, mostly CW but some SSB and digital. QSL via LotW, direct or JARL bureau.

JD1BLY, Ogasawara I. Mak JI5RPT will again be operating from Chichijima I 10-13 December. He will be active from 40-10 m, mainly CW, but some SSB, digital and satellite operations.

H40FN, Temotu. Sigfried DK9FN will be returning to Lata

village, Temotu Province, Solomon I. He will alone this time, and will be operating CW, 160-6 m, 22 December – 7 January. QSL via HA8DD. Surplus funds from direct QSLs have been donated to the local hospital at Lata.

6W7SK, Senegal. Francis F6BLP will be operating from Saly Portudal, which is 80 km south of Dakar, on the coast. He will be there for two weeks from 18 January, operating 80-10 m, mainly CW. QSL via LotW, eQSL, direct or bureau.

ZF2PG Grand Cayman I. Pete K8PGJ will be back in the Cayman Islands 12-20 January. He'll be Scuba Diving, and operating "Island Style" on 20-10 m. Radio activities will be during his mornings and early afternoons during the week.

2013 WIA AGM & Annual Conference

FREMANTLE MAY 24-25-26 2013

The 2013 Conference will be held at the Tradewinds Hotel in historic Fremantle, Perth's port city. Fremantle is one of Perth's major tourist centres, offering history, culture and lifestyle.

Explore our convict past at the Fremantle Prison and the Roundhouse, be spoilt for choice of seafood feasts at the Fishing Boat Harbour, relax with a coffee on the famous cappuccino strip, or simply meander in the markets.

Visit the Maritime Museum on the harbour then wander around taking in the historic architecture and streetscapes, or simply take in a local brew at one of the many boutique breweries.

Just down the road you will visit the Wireless Hill historic communication site, formerly a coastal radio station, now home to a communications museum, the WA VHF Group amateur radio club and beautiful parkland with sweeping views of the city.

On Sunday evening there's a function at the Neil Penfold State Amateur Radio Centre, giving

you a chance to see this world class facility for yourself. The Northern Corridor Radio Group will host this social event.

Of course Western Australia has a lot more to offer than the few things you can do at a conference, so you'd do well to make the most of your trip to the West and stick around for some time after the conference to check out Western Australia, including Margaret River down south, the Kimberly up north and Ningaloo reef in the middle to name a few.

Airlines are offering very good fares across the country these days, and you'd do well to start watching their advertisements now to pick up some bargains, or better still subscribe to their email alerts to make sure that you discover the bargains first.

This conference is a collaboration of several clubs in Western Australia, and we look forward to welcoming you.

Complete details and registrations are available on the WIA website.

VHF/UHF - An Expanding World

David Smith VK3HZ

e vk3hz@wia.org.au



Weak Signal

On the morning of October 24th the bands opened to ZL from VK4 and VK2. Ross VK2DVZ was one of the first in, working Bob ZL3TY on 2 m at 2218Z. Bob enjoyed a number of other contacts into VK2 with signals peaking to 5x9. The opening continued that evening, again from Bob to VK2 stations.

The following morning the band opening had strengthened and Stephen ZL1TPH was now out portable in northern NZ. He reports: *Portable on Moirs Hill, I worked the following stations:*

144 MHz: VK2DVZ, VK2AMS, VK2BCC, VK2AWD, VK2AH, ZL2ARA, VK2ZT, VK2EI, VK2FRL, VK4JMC, VK4OX, VK4IBR

432 MHz: VK2DVZ, VK2AMS, VK2AH, VK2BCC, VK2ZT

1296 MHz: VK2DVZ, VK2AMS

The highlight today was the 432 MHz contact up to VK4OX at 2317 km.

This is the first time I have worked this band to VK4. The contact did not come easy and we both persevered for over half an hour waiting for a peak. We finally found that peak and it resulted in an easy SSB contact with chat included.

Equipment used:

144 MHz: 200 W SSPA, TS-700a driver, ZL1RS two 5 element stack
432 MHz 100 W Tono amp, FT-817ND driver, 14 element Yagi
1296 MHz 150 W SSPA, 1296 MMT and Icom IC-202 driver, 1.1 m dish

On the following day, October 26th – activity across the water continued. Kevin VK4UH reports: *During a recent visit to the VK4UH QTH in Samford by the VK5 Mt Gambier 'team' (Colin VK5DK, Trevor VK5NC and Tom VK5EE), a short but intense Tropo opening to ZL1 occurred at around 0730Z on 26th October.*

Although the Hepburn had been

looking promising from SE VK4 up the coast and across the Tasman, no beacons or stations had been heard all afternoon. As the sun was setting Brian ZL1AVS in RF73fd, operating from the shack of Steve ZL1AVZ in Auckland (2286 km) appeared out of the noise on 2 m SSB and was eventually worked at 5x1/5x5. Steve also came on the air and was worked by me and all the VK5 visitors. As conditions improved Steve and Brian were also worked on SSB on 70 cm peaking at 5x2/5x5. These were the first contacts to ZL for me from this new QTH on either band.

I estimate the opening lasted no more than 45 minutes from this QTH and no beacons from ZL were audible at any time. Hopefully a sign of things to come later in this season.

On the morning of October 27th the VK6 beacons made a brief appearance in VK3. At 2207Z, Jim VK3II reported hearing VK6REP near Esperance. A short time later, at 2225Z, Ian VK3AXH reported hearing VK6RST near Albany. No VK6 stations were heard.

VK3 Microwave Test Day

After not-so-good weather forecasts, Sunday November 6th turned on ideal weather for the Test Day. The venue was the Eastern and Mountain District Radio Club rooms and the grass area at the rear was converted to a test range for the day, with a signal generator and remote-reading field strength meter about 54 m away. Eight people arrived with 10 GHz systems, three of them also with 24 GHz systems. As well, about 20 onlookers checked out the systems and also



Photo 1: ZL1TPH/p 2 m and 23 cm portable set-up.



Photo 2: Systems ready for testing.

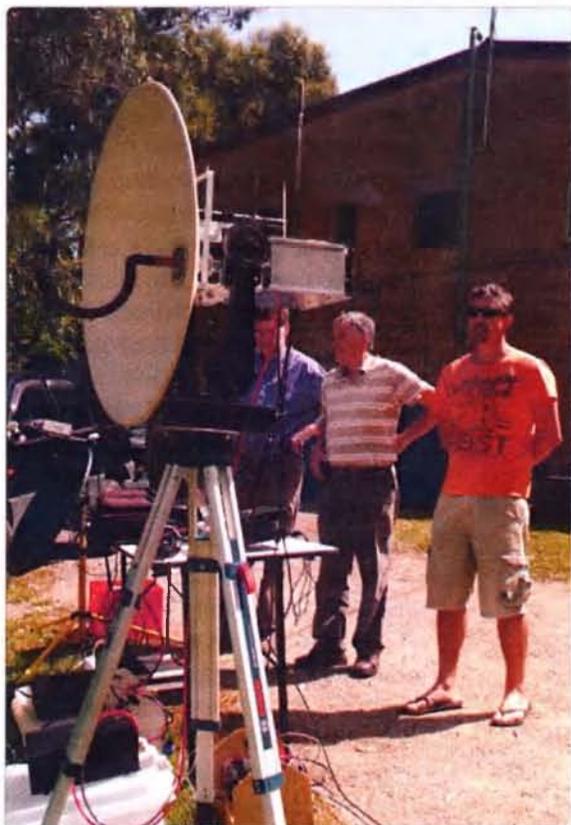


Photo 3: (R-L) Rhett VK3GHZ, Rex VK7MO and Bryon VK3YFL behind Rex's new 50 W 10 GHz system.

brought along other bits and pieces for show.

On the whole, most systems seemed to be working OK but some improvements were identified. Ian VK3AXH was one of the stand-outs, taking top spot in the normalised performance stakes (that is, adjusted for dish size and output power) with his 10 GHz system that he had only completed days before and had not yet tested!

Jack VK3WWW was about with his video camera and filmed a short piece on the day. You can find it at <http://www.youtube.com/watch?v=b9u01vPMmCU>

Thanks to the EMDRC for providing the venue and lunchtime BBQ.

VK4 Microwave Activity Day

Following their very successful Test Day, the VK4 microwave community held an Activity Day on October 28th. Unfortunately, the weather was a little inclement in some areas but, nevertheless, about 12 stations participated including Colin VK5DK/p. Adam VK4GHZ has again put together an excellent video of the day; it can be found at <http://www.youtube.com/watch?v=0DgF6Fun-qU>

VHF/UHF Field Day Scoring

The responses to the survey on the Field Day scoring have been collated and a report produced by Andrew VK1DA.

In summary, a majority of respondents support the proposal, with 79 in favour, 24 partly in favour and 13 against. In addition there was widespread approval for the concept of a separate category for the 6 m/2 m/70 cm bands. This category could be further expanded to include the 23 cm band, but still



Photo 4: Peter VK3APW with his 24 GHz and 10 GHz setups.

providing for a 6/2/70 subcategory. This would effectively split the event into the bottom four bands and the microwave bands.

A number of other changes are proposed. The full 55-page report can be found at http://vk1da.net/VHF_report_final.pdf

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au



Digital DX Modes

Rex Moncur
VK7MO

More tropo-extension of Meteor Scatter

On 20 October Starr ZL3CU reported his first ever Meteor scatter ping from the Australian mainland, from Ross VK2DVZ, over 2179 km as follows:

185430 6.5 160 2 26 30,
US*L3TY/73 VK2DVZ !L

Starr was beaming at VK7 at the time so this ping from Ross was off the side of his beam. Starr is at

Christchurch on the South Island and beams over New Zealand's Southern Alps, which would normally cut off long distance and thus low elevation meteor scatter signals. At the same time Simon ZL4PLM near Christchurch and Ross VK2DVZ reported seeing pings from each other which they have rarely seen before. The Hepburn chart (Figure 1) shows the possibility of a tropo-extension out a few hundred km from VK2DVZ, which effectively shortens the meteor scatter path and increases the elevation to get over the Alps.

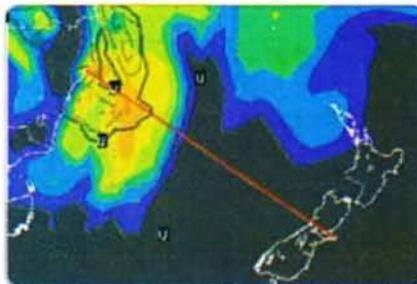


Figure 1: Path between VK2DVZ and ZL3CU.

Aircraft Scatter on 10 GHz

Rhett VK3GHZ near Bairnsdale, Victoria has just completed his 10 GHz station using a 10 watt DB6NT amp and a 64 cm offset dish. It turns out that he has a reasonable take-off towards Rex

VK7MO in Hobart, Tasmania (561 km path) when Rhett operates from his carport and Rex can beam between trees towards Rhett and operate with his portable station from his lounge room. This has the advantage that both stations can remain set up out of the weather. It is found that there are a few aircraft flights each day that cross the path and also that weak tropo-scatter can often be seen as well over this 561 km path across the mountains of Tasmania. Initial aircraft scatter tests using JT65c produced decodes but the signals did not last long enough for a QSO. Accordingly ISCAT-A was used in 15 second periods and two QSOs completed – each on a single aircraft. Tests were also conducted using a tone from VK7MO with VK3GHZ recording the result on a wave file on Spectrum Lab. Figure 2 shows both the waterfall display as well as the amplitude display showing signal to noise in a 1.6 Hz bandwidth. The waterfall display shows the frequency with Doppler shift due to the aircraft movement and also a weak and spread tropo-scatter signal at about 1300 Hz. It is seen that at about the time the aircraft scatter signal crosses the tropo-scatter, indicating zero Doppler and the crossing of the path of propagation, there is a very strong peak in the signal such that the noise background drops due to AGC action. The amplitude graph shows the signal to noise ratio peaked at over 40 dB at this time – but only for a second or so. There are, however, a number of peaks over 20 dB in 1.6 Hz bandwidth which is equivalent to over -13 dB on the WSJT scale and sufficient for ISCAT-A. One might ask why the peak signal did not occur exactly at the time the Doppler was zero – we think the explanation may be that the Doppler has not only a horizontal component due to the aircraft crossing the path but also a small vertical component and this off-set is a result of the vertical component.

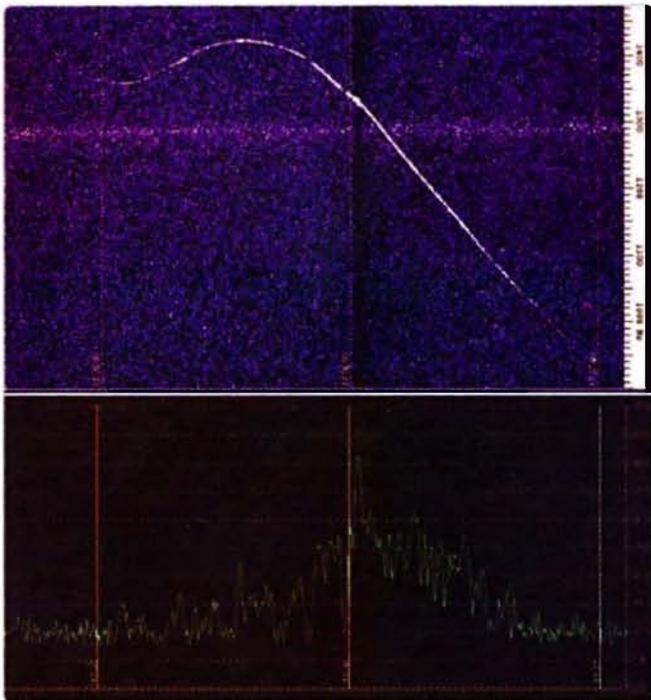


Figure 2: Aircraft scatter signal between VK7MO and VK3GHZ - the vertical white lines represent one minute.

10 GHz EME with 80 cm dish and JT65c

In DUBUS Volume 3/2012, it was reported that Rex VK7MO had worked Alan VK3XPD using his portable station comprising a 64 cm off-set dish and eight watts. This was achieved at a time of low libration spreading, down to four Hz, by using automatic Doppler correction and Deep Search averaging with Alan decoding Rex's signal at around -30 dB on the WSJT scale. Since then Rex has upgraded his portable station to a 77 cm dish and a 45 watt DB6NT PA; the result has been a dramatic improvement with Alan decoding Rex at -14 dB at a time of four Hz spreading. This is an improvement of around 16 dB of which 8 dB can be explained by the increase in power and 2 dB by the increase in dish size - but there is still an unexplained improvement of around 6 dB. With this new set up tests showed that Rex could now work Alan with libration spreading of up to 150 Hz, opening up many more opportunities for portable EME on 10 GHz. Tests were conducted with OK1KIR at a time of 30 Hz

spreading and with W5LUA at a time of 50 Hz spreading with good results. Rex then went portable to grid locator QE38 with Joe VK7JG and both completed QSOs with OK1KIR at a time of 70 Hz spreading. Further tests we conducted with OK1KIR and W5LUA to build up a picture of JT65c reported signal levels with spreading as shown in Figure 3. In general Deep Search decoding works effectively

down to -30 and often -31 and -32 dB on the WSJT scale with libration spreading of up to 150 Hz - with VK3XPD's three metre dish and 75 watts to the feed. Tests have still to be done with wider spreading, but Figure 3 suggests that the performance may only drop off marginally with spreading up to over 200 Hz as often occurs on 10 GHz. A question still to be resolved is whether the JT4G modes which are designed to cope with wide spreading will be better than JT65c. At this time there is a problem with the Doppler numbers on WSJT when using the JT4 modes, but

when this is resolved comparative tests will be undertaken.

10 GHz rain scatter?

On 23 October Rex VK7MO and Joe VK7JG set up Rex's eight watt 64 cm, and 45 watt 80 cm stations on Joe's lawn with the aim of doing comparison tests with Dave VK3HZ over a 440 km path. While no rain was evident at either end, or on the Bureau of Meteorology radar, signals to and from VK3HZ were quite distorted, but nevertheless JT65c and SSB contacts were completed. During these tests Rhett VK3GHZ called on SSB and was up to 5/4 even though he was 25 degrees away from the dish heading. When beaming direct to VK3GHZ signals were no stronger and still distorted. QSOs were also completed with Rod VK3BQJ on JT65c and SSB. Rod reported that the VK7 144 MHz and 432 MHz beacons were up over S9 and surmised that the propagation was due to a pre-frontal duct. However, the nature of the signals suggests that the propagation might be due to rain scatter from rain that is too light to be reported on the Bureau of Meteorology radar.

10 GHz tests between VK7JG and VK7MO

Over the period 24 to 27 October Joe VK7JG at Launceston conducted tests with Rex VK7MO in Hobart. This 200 km path is over mountains in central Tasmania and Joe cannot beam towards Rex because of rising ground and

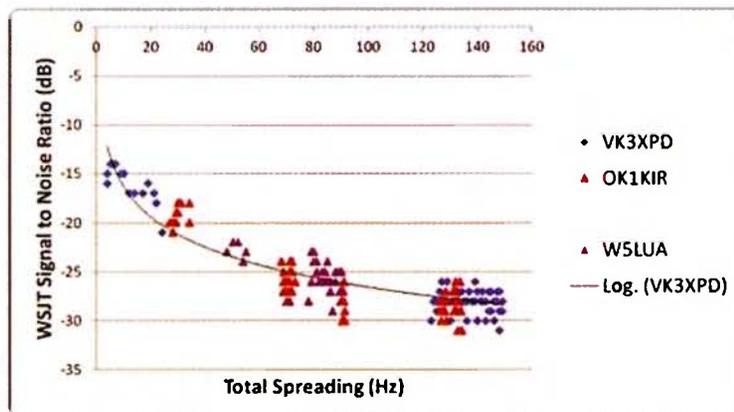


Figure 3: Observed libration spreading on 10 GHz EME paths.

trees. Instead Joe beamed at the TV towers on Mt Barrow some 30 km from his QTH and Rex also beamed at Mt Barrow which is 180 km away and beyond line of site. Weak JT65c signals were evident to Joe on most days but a JT65 QSO was only completed on one day, suggesting that there is a variable involved – perhaps the degree of radio refraction on the path from VK7MO to Mt Barrow. On 25 October heavy rain was present across Tasmania and Joe found he could pick up strong signals from Rex by beaming north in the opposite direction to Rex and using backscatter from rain clouds. QSOs were completed on both JT65c and JT4G but decoding was problematic. A single tone test shows that in fact the rain scattered signal was breaking up into several separate signals spaced across a few hundred Hz – presumably due to reflections from separate rain cells with different geometries or speeds. Thus multi-tone modes such as JT65c and JT4G had difficulty in decoding. Such a situation has not been evident in other rain scatter tests such as those conducted by VK3WRE, VK3ZYC, VK5DK and VK3ZQB and thus this splitting might be a more frequent issue with back scatter rain scatter. On the following day the single tone mode Hellschreiber was used and produced very good results via rain scatter and is likely to be the preferred mode for back-scatter rain-scatter.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au



The Magic Band – 6m DX

Brian Cleland
VK5BC

The sunspot cycle hasn't progressed as 6 m DXers would have liked and as a consequence October was disappointing. Most activity was in the northern areas of VK with almost daily openings to Japan and China areas with some openings to Hawaii. Highlight for the month was a contact by Norm VK7AC into the USA.

Norm reports that he was listening around 0245 UTC on the 15th October when he started hearing CW. Norm put out a CQ with several stations replying, which he soon read as USA stations. The strongest in the pile up was Terry N8RGQ in Virginia, USA and a contact was completed over a distance of approximately 15,982 km. See the eQSL below.

Norm was running 400 W into a 5/8 vertical; his large 6 m Yagi is presently down due to Norm's activity on 10 m and has been replaced with a wide spaced 10 m 6-element Yagi. Terry's station operates on Solar/Wind power and he was only running 20 W into a very large antenna. Unfortunately no other stateside

contacts were completed but a little later Norm worked 15 x JA stations in all JA call areas. An interesting bystander to this activity was John VK7XX who, although hearing some of the stations on his 4-el quad, did not manage to complete a contact. 6 m in its usual way

produces the unexpected and again lives up to its Magic Band title, well done Norm.

Most days during the month there was normally some activity to the north from the northern areas of VK and on a few occasions the propagation extended south. One of these days was the afternoon of 10 October when conditions from Japan and China areas extend south to VK3 and 5. Many JAs including call areas JA1, 2, 3, 4, 6 and 7 along with Li BA4SI were worked by several stations including VK3s OER, OT, XDX and FI, VK5s GF, BC, DK and PO.

On 15 October, a JA opening again extended further south with Norm VK3DUT and Col VK5DK working several JAs and Bill VK5ACY heard his first DX for the season, the JA2IGY beacon.



Photo 6: Noel VK3FI in his shack.

24 October was also interesting with an Es opening from VK4 to VK5 in the morning with Brian VK5BC and Phil VK5RM working Brian VK4EK in Sapphire, Ray VK4BLK in Yeppoon and Kevin VK4BKP in Mackay. In the afternoon the band opened from JA into VK4 with this opening extending down to VK3 and VK7 with some signals being heard in VK5. Frank VK7DX and Steve VK7CW worked several JA stations. The opening continued into the evening with Norm VK3DUT working Li BA4SI and several JAs.

During the month whilst holidaying in Mildura, I had a chance to visit and meet Noel

N8RGQ/QRP
Terry L. Aquino
Box 211
Havasi, VA 24256-0211
USA

eQSL
eQSL.COM

Eqp: Icom IC 7800, 756 PRO, IC 7000
F.W-1, NATA member, OM# 6498
Ant: 5' x OA50 S stacked, Regal Septor
X7, 6BTW 4 S, FT1414

To: VK7AC Confirmitng 2 way CW QSO, Band: 6m
Date: October 15 2012 Time: 02:50Z EST : 599

Photo 5: The eQSL from N8RGQ.

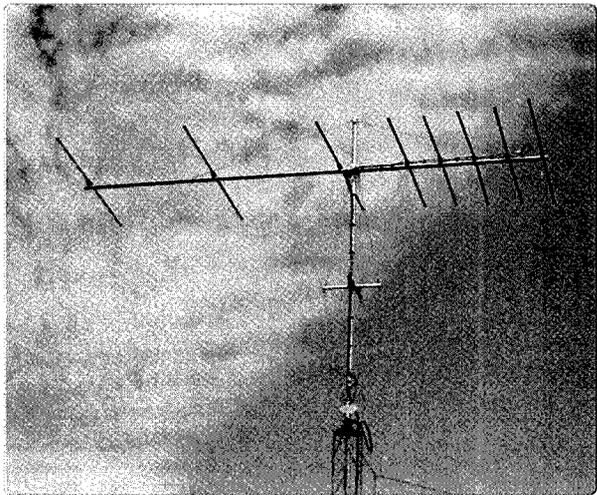


Photo 7: The eight element six metre Yagi of Noel VK3FI.

VK3FI. Noel has a well-presented shack and is pictured below in his operating position: See Photo 6. Noel has been a stalwart of the Mildura club for some time and following a hectic year with the running of the WIA AGM is now taking a back seat and renewing his interest in 6 m. As reported above Noel managed to work JA on 10 October. Noel's 6 m setup includes an 8 element ATN Yagi.

Back on 27 July I received a report from IW9HII who claimed to have heard me. Roger VK2ZRH has analysed the possibility of this report being creditable as follows:

VK5BC 50 MHz to Sicily, an analysis

On 27 July 2012, Brian VK5BC enjoyed a fine winter afternoon on 6 m when the band opened over most of VK. Late in the day, Brian was surprised to receive an email from Davide IW9HII, in Sicily, who reported hearing his SSB signal at 0706 UTC, at 3/1 with QSB. Brian confirmed that he was calling CQ at the time, beaming northwest to VK6 as he had earlier copied the VK6RSX beacon at Dampier, at RST 559.

Brian posted a report to the VK Logger Forums (search 'Any Thoughts'), sparking some discussion. He remarked that the day '... was probably the best winter opening in VK5 this season with the band open to VK2, 3, 4, 6 and

7 over a couple hour period.' Intrigued by the report, which, on the face of it I thought was credible, I embarked on an analysis of the probable propagation mode/s.

IW9HII is located in Marsala, right on the western tip of Sicily, at 37.810 N, 12.460 E (JM67FT). The path distance between VK5BC and IW9HII is 15,250 km, for which the 50 MHz free space path loss is 150.1 dB [1].

Given that the northern hemisphere summer sporadic E season was in full swing, and the southern hemisphere minor winter sporadic E season was providing widespread 50 MHz DX on the day, it was obvious that Es was most

likely to be involved at each end of the path. It's the bit in between passing over the Indian Ocean, the Middle East and the Mediterranean that has to be figured out.

Figure 4 shows an azimuth-equidistant map of the VK5BC-IW9HII path, together with my analysis of the likely propagation modes. Local time across the map is shown by the arrows across the equatorial line. The heavy broken line running east-west is the geomagnetic dip equator, while the two light broken lines near the path centre indicate the limits of the daily equatorial sporadic E region. I have shown the locations of ionosondes at Learmonth, Cocos Island, Gibilmanna (on Sicily) and Guangzhou (China). I used data from these 'sondes to deduce characteristics of the likely propagation modes.

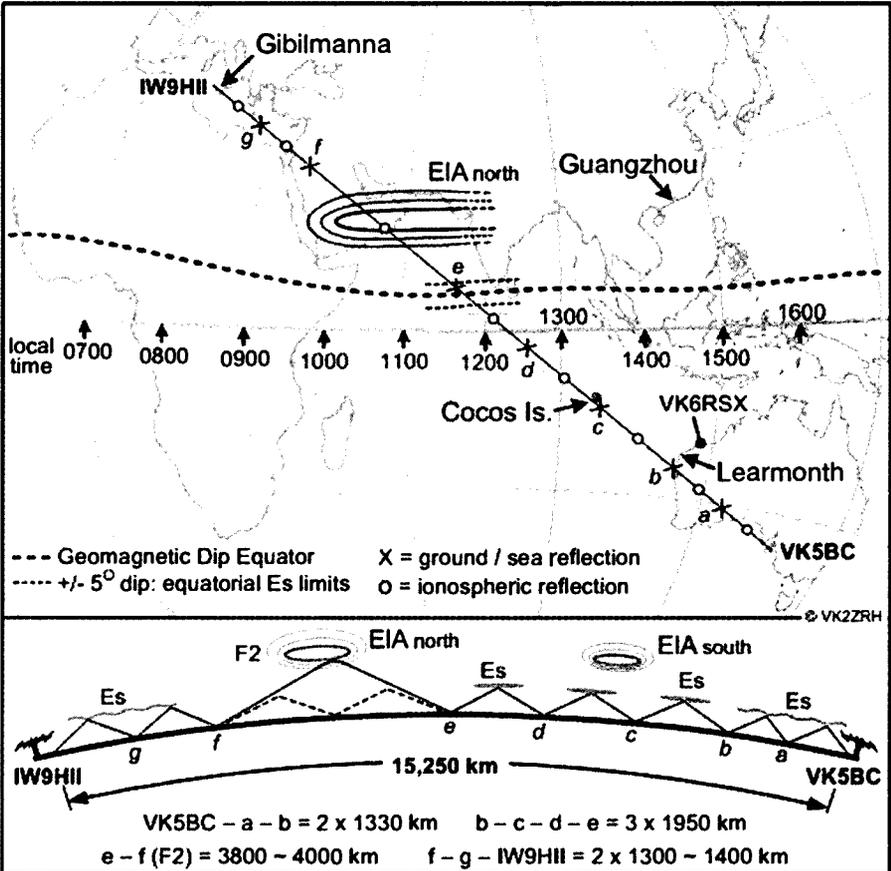


Figure 4: Map of the VK5BC-IW9HII path and, below, the vertical plane projection of the likely propagation modes (not to scale). The path may be designated as nEs-F-nEs. The equatorial ionospheric anomaly zones are indicated by EIA north and EIA south.

As it was most likely involved in this unusual event, the equatorial ionospheric anomaly (EIA) requires a quick explanation. Solar radiation causes plasma (ions and electrons) in the E and F regions over the geomagnetic equator to move up across the Earth's magnetic field lines, which are horizontal here. This sets up a complex process called the 'Fountain Effect', such that the plasma flows north and south along the magnetic field lines, accumulating into enormous 'bulges' in the F2 region that generally extend from about 10° to 30° geomagnetic latitude to the north and south of the geomagnetic equator. The anomaly zones enlarge and become denser as the day progresses and they move westward, following the Sun. The EIA dissipates after the Sun sets on the ionosphere. Around the equinoxes, the EIA bulges are pretty symmetrical, while around the solstices, they're not. In the northern summer, the northern EIA is large and dense, while the southern one is small and less dense; vice-versa in the southern summer.

The two EIA zones support daytime 6m chordal-hop transequatorial propagation (TEP), most often around the equinoxes, but also outside those seasons at times, depending on favourable solar and ionospheric conditions [2].

In Figure 4, I have sketched-in the 'leading edge' of the northern EIA. It would have passed over the Guangzho 'sonde' some 3-4 hours earlier, so I looked at the data

published online. Sure enough, over 0700-0800 UTC, the F2 critical frequencies rose above 12.5 MHz, enough to support a skip of 3800-4000 km at 50 MHz [3] after 1030 LT when the path opened. So this sector of the path is highly likely to have been an F2 skip. However, 2-hop Es can't be entirely ruled out, as the northern hemisphere summer Es season was in full swing.

Between VK5BC and the equator, the Learmonth and Cocos Island 'sondes' both had spread-Es present, suggesting 'petit chordal hop' propagation [4]. Reception of the VK6RSX beacon 2660 km away indicated 2-hop Es of 1330 km per hop. From b to e, I deduced that Es of around 1950 km/hop (perhaps uneven hops) supported the path.

From landfall in the Middle East at f, it would have needed two Es hops of 1300-1400 km each. Interrogating the DXmaps 50 MHz database [5] over 0630-0910 UT showed that the propagation moved northwesterly, with skip distances ranging from 900-2300 km. If the Es was drifting northwest at speeds of 50-200 metres/sec, the ionograms would show Es with suitable characteristics would have moved between point g and Sicily some 2-3 hours earlier. Indeed it did, with Es drift speeds estimated at 110-125 m/s.

I did a rough estimate of VK5BC's signal strength at Sicily, using the method I have outlined on the VK Logger Forum [6], extending it for this exercise. Total path loss is roughly 178-180 dB, so VK5BC's

antenna gain and power output would yield a signal strength around -118 to -120 dBm, which is S1 in anybody's book.

Six metres is always full of surprises.

Roger Harrison VK2ZRH

References

- [1] www.siversima.com/rf-calculator/free-space-path-loss-calculator/
- [2] <http://home.iprimus.com.au/toddemsie/aTEP-Harrison.htm>
- [3] Appleton, E. and W. J. G. Beynon 1947, 'The application of ionospheric data to radio-communication problems: part II', Proceedings of the Physical Society, Vol. 59, No. 1, January 1947, p. 66. Figure 4 - (Transmission curves). doi: 10.1088/0959-5309/59/1/311
- [4] Harrison, R. L. VK2ZRH 2012, 'On sporadic E VHF propagation and solving a mystery about maximum usable frequencies - Parts 1 and 2', Amateur Radio magazine, April and May.
- [5] www.dxmaps.com/spots/map.php
- [6] Harrison, R. 2012, 'Signal Strengths of VHF Sporadic E Propagation', at www.vklogger.com/fonum/viewtopic.php?f=43&and=10336

Thanks Roger, let's hope November produces some surprises and improved conditions.

Please send any 6 m information to Brian VK5BC at briancleland@bigpond.com

Visit our Bookshop



Weekend Projects for the Radio Amateur

Weekend Projects for the Radio Amateur is broken down into two main parts: Build It Yourself and Reference with the first part split further into three sections Aerials, General and Station Accessories. The Aerials section, contains, six antennas for you to try along with information on erecting antennas and their maintenance. Moving on the reader is treated to a design for an 80 m transceiver and getting into the 10 GHz band in the General section. The Station Accessories section is huge, containing dozens of projects covering everything from a dry cell tester and ni-cad chargers through ATU designs and much more. The books Reference part is packed with articles to maximise the hobby. There are articles on oscilloscopes, noise reduction circuits, radiation resistance along with guides to HF Contesting and getting started on a shoestring.

Product Details

Softcover: 224 pages Publisher: Radio Society of Great Britain (RSGB)

MEMBER PRICE: \$60.00* RETAIL PRICE: \$66.00*

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details. <http://www.wia.org.au/members/bookshop/about/>

VK3 news Amateur Radio Victoria

Jim Linton VK3PC

e arv@amateurradio.com.au

w www.amateurradio.com.au

Season's Greetings to all

The office at 40g Victory Boulevard, Ashburton, which is ably run by a team of volunteers, will close at 1 pm on Tuesday 18 December and reopen on Tuesday, 5 February 2013.

During the break urgent matters will be given priority while office-bearers work on financial statements, stocktaking and the annual audit. The Annual General Meeting will be held at the office on Tuesday, 14 May, at 8 pm. Notices of motion for the AGM close with the Secretary on 12 February, at 2 pm.

On behalf of the Council – President Barry Robinson VK3PV, Secretary and Treasurer Ross Pittard VK3CE, Peter Mill VK3APO, Keith Proctor VK3FT, Terry Murphy VK3UP, Tony Hambling VK3VTH, Peter Cossins VK3BFG and myself, compliments of the season and best wishes for a Happy New Year.

Centre Victoria RadioFest

While many of us take an annual break at this time of the year, the organisers of the Centre Victoria RadioFest No. 6 will be busy working on the big event. A feature

will be a homebrew competition with the primary judge to be Drew Diamond VK3XU, himself a noted homebrewer and author. Four radios have been obtained as competition prizes.

The event will be held at the Kyneton Racecourse on Sunday, 10 February 2013. The program is to be progressively promoted on the website <http://radiofest.amateurradio.com.au> It will have traditional commercial traders, second-hand gear sellers, club corner displays, a mini-lecture program, demonstration station and a homebrew competition. The non-commercial sellers can now purchase a trading space and hire trestle tables. This is through the new secure online bookshop which also includes log-books, callbooks and Foundation Licence manuals at <http://shop.amateurradio.com.au>

Memberships and renewals

To join and support the state-wide organisation Amateur Radio Victoria costs \$30 for Full or Associate membership and \$25 Concession, for two years. That is less than five cents a day and your support through membership is most

welcome. You can now join online securely or send a downloadable form with the payment of your subscription to the office. Those who are already members with a current email address receive a renewal notice and may pay online or through the post. Access to the facilities on the members' section of the website and eNews bulletins cease after the announced cut-off date is exceeded. Thank you for your support by being a member.

The recent Council meeting of Amateur Radio Victoria expressed its thanks to the work done by our Internet Project Development Officer, Gary Furr VK3FX and the role of the Secretary, Ross Pittard VK3CE, in modernising the website facilities.

Council has also called for a greater involvement of ordinary members in the lead-up to the Centre Victoria RadioFest, the WIA Field Day public relations event, the International Lighthouse and Lightship Weekend, and throughout the year at HMAS Castlemaine, Williamstown.



Over to you

Fatal Foil

Dear Peter,

I certainly stirred up some amateurs with my story Fatal Foil. It NEVER happened. It is just a story to illustrate how easily electrical accidents can happen.

I was apprenticed to the electrical trade in January 1960. After 10 years of all kinds of electrical work, domestic, industrial, etc., I moved up a step becoming involved in Industrial Electronics. One interesting and amusing job was design and installing a device that looked for the hole

in the washer on a roofing nail making machine. You can imagine the mess when the machine tried to force the wire nail through a hole-less washer! All done with photocells and hard valves driving relays. With the introduction of the Licensing of Electrical workers in the 60s in SA, I am not sure when, I immediately obtained my "A" Class electrical licence, retaining my Radio Tradesman's qualifications.

I have now been retired for 15 years, after 25 years in TAFE SA and a previous 20 years in WRE, now DSTO.

I would have liked to have retained my "A" Class licence but the cost was too much, even the "B" class licence cost too much for a pensioner.

Over the years I have seen some atrocious electrical work and some I would be proud to say was mine.

Steve Mahony VK5AIM

"Close to 80 years!"





Spotlight on SWLing

Robin L Harwood VK7RH.

e vk7rh@wia.org.au

2012 is almost over and what a year it has been! The decline of shortwave broadcasting did accelerate over this year and it will inevitably continue. The famous Radio Canada International transmitting complex in Sackville, New Brunswick is no longer there. The transmission lines were quickly dismantled and all the senders packed up, ready either for the scrap heap or to be disposed of commercially.

This year also saw the departure of the BBC World Service from the famous Bush House after 71 years. This building is quite near Australia House and many listeners have pleasant memories of programs from there. A new Broadcasting House has been constructed, adjoining the equally historic Portland Place site, home of the BBC Domestic services. However cutbacks continue as the funding for the BBC World Services is further reduced. 73 overseas reporters of the BBC were made redundant and I believe that shortwave delivery will probably disappear altogether by the middle of 2013. In fact I just received news that the BBC Cyprus relay is closing and BBC Arabic will be completely phased out by April of next year.

Radio Netherlands also disappeared this year and the new station supposedly set up in support of free speech also was shelved. Radio France International is still there but is often hit by wildcat strikes. Broadcasts are for Africa.

The RFI senders are still operational and mainly relaying Algerian domestic radio on shortwave. They are also used occasionally by Radio Taiwan International and NHK World for relaying programs into Western Europe.

DW in Cologne continues but from Kigali in Ruanda as they no longer use any European senders. Africa will continue relying on shortwave as Internet penetration is at a snail's pace. However the Chinese are continuing to utilise shortwave, despite entering into collaborative arrangements with domestic media throughout Africa and beyond. I believe that CRI can be heard 24/7 in the Dallas/Fort Worth metropolis in Texas over a domestic station but on a commercial arrangement as no foreign enterprise is allowed to own or operate a domestic American station. It is the same here in Australia but international programming is readily available on Australian media. CRI does broadcast via a low powered FM station 24/7 in Canberra.

Incidentally I was recently informed that the BBC World Service is carried 24/7 via SBS6 on its digital radio platform. This is only in mainland capitals and Newcastle. DAB+ has yet to make its appearance here in Tasmania. The BBC World Service is also on Foxtel on channel 23 on its radio fare. However the BBC World Service has just announced that English programming via the World

Service is being reduced even further to six hours a day. So much for 24/7 programming!

I am still plagued with my hearing hassle which apparently is caused by frequent excessive fluid build-up behind the eardrums. I have been prescribed nasal sprays and antihistamine medication but without success. I may not be able to hear music or conversations yet can still read CW at a certain pitch! One signal I was pleased to have heard was SAQ in Grimeton, Sweden. This is an AC alternator and was in use by the Swedish Navy from 1924 until the 1990s. It operates on 17.2 kHz and has now been designated as a heritage site by UNESCO. It is the one remaining operational AC alternator in existence. On 24 October it came on in celebration of United Nations Day from 1030 till 1040. The next scheduled transmission from SAQ will be on Christmas Eve, 24 December from 1030.

The power of the alternator is only 20 kW and there are Russian naval signals close by on 18.1 and 22.1. The latter are rated in the hundreds of kilowatts and mainly use digital traffic, compared to the CW of SAQ. Yes I did cheat as I heard them from an SDR receiver in Holland!

Well that is all for 2012 and let us hope that 2013 will be better. At least the higher frequencies are at last picking up.

73 and good monitoring from VK7RH!



A **2013 Callbook** makes a great Christmas present.



VK6news **Applecross Wireless Station Centenary**

Monique Faulkner VK6FMON

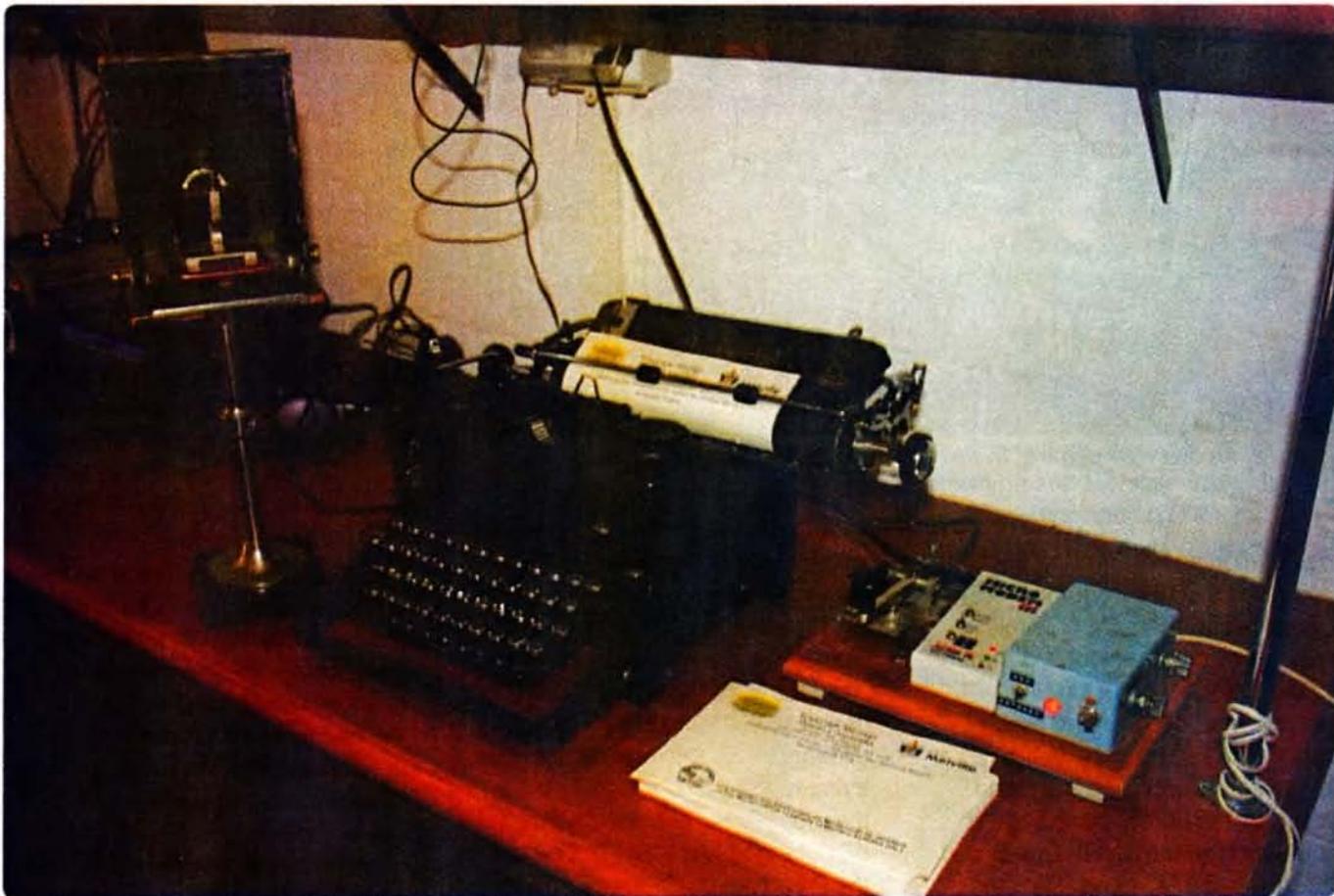


Photo 1: Typewriter and speaker used by Morsecodians on the day of celebrations. Complete with special Centenary Telegraph paper.

Applecross Wireless Station, now known as Wireless Hill Telecommunications Museum and Park, was built in 1912 with the construction of operations buildings completed, including Operators' House, Engine House, one small brick and tiled roof toilet at the north-east end of the site, a buggy shed and stables, a windmill and well, and circulating water tanks near the Engine Room. Along with those constructions, three residences and single men's quarters were built, and the most important, a 120 m mast erected behind the Operators' House, with three concrete anchor blocks, each approximately 4.6 m high, built to hold the mast guy wires.

During WWI, and then again during WWII, the Royal Australian Navy (RAN) took control of all coastal stations, including Applecross, as well as all wireless telegraphy in Australia, where they installed a 60 kW Poison Arc Transmitter and valve operated receivers to keep up the distant communications.

After WWI the AWA installed a short wave "Beam System", to extend the transmitting range of the station enabling direct communication between Australia and England, also becoming a direct feeder station for international radiograms, weather reports news bulletins and press reports.

Now for the celebrations part,

which brings us to the reason we are actually writing this article.

In 1955 the Western Australian VHF group was formed and they have as a group been going strong since this time to keep Wireless Hill on the map.

The special callsign of VI6VIP was in use from Wireless Hill to commemorate 100 years since it was first commissioned, from 29 September until 14 October 2012. VI6VIP was in recognition of the 1912 callsign used at Wireless Hill "VIP".

On 30 September, Wireless Hill celebrated their 100 years of existence with "fairground" attractions. The Museum was officially reopened during this



Photo 2: An overview of the activities occurring at Wireless Hill.

celebration encompassing an era in technology, from the earliest establishment of wireless telegraphy communications through to the introduction of satellite communication. The Eric Smith room of the Museum was the biggest attraction and the place to be. The Morsecodians shared the bench with the VHF Group and had the crowds in awe. Children and adults alike could not believe that these gentlemen were tapping away at this "stick on a block" and listening to 'clickedy clack' thru what would later be known as a 'speaker' which looked like a "sea shell" (as quoted by one young onlooker), which then formed the sentences that were being typed up on the old ~1930s typewriter.

Since Saturday 29 September, the VHF Group held the special event callsign of VI6VIP, communicating this to the whole world. Bob VK6KW and Ray VK6ZRW manned the station during the day. They were also lucky enough to have other fellow HAMS popping in to have a go at spreading the word of this special event, along with Heath VK6TWO, Monique VK6FMON, Miles VK6MAB, Marty VK6RC taking over the "nightshift" with lots of sugar to

keep us going into the early hours of the mornings.

On one such daytime occasion Graham VK6LV was left alone to "hold the fort" whilst Ray and Bob had quick duties to attend. Whilst utilising his spare time Graham was trying to fix his power supply but in the process accidentally tripping the RCD, leaving him sitting in the dark of the Eric Smith radio shack, no lights in the museum and shutting down all the BBQs in the park (not known at the time). Luckily enough Ray was not too far off, so these two gentlemen with lots of experience in "power" looked over the whole museum, inside and out, lifting up floor boards looking for this damn RCD switch... It wasn't until Terry VK6ZLT showed Bob, Ray and Graham that it was right in front their noses the whole time, low and behold it was a little button on the top of the power point about 30 cm from the main radios.

All of us had an amazing time, particularly with several hour long pileups to Europe on 10 m most evenings, making our total of contacts reached 1000+ to more than 70 countries in this short amount of time. The site was excellent for HF propagation thanks to all of excellent earthing and underground cables from the

former HF telecommunications site. So with this in mind we also participated in the Oceania DX competition from this site, having many a station try to contact us.

One specific contact made by Ray VK6ZRW was made with a QRP station from England using 9 watts. Peter G4VUN, was using an old TS-120V running off a car battery, with a 300 Ohm, 264' (80.5 m) top centre fed line. The excitement on his behalf was great and he mentioned that we were real DX for him. Wanting to make sure that he received the special QSL card, he sent his own card enclosed with a note of gratitude, a self-addressed envelope and an Aussie \$5 note. Receiving his QSL card was what made the two weeks worthwhile.

A surprising contact with a VK6er who was holidaying on the Solomon Islands and very excited to have a contact with the VI6VIP, as his partner (who was also enjoying her holiday) was one of the people who had done a lot of the background work and sourcing of information for these Centenary celebrations.

After a few hours of QSOs on one of the late nights we had a very strong signal with an uncommon to us callsign, but a strong Aussie accent, as we logged the callsign and realised it was Saudi Arabia, there were a few baffled looks around the room. To our surprise it was a local VK6er who works in Saudi Arabia and heard us calling, so was very honoured to make a contact with the VI6VIP.

There are plenty of other great stories and findings to tell you of, but unfortunately this article has to be cut short...

During this time our station (temporarily set up for this event using members' equipment) consisted of (but not limited to):

* **Antennas:** 8 el Log Periodic HF, Trapped long wire HF, 6 el 6 m Yagi, 2 x 13 el 70 cm Quagi with Az/EI Rotator (on a tilt over mast), 6 m/2 m/70 cm tri-band co-linear, KR-400 Rotator, KR-500 Rotator.



Photo 3: Wireless Hill Communication Museum as at present 2012.

- * **Radios:** IC-756 PRO3, IC-7000, IC-718, FT-847 (Satellite), FT-817, Wouxun KG-920R, ID-1 23 cm D-STAR, IC-2820 D-STAR.
- * **Accessories:** 2 x TransPower 45 A PSUs, HLA-150 300 W HF Amp, VLA-200 200 W VHF Amp, MFJ993B IntelliTuner, LDG AT-7000 Tuner, SP-102 DSP Speaker, ZLP DigiMasterPRO CAT/Digital interface, Motorola Zoom 10" Android Tablet, Dell Streak 7" Android Tablet, Samsung S9 Ultrabook.

Once again, thank you to the Melville City Council, the WA VHF Group, Bob VK6KW President, Terry Leitch VK6ZLT Secretary, Ray VK6ZRW Beacon Officer, Heath VK6TWO Vice President and Monique VK6FMON Food provider and QSO logger, for their efforts, long days/nights to make this event such a success.

For more of the history and information of the Site, the frequencies we worked and pictures can be found on QRZ.com.

Photos by Heath Walder VK6TWO. B&W and sepia photos courtesy of the WA State Library.

Silent Key

Thomas Raymond (Ray) Naughton VK3ATN

One of Australia's better known and well respected amateurs, Ray Naughton VK3ATN, passed away on 15 September, 2012, aged 83.

Ray was born on 4 February, 1929 in the Melbourne suburb of Ascot Vale, the only child of Thomas and Cissy May Naughton. He grew up living in a number of Melbourne's suburbs, one of which was Sunshine - his father was a fireman and moved about a bit during his career. Ray initially went to school at Camberwell, and later to Melbourne University High School; he was a good student and went on to study engineering at University of Melbourne. After the war, he re-entered the University at their Mildura campus, created to allow returned servicemen to further their university studies.

In 1952 he came to Birchip, as a part of his studies and worked there repairing radios. He could see the potential to earn a decent living in the town, and started Sun Radio - the 'Sun' coming from the suburb where he had once lived, Sunshine.

In 1956 Ray married Margaret, and they had three sons, Trevor, Peter, and David and a daughter, Jennifer, 12 grand-children and five great grand-children.

Ray had obtained his amateur radio licence, and the call VK3ATN, early in his life, and was to become the first southern hemisphere amateur, and one of the first in the world, to bounce a signal off the moon. This



great achievement was the result of a challenge from a number of American amateurs who doubted that it could be done from Australia, given the Australian amateur radio power limits, and with an antenna that pointed in a fixed direction. As a result, he was provided with an all-expenses paid trip to the USA to explain what he did in managing to succeed with this challenge.

He created ATN Antennas and produced and sold many fine antennas to both the amateur community and private and government enterprise.

Some lesser known loves were Australian Rules football, which he played with some skill, and membership of the Warracknabeal Aero Club holding, as he did, a private pilot's licence for some time. He also loved radio astronomy and 'studying the stars'.

In 1981 he had a very bad accident when a tower he was climbing came down in a mini tornado, and it was almost a year before he properly recovered. Then, in 1986 fire destroyed most of his factory, but son Peter, who worked in the business, was given the job of repairing the mess, which he did.

In 2011 Ray suffered a series of mini strokes and did not fully recover after that. At his passing he had been married to Margaret for fifty six years. Submitted by his loving wife Margaret Naughton, and her family.

Contests

Phil Smeaton VK4BAA
e vk4baa@wia.org.au

Welcome to this month's Contest column.

Oceania SSB and CW 2012

Once again, the bands came alive in VK with the world calling for a QSO. The bands were reportedly variable however, with 10 m either not opening at all or opening selectively to EU/NA sporadically – depending on the location of the reporter. At VK4KW, LF was not as good as the propagation forecasts had predicted, but this was further exacerbated by the strong winds causing static on the antenna systems. 80 m was unusable at times and 160 m was a joke. 40 m was fairly reasonable with some good openings present – and fully utilised by Laurie VK7ZX to create a splendid claimed total for himself of 5.4 million. Steve VK3TDX was active, claiming a score of 2.32 million points for just over 1,200 Qs. Steve also reported a variable 10 m band – it appears to be highly dependent upon the station location within VK as to the perceived usefulness of the higher bands. Mirek VK6DXI found almost 500 QSOs on 10 m, to add to his tally of 1,250 and a claimed score of 2.5 million points. Mirek reported that the first evening provided a nice run for few hours to EU on 10 m, but that EU was not strong but was a solid copy. Things were a bit slow during the second day, but he still managed to set his own personal best score ever for OCDXC phone.

Matt VK2ACL and Patrick VK2PN were on the bands, gaining a claimed score of 10,440 and 108,745 respectively. Central Coast ARC was active as VK2AFY and claimed 19,700 points, while Paul VK5PAS netted 700+ QSOs for a claimed score of 587,000 points. Vlad VK2IM spent four hours scouring the bands for a

Contest Calendar for December 2012 – January 2013

December	1	RTTY Melee	RTTY
	8/9	ARRL 10 m Contest	CW/SSB
	21/22	OK DX RTTY Contest	RTTY
January 2013		Ross Hull Memorial VHF Contest (VHF/UHF)	CW/SSB/FM
	12/13	Summer VHF/UHF Field Day (VHF/UHF)	CW/SSB/FM

claimed score of 160,000 points, and Catherine VK4GH worked over 700 stations for a claimed score of almost 750,000 points. Well done all!

VK Contest Championship?

The VKCC reflector has been abuzz recently, with much discussion taking place around the hot topic of a VK Contest Championship. Certain contests would be nominated for participation, allowing a 'contest within a contest' type of approach to take place. The contributing contest might be VK based, WIA based, ARRL based, or a mixture of all sorts of contests from all around the globe. An eligible participant might have to enter a valid score for a selection of the listed contests, no less than a certain amount and no more than another amount possibly. On a world scale, contesting in VK is still small by comparison, so many may feel that a championship is neither required nor warranted. Some may say that this is the very reason to operate such a scheme! If it serves to promote VK contesting at home and overseas, then it seems like a reasonable thing to do. With the recent RD contest boasting over 1200 different call-signs in the logs in one 24 hour period, it could be reasonably argued that VK interest in contesting is increasing quite well. That's close to 10% of all licensed amateurs in VK entering the one contest. The award of Contester of the Year could be announced at the WIA AGM and the list of contests

will need to have results published prior to the end of April so that the award can be presented at the WIA AGM – always held in May. This would limit the list to finish with the Oceania DX Contest – although the JIDX usually has its results out early.

Structuring the proposed championship around WRTC might not be wholly applicable. I still find WRTC a tad strange and generally slanted by single operators often utilising larger stations to gain a top score and then having to abide by the WRTC rules and only have 100 watts and a limited selection of equipment for the actual final contest. This seems to me to be somewhat akin to qualifying for a Grand Prix race using highly tuned formula one cars and then running the final race in a horse and cart. Time will tell.

Wanted: New WPX Contest Director

Randy Thompson K5ZD is moving on to take the helm of the CQWW contest and so the position of director of the WPX has become vacant. So, what does the CO WPX Contest Director actually do?

Essentially, the role encompasses various responsibilities requiring the incumbent to:

- Communicate with participants to answer questions and help them enjoy the competition.
- Manage the log receiving and log checking process. Much of this is automated with behind

the scenes support from some true IT and programming experts.

- Recruit volunteers to help with each of the above. Not everyone speaks English so it helps to have friends and translators who can help bridge the communication gap. Many hands help make the log checking task easier.
- Work with W5GN and K1DG to make sure the certificates and plaques are distributed to those who earned them. This could be accomplished via email.
- Promote the contest in as many ways as possible. This includes fun things like posting information on Facebook, writing occasional blog postings, conducting a WWROF webinar, or writing articles.
- Curate the contest rules. Every year there is some new twist or gap that calls for changes.
- Maintain the integrity of the contest by evaluating suspect logs and deciding on appropriate actions such as Yellow and Red cards. Just like a referee on the field, you will be asked to call them as you see them.

What skills are needed?

- Solid experience in all aspects of contesting. The more types of operating you have done, the easier it is to understand the needs and challenges of the participants.
- Enthusiasm and passion. There is no money in being a Contest Director. You do it because you love the game and you want to help others enjoy it as well.
- Computer and technology skills. You don't have to be a programmer, but it helps to be skilled at using various tools to make the job go faster. This includes everything from text editors to Excel to SSH and WinSCP. A bit of web editing experience is also very beneficial.

- Recruiting. There are lots of other testers who want to help. Every time Randy asked for help he often received more than one response to assist. Be willing to ask, but also be prepared with what you need done when the replies come.
- Organization and attention to detail. Avoid errors by keeping your team focused and following a process.
- Communication. The job is all about communicating with participants and conveying your passion for contesting through the write-ups and the web.

How much time does this take?

The job can take as much or as little time as you'd want to give it. Expect to spend 10-20 hours per week between the middle of March before WPX SSB through early September when the WPX CW results are due to CQ Magazine (it doesn't have to be that much every week, this is just an average). The off season doesn't take much time at all other than answering questions and working on new ideas and the rules for the next year.

Are you ready for the challenge?

The job does require a high level of proficiency in English to deal with the communications and writing required, but the WPX Director does not need to be located in the USA. Most of the WPX Contest activity is located in Europe – so I dare say that an applicant from VK might not get much of a look in! Drop CQ a note if you feel otherwise though – unless the position has already been filled by the time this goes to print in *AR*.

CQWW SSB 2012

This was a 'non contest' for me this year. The majority of the VK4KW team were abroad or tied-up with family issues, so the station was eerily silent for the weekend. Somehow, it just seemed 'wrong'.

The weekend did not go to waste however, as a sub-set of the team worked on getting various antenna projects off the ground, ready for the next challenge.

Not so for John VK6XX though. He took part in the CQWW battle and worked almost 1,100 QSOs on 10 m during the contest, which might be a new record for zone 29 – which has stood since 1968 or so. Well done John!

VK6NC were prowling the bands – no shortage of operators there, as they claimed a score of some 4.4 million points for their efforts – despite PC problems.

Steve VK3TDX was in his shack again, concentrating on the higher bands for close to 1,400 QSOs for a claimed score of just over 1 million points. Bernd VK2IA/VK6AA managed to get his Butternut based station onto the air from a clothes line pole. 143 Qs and 36,000 points claimed! Nice!

Andy VK4MN had family issues to contend with but still managed to trawl 10 m for a few goodies and a claimed score of almost 86,000.

Miles VK6MAB braved the bands for his first outing into the CQWW contest world. The VK contest rookie worked nearly 300 stations for a claimed score of 112,000 after taking into account family duties.

Vlad VK2IM has long since lost his CQWW virginity. With a whole stack of station issues hampering his progress (including a wind damaged antenna and reports of poor audio!) Vlad did battle to grab close to 2,300 Qs and a claimed score of 2.5 million points. LF was noisy for Vlad, but it would appear that there is a noise source closer to home than Vlad had first suspected, as investigations led to 40 m and 80 m benefitting from turning off the power to the house!

Catherine VK4GH entered the contest for new prefixes, but found the haul sadly lacking this year. Entering the 'Assisted' section, Catherine kept an eye on the reflectors for some of the countries

that she was looking for, but the only one noticed was Ascension Island, which of course is difficult at the best of times, and impossible during the contest. Undeterred, Catherine contacted all but six zones - 22, 23 Madagascar, India to Mongolia area and four zones in Africa, but still no luck getting through the JAs to Jan Mayen. With 155 QSOs in the log, fairly evenly spread between 10, 15, 20 and 40, Catherine called it a day.

RD Contest update

Corrections to list of rankings listed in November AR for the Remembrance Day contest:

1. VK3KTO should read VK3TKO
2. VK6AFW with 30 points was missed off the list of the Single Op CW section.
3. VK7ZGK with 100 points was missed off the list of the Single Op Phone section.

None of these 'typos' affected the total outcome.

Alan VK4SN

Swansong

It is with this submission for AR that I bid you a fond farewell. I've been pounding the keyboard for AR for a relatively short time, but everything comes to an end – and my column contributions are no exception. I feel that it is time for me to move aside and make way for new blood. I'll still be contesting however and VK4KW will still be on the air from time to time. I hope that you multiply often and produce a huge log!

See you on the bands. 73.



Many thanks to Phil for his contributions to this magazine over the years. Ed.

32nd ALARA Contest - Results

Lesley R Smit VK5LOL - ALARA contest manager

The ALARA contest is always held on the last full weekend in August each year. The results of the 2012 contest are detailed below.

Congratulations go to Catherine VK4GH who is once again the top scoring YL overall; Ngaire ZL2UJT for being the top scoring DX YL; Gerald VK2HBM the top scoring VK OM and Bill ZL3VZ the top scoring ZL OM. Great work all of you.

Everyone who participated had a good time. There was a little more DX around this time with Catherine contacting two overseas ALARA members, Christa DJ1TE and Evelyne F5RPB.

Although Susan VK3UMM, our new magazine editor, tried to encourage more YLs to participate by sending out an email to all ALARA members reminding them about the contest, I still only received 22 logs, with no non-members, no club stations and no CW. Thanks for trying Susan.

I am pleased to award Margaret VK3FMAB the Foundation licensee trophy. Well done Margaret.

Let's hope conditions are good again next year and that we can make the contest a busy one.



Results

Catherine VK4GH	846	Top overall, Top phone, Top VK4 ALARA member
Jean VK3VIP	674	Top VK3 ALARA member
Ngaire ZL2UJT	275	Top DX YL
Gerald VK2HBM	170	Top VK OM, Top VK2 OM
Jenny VK3WQ	142	
Lesley VK5LOL	135	Check log
Shirley VK5YL	133	Top VK5 ALARA member
Bill ZL3VZ	105	Top ZL OM
Marilyn VK3DMS	84	
Margaret VK3FMAB	81	Top Foundation Licensee
Dot VK2DB	76	Top VK2 ALARA member
Karen VK2AKB	69	
Christine VK5CTY	68	
Peter VK5KX	60	Top VK5 OM
David VK5KC	45	
Hans VK5YX	30	
Joy VK5BAR	20	
Celia ZL1ALK	20	
Matt VK2ACL	20	
Elizabeth VE7YL	15	Top Canadian ALARA member
Miles VK6MAB	15	Top VK6 OM
Evelyne F5RPB	5	Top French ALARA member

Erratum:

On the inside back cover of the November issue, there was an error. The photo in the bottom right corner is of Michael Owen VK3KI and Kelgo Komuro JA1KAB. Thanks to Nan Owen for the corrected information.

Ross Hull Memorial VHF-UHF Contest 2013

Contest manager: John Martin VK3KM

The next Ross Hull Contest will run through the month of January 2013. Logs will be due by Friday, February 15.

There has been one minor change in the rules. For some years the scoring has been based on the best seven days as nominated by the entrant, so it isn't necessary to operate throughout the entire contest period. This year the "Best Two Days" section has been reintroduced. So if your operating time is limited, you may choose to enter only the two day section.

If you participate in the Summer VHF-UHF Field Day, remember that you can count Field Day contacts (one per station per band per day) in your Ross Hull Contest log, so the Field Day can supply two of your Ross Hull Contest days. There is no need to exchange separate serial numbers for the two contests.

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

Duration

0000 UTC January 1, 2012 to 2400 UTC January 31, 2013.

In Eastern Summer Time, that is 11 a.m. on January 1 to 11 a.m. on February 1.

Sections

- A: Best 7 days, analog modes.
- B: Best 7 days, digital modes.
- C: Best 2 days, analog modes.
- D: Best 2 days, digital modes.

Digital modes are defined as those in which the decoding of the received signal is done by a computer.

Entrants may submit logs for more than one section.

General Rules

One callsign and one operator per station. Stations may operate from any location. You may claim one contact per station per band per UTC day. Repeater, satellite and cross-band contacts are not permitted.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange. All rulings of the contest manager will be accepted as final.

Contest Exchange

For Section A or C, Entrants must exchange RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. *NOTE: For propagation modes such as meteor scatter or short-lived sporadic E openings, it is sufficient to exchange callsigns plus two further digits that cannot be predicted by the other station.*

For Section B or D, exchange callsigns plus two further digits that cannot be predicted by the other station.

While not an essential part of the contest exchange, Maidenhead locators may also be exchanged as an aid to distance calculations.

Logs

Logs must contain the following for each contact:

- Date and UTC time.
- Frequency and callsign of station worked.
- Reports and serial numbers sent and received.
- Approximate location or grid locator of station worked.

Separate scoring columns for each band would be helpful.

Scoring

Scoring will be based on the best 7 UTC days nominated by the entrant.

For each contact, score 1 point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 – 199 km: 2 points, etc.)

Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher bands
x 2	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Cover Sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered.
- A scoring table set out as the example below.

Date	6 m	2 m	70 cm	23 cm	etc
	----	----	----	----	----
Day 1	xxx	xxx	xxx	xxx	xxx
Day 2	xxx	xxx	xxx	xxx	xxx
	----	----	----	----	----
2 Day Subtotals	xxx +	xxx +	xxx +	xxx +	xxx = xxxxx (2 DAY SUBTOTAL)
Day 3	xxx	xxx	xxx	xxx	xxx
Day 4	xxx	xxx	xxx	xxx	xxx
etc.					
	----	----	----	----	----
7 Day Totals	xxx +	xxx +	xxx +	xxx +	xxx = xxxxx (7 DAY TOTAL)

- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Please use the following format for your scoring table. If you wish you can cross-check by adding the daily totals across the table, but please make sure that you include the separate band totals.

A cover sheet and scoring table has been included in the postings on the WIA web site. Copies can also be obtained from the e-mail address given below.

Penalties

Minor errors may be corrected and the score adjusted. Repeated

use of recognised DX calling frequencies (especially when the reports indicate strong signals) may lead to disqualification. Inclusion of any false log entries will lead to disqualification.

Entries

Paper logs may be posted to the Manager, Ross Hull Contest, PO Box 2042, Bayswater Vic 3153. Electronic logs can be e-mailed to rosshull@wia.org.au. Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, MDB, PDF, or any Open Document format.

Logs must be received by **February 15, 2013**. Early logs would be appreciated.

Note on Calculating Distances

Absolute accuracy is not required.

You just need to know whether each station is above or below the nearest multiple of 100 km, so you can use a compass to draw 100 km circles around your location on a map. Alternatively, you can use contest logging software that can calculate distances. If so, you will need to exchange 6 digit Maidenhead locators to get an accurate distance measurement. You can also calculate distances from six-digit Maidenhead locators using a computer program that is available on the Ross Hull Contest page of the WIA web site.

Note that a sample cover sheet with scoring table can be downloaded from the WIA website.



Summer VHF-UHF Field Day 2013

Contest manager: John Martin VK3KM

Third "F" Call Challenge

The Summer Field Day will include the third "F Call Challenge", with special certificates for Foundation licensees who participate in any of the single operator sections of the Field Day.

Dates: Saturday and Sunday 12 and 13 January 2013

Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.

Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

- A: Portable station, single operator, 24 hours.
- B: Portable station, single operator, 8 hours.
- C: Portable station, multiple operator, 24 hours.
- D: Portable station, multiple operator, 8 hours.
- E: Home station, 24 hours.
- F: Rover station, 24 hours.

Operating periods

Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

Entering more than one section

If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station, he may also enter the home station section.

Two operators

If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section

A or B, they may not claim contacts with each other.

Multi-operator stations

Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

Rover stations

The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled

each time it moves. You may work stations within your own locator square. Repeater, satellite and cross-band contacts are not permitted.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange.

Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format below for your scoring table.

In this example above the operator has operated from one locator and worked four locators on each band.

A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, PO Box 2042, Bayswater Vic 3153. Please email electronic logs to vhfuhf@wia.org.au. Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. Logs must be received by Monday, 28 January 2013. Early logs would be appreciated.

FIELD DAY WEB SITE – <http://www.wia.org.au/members/contests/vhfuhf/>

This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.



Band	Locators Activated (10 points each)	+	Locators Worked (10 points each)	+	QSOs (1 point each)	x	Multiplier	=	Band Total
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
etc.									
Overall Total								=	680

CCARC

Central Coast Amateur Radio Club Inc.

Wyong Field Day

24th February 2013

Lucky Door prizes, Flea market plus much more!

For more information go to the website
www.fieldday.org.au

Be part of the largest amateur radio event in the Southern Hemisphere!

Technical Advisory Committee Notes

John Martin VK3KM

Proposed two metre band plan changes - new digital repeater segment

In 2011, the WIA Board gave the Technical Advisory Committee the task of reviewing the two metre band plan and considering ways of improving the efficiency of spectrum use. In particular, the TAC was asked to consider the feasibility of adopting 12.5 kHz channel spacing in the repeater and simplex segments of the band.

The TAC circulated a discussion paper and a proposal developed by the National Repeater and Beacon Coordinator, Peter Mill VK3APO. This draft proposal was supported by the TAC regional representatives and was submitted to the Board along with a report and recommendations. The Board adopted the report and gave approval for these changes to be made.

The essence of the report to the Board was that it is not feasible to adopt 12.5 kHz channel spacing for existing FM repeater and simplex channels, where the equipment in use is all designed for 16 kHz occupied bandwidth and 25 kHz channel spacing. The result would

be unacceptable levels of adjacent channel interference. However it is feasible to use a 12.5 kHz channel raster for newer digital modes that have narrower occupied bandwidth and are designed for 12.5 kHz channel spacing.

Due to the limited spectrum available, the only practical approach is to interleave 12.5 kHz channels in between existing 25 kHz channels, where this can be done without creating unacceptable adjacent channel interference. In particular, it is recommended that new repeaters using digital modes such as D-STAR and P25 should be allocated frequencies on odd multiples of 12.5 kHz, interleaved between existing 25 kHz spaced channels.

It was also recommended that to minimise interference, it would be desirable if these new repeaters using a 12.5 kHz channel raster were allocated input frequencies in a different band segment from that used by existing FM repeaters. The band segment 145.000 - 145.400 MHz was identified as being suitable for this purpose because it is only lightly used and has very few assigned frequencies. This

allows new digital repeaters to share the existing repeater output segment, but to use a transmit-receive offset of 1.6 MHz, which will eliminate the possibility of adjacent channel interference on their input frequencies.

This proposal requires a rearrangement of the band plan between 145.000 and 145.400 MHz. This can be done with minimal effect on existing operation in this segment. A transition plan has been developed which will have no effect on any existing packet, APRS or WICEN allocations. However it does entail a change for one of the frequencies recommended for simplex D-STAR operation.

The proposed changes are described in detail on the Band Plans Update page of the WIA web site. The posting includes the original report and recommendations adopted by the WIA Board.

The report also includes other recommendations on spectrum efficiency and the problem of overcrowding of the two metre repeater segments.

Silent Key

Valda Catherine Trenberth VK3DVT

I regret to inform you of the sudden death of my sister Valda VK3DVT on 8/10/2012.

Valda was confined to a wheelchair and she achieved her novice call VK3VUO at her first attempt in August 1980 with coaching by correspondence from her brother-in-law Brian Austin VK5CA, and her full call VK3DVT at the next exam in April 1981 with coaching by Geoff Taylor VK5TY.

Valda joined ALARA and for five years was their Treasurer, Souvenir Custodian

and Sponsorship Secretary. She designed the contest certificate and banner, and QSL cards for friends and relatives, also produced hundreds of hand drawn and hand coloured front covers for the 10th anniversary edition of ALARA's newsletter in 1985.

She took part in two Intruder Watch special reporting surveys for the IARU, when approximately 150 people (including SWLs) took part around the world 1990-1991, which involved listening on air for 2 hours at a time throughout the night and day.

Valda made many friends worldwide - South Africa, England, California, New Zealand, and achieved her DXCC with over 200 countries in 1994. She enjoyed the RD and ALARA contests too, and the YL net.

She was a thoughtful and generous person, and we miss her.

Vale, Valda.

Marlene Austin VK3EQO, previously VK5QO.

John Sutcliffe VK3TCT

Sunraysia Radio Group (SRG) is named after the region of north-western Victoria, with Mildura as the largest centre. Mildura is a beautiful city, laid out by the Chaffey Brothers in the late nineteenth century; Nicholls Point, the home of the SRG, is a settlement on the eastern boundary of Mildura.

The SRG clubhouse is in the Stephen 'Syd' James Hut adjacent to the Sunraysia District Activity Centre in a particularly attractive part of Nicholls Point with lovely grounds and trees. The hut was built some time back when materials and money were scarce commodities; the internal areas are well lined and the hut is comfortable with two main rooms.

Radio equipment includes a Yaesu FT-847 and power supply, part of the equipment kindly donated by the late Robert Farnsworth's VK3BHI family. It also included a broad band dipole for HF.



Photo 1: The SRG clubhouse at Nicholls Point – note the antennas on the roof.

SRG club members constructed two 2 m/70 cm J-Poles and a working bee saw the erection of a guyed mast to carry the J-Poles and support the HF dipole.

The Sunraysia scouts financed the purchase of two TF-60R HT transceivers, an FT-897 transceiver and an AV201 SWR meter.

JOTA

The JOTA weekend had many Scout and Guide participants with contacts being made by HF radio and through the local VHF repeater, assisted by local amateurs including Noel VK3FI in Nicholls Point and John VK3TCT, who operated remotely from Queanbeyan NSW through to the local VHF repeater. In attendance assisting the young people were John VK2AWJ, Max VK3ZMT and Ray VK3HSR; a good introduction to amateur radio and I must say I was impressed by some of the young people's use of the phonetic alphabet.

New Foundation licences

Saturday 13th October was assessment day, conducted at the SRG clubrooms. Eight candidates passed the practical assessment and six passed the theory assessment. Four were from the Scout Association, and two from the wider community.

Congratulations to the six participants and we do look forward to hearing them on air in the near future. Thank you to the Assessor Noel VK3FI and Learning Facilitator John VK2AWJ.

With these results, 'Amateur Radio' and 'JOTA' is alive and well in the Sunraysia region.



Photo 2: John VK2AWJ with Josh and Kate.

Participate

Summer VHF-UHF Field Day

12 - 13 January

Ross Hull Memorial VHF-UHF Contest

1 - 31 January





VK7news

Justin Giles-Clark VK7TW

e vk7tw@wia.org.au

w groups.yahoo.com/group/vk7regionalnews/

Remembrance Day Contest

Huge congratulations to all VK7 amateurs who participated and submitted logs for the Remembrance Day Contest 2012. Under the new scoring method VK7 won the 2012 contest with a score of 7.15. The accolades don't stop there - congratulations to Wayne VK7NET who came first in the Single Operator Phone Section and Bob VK7RF who took out the Single Operator CW section.

VK7 10 GHz experimentation

Rex VK7MO has been at it again with the first 10 GHz QSO from Hobart to VK3. In VK3 was Rhett VK3GHZ near Bairnsdale and Rod VK3BQJ at Swan Reach. This was a distance of around 560 km using aircraft scatter and the WSJT JT65c mode. Congratulations to Rex, Rhett and Rod. Not stopping there - Rex went on to use his 80 cm dish as a 10 GHz portable station to make an EME digital contact with OK1KIR at a period of low lunar libration. At the time of writing there were many 10 GHz rain scatter experiments going on across Tasmania with Joe VK7JG and revealing some exciting results. Watch this space and congratulations to Rex and all involved.

Repeater News

Joe VK7JG reports that the replacement VK7RAE 10 m (28.267 MHz) beacon is back on air from Don Heads near Devonport. Thanks to Scott VK7NWT for the donation of the beacon radio. Hayden VK7HA reports that repairs are being made to the VK7RCH 70 cm (438.575 MHz) on Grey Mountain in the Huon

Valley as the weather improves over summer. TLC has also been performed on the VK7RMM APRS Digipeater in the NW.

Cradle Coast Amateur Radio Club

We congratulate Marlene Gardiner VK7FEMA who recently passed her Foundation licence exam. At the same exam session Dick VK7LDK and Stephen VK7VHF passed their exam and upgraded to a Standard licence. Steven also passed his Advanced licence exam and will be VK7LA.

The October CCARC meeting saw the new mobile radio field trailer donated by Rick VK7FRIK who was also given a certificate of appreciation at the meeting. There are some important events coming up in 2013 for CCARC. A Field Day on February 17, 2013 and on March 3, 2013 the Pure Tas Cycle Challenge, for which the club will be providing communications.

Northern Tasmania Amateur Radio Club

The NTARC October meeting was held at the Mt Barrow Interpretation Centre at the foot of Mt Barrow. Even though snow was down to 600 m on surrounding mountains, it was not as bad on Mt Barrow and the fire burned warmly with food and amber refreshments flowed! In all 13 members enjoyed the night and some stayed on until the morning and thanks to Yvonne VK7FYM for that report.

Peter VK7KPC, the NTARC's JOTA/JOTI Co-ordinator let me know that the NTARC JOTA activation included two HF stations and a VHF/UHF station. There were 12 Scout groups go through during the weekend. Many Scout/Guide stations on the mainland were contacted and a notable contact was with a Group Commissioner in Vancouver Canada via EchoLink.



Photo 1: Holger VK7KI explains fire alarm technology. Photo courtesy of VK7TW.

Thanks to Norm VK7KTN, Kevin VK7HKN, Tony VK7YBG and Peter VK7KPC for their efforts over the JOTA weekend.

North West Tasmanian Amateur TV Group (NWT-ATVG)

JOTA in NW Tasmania was held at Paton Park which hosted a HF and VHF station with contacts being made to VK3, VK5 and VK7. VHF utilised IRLP and EchoLink nodes for contacts via the internet. Thanks to Paul VK7HPD, Neil VK7NX, Ross VK7WP, Graham VK7NGA and Tony VK7AX for their efforts.

Radio and Electronics Association of Southern Tasmania

REAST visited the Tasmania Fire Service (TFS) Headquarters. The night started with a demonstration by Holger VK7KI on how fire alarms past and present work including the modern day 3G wireless with redundant dial-up capability. The TFS monitor and respond to over 2000 fire alarms around Tasmania. We then toured the Communications Centre thanks to Tiffany and Michael (Comms Centre Supervisor) and finished up with a tour of the firefighting appliances with firefighter Brendan.



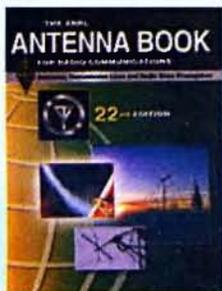
Photo 2: Anders VK7FAJM explains the technology behind a Communications Centre work station. Photo courtesy of VK7TW.

Thanks to Anders VK7FAJM who took us through the radio network and organised the night's activities.

REAST's DATV Experimenter's nights over the last month have seen some great VK7 history with early pioneer Pop Medhurst's story coming to light. Other interesting segments included Raspberry Pis, W. Heath Robinson comics, Warren VK7FEET on his recent NZ experience on the self-balancing, motorised platform Segways.

Rex VK7MO entertained our audiences with his recent 10 GHz experiments. PCB manufacturing with the author along with CTCSS and optical preamps and many interesting videos have been broadcast. We stream our content on batc.tv – members stream VK7OTC – see you there!

Visit our Bookshop



ARRL Antenna Book

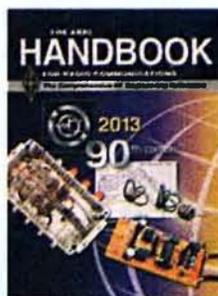
(22nd Edition - Softcover)

Antennas, Transmission Lines and Radio Wave Propagation

Build one antenna, and you'll quickly find yourself planning the next. **The ARRL Antenna Book for Radio Communications** is devoted entirely to that pioneering spirit. In this one book, you will find all of the information you need to design complete antenna systems—from planning,

to design and construction. **The Antenna Book** includes treatments for nearly any radio band and operating application: low-band, HF, VHF, UHF and microwave; fixed station, portable, mobile, maritime, satellite and more!

MEMBER PRICE: \$85.00* RETAIL: \$95.00*



ARRL Handbook

(2013 - Hardcover or Softcover)

The ARRL Handbook for Radio

Communications has kept technologists—amateur, professional and students—immersed in the radio art for generations. As innovations in wireless communication march (and race!) ahead, **The ARRL Handbook** has maintained its place at the forefront—a single resource covering electronic fundamentals, radio design, and loads of practical treatments

and projects. You'll read it, study it, and turn to it... again and again.

Updated and Revised! This ninetieth edition of **The Handbook** includes something for every radio amateur and experimenter.

MEMBER PRICE: \$85.00* RETAIL: \$100.00*

Hardcover

MEMBER PRICE: \$80.00* RETAIL: \$95.00* Softcover

* Plus Postage and Packaging

Order your copy today! Visit our online bookshop for details. www.wia.org.au/bookshop



VK2news

Tim Mills VK2ZTM.
e vk2ztm@wia.org.au

As the end of another year approaches Seasons Greetings, where did the year go! The end of the year and the start of the next is when many radio clubs drop the meetings, often not resuming until February. All clubs are requested to send off an item to VK2WI News at news@arnsw.org.au with meeting and holiday break arrangements. Check with your local club for their arrangements.

VK2WI News will drop the evening transmission from 30th December for two or three weeks; the schedule not yet advised as these notes were being prepared. It will be morning only at 10 am until about mid-January. The first of the 2013 Trash and Treasure events at VK2WI will be on Sunday, 27th January with some adjustments to the times. Ideally the T&T will start about 9.30 am and the HomeBrew gathering will come forward an hour to 12 noon. In early March 2013 ARNSW will be calling nominations for the committee. The AGM is set down for Saturday morning, 20th April, 2013. An anniversary BBQ is planned for Sunday, 10th March, 2013 at the Dural site. The schedule for Foundation courses and upgrade classes are yet to be advised. Check out the ARNSW web site at www.arnsw.org.au for announcements.

ARNSW recently circulated their members to seek their current callsign and name for a membership badge. More than half the membership responded by the cut-off point at the end of October. Most badges should have been distributed by now. Recently improved toilet facilities were added to the Dural site with a unit suitable for the disabled.

The upgrade of the VK2RWI main repeaters should now be complete with stronger voices and better ears on six metres 53.850 MHz, two metres 147.000 MHz and 70 cm 438.525 MHz. Consideration is being given to re-establishing the 10 metre repeater. The former system went out of service some years back when equipment at the remote receiver end was stolen.

Various upgrades at the VK2WI site have seen many changes in the equipment. Last year the 160 metre AM transmitter was replaced with a more modern unit. Now surplus to requirements is the former transmitter. It is an AWA J54/800, commissioned in its original life in 1951; it is being offered free to anyone who would like to give it a new home. It is not operational as some of the shielded rubber wiring has perished and shorted to its braid. It will be available for personal

collection from the Dural site. The successful applicant will need to provide transport and labour. It's all up weight is about 1000 kg in two cabinet units on wheels and a base frame. Dimensions are 1850 mm high, 1060 mm wide and 850 mm deep. Expressions of interest may be emailed to disposals@arnsw.org.au with the deadline on 10th December, 2012. A ballot may be necessary.

The Central Coast ARC has been celebrating 55 years of existence by resurrecting the Central Coast Award. Contacts are required with any of the three club stations – VK2AFY, VK2EH or VK2WFD. There are multipliers if you work a CCARC club station when it is taking part in a contest or a special event. There's another multiplier if you are running QRP or have a Foundation call. So check the contest section of the CCARC website at www.ccarc.org.au for all the rules. It is now about three months until the famous Wyong Field Day to be held on Sunday, 24th February, 2013. Check details on www.fieldday.org.au or phone 02 4340 2500.

See you next year.
73 – Tim VK2ZTM.

Erratum: The 'Porta 40' direct conversion receiver

The author Peter Parker VK3YE advises that the receiver circuit (Figure 1) published in November 2012 *AR* (page 10) contains an error.

The 6.2 V zener diode in the oscillator was shown reversed polarity and should be the other way around.



Photo 1: The PARG at JOTA/JOTI 2012. VK6SN is at the 'helm'.

Firstly, as it's the December issue, I'd like to wish all readers and their families the compliments of the season, and best wishes for 2013.

Now news from the very active Peel group.

Peel Amateur Radio Group (PARG)

On Saturday 20th October the PARG operated the most successful JOTA station the region has seen in over ten years. The group callsign VK6ARG was constantly on the air from midday through to midnight. Eighty scouts, guides and leaders were kept busy throughout the day, at the Peel district JOTA/JOTI station. For 2012 the station was located at Rockingham Scout hall, on the coast in Western Australia. This year's success stories included Morse code training, HF radio and EchoLink.

Our group benefitted from the assistance of recently joined members Martin VK6MJ (ARISS

contact specialist), Sergey UV9VO, Clive G4JXJ and local amateur Stephen VK6GOS. Just before midnight, whilst attempting to close the station down we received possibly the best contact, a portable G3 call from Gilwell Park in the UK, the home of Scouting!

Throughout the day the station utilised a temporary EchoLink node VK6MJ-L, which made the 23 km path up to Rockingham Scout Hall via VK6MJ's purpose built satellite antenna. After the Peel JOTA/JOTI station closed the satellite antenna was realigned with the approaching International Space Station for an ARISS contact set for 0200 hours WA time.

Thanks and 73, Paul VK6LL.

Special JOTA contact with the International Space Station by Martin VK6MJ

Scouts visiting the National Scouting Museum in Irving,

Texas spoke with Sunita Williams KD5PLB via amateur radio on the International Space Station (ARISS) on Saturday, 20 October. The contact was part of the Jamboree on the Air (JOTA) weekend event whereby scouts of all ages from around the world connect with each other using amateur radio equipment. Williams was able to answer over 20 questions put to her by the Scouts and had time for longer than usual answers due to sharing of the contact by Australian telebridge stations VK6MJ and VK5ZAI. The audience consisted of around 200 Scouts, parents, and friends and at least three television stations and several newspaper representatives were present.

They have been busy down south!

Now in them there Hills.



Photo 2: Maintenance work at the HARG. Heath VK6TWO installs the 40 metre traps on the HARG beam.

The Hills Amateur Radio Group (HARG)

Hello. This is Bill VK6WJ with news from HARG.

Firstly, I'd like to send a very warm welcome to all those amateurs who joined the club in recent months. Welcome to Miles VK6MAB, Ray VK6ZRW, Graeme VK6LV, Bill VK6HWP, Peter VK6AIF, Dave G7GPR and Dot who is the XYL of Ron VK6HRB. That's right, we now have a family membership category. Once one member of a family belongs to the club another family member can join for half the annual fee. Also a very warm welcome back to John VK6MAD, who has returned from Queensland and is now a regular at meetings once again.

On Saturday 27th October we had a very busy day at the club. In the morning we used a cherry picker to re-tune the six metre beam, to repair a wind damaged element on our four element TET-EMTRON HF beam and to add 40 metre traps to

the HF beam. This gives us 7, 14, 21 and 28 MHz capability from the one beam. We also have a G5RV HF multi-band dipole for 80 metres and above plus vertical antennas for VHF and UHF. Now that the antennas are fully operational again we are looking forward to using our new Ameritron amplifier to work some rare DX and take part in as many contests as possible. The CQ WW DX contest came at just the right time to test out the new gear. We had the antenna and linear running hot all weekend!

At lunchtime we held our usual sausage sizzle complete with barbecue sauce and convivial chat and in the afternoon Rob VK6UFO gave us a talk on the APRS system, including details on our own system installed in the club shack. Heath VK6TWO brought along a wide range of APRS hardware to allow members to see what was available and how to use it.

In January 2013 HARG celebrates its 30th Anniversary.

We have applied for a special commemorative call sign and will be on air with it from January onwards.

Don't forget that we now have a sausage sizzle at 1.00 pm before every meeting with the meeting itself starting at 2.00 pm. Social meetings on the second Saturday of the month and general meetings on the last Saturday. For more information go to www.harg.org.au

73 until next time from Bill VK6WJ.

Miles and his son operated JOTA and passed this on:

JOTA activation at 1st Bayswater Sea Scouts

Miles VK6MAB and 11 year old son Davis VK6FAME operated from the 1st Bayswater Sea Scouts hall on the picturesque Swan River for JOTA this year. Whilst guest operator numbers were down, they stirred plenty of interest from passers-by, asking about amateur radio and what JOTA was all about. Thanks to everyone who made contact with them.

NCRG News

The club has been busy in contests of late with an excellent single band/single operator entry in the Oceania DX SSB Contest with the call of the late Neil Penfold VK6NE as the contest call. The club now holds this callsign in memory of Neil, and in the hope that one day one of his family will ask for it back!

As many of the clubs contest operators were out of the country or holidaying elsewhere or tied up with family commitments a decision was made to do a 15 metre single band/single operator entry this year. Wes VK6WX did the operating on the clubs behalf. The band died in the wee small hours but he made a good score of over 740 contacts. A great effort Wes!

We also put a 48 hour effort into CQWW SSB with several operators and VK3FY slotting in at the end of his trip to VK6. I believe the score was one of the best we have ever achieved and as I'm writing



Photo 4: Eric VK6FEDS and Larry VK6NOL hard at it!

this three hours after the contest finished, I don't yet have the full details.

Recently we had a visit from Mark VK6KMJ who was a member

20 years ago in the Carine College days. He gave us a fascinating presentation on high altitude balloons carrying APRS and cameras. He showed us footage of the video cameras mounted on these balloons and invited club members to join him on his next launch and assist with the HF tracking of the payload.

Amazing stuff! Several members expressed an interest in joining the project.

The club has also been busy

putting up new towers, antennas and generally cleaning the place up a bit. The car-boot sale will have taken place by the time you read this report; hopefully it will have been a success and well attended. We have also welcomed some new members of late and they are looking to contribute to our activities.

Season's best wishes to all from the NCRG.

There was to be a section here on the activities from Wireless Hill for the centenary celebrations but there was so much going on that a separate article will appear elsewhere in the magazine; don't forget to have a read of it and see the pictures!

Hopefully the newly re-formed Bunbury group will soon come forward with a report of their activities! Hey, Alek!

Once again Season's greetings to all amateurs and their families, and I wish you all good DX for 2013 especially as it is to be just about the peak of this Solar Cycle.

Vy 73 Keith VK6RK

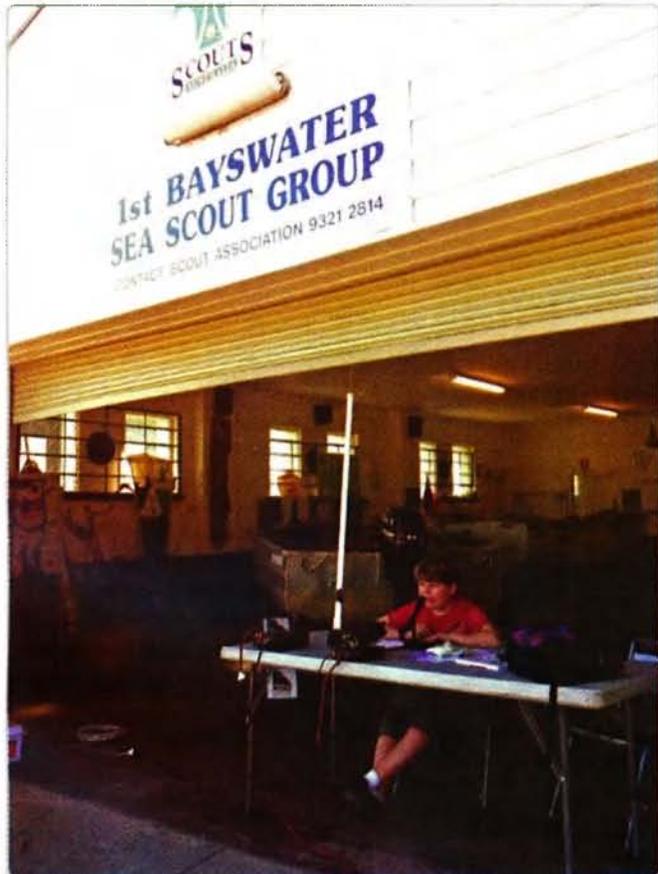


Photo 3: Davis VK6FAME in action from the 1st Bayswater Sea Scouts Hall.

Hamads

WANTED - COPIES OF RAOTC MAGAZINES - OTN



The WIA Archive is seeking copies of OTN magazines to add to the limited number it presently holds. OTN is the journal of the Radio Amateurs Old Timers Club which was founded in 1975 and is affiliated with the WIA. It was first published during the 75th Anniversary year of the WIA in 1985 and the first editor was WIA Historian and Past Federal President, Max Hull VK3ZS. The current Editor is previous AR Editor, Bill Roper VK3BR who has just published the 50th edition of the journal.

OTN is crammed with historical articles and reminiscences, many pertaining to Australia and although it is available from the RAOTC in pdf format on DVD, the Archive would like to hold a complete set of printed editions for future researchers.

So if you are currently down-sizing, or need more shelf space and are considering disposing your OTN collection, please think of the WIA Archive.

If you can help us locate some of these significant Australian magazines, please contact Peter VK3RV (WIA Historian) via email vk3rv@wia.org.au or c/o the National Office in Bayswater

FOR SALE - NSW

Amateur radio gear

MDS Down Converter, \$5

Hills Telomast, 12.2 metres (40') in four extendable sections, \$50

Satellite Receivers

Humax IRCI 5400, \$50

UEC DSD660, \$50

Nokia 9500S with DVB2000 software, \$50

Xanadu DSR, \$15

Winersat WR920 analogue receiver (dish and Polarator feed controller), \$10

Other Satellite parts

Chaparral C-Band Polarator feed with Norsat Gold 15K C-Band LNB, \$45

Chaparral CoRotor II C/Ku feed fitted with Norsat Gold 15K C-Band LNB and Gardiner 0.7dB Ku LNB, \$80

Chaparral Model C Ku LNB, 9.75/10.75GHz LO's, \$10

ACESAT Twin Ku LNBF's, \$20 each

California Amp Ku LNBF, \$10

Sharp Ku LNBF's, \$15 each

DX Antenna DSA527N Ku LNBF, \$5

DX Antenna DSA527D Ku LNBF's, \$5 each

60.96 cm (24") actuator \$20

Zinwell SAB-09C Coax Relays, \$10 each

4 x Irdeto CAM's, not CI, various ages and S/W, \$5 each

Other miscellaneous parts, feeds, Power inserters, DiSEQc switches, negotiable.

Other

Laser disc player, analogue, Pioneer LD V4300D, free

Contact Roger Woodward VK2WW at VK2WWW@Hotmail.com or phone 02 9546 1927.

Three element (20/15/10) beam partially assembled, and needs a good home. I also have several lengths of six metre aluminium pipe. \$150 the lot. Pick up from Mudgee, NSW area.

Contact Janos Farkas VK2BFA QTHR, by phone on 02 6373 3589 or email janosfar@hotmail.com

WANTED - NSW

I am looking for a Collins AM/CW transmitter such as the 32V-1, 2 or 3. I would prefer in operational condition, or at least complete. Please advise condition, location (this is no lightweight!) and price. Photos would be most appreciated.

Contact Steve Beveridge VK2LW by email steve.b@internode.on.net or mobile 0412194513.

A 1155 RX or AR8 RX, or any other World War 2 receivers.

Contact Nick Pritchard on 02 9477 2134.

FOR SALE - SA

ESR Meter parts - Complete parts kit, \$69.95 plus postage. Order on-line from Aztronics Pty Ltd, 170 Sturt St, Adelaide, 5000. Phone 08 8212 6212 or at www.aztronics.com.au

PCB only, \$10.00 plus postage. Order on line from VK5JST, www.users.on.net/~endsodds

FOR SALE - WA

I have a few brand new reels left from cabling up my new property. This coax has -

- seven inner strands of 0.75 mm bare copper
- 7.25 mm of LDPE
- 192 strands of 0.16 mm BC - giving a genuine 95% braid coverage
- Long lasting PVC outer cover

This was the best quality I could source and it will stand up to scrutiny. I will happily post you a sample if you are genuinely interested. Asking \$2.50 per metre, or \$200.00 for a 100 metre reel.

Contact Richard VK6TT on 0402 299 466, or at vk6tt@burden.id.au



Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at <http://www.wia.org.au/members/armag/contributing/>

Email the Editor:
editor@wia.org.au

AMIDON FERROMAGNETIC CORES



ttss systems

Phone 03 5977 4808. Fax 03 5977 4801
info@ttssystem.com.au

VKHAM.COM

AUSTRALIAN AMATEUR RADIO
Hundreds of pages and links related to Amateur Radio and radio in general

HOME OF

- VK Classifieds
- VK Auctions
- VKs on the Internet

Repeater Maps, Software, Prefix Maps and more...

RM Products Italy

are now available in Australia after the appointment of

Hamak Electrical Industries Pty Ltd

as distributor for RM products
Visit the Hamak website at

Hamak.com.au

for

***Linear amplifiers,
Power supplies
and accessories***

About Hamads

- Submit by email (**MUCH PREFERRED**) or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'

PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

"Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the



Radio Amateurs Old Timers Club Australia

Or if you have been licensed for less than 25 but more than ten years, you are invited to become an Associate Member of the RAOTC.

In either case a \$5.00 joining fee plus \$15.00 for one year or \$25.00 for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to RAOTC

PO Box 107, Mentone
VIC 3194

Ron Cook 03 9579 5600

or Bill VK3BR on 03 9584 9512,
email raotc@raotc.org.au
for an application form.

ADVERTISERS INDEX

Com-an-tena	21
Cookson (Jackson Bros)	63
Hamak Electrical Industries	63
Icom	OBC
Jaycar	7
TET-Emtron	9
TTS	11, 63
Yaesu	IFC

TRADE PRACTICES ACT

It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT

Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

JACKSON BROS
www.jacksonbrothers.com.au
Highest quality products made by UK craftsmen
Variable and trimmer capacitors, reduction drives, dials, ceramic standoffs

CATALOGUES, PRICE LISTS AVAILABLE

HAMMOND ENCLOSURES
HAMMOND MANUFACTURING - Large range of quality electronic enclosures for the discerning Radio Amateur.
Diecast, extruded aluminium and plastic enclosures and instrument cases. As seen in many APRIL projects.

Cookson Controls CHARLES I COOKSON PTY LTD
11-13 Port Rd Queenstown SA 5014
Tel: (08) 8240 3200 Fax: (08) 8240 3233
sales@jacksonbrothers.com.au
ccoockson@hammfg.com
ALL MAJOR CREDIT CARDS ACCEPTED
SOLE AGENTS AUSTRALIA AND NEW ZEALAND

Directory



National Office

Unit 20, 11-13 Havelock Road
PO Box 2042 BAYSWATER VIC 3153

Contact 10 am to 4 pm weekdays
Phone **03 9729 0400** Fax **03 9729 7325**
nationaloffice@wia.org.au
http://www.wia.org.au

The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

Advisory Committees

New South Wales/ACT Advisory Committee
Email: vk2advisory@wia.org.au
* John Bishop VK2BK
Dominic Dahl VK2YDD
* Timothy Mills VK2ZTM / VK2UJ
Gilbert Hughes VK1GH

Victorian Advisory Committee
Email: vk3advisory@wia.org.au
* Bob Tait VK3XP
Luke Steele VK3HJ
Noel Ferguson VK3FGN
Chris Chapman VK3QB

Queensland Advisory Committee
Email: vk4advisory@wia.org.au
Don Wilschefski VK4BY
Kevin Johnston VK4UH
* Michael Charteris VK4QS
Alan Shannon VK4SN

South Australian Advisory Committee
Email: vk5advisory@wia.org.au
* David Clegg VK5KC
* Peter Reichelt VK5APR
Ben Broadbent VK5BB
Trevor Quick VK5ATQ

Western Australian Advisory Committee
Email: vk6advisory@wia.org.au
* Heath Walder VK6TWO
* Craig Lamb VK6FLAM

Tasmanian Advisory Committee
Email: vk7advisory@wia.org.au
Clayton Reading VK7ZCR
* Justin Giles-Clark VK7TW
Peter Rumble VK7IY

Northern Territory Advisory Committee
Email: vk8advisory@wia.org.au
* Peter Blackadder VK8HPB
Garry Woods VK8GW
* Alan Baker VK8AB
Mark Sellers VK8MS

*Denotes Committee Chairman

*Denotes nominated by the WIA Board
("Nominated Member")



The Wireless Institute of Australia ACN 004 920 745

Election of Directors - Call for Nominations

The WIA wishes to call for nominations for four Directors positions falling due on the 25th May 2013.

The four Directors positions are declared vacant at the conclusion of the next Annual General Meeting which will be held at Fremantle, WA on the 25th May 2013.

The position previously occupied by Michael Owen (SK) is one of those due for re-election and remains vacant at this time.

Nominations are hereby called to fill these vacant Director positions.

Trent Sampson and Ewan McLeod have offered themselves for re-election.

Philip Adams is retiring and has indicated he will not stand for re-election.

A Director must be a voting member of the WIA and must hold an Australian amateur radio licence.

Any person wishing to nominate as a candidate for election as Director of the WIA must deliver or cause to be delivered to the Returning Officer by not later than 31 January 2013:

A statement signed by the candidate signifying his or her willingness to be a candidate for election as a director together with;

the full name, age, occupation and callsign of the candidate, and
such other biographical details or other information as the candidate wishes to accompany the ballot papers, but in all not exceeding 250 words.

Such information provided may be published in *Amateur Radio* magazine and on the WIA website.

Delivery to the Returning Officer may be made by hand when the WIA national office is open at:

Unit 20
11-13 Havelock Road
Bayswater
Victoria 3153

or by mail to:
PO Box 2042
Bayswater
Victoria 3153

Nominations received by facsimile or by electronic means cannot be accepted.

Pursuant to clause 14.1 (c) of the Constitution the WIA Board has determined that if an election is necessary the election of directors shall be conducted by postal ballot.

Geoffrey Atkinson VK3AFA
Returning Officer

WIA **2013** Callbook

Now available

Visit our
online
bookshop
for details.



Wireless
Institute of
Australia

2013 Callbook

Includes **Searchable CD** containing:
The complete 2013 Australian and New Zealand Callbook
+ All Australian Amateur Callsigns
+ Printable Great Circle Maps

www.wia.org.au/members/bookshop/about/

 ICOM

Experience Icom technology in analogue & digital

IC-80AD



ID-31A



IC-7100



IC-2820H



ID-51A



IC-9100



To find out more about our latest products,
call Icom on 03 9549 7500 or visit www.icom.net.au