

*The*  
**SHORT WAVE**  
*Magazine*  
**SWW**

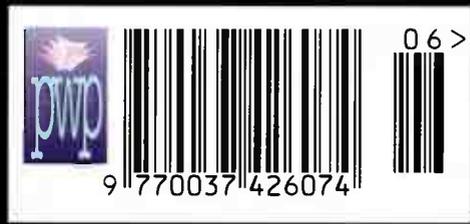
**& Scanning Scene**

**SSB UTE SPECIAL**

- **Icom's latest!**  
**IC-R3 Reviewed**
- **GMDSS -**  
**Godfrey Goes Automatic**
- **JW on W-J x 2!**

June 2001 £3.25

**WIN**  
RIAT JULY TICKETS  
Royal International  
Air Tattoo at Cottesmore



Don't miss our regular sections on:

- Broadcast
- Satellite TV
- WXSATS
- Data Modes
- SSB Utes
- DXTV
- Amateur Bands
- Propagation
- Pirates
- Numbers Stations

# UNLEASH

## DJ-X2

**Credit card sized scanning receiver**

- Receives: 522kHz - 999.995MHz
- AM WFM NFM
- 700 memories
- Selectable scan modes
- Audio descrambler
- Bug detector - detects presence and frequency of bug giving audible warning
- Selectable internal/ext. antenna
- Internal or external supply
- Program Search banks
- Illuminated backlight display
- 2 performance modes easy and expert
- RX attenuator
- Auto power off mode
- Priority channel monitoring
- Squelch control
- Volume control
- Optional accessories

with 8.33kHz for airband



**£239.95**

## DJ-X10E

**Advanced featured scanning receiver**

- Receives: 100kHz - 2000MHz
- Multi mode reception  
AM - WFM - NFM - SSB - CW
- 1200 memory channels
- Channel scope spectrum analyser that allows monitoring of 40 ch.
- Channel scope peak search
- Advanced scanning features:  
*Programmed scan (up to 10 groups)*  
*Programmed memory scan - Any memory scan - Mode scan (not found on many scanners!) - VFO search - Dual VFO search - Band excursion scan - Priority scan - Any channel ship scan*
- User friendly features  
Help messages - Personalised Channel names - Memory cloning  
Auto memory write scan - Beginner /Expert mode - Memory tune mode
- Timer functions auto on/off facility
- Battery save facility
- Squelch control • Dual VFOs
- Stylish cabinet with large speaker
- A super sensitive receiver
- Facilities for cloning another set
- Built-in 24 hour clock
- Switchable attenuator
- Selectable control beep tone

**DJ-X10E includes FREE**

- Mains drop in charger For easy and convenient use
- Nicad battery pack 4.8V DC 700mAH
- NiCad battery pack
- Belt clip
- Carrying strap
- Flexible low profile antenna



**£299.95**

**ORDER  
HOTLINE  
023 9231 3090**

**We are one of Europe's largest Scanner Specialists**

DEALERS! for further details contact our SALES DEPARTMENT Telephone: +44 (0)23 9231 3095 Intl: +44 (0)23 9231 3091

# the power!

# ALINGO

## wideband scanning receivers

coming soon!

### DJ-X2000

The 'INTELLIGENT' Scanning Receiver

- Covers 100kHz - 2,149.99MHz
- 2000 channel memory
- Modes: AM/NFM/WFM/ LSB/USB/CW auto mode position
- 'FLASHTUNE' reads the frequency of a nearby transmitter and instantly takes your receiver to that frequency.
- TRANSWEEPER - Instantly locates hidden transmitters that may be used for eavesdropping
- SEARCH - For identifying CTCSS tones
- RECORD - Up to 160 seconds with the digital memory of audio direct from the receiver or voice via the built in microphone
- DESCRAMBLER - For inversion scrambled transmissions
- CHANNEL SCOPE - Displays nearby frequency spectrum
- BUG DETECTOR - warns of a localised transmission
- Descrambler (audio)
- CTCSS decoder built in
- Three basic modes of operation: dual VFO, memory, memory scan
- 23 fixed channel steps or programme any step from 50Hz - 500kHz
- 2 step attenuator 10dB, 20dB
- FREQUENCY COUNTER - Accurate to 1 PPM, uses digital TXCO
- FIELD STRENGTH METER
- S METER - Activated beep alerts you to nearby calls
- FM STEREO RECEIVE (requires optional stereo headphones)
- TWO LEVEL ATTENUATOR reduces strong or interfering signals. 6 or 20dB
- PC PROGRAMMABLE
- 24 HOUR TIMER
- HELP NAVIGATION - So powerful you may never need the manual!
- Plus lots more features!



£499

#### DJ-X2000 includes FREE

- Multi voltage 110V to 240VAC mains charger for easy use anywhere in the world
- Nicad battery pack 4.8V DC 700mAh
- NiCad battery pack
- Belt clip
- Carrying strap
- Flexible low profile antenna



### DJ-X3

Ultra modern scanning receiver

- 100kHz - 1300MHz
- AM/FM/WFM
- 700 memory channels
- Steps: 5/6.5/8.33/10/12.5/15/20/25/30/50/100kHz
- Auto descrambler
- Bug detector
- Stereo FM (with headphones)
- Attenuator
- SMA Antenna
- Battery saver cct
- Size: 56w x 102h x 23d mm
- Weight: 14.5g (without batteries)
- Supplied c/w: 3 AA dry cell battery case, carrying strap

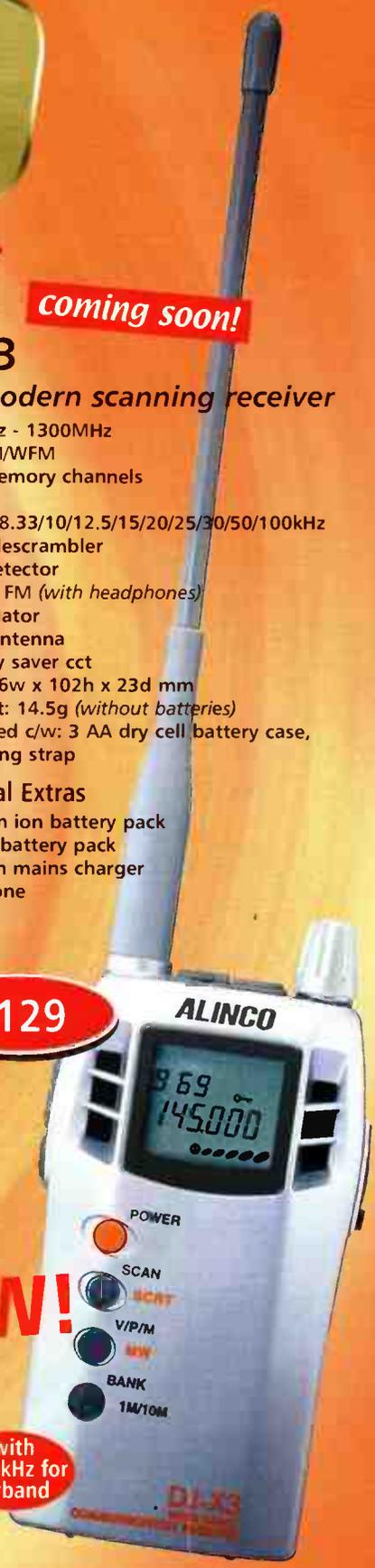
#### Optional Extras

- Lithium ion battery pack
- Ni-Mh battery pack
- Drop in mains charger
- Earphone

£129

NEW!

with 8.33kHz for airband



ALL GOODS SHIPPED for 24 hour delivery (UK MAINLAND ONLY) PLEASE ADD £10.00

ALINGO authorised UK distributors

• fax: 023 9231 3091 • e-mail: info@nevada.co.uk • website: http://www.nevada.co.uk  
 • Unit 1 • Fitzherbert Spur • Farlington • Portsmouth • Hampshire • PO6 1TT

# NEVADA

DISTRIBUTION DIVISION

# The SHORT WAVE Magazine contents

## features

**BROADCAST 10** LM&S  
15 Bandscan Australia



Page 16

### 16 ICOM IC-R3 1st UK REVIEW

Alan Gardener finally gets his hands on the latest and desirable hand-held scanner with built-in video capabilities - the Icom IC-R3.



Page 44

### 27 JW ON W-J - A TALE OF TWO PRETTIES

John Wilson shakes down a pair of Watkins-Johnson desirables, the HF-1000 and the WJ 8711.

### 34 JUST THE JOB - THE FT-70G

An old friend remembered with fondness, Dave Roberts reflects.

### 38 GMDSS

Godfrey Manning G4GLM has now acquired his GMDSS Short Range Certificate, but just what does that enable him to do? Turn to page 38 to find out.



Page 27

### 44 MORE LIKE OLD TIMES

The PC verses the Laptop...Bob Ellis considers both.

## SWM Author Info To provide you with a ready reference here are the contact details of all our regular authors.

**Airband**  
Godfrey Manning G4GLM, c/o The Godfrey Manning Aircraft Museum, 63 The Drive, Edgware, Middlesex HA8 8PS

**Amateur Bands**  
Paul Essery GW3KFE, PO Box 4, Newtown, Powys SY16 1ZZ.

**Attention 123!**  
Enigma, 17-21 Chapel Street, Bradford, West Yorkshire BD1 5DT. E-mail: enigma@pwpublishing.ltd.uk

**Bandscan**  
**Bandscan America**  
Gerry Dexter, c/o SWM Editorial Offices. E-mail: gdexter@pwpublishing.ltd.uk

**Bandscan Australia**  
Greg Baker, PO Box 3307, Manuka, ACT2603, Australia. E-mail: greg.baker@pwpublishing.ltd.uk

**Bandscan Europe**  
Martin Peters, c/o SWM Editorial Offices. E-mail: martin.peters@pwpublishing.ltd.uk

**Decode**  
Mike Richards G4WNC, PO Box 1863, Ringwood, Hampshire BH24 3XD. E-mail: decode@pwpublishing.ltd.uk

**DXTV**  
Keith Harner and Garry Smith, 17 Collingham Gardens, Derby DE2 4FS. E-mail: keith@test-cards.fsnet.co.uk

**Info In Orbit**  
Lawrence Harris, 5 Burnham Park Road, Peverell, Plymouth, Devon PL3 5QB. E-mail: info.orbit@pwpublishing.ltd.uk

**LM&S and Maritime Beacons**  
Brian Oddy G3FEX, Three Corners, Merryfield Way, Storrington, West Sussex RH20 4NS.

**MilAir**  
Peter Bond, c/o SWM Editorial Offices. E-mail: milair@pwpublishing.ltd.uk

**Off The Record**  
Andy Cadier, 28 Romney Avenue, Folkstone, Kent CT20 3QJ. E-mail: off.the.record@pwpublishing.ltd.uk

**Propagation**  
Jacques d'Avignon VE3VIA. E-mail: jacques@pwpublishing.ltd.uk

**Satellite TV News**  
Roger Bunney, 35 Grayling Mead, Fishlake, Romsey, Hampshire SO51 7RU. E-mail: roger.bunney@pwpublishing.ltd.uk

**Scanning**  
Dave Roberts, c/o SWM Editorial Offices. E-mail: scanning@pwpublishing.ltd.uk

**ShackWare**  
Jerry Glenwright, 16 Copeman Street, Norwich, Norfolk NR2 1HH. E-mail: shackware@pwpublishing.ltd.uk

**SSB Utilities**  
Graham Tanner, 64 Attlee Road, Hayes, Middlesex UB4 9JE. E-mail: ssb.utilis@pwpublishing.ltd.uk

## SWM Author Info

**Cover subject:** The IC-R3, the latest hand-held featuring video receive is finally available in the UK and reviewed first by SWM.

**Check out the SWM web site [www.pwpublishing.ltd.uk/swm](http://www.pwpublishing.ltd.uk/swm)**  
Join in with the on-line action on the SWM Readers' E-mail Forum - send an E-mail to [swm\\_readers-subscribe@yahoogroups.com](mailto:swm_readers-subscribe@yahoogroups.com) to subscribe.



**EDITOR:**  
Kevin Nice, G7TZC, BRS95787

**NEWS AND PRODUCTION EDITOR:**  
Zoë Shortland

**ART:**  
Steve Hunt  
Bob Kemp

**EDITORIAL ADDRESS:**  
Arrowsmith Court, Station Approach,  
Broadstone,  
Dorset BH18 8PW  
**Telephone: (01202) 659910**  
**Facsimile: (01202) 659950**

If you wish to send E-mail to anyone at SWM then our Internet domain name is: [pwpublishing.ltd.uk](http://pwpublishing.ltd.uk)  
Simply add the name of the person you wish to contact.  
For example:  
[kevin.nice@pwpublishing.ltd.uk](mailto:kevin.nice@pwpublishing.ltd.uk)

**Web site:**  
[www.pwpublishing.ltd.uk/swm](http://www.pwpublishing.ltd.uk/swm)

**BOOKS, BACK ISSUES & SUBSCRIPTIONS (ALL ORDERS)**  
**(01202) 659930**  
**(Out-of-hours service by answering machine)**

**ADVERTISEMENT DEPARTMENT**  
(Broadstone)  
**ADVERTISING SALES:**  
Chris Steadman MBIM

**ADVERTISEMENT TYPESETTING & PRODUCTION:**  
Peter Eldrett  
**Telephone: (01202) 659920**  
**Facsimile: (01202) 659950**

**ADVERTISEMENT MANAGER:**  
Roger Hall G4TNT  
PO Box 948, London SW6 2DS  
**Telephone: 020-7731 6222**  
**Facsimile: 020-7384 1031**  
**Mobile: (07885) 851385**

## 22 SSB SPECIAL

In this year's 'SSB Utilities' Special, Graham Tanner concentrates on just one particular aircraft type, and provides a complete list of KC-10A selcall codes.

## 26 SSB UTILITIES - THE COLUMN

Graham has news of a new GHFS station which has opened, as part of the 'Scope Command Network', as well as information of the five groups of frequencies available in the NAT Systems.

# SSB utilities Special



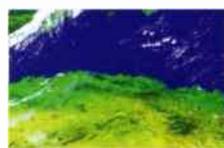
**WIN RAIT TICKETS PAGES 24 & 25**



**The Royal International Air Tattoo 2001 - 28/29th July 2001**  
**15 pairs of tickets to be won...worth £870!**  
**Turn to page 24 to see how to enter this great competition, and you too could be 'jetting' off to Europe's biggest airshow.**

## regular columns

Airband .....54	Info In Orbit .....58	QSL .....7
Amateur Bands .....56	LM&S .....10	Rallies .....9
Bandscan Australia .....15	Maritime Beacons .....72	Satellite TV News .....64
Book Listing .....74	MilAir .....51	Scanning .....47
Communiqué .....8	Off The Record .....73	SSB Utilities .....26
Decode .....70	Order Form .....78	Subscription Offer .....45
DXTV .....63	Propagation Extra .....69	Trading Post .....77
Editorial .....6	Propagation Forecast .....68	What's In PW/RA .....42



### COMING NEXT MONTH IN SWM JULY 2001

- \* Spectacular Scanning Special
- \* Yaesu VR-5000 - The Definitive Review
- \* Alinco DJ-X2000 Review
- \* JW on a Single Valve Kit
- \* Multi-band HF Antennas

\* Plus all those regular essentials to keep you updated

\*contents subject to change

**Telephone**  
**(01202) 659930**  
*The quickest & most comprehensive radio-related book service in the UK!*

© PW PUBLISHING LTD. 2001.

Copyright in all drawings, photographs and articles published in *Short Wave Magazine* is fully protected and reproduction or imitation in whole or in part is expressly forbidden. All reasonable precautions are taken by *Short Wave Magazine* to ensure that the advice and data given to our readers is reliable. We cannot, however, guarantee it and we cannot accept legal responsibility for it. Prices are those current as we go to press. *Short Wave Magazine*, USPS No. 006996, is published monthly for £36 (UK) per year by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Second Class Postage paid at South Hackensack, Postmaster: Send USA address changes to Royal Mail International, c/o Yellowstone International, 2375 Pratt Boulevard, Elk Grove Village, IL 60007-5837.

**DISCLAIMER:** *Short Wave Magazine* wishes in no way to either condone, or encourage, listeners to monitor frequencies and services which are prohibited by law. We respectfully refer you all to both the Wireless Telegraphy Act 1949, and the Interception of Communications Act 1985. Some of the products offered for sale in advertisements in this magazine may have been obtained from abroad or from unauthorised sources. *Short Wave Magazine* advises readers contemplating mail order to enquire whether the products are suitable for use in the UK and have full after-sales back-up available. The Publishers of *Short Wave Magazine* wish to point out that it is the responsibility of readers to ascertain the legality or otherwise of items offered for sale by advertisers in this magazine.



## SWM Services

### Subscriptions

Subscriptions are available at £36 per annum to UK addresses, £43 in Europe and £48 (Airsaver), £54 (Airmail) overseas. Subscription copies are despatched by accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both *Short Wave Magazine* and *Practical Wireless* are available at £60 (UK), £73 (Europe) and £81 (rest of world), £93 (airmail).

### Components For SWM Projects

In general all components used in constructing SWM projects are available from a variety of component suppliers. Where special, or difficult to obtain, components are specified, a supplier will be quoted in the article. The printed circuit boards for SWM projects are available from the SWM PCB Service, **KANGA PRODUCTS, Sandford Works, Cobden Street, Long Eaton, Nottingham NG10 1BL. Tel: 0115 - 967 0918. Fax: 0870 - 056 8608.**

### Photocopies & Back Issues

We have a selection of back issues, covering the past three years of SWM. If you are looking for an article or review that you missed first time around, we can help. If we don't have the whole issue we can always supply a photocopy of the article. Back issues for SWM are £3.25 each and photocopies are £3.25 per article. Binders are also available (each binder takes one volume) for £6.50 plus £1 P&P for one binder, £2 P&P for two or more, UK or overseas. Prices include VAT where appropriate.

A complete review listing for SWM/PW is also available from the Editorial Offices for £1 inc P&P.

### Placing An Order

Orders for back numbers, binders and items from our Book Store should be sent to: **PW Publishing Ltd., FREEPOST, Post Sales Department, Arrowsmith Court, Station Approach, Broadstone Dorset BH18 8ZZ**, with details of your credit card or a cheque or postal order payable to PW Publishing Ltd. Cheques with overseas orders must be drawn on a London Clearing Bank and in Sterling. Credit card orders (Access, Mastercard, Eurocard, AMEX or Visa) are also welcome by telephone to Broadstone (01202) 659930. An answering machine will accept your order out of office hours and during busy periods in the office. You can also FAX an order, giving full details to Broadstone (01202) 659950. The E-mail address is [bookstore@pwpublishing.ltd.uk](mailto:bookstore@pwpublishing.ltd.uk)

### Technical Help

We regret that due to Editorial time scales, replies to technical queries cannot be given over the telephone. Any technical queries by E-mail are very unlikely to receive immediate attention either. So, if you require help with problems relating to topics covered by SWM, then please write to the Editorial Offices, we will do our best to help and reply by mail.

# ed's comments



## Impartiality

Unfortunately we seem to have offended Jaz Long - see 'QSL' on the facing page. I'll answer his letter here as there's not enough room next door.

Jaz, many thanks for your observations. I'm not entirely sure you have correctly interpreted the comments of the regular authors to which refer.

Regarding the mention of colour made by Paul Essery, this is quite obviously a reference to Denco coils who's specification was denoted by the colour of the former on which they were wound. As for Paul's delivery, well that's his style - like it or not.

I suggest that the phrase "contentious reactionary drivell" is indeed an example of you adopting the very same behaviour of which you are accusing Paul. Reflect a while and consider this, a one valve receiver can indeed do what is achieved these days by many hundreds, no thousands of semiconductor junctions - fact! Hardly contentious, reactionary or drivell. One of the points consistently made by Paul in his 'Amateur Bands' column is the very one you also make, i.e. the start-up costs for someone entering this terrific hobby we share, do not have to be high.

The simplest, though not readily portable, nor accurately and repeatably tuned, is the single valver. I personally wouldn't give one sustained use due to their limitations. My main interest is utility listening, with an emphasis on monitoring digital signals. This requires a stable receiver with dial readout to a minimum of 10Hz and selectable filtering and accurate b.f.o. offset display and...well you get the idea. So a one valver, no matter how good is unsuitable, but there's no doubting they do perform - just ask Ron Pearce!

Right then, what point am I trying to make here? Well, if you want a cheap entry receiver, the range of choice is huge. There are as many solutions as there are varied requirements. If you require a battery powered portable - analogue or synthesised, a small desktop set, a single or multiple valved receiver, then they are all out there. Every radio receiver ever conceived has its limitations. It's right here within these pages, we attempt to make these limitations obvious and clear.

This is particularly true of John Wilson's regular contributions. Read carefully and you'll pick up on the subtext of each feature that John writes. There is much more than just a few pages of comments about the specific radio under examination. Indeed, John's style is to call upon his vast knowledge and experience of the hobby and professional radio market, the product range past and present, utilise this knowledge and experience to make comparisons and comment regarding methodology and design of radios under investigation. This is done from the standpoint of the 'typical' reader of SWM. We

specifically pitch it this way and I believe that John's offering are presented in an even handed and unbiased way. We all have our favourites, for both technical and emotional reasons, but this should not detract from impartial advice regarding readers' choice. This is one of the foundations on which *Short Wave Magazine* - this very magazine, is built on.

## Anniversary Celebrations

Lastly news just in, a bit late to catch the main news in the 'Communiqué' section. Sunday 27 May will see the Museum of Submarine Telegraphy celebrating the 60th anniversary of the Second World War Underground tunnels in which it is housed.

Porthcurno was a vital centre of communications during WWII, when the internal telephone network that linked the countries of the then British Empire was operated by Cable & Wireless. Porthcurno was the most important station on their 568,000km cable and radio network.

Due to the risk of attack severing Britain's communications with the outside world, C&W built an underground telegraph station. Construction of the tunnels commenced in June 1940 and was completed during May 1941.

In addition to the regular war-time displays, there will be archive film shows, special talks and exhibits to give visitors a real flavour of life during the war and the special role that Porthcurno, near Lands End, played.

Brian Fraser-Harris, son of WWII gadget wizard on whom the James Bond character 'Q' was based, Charles Frazer-Smith, will be giving an illustrated talk at 1200 and 1500. He will bring along some of his father's gadgets. Brian will also be showing a film of gadgets used in Colditz.

To add to the 1940s atmosphere, there will also be some British and American war-time vehicles displayed adjacent to the museum.

Additionally there will be some other special activities on both 26 and Monday 28 May. Visitors can also see 'The Flying Telegraph - Pigeons at War' exhibition.

For a full timetable of events contact the museum's website [www.porthcurno.org.uk](http://www.porthcurno.org.uk) or 'phone the museum on (01736) 810966.



WV 73 Kevin

**Dear Sir**

Like you I've been impressed with WorldSpace especially as the BBC can't get reliable digital terrestrial radio to us, yet I can listen to other countries efforts via Afristar. At least I was happy until Spring brought the leaves onto the trees and stopped the signal getting through. As well as the trees, I am further North than you so I'm going to have to put an outside antenna up high for use for nine months of the year at least.

I know that Haydon Communications and others have a Yagi for the WorldSpace service, but do you know anything about performance? I'm particularly interested in how directional the Yagi is, I doubt if it would match the 80° area of the flat antenna. Adjusting antennas on top of a 3m mast bolted to the eaves of the house loses its attraction as one gets older.

P.S. No I can't lop the trees - they're protected.

**John Loader  
Fordingham**

*Sorry to hear of your problem John. I wonder if you have an alternative 'window' through or around the obstruction. If so you could save the expense of the Yagi. As for beam width, the higher gain, my estimate 4-6dB, is a function of a reduced beam width. Once aligned however, then that should be it. Please note that with satellite antennas, height above ground is not really important. The issue is ensuring a non-interrupted view of the satellite. I personally would try using the standard antenna from outside of an upstairs window before parting with any money - Ed.*

**Dear Sir**

A magazine that truly inspires, keep it up. I must comment on your letter (QSL of the month) that guy really must keep us all updated on his progress, in fact, give him a column, he's hilarious. It takes me back to days of my first receiver, a Yaesu FRDX-400 - what a model that was.

I have used the Sony 2001D, not bad, Codar CR70A; Sony (well it had a b.f.o. and turret tuner) and a Grundig all singing all dancing, yet nothing compares to the beautiful crystal clear sound of the valve radio that was my '400DX booming in on 80m and 20m - nothing compares, and what about the sound of the AR88, Cor!

As for scanners, I have had a few - airband is

fascinating. I have had an Icom and Yupiteru and yet none compare to good old Tandy's PRO-26 with a double conversion superhet. What a receiver, just put it on airband and let it do the work.

I was put off by the IC-R1 and the amount of functions it had. The instructions were daunting and I remember when adverts for scanner radios looked the part - the classic Uniden; Bearcat; "Listen To A Thousand Lives Tonight!" Are we losing sight I wonder of the essence of our hobby? Ever tried wiring a no 19 tank set to the mains? I did - what a bang...

**Tony Topping**

**Dear Sir**

Can I please add a Bravo Zulu (B-Z) to one of your American advertisers - Computer Aided Technologies (April SWM, page 76).

I own an Optocom computer driven receiver and find the supplied Trackstar software very user friendly as I rang up CAT in Louisiana on Friday afternoon, received a very knowledgeable reply to my queries and after ordering their software by Visa, I had it through the post on Tuesday. I was even offered a free trial on the Internet, but having no access, I declined.

What also impressed me was the user friendly spiral bound instruction manual, which came with the CD. I've lots of playing to find out everything it can do (which is a lot), but the service and product have proved to be first class. B.Z.

**Rodney Wild  
Portland**

**Dear Sir**

The letter from Hugh Neal (SWM April) strikes a chord with me as I share his frustration with modern button push radios. I have a Kenwood R-1000 bought from David Brown in Carlisle and with David's help and support I rediscovered the pleasure of short wave listening after a break of 40 odd years. The Kenwood is a simple radio, a delight to use and a good performer, with my end fed wire up to a tree in the garden.

I also have a Yupiteru MVT-7000 which I hoped to use for airband scanning as there is a lot of commercial air activity in this area. It is a technical wonder with so much packed into a small space, but I simply cannot get my head

around to it to operate it at anywhere near its potential. I have decided that the way forward for me is a wide coverage receiver which will give me u.h.f. and v.h.f., most importantly I want a radio with knobs on and preferably an analogue 'S' meter.

Like Hugh Neal, I use computers at work and can cope with mobile phone and video recorder, but I shall in future try to avoid equipment with a multitude of multi-function buttons as the only means of operation. I can understand the designers desire to demonstrate their extreme cleverness, but they should stop and consider that their creations ought to be capable of operation by anybody and that the ability to cram a mass of functions into a piece of equipment is not in itself a reason to do so.

**T. Taylor  
Derbyshire**

**Dear Sir**

Having just returned from a long stay in New Zealand and Australia, travelling light with just a Sony ICF-SW100 and 6m of wire in my rucksack, its been my pleasure to read through the pile of SWMs which has accumulated in my absence. However, I couldn't let Paul Essery's response to a letter from Mr McLellan of NSW (SWM November 2000) pass without comment.

In this letter, Mr McLellan expresses the opinion that there is too much coverage of old valued receivers in SWM. In his 'Amateur Bands' column, (January 2001), Mr Essery attributes a viewpoint neither stated nor implied in the original letter, that older receivers are less sensitive than solid state sets. He then follows this with a sarcastic comment, presumably meant to imply a lack of knowledge on Mr McLellan's part.

I can only assume that Paul Essery simply did not read the original letter before setting out to insult the writer! This is sloppy journalism, for which there can be no excuse. In the November 2000 issue, Mr Essery is quoted as saying "there's nowt that a single valve can do that can't be done nearly as well by a score of i.c.s plus a couple of hundred discrete transistors". Does SWM really need someone who writes such contentious reactionary drivel?

Just for the record, I don't agree with Mr McLellan's sentiments. I enjoy reading about older receivers, maybe I'll even own one someday. But just now - let's hear it for what Mr Essery (and John Wilson) dismissively refer to as

'black boxes'. These offer a decent performance to cost ratio, and the £120 Sangean/Grundig portables (or for a little more, HF3S or DX-394) are surely the way into the hobby for newcomers of all ages - my first 'proper' radio was the ATS-818 (and I'm not well off, so it still is), which I've had great enjoyment from. I'm sure the Collins 51S-1 is an excellent receiver, but could I afford it if you translate that £1800 into today's prices? I think not. It would have made my backpack that much heavier, too.

**Jaz Long  
Shropshire**

*Please see 'Ed's Comments' on page 6 for my reply to this letter. - Ed.*

**Dear Sir**

Well, Spring is here, out with all the garden tools, fine weather, birds singing and there's something missing, eh - oh yes...the start of the sporadic E season. What a brilliant time of year, especially for the TVDXer, waking up on a late May morning switching on the TV, signals from all over Europe - SVT from Sweden on channel E2 YLE from Finland on E3 Slovenia on E4 plus a batch of unidentified stations...with that funny text again, from somewhere out East.

It will never stop amazing me why DXTV has a small following, the rewards to the radio hobbyist are endless - it can even be done in total silence!

I cut my teeth back in 1990 after reading SWM. I always thought that messing about with the 'back of the telly' was asking for an appointment to meet your maker, but in that issue was an advert for a little box of tricks called a D100, the hairs on the back of my neck were up. I had done some DXing in the past picking up such exotics as 'Anglia' and 'Yorkshire' which is not to be laughed at living on top of a hill in Nottingham, but this machine was going to put me up with the big boys, move over Roger Bunney, I'm coming in.

So I sent off for one, no antenna mind! What - an antenna? What for? (Believe it or not I now hold a full amateur radio licence, but please don't publish my callsign as I wish to remain a member of the RSGB).

Anyway, where was I? Yes, this thingy'm'jig turns up a few days later, I open it up, read the instructions - very well presented I might add - and plug it in to a u.h.f. set top antenna. Bingo! TVE 1 from Spain full colour and sound, well, not quite.

So I turned to the Book Store in SWM and ordered several books on the subject and phoned 'DXTV' co-columnist Garry Smith for advice on hardware. Garry was extremely helpful and before long I was up and running for very little capital outlay.

It was a very educating hobby, through it I learned about propagation plus many other things that I thought were too technical for me. Everyone, I mean everyone, I came across in this hobby were very helpful, nothing was too much trouble.

It's now 2001, eleven years on. I have another hobby now - amateur radio. It's no better than DXTV, just different. There are no ladders of success, one section of this hobby is no better than any other. It's all about what you enjoy.

So why not give DXTV a try? You don't need a massive antenna system, a simple dipole will do for SpE! and with it being the solar maximum, the world is your oyster thanks to F2, and what about those Tropospheric openings into Europe...the list goes on.

Yes, Spring again, time for things anew, I think I'll just pop up to the attic to see if I can find some old gear. Now where did I put that old Band 1 antenna?

**Carl Bowen  
Nottingham**



Is there something you want to get off your chest? Do you have a problem fellow readers can solve? If so then drop a line to the Editor at QSL, Short Wave Magazine, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. THE BEST LETTER WILL RECEIVE A £20 VOUCHER TO SPEND ON ANY SWM SERVICE.

# Communiqué

News & Products



## Portable Communication

The new RS446 2-way hand-held radios from **Tecstar Electronics Limited** are ideal for keeping in touch with colleagues around the workplace, or family and friends when at leisure for just £89 per pair (excludes VAT and P&P). Compact and lightweight, yet sturdy, the radios don't need a licence and you don't pay as you go - just press the button and talk.

Transmission distance is up to two miles, depending on terrain, and any number of radios can be used together. The radios will provide invaluable communications aids at, for example, sports events, fetes, rallies or while at the office or factory floor. Other applications include security, gardening and cycling. In fact, in almost all situations, a portable radio adds convenience and contact.

Other features of the RS446 hand-held radio includes: eight channels, call alert button, keypad lock, auto-battery save, backlit l.c.d. display showing volume level, channel number, sub channel number and battery level, scanning mode enabling a base (or mobile) position to monitor several radios on different channels, use of CTCSS tones to provide 302 combinations of user selectable sub channels virtually eliminating talk-over and an accessory socket for external headphones.

The radios require four AAA batteries and are supplied with a belt clip. An optional charger and rechargeable battery kit is also available. More information from Tecstar Electronics Ltd. at **1 Nuffield Road, St Ives, Huntingdon, Cambs PE27 3LX**, Tel: (01480) 399503, FAX: (01480) 399503 or E-mail: [sales@tecstar.co.uk](mailto:sales@tecstar.co.uk)

## Low Frequency Antenna

Many short wave listeners have discovered that the long wave bands are not 'dead'. On the contrary, the long wave spectrum from 9-520kHz is filled with lots of interesting stations: sub-marine communication and other military stations, time and frequency calibration signals, positioning systems, like LORAN, hundreds of non-directional beacons, NAVTEX, mains connected intercoms, long wave a.m. broadcasting, the amateur bands at 73kHz (UK) and 136kHz, differential GPS (DGPS) stations, lowfers and the GWEN (groundwave

## Special Event

The centenary of the first Coast Wireless Stations will be celebrated on Saturday 30th June when members of the **Dragon Amateur Radio Club** on the island of Anglesey run their Special Event Station **GB100HD** from the site of the 1901 wireless station situated at Holyhead. This is an international event celebrating the important and pioneering work of the inaugural Coast Wireless Stations.

Ten stations were set up in 1901, around the coasts of UK and Eire, by the Marconi Wireless Telegraph Co. Ltd. These stations operated the first service for shipping, enabling faster reporting of vessels to Lloyds and ship owners.

Safety of vessels and their crews was greatly improved by the introduction of wireless aboard ships, being otherwise out of contact with land. Masters were able to call for medical advice in case of accident, for help in times of distress and communicate with other ships nearby, co-ordinating rescue attempts saving thousands of lives.

The ten sites of 1901 wireless stations will be activated on both 80 and 40m during the daytime of Saturday 30th June and will QSL only upon request. Amateurs wishing to obtain the special certificate available as a permanent record of this unique centenary, should apply to: **GW3PRL, QTHR**, Tel: (01248) 430848. Submitting at least four QSL cards (s.w.l.s certified log extract) and a minimum of £4 donation to the funds of the Royal National Lifeboat Institution.

**Holyhead Coast Wireless Station 1901 - showing the house where the station was situated and the 45m mast in adjacent grounds.** Photo courtesy of Archives of Marconi PLC.



Emergency Network) in the USA, weather data stations, control stations for streetlighting and so on.

Although most receivers have a frequency range starting at 30kHz, often only stronger stations are heard. The reason being that long wave reception requires special antennas. Normal long or random wire antennas receive due to their limited height and wrong impedance matching, only stronger stations over short distances.

Enter the LFA 520 - derived from a professional antenna developed by **RF Systems** for the same frequency band - it also has extremely high specifications. The E-field probe-amplifier inside the antenna, as well as the filter inside the d.c. adapter, reject the strong medium and short wave broadcast signals, in order to overcome the problem of overload of the receiver.

Find out more about the LFA 520 antenna from RF Systems - contact **Haydon Communications at Unit 1, Thurrock Commercial Park, Purfleet Industrial Estate, London Road, Nr. Aveley, Essex RM15 4YD**, Tel: (01708) 862524, FAX: (01708) 868441 - the LFA 520 retails at £199.

## The Race Is On!

More than 30 yachts are expected to take part in this year's **25th North Sea Yacht Race**. The yachts will



cross the starting line at Scarborough Lighthouse at 2030 on Friday 13th July and will race to Ijmuiden in Holland, a distance of some 210nm. The fastest racers are expected to cross the finish line on the Sunday morning. The **Scarborough Special Events Group** will be active as **GB2SEA** from a location overlooking the start line, for 14 days commencing the weekend of 7th July.

A full colour souvenir QSL card of the yachts will be issued to commemorate the occasion and activity will be mainly in the 40m band, using s.s.b. and c.w. Short wave listener reports are very welcome and QSL cards can be sent via the Bureau or direct to club call G0000

## Village Fun Day

The **Lorn Radio Amateurs**, Oban, Argyll, are holding a Special Event Station for Dalavich Village Fun Day on **12th August 2001** - using the club callsign **GS0LRA** (daytime operating). More information from **Shirley GM0ERV** on (01631) 566518 or **John GM8MLH** on (01838) 200304.

## Supporting Sunseeker

**Icom (UK) Ltd.** has recently supplied v.h.f. radio communication equipment to Sunseeker XS Racing in the support of their successful world endurance powerboat speed attempts in Dubai. Icom supplied six of its best water resistant IC-M3Euro v.h.f. hand-held transceivers, which allowed the crew of the record breaking boat, the Sunseeker XS 2000, to communicate effectively with shore based crew and officials.

The crew, all from Hampshire, comprised Ian Sanderson, Peter Dredge and P.J. Stevens. They covered 636nm of Arabian Gulf waters in 24 hours during the weekend of 20-21 January 2001. At the end of this marathon, the team were able to claim new six hour and 24-hour world endurance speed records for offshore craft in a standard production Sunseeker XS 2000 powered by Tanmar engines. Despite seven fuel stops, wind speeds



## Smart Antenna Wins Funding

Cambridge based Antenova has secured £3.4m of venture capital to fund its 'smart' directional antenna technology for mobile communications, from a consortium led by Cambridge Gateway Fund. The company's breakthrough technology has the potential to multiply the capacity of third-generation networks while simultaneously shrinking the size of 'phone hand-sets and base stations. It additionally minimises any risks to health from r.f. radiation by blocking transmissions in the direction of a user's head - or in the case of base stations, sensitive nearby locations such as schools.

The venture capital consortium comprises Cambridge Gateway Fund, NIF (Nippon Investment Fund), Qvester, FNI - the fund of the Nixdorf family - and the venture arm of the telecommunications consultancy Analysys. Alan Barrell of Cambridge Gateway Fund and Jamie Brooke of Qvester join the Antenova board of directors.

The funding round will allow Antenova to develop prototypes of its product ideas, which include antennas for 2, 2.5 and 3G mobile 'phones and base stations, and micro-miniature antennas for the fast-growing Bluetooth market. The company's first working prototypes should be available before the end of 2001.

Antenova owns the intellectual property to a directional and steerable antenna for wireless communications developed at the universities of Sheffield, UK and Griffith (Brisbane), Australia. The technology significantly increases performance - and dramatically reduces size and power consumption - by providing a completely solid-state solution for controlling the direction of transmissions. Based on new materials and principles of operation, it enables designers to greatly enhance performance at higher frequency bands that are coming into use with international standards such as Bluetooth and 3G.

Because the antenna is electronically steerable, it allows the capacity of communications networks to be multiplied by means of spatial multiplexing - transmitting in specific segments rather than radially - making the huge prices paid for 3G frequency spectrum much better value for example.

For further information please access [www.antenova.com](http://www.antenova.com) or contact **Graham Cooley, Antenova Ltd., Tunbridge Court, Tunbridge Lane, Bottisham, Cambridge CB5 9DU, Tel: (01223) 810600, FAX: (01223) 810650** or E-mail: [information@antenova.com](mailto:information@antenova.com)



**Graham Cooley of Antenova (left) and Alan Barrell of Cambridge Gateway Fund.**



touching Force Eight gale and high sea, the team were still able to achieve an amazing average 26.53kt for 24 hours!

Thanking Icom (UK) Ltd. for their support, Ian Sanderson said, "Even though they had to put up with constant impact stress from running at high speed in bad weather, they worked perfectly for the 24 hours. To reach world record level in any sport, you need the best of everything, people and equipment. Icom has the right technology and quality of equipment to be part of this world record winning team".

## Need Support?

Does your test meter keep on falling over, even if it is fitted with a plastic holder? If so, then now could be the time to purchase a sturdy, metal SSE Test Meter Holder. Newly available from **Solid State Electronics, the TMH-2001 Multimeter Stand** is safe and secure, easy to use, fully adjustable and is a great, convenient support.

Costing £14.25 for the large model - 135 (L) x 95 (W) x 95mm (H) and £13.25 for the small model - 100 (L) x 90 (W) x 80mm (H), this could be the ultimate support for your meter. Contact Solid State Electronics (UK) at **6 The Orchard, Bassett Green Village, Southampton SO16 3NA, Tel: 02380 769598, FAX: 02380 768315, E-mail: [solidstate@ssejim.co.uk](mailto:solidstate@ssejim.co.uk)** or visit their web site at [www.ssejim.co.uk](http://www.ssejim.co.uk)



## rallies

**May 27:** The Stirling and District Amateur Radio Society are holding their rally in the Menstrie Scout Hall. Jaycee Electronics and Tennastat will also be attending. For all details, contact **Brendan Coan GM0BWR** on (01259) 761299 or E-mail: [gm0bwr@btinternet.com](mailto:gm0bwr@btinternet.com)

**June 3:** The Mid Lanark Amateur Radio Society are holding a ham radio tram ride event. Taking place at Summerlee Heritage Park, Heritage Road, Coatbridge, North Lanarkshire ML5 1QD, Scotland. Features will include radio traders, Bring & Buy, catering, parking and talk-in on S22. For table bookings contact **Kate Dargie** on (01236) 431261 or FAX: (01236) 440429. For more information contact **John Neary GM0XFK** on (01698) 822860.

**June 10:** The Windermere Steamboat Museum Amateur Radio Society are holding a mobile radio meeting. This is a new event celebrating the users of mobile radio in the Lake District, with exhibits by Army, Air Force, Police, Fire, Mountain Rescue Teams and Park Rangers, set against the Museum's exhibits of working steam launches. A great family attraction. All users, or those who have an interest in mobile radio, are invited to attend, bring your radio with you! Gates open at 1000 and admission to the museum is £3.50. **Roy GOTAK** on (01253) 862262.

**June 17:** The Newbury & District Amateur Radio Society are holding a Boot Sale at the Acland Hall & Recreation Field, Cold Ash, Newbury, from 0900 'till 1500. There will be a talk-in on S22. More information from **George Cook** on (01488) 682814 or visit <http://www.nadars.org.uk>

**June 17:** The Leeds & District Amateur Radio Society are holding their twice yearly traditional outdoor rally and car boot sale at the Yarmbury Rugby Club, Brownberrie Lane, Horsforth, Leeds. There will be plenty of free parking for buyers. More details from **J. Mortimer M0JAM** on (01943) 874650.

**June 24:** The Bangor and District ARS are holding their summer radio rally at: Crawfordsburn Country Club, which is near Bangor, County Down. A good selection of radio and computer traders will be in attendance. The always excellent Bring & Buy will be in operation. Doors open at 12 noon and admission is £2. Further details from **Norman G13YMY** on (0289) 146 6557 or E-mail: [normannewell@beeb.net](mailto:normannewell@beeb.net) or visit <http://welcome.to/bdars>

## CLUB CORNER

**The Horndean & District Amateur Radio Club** meet on the 1st and 4th Tuesday of each month at Lovedean Village Hall, 160 Lovedean Lane, Lovedean, Hants. Meetings start at 1930 and visitors are most welcome. There is a club social evening on June 5th, and on June 9/10th - a Special Event Station **GB2CC** is being held at the Clanfield Carnival. More information from **Stuart Swain G0FYX**, Club Secretary, on 0239-247 2846 or E-mail: [g0fyx@msn.com](mailto:g0fyx@msn.com)

**The Bangor & District Amateur Radio Society** meet on the 1st Wednesday of each month at 'The Stables', Groomsport, County Down at 2000. On Wednesday 6 June there is a Chairman's Evening and Wednesday 13 June the club are holding their annual BBQ. Also, **don't forget** their summer radio rally, held on **Sunday 24th June** - see 'Rallies' for more details. More information from **Mike G14XSF** on 0284-277 2383 or visit the club's website at <http://welcome.to/bdars>

Members of the **Wrexham Amateur Radio Society** meet on the first and third Tuesday at Maesgwynn Community Hall, off Lilac Way, in Wrexham, from around 1930 for a 2000 start. For more information, including a detailed map, please visit [www.qsl.net/wars](http://www.qsl.net/wars) or E-mail **Mark Harper 2W1MDH** at [mark\\_harper@bigfoot.com](mailto:mark_harper@bigfoot.com) The web site is currently under re-construction, and may not be finished when you visit. Also, the Wrexham ARS are attending the National Museum's Weekend and will be broadcasting from a site based at the Dr Who Experience in Llangollen, where members of the club will be operating the Special Event Station - callsign **GN2WHO** - a web site is set up, visit this at [www.qsl.net/gb2who](http://www.qsl.net/gb2who)

**The Trowbridge & District Amateur Radio Club** are hosting a talk on June 6th by **Bob Woolridge G7LNI** entitled 'Restoration of vintage wireless/test equipment' at 2000 at the club venue. Visitors most welcome. More information from **Ian Carter G0GRI** on (01225) 864698.

**The Avon Valley Amateur Radio Association** (AVARA) meet every other Friday at 2000 at Evesham Road, Norton, Evesham, Worcestershire, catering for amateur radio, CB radio, etc. More information from **Peter G0WXJ** on (01905) 726740.

■ BRIAN ODDY G3FEX, THREE CORNERS, MERRYFIELD WAY, STORRINGTON, WEST SUSSEX RH20 4NS

# LM&S



To compensate for seasonal changes in propagation many of the international broadcasters altered their short wave transmission schedules on March 25. The s.w. data herein is based upon reports of actual reception during March but some of the entries were rendered 'no longer applicable' by the changes and were omitted to keep 'LM&S' as up-to-date as possible.

The changes which Swiss Radio International (SRI) made to their schedules were the most surprising of all! They intend to gradually discontinue their s.w. broadcasts with no further programmes after the end of 2004; also to reduce their satellite broadcasting, retaining only the English service.

The s.w. services from SRI will be discontinued in three stages:-

(A) Western part of N & C.America and Australia by 24 March 2001

(B) Europe, Asia and the remainder of N & C.America by 27 October 2001.

(C) Near East, Africa and S.America by the end of 2004.

Instead, SRI will rely upon the Internet to reach their listeners. Provided a suitable computer with sound attachments, the necessary software and a telephone line is available it will be possible to receive text, sound and pictures from SRI anywhere in the world, 24hrs a day. News of what is happening in Switzerland is available now in eight languages via their on-line service:

[www.swissinfo.org](http://www.swissinfo.org)

However, many thousands of people, some in very remote areas of the world, who have enjoyed listening to the s.w. broadcasts from SRI, will no longer be able to receive them. Hitherto, an inexpensive battery powered portable set was all that was needed but now an expensive computer plus accessories will be required. One can only wonder if the SRI proposals really are the way ahead? Why not let them know your views by writing to them at: **Swiss Radio International, CH-3000 Berne 15, Switzerland.**

## Long Wave Reports

Note: l.w. & m.w. frequencies in kHz; s.w. in MHz; Time in UTC (=GMT). Unless otherwise stated, all logs were compiled during March.

At 0145UTC on March 14 a broadcast from Tbilisi.

Georgia was heard faintly on **189kHz** by **Ernie Strong** (Ramsey, Cambs) for a period of about 15 minutes. At best the 500kW transmission rated SINPO 22222.

A slight lift in the propagation conditions was observed after 2200UTC on March 27 & 31 by **Thomas Williams** (Truro), when the broadcasts from Rikisutvarpid (RUV) in Reykjavik via their 300kW outlet at Gufuskalar, W.Iceland on **189kHz** became faintly audible.

## Long Wave Chart

Freq (kHz)	Station	Country	Power (kW)	Listener
153	Bechar	Algeria	1000	D*,F
153	Donebach DLE	Germany	500	A*,B*,C,D
153	Bod	Romania	1200	D*
162	Altois	France	2000	B,C,D,E*,F
171	Nador Medi-1	Morocco	2000	D
171	B'shakovo etc	Russia	1200	A*,C*
171	L'vov	Ukraine	500	D*
177	Oranienburg	Germany	500	A*,B,C,D,F
183	Saarlouis	Germany	2000	B,C,D,E*,F
189	Gufuskalar	W.Iceland	150	D,E*
189	Tbilisi	Georgia	500	D*
198	Oroitwich BBC	UK	500	B,C,D,F
207	Munich DLF	Germany	500	A*,C,D*,E*,F
207	Azilal	Morocco	800	D
216	Roumoules RMC	S.France	1400	B,C,D,F*
225	Polskie R-1	Poland	?	A*,B,C*,D,F*
234	Beidweiler	Luxembourg	2000	B,C,D,E*,F*
243	Kalundborg	Denmark	300	A,B,C,D,F*
252	Atlantic 252	Eire	500	C,D,F*
261	Burg(R.Rope)	Germany	85	A*,C,D*
261	Taldom Moscow	Russia	2500	B,D*
270	Tapolna	Czech Rep	1500	A,B*,C,D,F*
279	Sasnovy	Belarus	500	A*,B,C*,D,F*

Note: Entries marked \* were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

### Listeners:-

- (A) Simon Hockenull, E.Bristol.
- (B) Sheila Hughes, Morden.
- (C) George Millmore, Wootton, I.W.
- (D) Ernie Strong, Ramsey, Cambs.
- (E) Thomas Williams, Truro.
- (F) Fred Wilmshurst, Northampton.

(SINPO 21131); also WAZD Adel, GA on **1690** (22121). Weak modulated carriers were heard on **1640 & 1660kHz** but no idents could be obtained.

Writing from Canada **Michael Stonebridge** (St.Isidore) says "Trans-Atlantic reception from my home here in Northern Alberta is now over for another season as the very long daylight hours are fast approaching. Considering the high sunspot count this past season, it wasn't as bad as I had expected with seven new stations and one new country being heard". He sends thanks to **Bernard Curtis**, **Geriant Gill** and **Richard Reynolds** for suggesting that the station he heard on **1386kHz** was Bolshakovo, Russia with a programme from Essex based LBH Radio (see 'LM&S', *SWM* April 2001).

Some of the listeners who searched the band after dark for the sky waves from m.w. stations in the Middle East, N.Africa, Europe and Scandinavia compiled quite extensive logs - see chart. However, intense solar activity affected reception at times. In E.Bristol, **Simon Hockenull** observed that Kvitsoy, Norway on **1314kHz**; Solvesborg, Sweden on **1179**; also Kalundborg, Denmark on **1062** were severely affected - sometimes barely audible. On the 31st he was unable to detect any sky waves from Scandinavia and N.Europe and reception from SE.Europe was very poor. On the same day he noticed that only a few short wave stations were audible, mostly from C.Europe and the Middle East.

## Short Wave Reports

Some listeners had expected that additional broadcasters would use the **25MHz (11m)** band during the summer months, but much to their disappointment the schedule changes on March 25 indicated otherwise. The decision by Deutsche Welle (DW) to cease using this band came as quite a shock. Radio France International is now the only occupant and there can be little doubt that their broadcasts to E/C.Africa on **25.820** (Fr 0900-1300) are reaching that area well.

In the UK the reception of RFI tends to be unreliable. The SINPO ratings quoted in the reports were 42333 at 0945 by **Vic Prier** in Colyton; 35232 at 1010 by **Eddie McKeown** in Newry; 34333 at 0950 in Truro; 34443 at 1015 by **Robert Connolly** in Killeel; 35343 at 1206 by **Fred Wilmshurst** in Northampton; 25522 at 1245 in E.Bristol; 35222 at 1250 by **Bernard Curtis** in Stalbridge.

Broadcasts from many areas reach the UK in the **21MHz (13m)** band and the reception of most of them has been good, except during periods of high solar activity. R.Australia's early morning transmission from Shepparton on **21.725** (Eng to Pacific areas 0200-0900) was rated 25552 at 0818 by **David Edwardson** in Wallsend. Later, their transmission via Shepparton on **21.820** (Eng to Asia 0900-1400) was noted as 34443 at 1002 in Killeel & 43333 at 1202 by **David Hall** in Morpeth.

Also mentioned in the reports were the Voice of Russia **21.790** (Eng to Australia, N.Zealand 0500-0700) rated 35553 by **John Parry** in Larnaca, Cyprus; Swiss R.Int via Sottens **21.770** (Eng, It, Ger, Fr to Near East, Africa 0830-1030) 33222 at 0840 in Colyton; UAER, Dubai **21.605** (Eng to Eur 1030-1055) 45444 at 1055 in Northampton; DW via Nauen? **21.780** (Eng to Africa 1100-1145) 43333 at 1105 by **Sheila Hughes** in Morden; BBC via Seychelles **21.470** (Eng to E/S.Africa 0800-1300) 24222 at 1141 in Newry; Swiss R.Int via Sottens **21.770** (Eng, Ger, Fr, It to Asia 1100-1330) 34333 at 1200 by **Rhoderick Illman** in Oxted; R.Ext.Espana via Noblejas **21.540** (Sp to S.America 1000-1700?) 54445 at 1345 in Stalbridge; Channel Africa, Johannesburg **21.725** (Eng to Africa, Eur? 1300-1455) 44444 at 1450 in Truro; BBC via Cyprus **21.660** (Eng to E/S.Africa 1400-1700) 32232 at 1530 by **Robert Hughes** in Liverpool; BBC via Ascension Is **21.470** (Eng to E/S.Africa 1300-1900) 34333 at 1530 by

## Medium Wave Reports

Several listeners reported they had searched the band at night for broadcasts from m.w. stations in E.Canada and E.USA without success. At 0240UTC on the 9th CJYQ in St.John's, NF on **930kHz** was heard by **Richard Reynolds** in Guildford. He rated their transmission SINPO 32422. No others were identified.

During the night of the 13th/14th the high frequency end of the band was searched by **Ernie Strong** in Ramsey, Cambs. Between 0230-0330UTC he identified WRNC Warner Robins, GA on **1670kHz**

**Stan Evans** in Herstonmeux; R.Canada Int via Rampisham, UK **21.570** (Eng to Africa 1800-1859) 33333 at 1800 by **Clare Pinder** in Appleby; R.Nederlands via Bonaire, Ned.Antilles **21.590** (Eng to C/W.Africa 1830-2025) 35533 at 1900 in E.Bristol; R.Canada Int via Sackville **21.570** (Fr, Eng to Eur 1900-2100) 54334 at 2000 in Stalbridge.

Noted in the **18MHz (15m)** band were R.Sweden on **18.960** (Eng, Sw to N.America, Lat.America 1230-1430), rated 34222 at 1142 in Newry, 44333 at 1230 in Morden & 44333 at 1330 in Truro; R.Norway Int **18.950** (Norw to N.America 1200-1229) 45544 at 1210 in Northampton; WYFR Okeechobee, USA

**18.980** (Eng to Africa, Eur 1600-2200?) 34553 at 1615 in Cyprus & 34433 at 1842 in Colyton; Christian Science BC via WSHB Cypress Creek **18.910** (Fr, Eng to E/C.Africa 1600-2100?) 34223 at 1705 in Stalbridge;

There is also a high level of activity in the **17MHz (16m)** band. During the early morning R.Australia's broadcast to Asia via Shepparton on **17.750** (Eng 0000-0500, 0600-1100) has been reaching the UK. It was rated 35543 at 0705 in Wallsend.

Later, the BBC via Skelton & Woofferton, UK **17.640** (Eng to E/SE.Eur, M.East, E/S.Africa 0700-1500) was 34433 at 1140 in Oxted; Africa No.1, Gabon **17.630** (Fr to W.Africa 0700-

## Tropical Bands Chart

Freq (MHz)	Station	Country	UTC	DXer
2.310	ABC Alice Springs	Australia	2026	L
2.320	SABC Meyerton	S.Africa	1908	I
2.340	TWR Shona	Swaziland	1756	M
2.255	BBC via Meyerton	S.Africa	1803	H,I,L,M
2.270	Namibian BC, Windhoek	Namibia	0303	H
3.300	R.Cultural	Guatemala	0407	H,M
3.315	AIR Bhopal	India	1718	A,I,M
3.320	SABC (RSG) Meyerton	S.Africa	1900	A,I,L,M
3.325	FRON Lagos	Nigeria	1905	H
3.335	CBS Taipei	Taiwan	2232	A,I,M
3.345	AIR Jaipur	India	0100	A
3.365	GBC R-2	Ghana	2210	A,L,M
3.365	AIR Delhi	India	1751	I
3.915	BBC via Kranji	Singapore	2100	A,G,H,M,D
3.955	R.Taipei via Skelton	England	1840	C,H,K,L,N,D
3.965	RFI Paris	France	1905	G,H
3.975	R.Budapest	Hungary	2130	A,B,G,H,K
3.975	R.Korea via Skelton	England	2100	A,C,H,K
3.985	Nexus, Milan	Italy	1914	A,E,H
3.995	DW via Julich	Germany	2225	A,G,H,D
4.035	Xizang PBS, Lhasa	Tibet	0000	D,F
4.755	R.Educ CP Grande	Brazil	0052	A
4.760	ELWA Monrovia	Liberia	2118	F,M
4.770	FRON Kaduna	Nigeria	2001	F,H,L,M
4.783	RTM Bamako	Mali	2240	A,D,F,L,M
4.790	Azad Kashmir R	Pakistan	1809	M
4.800	CPBS 2 Beijing	China	0018	A
4.800	AIR Hyderabad	India	1726	L,I,M
4.800	LNBS Maseru	Lesotho	1803	M
4.805	R.Nac-Amazonas	Brazil	2338	M
4.815	R.diff TV Burkina	Ouagadougou	2333	M
4.820	R.Botswana, Gaborone	Botswana	2121	H,L,M
4.820	Xizang, Lhasa	China	2336	M
4.825	R.Cancao Nova	Brazil	0605	F
4.830	R.Tachira	Venezuela	0306	H,M
4.835	RTM Bamako	Mali	2300	D,H,I,M
4.840	AIR Bombay	India	1725	A,I,M
4.845	ORTM Nouakchott	Mauritania	1909	A,F,G,H,I,L,M
4.850	R.Yaounde	Cameroon	0306	A,H
4.850	AIR Kohima	India	1657	L,M
4.860	AIR Delhi	India	1910	A,H,I,L,M
4.875	R.Roraima, Boa Vista	Brazil	0036	A

Freq (MHz)	Station	Country	UTC	DXer
4.879	R.Bangladesh	Bangladesh	0045	L
4.880	AIR Lucknow	India	0025	A,I
4.885	R.Clube do Para	Brazil	0307	F,G,H,L,M
4.885	R. Difusora Acreana	Brazil	0028	A
4.890	RFI Paris	via Gabon	1756	I
4.895	AIR Kurseong	India	1659	M
4.895	Pakistan BC	Pakistan	1645	H,I
4.900	Haixia 2, V of Strait	China	2115	M
4.905	R.Anhanguera	Brazil	0215	F,G
4.910	AIR Jaipur	India	1729	I,L,M
4.915	R.Anhanguera	Brazil	0737	M
4.915	GBC-1, Accra	Ghana	1910	A,F,H,I,K,L,M
4.915	KBC Cent Sce Nairobi	Kenya	1755	I,M
4.920	AIR Chennai	India	1734	A,I,L,M
4.927	RRI Jambi	Indonesia	2305	A,M
4.930	R.Internacional	Honduras	0045	F
4.930	AIR Shimla	India	1654	I
4.950	AIR Srinagar	India	1704	M
4.950	VDA via Sao Tome	Sao Tome	1911	H,I,J,K,L,M
4.960	VDA via Sao Tome	Sao Tome	0308	H
4.965	R.Alvorada	Brazil	0039	A
4.965	Christian Voice	Zambia	1809	M
4.970	AIR Shillong	India	0033	A
4.975	R.Uganda, Kampala	Uganda	1739	F,H,I,L,M
4.980	Ecos del Torbes	Venezuela	0045	A,F,M
4.985	R.Brazil Central	Brazil	2347	A,I,M
5.009	R.TV Malagasy	Madagascar	1712	I
5.010	R.Garoua	Cameroon	1814	A,M
5.010	Guangxi 2, Nanning	China	2121	M
5.010	AIR Thiru-puram	India	0037	A
5.020	La V du Sahel, Niamey	Niger	1912	F,H,I,L,M
5.025	ABC Katherine	Australia	2319	M
5.025	R.Parakou	Benin	1815	M
5.025	R.Rebelde, Habana	Cuba	0405	H,M
5.025	R.Uganda, Kampala	Uganda	1825	I,M
5.035	R.Educacao Rural	Brazil	0040	A
5.035	R.Bangui	C.Africa	2226	M
5.050	Haixia 1, V of Strait	China	2237	A,M
5.050	R.Tanzania	Tanzania	1834	H,I,L,M
5.055	Faro del Caribe	Costa Rica	0710	F,L,M
5.055	RFD Cayenne(Matoury)	French Guiana	0311	A,H
5.060	Sist d'Em Progreso	Ecuador	0000	F
5.100	R.Liberia, Totota	Liberia	2254	L,M

DXers:-

- (A) Robert Connolly, Kilkeel
- (B) Bernard Curtis, Stalbridge.
- (C) Stan Evans, Herstonmeux.
- (D) Bill Griffith, W.London.
- (E) Bill Griffith, while in Barcelona, Spain.
- (F) David Hall, Morpeth.
- (G) Simon Hockenhill, E.Bristol.
- (H) Eddie McKeown, Newry.
- (I) Fred Pallant, Storrington.
- (J) John Parry, Larnaca, Cyprus.
- (K) Clare Pinder, while in Appleby.
- (L) Vic Prier, Colyton.
- (M) Richard Reynolds, Guildford.
- (N) Martin Vanner, St. Austell.
- (O) Thomas Williams, Truro.

Note. Entries marked \* were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

Listeners:-

- (A) Robert Connolly, Kilkeel.
- (B) Simon Hockenhill, E.Bristol.
- (C) Sheila Hughes, Morden
- (D) Rhoderick Illman, Oxted.
- (E) George Millmore, Wootton, IoW.
- (F) Ernie Strong, Ramsey, Cambs.
- (G) Fred Wilmshurst, Northampton.

## Local Radio Chart

Freq (kHz)	Station	ILR BBC	e.m.r.p (kW)	Listener
538	Spectrum, London	I	0.80	A,E,F,G
585	R.Solway	B	2.00	A
603	C.G.Litt'brne	I	0.10	A,E,F,G
630	R.Bedfordshire(3CR)	B	0.20	B,E,F,G
630	R.Cornwall	B	2.00	A,E
657	R.Clwyd	B	2.00	A,E,F
657	R.Cornwall	B	0.50	A,E
666	CI Gold 666, Exeter	I	0.34	A,B,E,G
666	R.York	B	0.80	A,F
729	R.BCS Essex	B	0.20	C,E,F,G
738	Hereford/Worcester	B	0.037	B,E,F,G
756	R.Cumbria	B	1.00	A,F
756	The Magic 756,Powys	I	0.63	A,E,F,G
765	BBC Essex	B	0.50	B,C,E,F,G
774	R.Kent	B	0.70	E,F,G
774	R.Leeds	B	0.50	A
774	CI Gold 774, Glos	I	0.14	B,E,G
792	CI Gold 792,Bedford	I	0.27	E,F,G
792	R.Foyle	B	1.00	A
801	R.Devon	B	2.00	A,B,C,E,F
828	CI Gold 828, Luton	I	0.20	F,G
828	Magic 828, Leeds	I	0.12	A
828	ZCR CI.G Boumem'th	I	0.27	B,E
837	R.Cumbria/Furness	B	1.50	A
837	Asian Netwk Leics	B	0.45	B,E,F,G
855	R.Devon	B	1.00	E
855	R.Lancashire	B	1.50	A,F
855	R.Norfolk, Postwick	B	1.50	F
855	Sunshine 855,Ludlow	I	0.15	B,F,G
873	R.Norfolk, W.Lynn	B	0.30	E,G
936	Brunel CG, W.Wilts	I	0.18	E,F,G
936	Fresh AM, Hawes	I	1.00	A
945	CI Gold GEM, Derby	I	0.20	A,F,G
945	Capital G, Bexhill	I	0.75	A,E,F
954	CI Gold 954 via ?	I	?	F
954	CI Gold 954,Torquay	I	0.32	E

Freq (kHz)	Station	ILR BBC	e.m.r.p (kW)	Listener	Freq (kHz)	Station	ILR BBC	e.m.r.p (kW)	Listener
954	CI Gold 954, H'ford	I	0.16	A,B,G	1323	Capital G, Southwick	I	0.50	C,E,F
963	Asian Sd, E.Lancs	I	0.80	A	1323	SomersetSnd,Bristol	B	0.63	A,C
963	Liberty R, Hackney	I	1.00	E,F,G	1332	Premier, Battersea	I	1.00	A,E
972	Liberty R, Southall	I	1.00	A,E,F,G	1332	CI Gold 1332,Pr'bo	I	0.60	A,F,G
990	R.Devon, E.Devon	B	1.00	A,B,C,E	1332	Wiltshire Sound	B	0.30	E
990	Magic AM,Doncaster	I	0.25	F	1359	CI Gold 1359, C'try	I	0.27	A,F,G
990	CI.G. Wolverhampton	I	0.09	F,G	1359	R.Solent,Bournemouth	B	0.85	E
999	C.Gold GEM Nott'ham	I	0.25	F,G	1368	R.Lincolnshire	B	2.00	F,G
999	Magic 9-99 P'stn	I	0.80	A	1368	Southern Counties R	B	0.50	E
999	R.Solent	B	1.00	C,E	1368	Wiltshire Sound	B	0.10	E
1017	CI.G,WABC,Shr'shire	I	0.70	A,F,G	1377	Asian Sd, Rochdale	I	0.10	A
1026	R.Cambridgeshire	B	0.50	F,G	1413	R.Gloucester via ?	B	?	F,G
1026	Downtown R, Belfast	I	1.70	A	1413	Premier via ?	I	0.50	D,E,F
1026	R.Jersey	B	1.00	E	1413	Fresh AM, Skipton	I	0.10	A,F
1035	RTL C'try(Ritz)1035	I	1.00	E,F,G	1431	Breeze,Southend	I	0.35	O,F
1035	R.Sheffield	B	1.00	F	1431	CI Gold, Reading	I	0.14	E,G
1035	N.Sound 2, Aberdeen	I	0.78	A	1449	R.Peterboro/Cambs	B	0.15	A,F,G
1116	R.Derby	B	1.20	A,F,G	1458	R.Cumbria	B	0.50	A
1116	R.Guernsey	B	0.50	E	1458	R.Devon	B	2.00	A,E
1152	CI.G Amber, Norwich	I	0.83	F	1458	Sunrise, London	I	50.00	E,F,G
1152	LBC 1152 AM	I	23.50	E,F,G	1458	Asian Netwk Langley	B	5.00	F,G
1152	Pic'ly 1152, Manch'r	I	1.50	A	1485	CI Gold, Newbury	I	1.00	F,G
1152	CI.G, Birmingham	I	3.00	B,G	1485	R.Humberside (Hull)	B	1.00	F
1161	R.Bedfordshire(3CR)	B	0.10	F,G	1485	R.Merseyside	B	1.20	A,E
1161	Brunel CI.G, Swindon	I	0.16	G	1485	Southern Counties R	B	1.00	D,E
1161	Magic 10, Goxhill	I	0.35	A	1503	R.Stoke-on-Trent	B	1.00	A,C*,E*,F,G
1161	Southern Counties R	B	1.00	E	1521	Breeze, Reigate	I	0.64	C,E,F,G
1170	CI.G Amber, Ipswich	I	0.28	F	1530	R.Essex, Southend	B	0.15	C,D,F
1170	Magic 1170,Stockton	I	0.32	A,F	1530	CI Gold W.Yorks	I	0.74	A,F
1170	Capital G, Portsmouth	I	0.50	A,E	1530	CI Gold Worcester	I	0.52	G
1170	1170AM,High Wycombe	I	0.25	G	1548	R.Bristol	B	5.00	E
1242	Capital G,Maidstone	I	0.32	E	1548	Capital G, London	I	97.50	E,F
1251	C.G Amber,Bury StEd	I	0.76	A,F	1548	Magic AM, Sheffield	I	0.74	A
1260	Brunel CG, Bristol	I	1.60	E	1557	R.Lancashire	B	0.25	A
1260	Marcher G, Wrexham	I	0.64	A	1557	CI Gold B7,N.hant	I	0.76	F,G
1260	SabrasSnd,Leicester	I	0.29	F,G	1557	Capital G, So'ton	I	0.50	E
1278	CI.Gold 1278 W.York	I	0.43	F	1566	CountySnd,Guildford	I	0.50	C*,D*,E,F
1296	R.Gold XL,Birmingham	I	5.00	A,B,E,F,G	1584	London Turkish R	I	0.20	E
1305	Magic AM,Barnsley	I	0.15	A	1584	R.Nottingham	B	1.00	F,G
1305	Premier via ?	I	0.50	E,F,G	1584	R.Shropshire	B	0.50	A,F
1305	Touch AM, Newport	I	0.20	B,E	1602	R.Kent	B	0.25	A,E

1600) 34443 at 1325 in Kilkeel; R.Sweden **17.505** (Eng to Eur, M.East, Africa 1330-1355) 44333 at 1330 in Truro; DW via Antigua, W.Indies **17.765** (Ger to S.America 1400-1700) 33322 at 1400 by **Gerald Guest** in Dudley; R.Kuwait **17.885** (Ar to Far East 1200-1600?) 43343 at 1445 in Liverpool; Channel Africa via Meyerton **17.860** (Eng to W.Africa 1700-1730) 44333 at 1700 in Morden.

During the evening the BBC via Ascension Is **17.830** (Eng to W.Africa 0800-2100) was 35433 at 1818 in E.Bristol; Channel Africa via Meyerton **17.870** (Eng to W.Africa 1800-1830) 54434 at 1820 by **Tony Hall** in Freshwater Bay, IoW; WHRI via Maine, USA **17.650** (Eng to Eur, M.East, Africa 1600?-2200?) 34433 at 1845 in Colyton & 44344 at 1930 in Stalbridge; Swiss R.Int via Sottens **17.580** (It, Ar, Eng, Ger, Fr to Nr East, Africa 1830-2130) 34232 at 1931 in Newry; R.Nederlands via Bonaire, Ned.Antilles **17.605** (Eng to C/W.Africa 1830-2025, Dut 2025-2125) 45544 at 1933 in Northampton; HCJB Quito, Ecuador **17.660** (Eng to Eur 1900-2200) 44333 at 1940 in Herstmonceux & 34333 at 2145 by **Vera Brindley** in Woodhall Spa.

Good reception over long distances has been evident in the **15MHz (19m)** band. R.Australia's broadcasts via Shepparton were heard on the following frequencies: **15.240** (Eng to Pacific areas 0000-0900), rated 34453 at 0610 in Cyprus

& 32443 at 0745 in Colyton; **15.415** (Eng to Asia 0100-0400, 0600-0900) 35533 at 0712 in E.Bristol.

R.New Zealand's early morning broadcast to Pacific areas, now on **15.120** (Eng 0500-0704), has also reached the UK well. It was rated 35553 at 0704 in Wallsend. Their transmission to troops in E.Timor on **15.175** (Eng 1105-1305) was 34333 at 1155 in E.Bristol. Much later, their broadcast to Pacific areas on **15.120** (Eng 1850-2049) was noted as 35544 at 1856 in Guildford.

Broadcasts from both near and far reach the UK in this band. They include the BBC via Singapore **15.360** (Eng to E/SE.Asia, Australia, New Zealand, Pacific 0500-1030) 43443 at 0852 in Kilkeel; BBC via Ascension Is **15.400** (Eng to W/C.Africa 0700-1000) 22332 at 0930 in Liverpool; Voice of Armenia, Yerevan **15.270** (Eng to Eur, M.East 0810-0830 Sun) 35343 at 0810 in Newry; KTWR Guam **15.330** (Eng to Australia? 0800-0930) 35533 at 0830 in Wallsend; Swiss R.Int via Julich, Germany **15.315** (Eng, Ger, Fr, It to Eur 1000-1230) 43322 at 1000 in Truro; R.Ukraine Int **15.135** (Eng to Eur 1100-1200) 44333 at 1120 in Morden; VOA via Tinian Is, Pacific **15.250** (Eng to Africa, Asia 1200-1300) 34434 at 1200 in Dudley; R.Africa 2 via Bata, Eq.Guinea **15.185** (Eng to C.Africa) 33333 at 1210 in Morpeth; BBC via Antigua **15.220** (Eng to USA, Caribbean, S.America 1100-1400) 45544 at 1211 in Northampton; AWR via Agat, Guam

Note: Entries marked \* were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

#### Listeners:-

- (A) Simon Hockenhill, E.Bristol.  
(B) Sheila Hughes, Morden.  
(C) Rhoderick Illman, Dxted.  
(D) Eddie McKeown, Newry.  
(E) George Millmore, Wootton IoW.  
(F) Clare Pinder, white in Appleby.  
(G) Ernie Strong, Ramsey, Cambs.  
(H) Fred Wilmshurst, Northampton.

## Medium Wave Chart

Freq (kHz)	Station	Country	Power (kW)	Listener	Freq (kHz)	Station	Country	Power (kW)	Listener	Freq (kHz)	Station	Country	Power (kW)	Listener
526	Vatican R	Italy	5	G*	783	Dammam	Saudi Arabia	100	E*	1143	AFN via ?	Germany	1	B*,D*,E*,F
531	Ain Beida	Algeria	600/300	E*,G*	783	Barcelona (CDPE)	Spain	50	G*	1143	CDPE via ?	Spain	2	D*,E*,G*,H*
531	Berg	Germany	20	D*,E	792	Limoges	France	300	E*	1161	Ain-Salah	Algeria	5	E*
531	RNES via ?	Spain	?	A*,E,G*	792	Lingen(NDR)	Germany	5	D*	1179	SER via ?	Spain	?	G*
531	Beromunster	Switzerland	500	E,G,H*	601	Munchen-Ismaning	Germany	300	D*,G*	1179	Sjvessborg	Sweden	600	A*,D*,E*,G*,H*
540	Wavre	Belgium	150/50	D*,E,G,H	601	RNE1 via ?	Spain	?	D*,G*	1188	Kuurne	Belgium	5	D*,E*
540	Sidi Bennour	Morocco	600	D*,E*,G*	810	Volgograd	Russia	150	E*	1188	Reichenbach(MDR)	Germany	5	G
549	Les Trembles	Algeria	600	A*,E*,G*	810	Madrid(SER)	Spain	20	G*	1188	Szolnok	Hungary	135	A*,D*,E*
549	Sasnovy	Belarus	1000	G*	810	Westerglen(BBC Scot)	UK	100	A*,D*,E*,G*,H*	1197	Munich(VOA)	Germany	300	D*,H*
549	Nordkirchen (DLF)	Germany	100	G	819	Batra	Egypt	450	E*,G*	1197	Virgin via ?	UK	?	D*,E,G,H
549	Thumau (DLF)	Germany	200	E	819	S. Sebastian(EI)	Spain	5	D*,E*	1206	Bordeaux	France	100	A*,D*,E*,G
558	Espoo	Finland	50	D*,E*,G*	828	Rotterdam	Holland	20	D*	1215	Virgin via ?	UK	?	D*,E,G,H*
558	RNES via ?	Spain	?	D*,E*,G*	837	Nancy	France	200	D*	1224	Vidin	Bulgaria	500	D*,E*
567	Tullamore(RTE1)	Eire	500	A,B,D,E,G*,H	837	Armitch	Lebanon	100	G*	1224	Lelystad	Holland	50	D*,E*,G*
576	Muhlacker(SDR)	Germany	500	D*,E*,G*,H*	837	CDPE via ?	Spain	?	E*,G*	1224	CDPE via ?	Spain	?	G*
576	Riga	Latvia	500	E*,G*	846	Rome	Italy	1200	D*,E*,G*,H*	1224	S. Sebastian(CDPE)	Spain	5	G*
576	Barcelona(RNES)	Spain	50	D*,G*	855	RNE1 via ?	Spain	?	D*,E*,G*,H*	1233	Nitra	Slovakia	40	D*
585	Paris(FIP)	France	8	D*,E,G	864	Paris	France	300	D*,E*,G*,H*	1233	Virgin via ?	UK	?	G,H*
585	Madrid(RNE1)	Spain	200	D*,E*,G*,H*	873	Zaragoza(SER)	Spain	20	D*,E*	1242	Virgin via ?	UK	?	D*,G
585	Dumfriess(BBC Scot)	UK	2	D	884	Socuellamos(RNE1)	Spain	2	E*	1251	Marcali	Hungary	500	D*
585	Frankfurt(HR)	Germany	1000/400	D*,E*,G*,H*	884	Enniskillen(R.U.I)	UK	1	D*	1251	Huisberg	Netherlands	10	D*,E*
585	Dujda-1	Morocco	100	E*,G*	882	CDPE via ?	Spain	?	D*,G*	1260	SER via ?	Spain	?	D*,E*
585	Muge	Portugal	100	G*	882	Washford(BBC Wales)	UK	100	B,D,E,G,H*	1269	Neumunster(DLF)	Germany	600	A*,D*,E*,G*,H*
603	Lyon	France	300	D*,E,G*	891	Algiers	Algeria	600/300	A*,E*,G*	1269	CDPE via ?	Spain	?	G*
603	Bucharest	Romania	50	E*	891	Hulsberg	Netherlands	20	D*	1278	Dublin/Cork(RTE2)	Eire	10	B,D*,G,H*
603	Sevilla(RNES)	Spain	50	G*	900	Bmo(CRo2)	Czech Rep.	25	D*,E*	1287	RFE via ?	Czech Rep.	?	A*,D*,E*
603	Sousse	Tunisia	10	E*	900	Milan	Italy	600	A*,D*,G*	1287	Lencia(SER)	Spain	10	E*
603	Newcastle(BBC)	UK	2	D,G	909	B'mans Pk(BBC5)	UK	140	E,G,H	1296	Valencia(CDPE)	Spain	10	E*,G*
612	Atlhone(RTE2)	Eire	100	A,B,D,E,G*,H	918	Domzale	Slovenia	600/100	D*,E*,F*,G*,H*	1296	Orfordness(BBC)	UK	500	D*,G
612	Sebba Aïoun	Morocco	300	H*	918	Madrid(R.Int)	Spain	20	G*	1305	RNE5 via ?	Spain	?	D*,G*
612	RNE1 via ?	Spain	10	E*,G*	927	Wolvertem	Belgium	300	D*,E,G,H*	1314	Kvitsoy	Norway	1200	A,D*,E*,G*,H*
621	Wavre	Belgium	80	D*,E*,G*,H*	936	Bremen	Germany	100	D*,E*	1323	W'brunn (V.Russia)	Germany	1000/150	D*,E*,G*,H*
621	Batra	Egypt	2000	G*	936	Venezia	Italy	20	D*	1332	Rome	Italy	300	D*,E*
621	Barcelona(DCR)	Spain	50	D*,E*	945	Toulouse	France	300	D*,E*	1341	Lisnagarvey(BBC)	N.Ireland	100	A*,B,D*,E*,F,G,H*
630	Vigra	Norway	100	D*,E*,G*	954	Bmo (CRo2)	Czech Rep.	200	D*,E*,G*	1341	Tarrasa(SER)	Spain	2	E*,G*
630	Tunis-Djedeida	Tunisia	600	A*,D*,E*,G*	954	Madrid(CI)	Spain	20	G*	1350	Cesvaine/Kuldiga	Latvia	50	D*,E*,G*,H*
639	Praha(Liblice)	Czech	1500	D*,E*	963	Pori	Finland	600	A*,D*,E*	1359	Madrid(RNE-FS)	Spain	600	E*,G*
639	RNE1 via ?	Spain	10	D*,E*,G*	963	Tunis-Djedeida	Tunisia	200	G*	1368	Foxdale(Manx R)	Is of Man	20	D*,E*,F
648	RNE1 via ?	Spain	10	D*,E*,G*	972	Hamburg(NDR)	Germany	300	D*,E*,G*	1377	Lille	France	300	D*,E,H*
648	Orfordness(BBC)	UK	500	A,D*,E*,G*,H	981	Alger	Algeria	600/300	A*,E*,G*	1386	Bolshakovo	Russia	2500	A*,B*,D*,E*,G*,H*
657	Napoli	Italy	120	E*,H*	990	Berlin	Germany	300	D*,E*,G*,H*	1395	Filake	Albania	1000	G*
657	Madrid(RNES)	Spain	20	D*,E*,G*	990	R.Bilbao(SER)	Spain	10	D*,E*,G*	1395	TWR via Filake	Albania	500	D*
657	Wrexham(BBC Wales)	UK	2	A,B,D*,G,H	990	Tywyn(BBC)	UK	1	D*	1395	Lopic	Netherlands	120/40	E*,G,H*
666	Messkirch(Pohrd(SWF)	Germany	150	D*,H*	999	Schwerin (RIAS)	Germany	20	D*	1404	Brest	France	20	D*,E,G,H*
666	Sitkunai(R.Vilnius)	Lithuania	500	D*,G*	999	Madrid(CDPE)	Spain	50	D*,G*	1413	RNE5 via ?	Spain	?	D*,E*,G*
666	Lisboa	Portugal	135	E*,G*	1008	SER via ?	Canaries/Spain	?	G*	1422	Heusweiler(DLF)	Germany	1200/600	A*,B*,D*,E*,G*,H*
675	R10 FM	Holland	120	A,D*,E*,G*,H*	1008	Fiev(Hilv-5)	Holland	400	D*,E,G,H*	1440	Marbach(RTL)	Luxembourg	1200	D*,E*,G*,H*
684	Availa(Beograd-1)	Yugoslavia	2000	D*	1017	Rheinsender(SWF)	Germany	600	D*,E*,G*	1449	Redmoos(BBC)	UK	2	D*,E*
693	Droitwich(BBC)	UK	150	E*,G*,H*	1017	RNE5 via ?	Spain	?	D*,G*	1458	Flake	Albania	500	E*
702	Flensburg(NDR)	Germany	5	D*,E*	1026	SER via ?	Spain	?	D*,E*	1467	Monte Carlo(TWR)	Monaco	1000/400	D*,E*
702	TWR via Monte Carlo	Monaco	300	D*,E*,H*	1035	Milan	Italy	50	G*	1476	Wien-Bisamberg	Austria	600	A*,B*,D*,E*,G
711	Rennes 1	France	300	A,D*,E*,G*,H*	1035	Lisbon	Portugal	120	A*,D*	1485	SER via ?	Spain	?	G*
711	Murcia(CDPE)	Spain	5	A*,D*	1044	Dresden(MDR)	Germany	20	D*,G*	1494	Clermont-Ferrand	France	20	A*,B,C*,D*,G*,H*
720	Lisnagarvey(BBC4)	N.Ireland	10	E*,G	1044	S. Sebastian(SER)	Spain	10	D*,E*,G*	1494	St.Petersburg	Russia	1200	B,D*,E*
720	Lots Rd, Ldn(BBC4)	UK	0.5	E,G	1053	Talk Sport via ?	UK	?	D*,E,G,H*	1503	RNE5 via ?	Spain	?	G*
729	Cork(RTE1)	Eire	10	E*	1062	Kalundborg	Denmark	250	A*,D*,E*,G*	1512	Wolvertem	Belgium	300	B,C*,D*,E,F,G,H*
729	RNE1 via ?	Spain	?	D*,E*,G*,H*	1071	Riga	Latvia	50	E*	1521	Kosice(Cizitate)	Slovakia	600	D*,E*,H*
738	Paris	France	4	D*,E	1071	Bilbao(EI)	Spain	5	D*	1521	Duba	Saudi Arabia	2000	A*,G*
738	Barcelona(RNE1)	Spain	500	D*,E*,G*,H*	1071	Talk Sport via ?	UK	?	D*,G*	1521	Castellon (SER)	Spain	2	G*
747	Flvov(Hilv2)	Holland	400	D*,E,G,H*	1080	SER via ?	Spain	?	D*,E*	1521	R.Manresa(SER)	Spain	2	E*
756	Braunschweig(DLF)	Germany	800/200	D*,E*,G*,H*	1089	Talk Sport via ?	UK	?	D*,E,G,H*	1530	Vatican R	Italy	150/450	B,C*,D*,E*,G*,H*
756	Bilbao(EI)	Spain	5	E*	1098	Nitra(Jarok)	Slovakia	1500	D*,E*,G*,H*	1539	Mainflingen(ERF)	Germany	350/700	D*,E*,G*,H*
765	Sottens	Switzerland	500	D*,E*,H*	1098	RNE5 via ?	Spain	?	D*	1539	SER via ?	Spain	?	G*
774	Enniskillen(BBC)	N.Ireland	1	D*	1107	AFN via ?	Germany	10	D*	1557	Nice	France	300	A*,C*,D*
774	RNE1 via ?	Spain	?	D*,E*,G*,H*	1107	Talk Sport via ?	UK	?	D*,E,G	1575	Genova	Italy	50	A*,D*,E*,G*,H*
783	Leipzig(MDR)	Germany	100	D*,E*,G*	1116	Pontevedra(SER)	Spain	5	D*,E*	1575	SER via ?	Spain	5	D*,E*,G*,H*
783	Miramar(R.Porto)	Portugal	100	D*	1125	La Louviere	Belgium	20	D*,E*,G*	1583	Holzkirchen(VDA)	Germany	150	A*,D*,E*,H*
					1125	El Beida	Libya	500	G*	1602	SER via ?	Spain	?	G*
					1125	RNE5 via ?	Spain	?	D*,E*,G*	1602	Vitoria(EI)	Spain	10	D*,E*,G*,H*
					1134	Zadar(Croatian R)	Croatia	600/1200	D*,E*,G*,H*	1611	Vatican R	Italy	15	A*,D*,G,H
					1134	CDPE via ?	Spain	2	D*,E*					

**15.225** (Eng, Bangla to S.Asia 1300-1330) 34333 at 1310 in Woodhall Spa.

Later, VOA via Philippines? **15.410** (Eng to Asia? 1700-?) 54344 at 1712 by **Peter Pollard** in Rugby; KTBN via Salt Lake City, USA **15.590** (Eng to N.America 1600-0000) 33432 at 1720 in Oxted; BBC via Ascension Is **15.400** (Eng to W.Africa 1500-2300) 33333 at 1812 by **Martin Venner** in St.Austell; R.Philippinas, Philippines **15.190** (Eng 1830?-1930) 35433 at 1918 in Guildford; WWCR Nashville, USA **15.685** (Eng to N.America, Eur 1100?-2100) 32222 at 1925 in Stalbridge; VOA via Greenville, USA **15.580** (Eng to Africa 1800-2200) 44444 at 2105 in Freshwater Bay, IoW; R.Taipei Int via WYFR **15.600** (Eng to Eur 2200-2300) 33333 at 2200 in Appleby; VOA via Tinang, Philippines **15.290** (Eng to E.Asia 0000-0100) 33433 at 0025 by **Harry Richards** in Barton-upon-Humber.

In the **13MHz (22m)** band Radio Australia's early morning broadcast to Pacific areas via Shepparton on **13.605** (Eng to Pacific areas 0800-1200) was rated 32422 at 0825 in Colyton. Also mentioned in the reports were Croatian R, Zargreb **13.830** (Cr, Eng to Eur, N.America), noted as 44433 at 1206 in Oxted; R.Nederlands via Flevo **13.700** (Eng to Africa 1830-2025) 42442 at 1833 in Newry; AIR via Bangalore **13.750** (Eng to Africa 1745-1945) 43444 at 1900 in Liverpool; BBC via Rampisham, UK **13.745** (Russian Service 1400-2030) 55555 at 1935 in Stalbridge; VOA via Botswana? **13.690** (Special Eng to Africa? 1900?-2000) 33322 at 1950 in Truro; Voice of Vietnam, Hanoi **13.740** (Eng, Fr to Eur 2030-2130, Sun) 44444 at 2030 in Morden; R.Canada Int via Sackville? **13.650** (Fr to Africa 2000-2200?) 44444 at 2100 in Dudley; R.Havana Cuba **13.750** (Eng to Eur 2030-2130) 33222 at 2100 in Appleby; WWCR Nashville, USA **13.845** (Eng to Africa 1400-0100) 34333 at 2222 in Woodhall Spa & 35433 at 0055 in Barton-upon-Humber.

R.New Zealand has been reaching the UK in the **11MHz (25m)** band. Their 100kW transmission from Rangitaiki, N.Island on **11.720** (Eng 0705-1104) was rated 33222 at 0945 in Truro and a potent 54544 at 1042 in Guildford. R.Australia's broadcasts may also be received here. Their transmission from Shepparton on **11.880** (Eng? to Asia? 1230?-1330) was 35333 at 1315 in E.Bristol. Later, they may be heard on **11.660** from via Shepparton (Eng to Asia 1430-1700), rated 32223 at 1430 in Dudley & 35543 at 1532 in Wallsend.

Also mentioned in the reports were R.Jordan via Al Karanah **11.690** (Eng to W.Eur, E.USA 1400-1730?), rated 54544 at 1410 in Herstmonceux; R.France Int via ? **11.615** (Eng to Africa 1600-1730) 45554 at 1615 in Cyprus; R.Nederlands via Flevo **11.655** (Eng to Africa 1730-2025) 53444 at 1747 in Freshwater Bay, IoW; BBC via Woofferton, UK **12.095** (Eng to Eur, M.East 0600-2100) 34233 at 1810 in Rugby; WWCR Nashville, USA **12.160** (Eng to N.America, Eur 1300?-2200) 33433 at 1840 in Colyton; R.Kuwait via Kabd **11.990** (Eng to Eur, N.America 1800-2100) 54445 at 1930 in Stalbridge; R.Damascus, Syria **12.085** (Ger, Fr, Eng to Eur 1900-2105) 44444 at 1900 by **Bill Griffith** (W.London) while in Barcelona; VOA via Ascension Is **11.855** (Eng to W.Africa 2000-2030) 54454 at 2015 in Liverpool; R.Bulgaria, Sofia **11.900** (Eng to Eur 2100-2200) 54444 at 2140 in Morden; BBC via Ascension Is **12.095** (Eng to S.America 2100-0300) 33433 at 2147 in Northampton; Voice of Turkey **11.845** (Eng to Eur, USA 2200-2250) 55555 at 2230 in St.Austell; Swiss R.Int via Montsinery, Fr.Guiana **11.905** (Fr, Ger, It, Eng to S.America 2200-0000) 34232 at 2336 in Newry; BBC via Kranji, Singapore **11.955** (Eng to SE.Asia, E.Asia, Australia, New Zealand 2200-0000) 34443 at 2347 in Kilkeel; American Forces Network (AFN) via Sicily **10.942** (Eng [u.s.b.] 24hrs?) 33333 at 0000 in Barton-upon-Humber.

Broadcasts from many areas may also be heard in the **9MHz (31m)** band. Some come from WTJC Newport, USA **9.370** (Eng), rated 54444 at 0745 in Morpeth; R.Australia via Shepparton **9.710** (Eng to Pacific areas 0800-0900) 25532 at 0830 in Wallsend; R.Vilnius, Lithuania **9.710** (Eng to Eur 0930-1000) 33333 at 0940 in Truro; R.Mediterranean Int, Morocco **9.575** (Ar, Fr to N.Africa, S.Eur 0500-0100) 44434 at 1114 in Oxted; R.Vlaanderen Int via Wavre, Belgium **9.925** (Eng to Eur 1130-1200) 44444 at 1130 in Newry; BBC via Cyprus **9.410** (Eng to Eur, N.Africa,

M.East 1600-2200) 45544 at 1610 in Northampton & 44554 at 1958 in Cyprus; VOIRI Tehran, Iran **9.022** (Ger to C.Eur 1730-1830, Eng to W.Eur 1930-2030) 44434 at 1730 in Colyton; Voice of Russia **9.890** (Eng to Eur 1800-2100) 44444 at 1805 in Morden; Voice of Russia **9.775** (Eng to Eur 1800-2100) 44444 at 1832 in St.Austell; R.Nederlands via Flevoland **9.895** (Eng to Africa 1830-2025) 32333 at 1950 in Liverpool; Voice of Russia **9.480** (Eng to Eur 1900-2100) SIO 333 at 2048 by **Francis Hearne** in N.Bristol; R.Ext.Espana **9.595** (Eng to Eur 2100-2200, Sun) 44344 at 2100 in Appleby; All India R. (AIR) via Bangalore **9.950** (Eng to Eur 2045-2230) 44444 at 2100 in Dudley; R.Cairo, Egypt **9.990** (Eng to Eur 2115-2245) 54444 at 2135 in Freshwater Bay, IoW; VOA via Woofferton, UK **9.760** (Eng to N.Africa, M.East 2000?-2200) 34333 at 2149 in Woodhall Spa; CBC Northern Service via Sackville, Canada **9.625** (Eng, Fr, Inuk, Cree 1155-0610) 52533 at 2312 in Guildford; BBC via Sackville, Canada **9.590** (Eng to N.America 2200-0000) 44444 at 2340 in Kilkeel; R.Sweden **9.495** (Eng to N.America 0230-0300, 0330-0400 [Not May-August]) 35422 at 0330 in E.Bristol.

Quite a few of the broadcasters in the **7MHz (41m)** band beam their transmissions to selected areas but some can be received here. Those noted came from WBCQ Monticello, USA **7.415** (Eng to N.America), rated 33433 at 0645 in Morpeth; KTBN via Salt Lake City, USA **7.510** (Eng to N.America 0000-1600) 43223 at 0815 in Stalbridge; WJCR Upton, KY, USA **7.490** (Eng to N.America) 34443 at 0901 in Kilkeel; BBC via Singapore **7.160** (Eng to SE.Asia 1600-1800) 33332 at 1620 in Oxted; R.Nederlands via Madagascar **7.120** (Eng to Africa 1730-2025) 34333 at 1800 in Newry; VOA via Botswana **7.415** (Eng to Africa 1900-2200) 43333 at 2115 in Morden; Voice of Nigeria, Ikorodu **7.255** (Eng to W.Africa) 54534 at 2227 in Guildford; World Harvest Radio (WHRI) via Maine, USA **7.580** (Eng to N.America) 45343 at 0105 in Barton-upon-Humber.

Some intended for European listeners originate from R.Japan via Woofferton, UK **7.230** (Eng, Jap 0500-0700), rated 54433 at 0650 in Herstmonceux; Sudwestfunk via Rohrdorf **7.265** (Ger 24hrs) 45544 at 0711 in Northampton; AIR via Bangalore **7.410** (Hi, Eng 1745-2230) 32233 at 1745 in Colyton & 44444 at 2150 in Freshwater Bay, IoW; R.Ext.Espana via Noblejas 7.275 (Sp 1700-2300) 54444 at 1905 in Liverpool; DW via Sines? **7.130** (Eng 2000-2045) SIO 444 at 2004 in N.Bristol; Vatican R, Italy **7.250** (Various, Eng 1950-2010) 55545 at 2010 in Stalbridge.

Many of the broadcasts in the **6MHz (49m)** band are intended for listeners in Europe. Those noted came from R.Vlaanderen Int via Julich, Germany **5.985** (Eng 0700-0730), rated 54544 in Herstmonceux; Sudwestrundfunk, Germany **6.030** (Ger) 34433 at 1104 in Oxted; R.Nederlands via Julich, Germany **6.045** (Eng 1030-1225) 43344 at 1125 in Dudley; Deutsch Welle (DW) via Julich? **6.140** (Eng Service) 33322 at 1227 in St.Austell; R.Nederlands via ? **5.955** (Dutch Service) 25332 at 1400 in E.Bristol; Deutschland R, Berlin **6.005** (Ger 24hrs) 55544 at 1615 in Northampton; R.Polonia [Polish R] Warsaw **5.995** Eng 1700-1800) 54334 at 1715 in Stalbridge; R.Vlaanderen Int via Wavre, Belgium **5.910** (Eng 1730-1800) 55555 at 1730 in Appleby; R.Austria Int, via Moosbrunn? **5.945** (Eng 1830-1900?) 33233 at 1836 in Rugby; R.Japan via Skelton, UK **6.175** (Jap 1800-1900) 54555 at 1845 in Liverpool; R.Budapest, Hungary **6.025** (Eng 1900-1930) 54444 at 1900 in Morden; RAI Rome **5.970** (Eng 1935-1955) 45544 at 1935 in Newry; R.Canada Int via Skelton, UK **5.995** (Eng 2000-2100) 43333 at 2015 in Truro; Bayerischer Rundfunk, Germany **6.085** (Ger 24hrs) 44444 at 2135 in Colyton; R.Sweden **6.065** (Eng 2130-?) SIO 444 at 2151 in N.Bristol.

Some intended for other areas originate from the American Forces Network (AFN) via Puerto Rico **6.458** (Eng [u.s.b.]), logged as 44444 at 0610 in Morpeth; R.Nederlands via Bonaire, Ned.Antilles **6.165** (Eng to N.America 2330-0125) 34233 at 2337 in Newry; BBC via Antigua, W.Indies **5.975** (Eng to Caribbean, C/S.America 2100-0400) 43443 at 2342 in Kilkeel; R.Havana, Cuba **6.000** (Eng to N.America 0100-0500) 54544 at 0129 in Guildford; BBC via Sackville, Canada **6.175** (Eng to E/C/W.Canada, USA 2200-0400) 35533 at 0240 in E.Bristol.



The SINPO code is used for broadcast station reports, here is an explanation of the code.

Signal Strength	
5	excellent
4	good
3	fair
2	poor
1	barely audible
Interference	
5	nil
4	slight
3	moderate
2	severe
1	extreme
Noise	
5	nil
4	slight
3	moderate
2	severe
1	extreme
Propagation Disturbance	
5	nil
4	slight
3	moderate
2	severe
1	extreme
Overall Merit	
5	excellent
4	good
3	fair
2	poor
1	unusable

**£99.95**

**LOG PERIODIC MLP32**

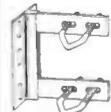
Freq. Range 100-1300MHz  
Length 1420mm Wide Band 16 Element directional beam which gives a maximum of 11-13Db Gain Forward and 15Db Gain Front to Back Ratio. Complete with mounting hardware. (The Ultimate Receiving Antenna - a must for the Dedicated Listener.)



**ROTATOR AR-300XL**

- \* Rotation Torque-222Kg
- \* Vertical Load-45Kg
- \* Mast Size - 28-44mm
- \* Control Box-230v AC
- \* Cable-3 core
- \* Direct Compass Bearings (Ideal for Light to Medium Beams, i.e. LOG PERIODIC above.)

**£49.95**



**6" STAND OFF BRACKET**

**£6.00**

**9" STAND OFF BRACKET**

Complete with 'U' Bolts

**£9.00**

**MD37 SKY WIRE (LONG WIRE BALUN KIT)**

25 METRES OF ENAMELLED WIRE & INSULATOR



FOR USE ON WITH RECEIVER 0 - 40 Mhz. ALL MODE NO ATU REQUIRED 2 "S" POINTS GREATER SIGNAL THAN OTHER BALUNS. MATCHES ANY LONG WIRE TO 50 OHMS

**T&K BRACKETS**

Complete with 'U' Bolts



**£29.95**

**5' SWAGED POLES**

- Heavy Duty Ali (1.2mm wall)
- SINGLE 1 1/4" .....£7.00
- SET OF FOUR 1 1/4" .....£24.95
- SINGLE 1 1/2" .....£10.00
- SET OF FOUR 1 1/2" .....£34.95

**CONNECTORS**

- PL259/9..... 0.75 each
- PL259/6..... 0.75 each
- PL259/7 for mini 8 1.00 each
- BNC (Screw Type) 8 1.00 each
- BNC (Solder Type) 8 1.00 each
- N TYPE for N58 .....2.50 each
- N TYPE for RF123 ..2.50 each
- S0239 to BNC .....1.50 each
- PL259 to BNC .....2.00 each
- N TYPE to S0239 ..3.00 each

**CABLE**

- RG213 MILITARY 0.85 per mtr.
- MINI RF8 ..... 0.85 per mtr.
- RG58 STANDARD 0.35 per mtr.
- RG58 MILITARY 0.60 per mtr.

**WEATHER SATELLITE ANTENNA**

**TURNSTILE 137**

Freq. 137.5 MHz  
Length 1000mm

This Antenna is designed for external use to receive weather satellite signals.

**£39.95**

Complete with mounting hardware.

(Simple and easy to install a must for the enthusiast who has it all.)



**UK SCANNING DIRECTORY**

7th edition

**£19.50**

when you are driving about

**£29.95**

**SUPER SCAN STICK**

Freq. Range 0-2000MHz  
Length 1000mm  
It will receive all frequencies at all levels unlike a mono band antenna. It has 4 capacitor loaded coils inside the vertical element to give maximum sensitivity to even the weakest of signals. (Ideal for the New Beginner and the Experienced Listener alike.)

**£49.95**

**SUPER SCANAIR BASE (Airband)**

(Stainless Steel)  
Freq. Range Receive 117-140MHz  
Transmit 117-140MHz  
Length 825mm  
Connector-N TYPE

This is a transmitting & receiving antenna designed for the aircraft frequency range. (For the control tower & aircraft listener.)

**£39.95**

**SUPER SCAN STICK II**

Freq. Range 0-2000 MHz.  
Length 1500mm.  
This is designed for external use. It will receive all frequencies at all levels unlike a mono band antenna. It has 8 capacitor loaded coils inside the vertical element to give maximum sensitivity to even the weakest of signals plus there is an extra 3db gain over the standard super scan stick. (For the expert who wants that extra sensitivity)

**£49.95**

**MULTI SCAN STICK II**

Freq. Range Receive (0-2000MHz) Transmit (144-146 MHz)  
Gain 4.00dbd (420-430 MHz) Gain 6.00dbd Length 1500mm  
Same as Super Scan Stick but with extra gain, makes it an even better antenna for the amateur and expert alike. (Ideal for the Ham Radio user)

**£39.95**

**MULTISCAN STICK**

Freq. Range Receive - 0-2000 MHz.  
Transmit 144 - 146 MHz  
gain 2.5 DBd  
420 - 430 MHz  
gain 4.5 DBd  
Length 1000 mm.

Although marginally compromising sensitivity the multi scan stick has within its transmitting capabilities plus gain makes it an excellent antenna for the amateur and expert alike.

Comes complete with mounting hardware and brackets. (Ideal for the amateurs ham radio - user.)

**£89.95**

**IVX 2000**

Freq. Range Receive - 0-2000 MHz.  
Transmit 50 - 52 MHz  
gain 2.00DBd  
144 - 146 MHz  
gain 4.00 DBh  
420 - 430 MHz  
gain 6.00 DBd  
Length 2.5 m.

For external use, but at a pinch can be used in the loft. It has been finely tuned to make this Antenna the best there is. It has stainless steel radials and hardware. (THE BEST)

**MWA HF Wire Antenna Mk1**

Freq 0.05Mhz-40Mhz Adjustable comes with 25 metres of H/Grade flexweave antenna wire,10 metres of military spec RG58 coax cable feeder,insulated guy rope,dog bone & choke balun. All Mods No A.T.U. required. Super Duper Short Wave Antenna.

**£59.95**

**SWP 2000 FREQ. 25 - 2000 MHz. Length 515mm.**

Multiband good sensitivity for its small size. Fitted with two suction cups for ease of fitting to any smooth surface (i.e. inside of car window) comes with 5 metres of mini coax and BNC connector. (Good for the car user who doesn't want an external antenna.)

**£29.95**

**SWP HF30**

Freq. Range 0.05-30MHz Length 770mm

Although small, surprisingly sensitive for the H.F. user. Fitted with two suction cups for ease of fitting to any smooth surface (i.e. inside of car window) comes with 5 metres of mini coax and BNC connector. (Good for the car user who doesn't want an external antenna.)

**£39.95**

**HF DISCONE**

Freq. Range 0.05-2000MHz  
Length 1840mm

Internal or External use (A Tri-Plane Antenna). Same as the Super Discone but with enhanced HF capabilities. Comes complete with mounting hardware and brackets. (Ideal for the Short Wave H.F. Listener.)

**£49.95**

**TRI SCAN III**

Freq. Range 25-2000MHz Length 720mm

Desk Top Antenna for indoor use with triple vertical loaded coils. The tri-pod legs are helically wound so as to give it its own unique ground plane. Complete with 5mts of low loss coax and BNC plug. (Ideal for Desk Top Use.)

**£39.95**

**ROYAL DISCONE 2000 (Stainless Steel)**

Freq. Range Receive 25-2000MHz  
Transmit 50-52MHz  
144-146MHz 430-440MHz 900-986MHz  
1240-1325MHz  
Length 1540mm  
Connector-N TYPE The Ultimate Discone Design. 4.5DB GAIN OVER STANDARD DISCONE! Highly sensitive, with an amazing range of transmitting frequencies, comes complete with mounting hardware & brackets (The Best There is).

**£49.95**

**£39.95**

**SUPER DISCONE**

Freq. Range 25-2000MHz  
Length 1380mm

Internal or External use (A Tri-Plane Antenna). The angle of the ground planes are specially designed to give maximum receiving performance within the discone design. The Super Discone gives up to 3Db Gain over a standard conventional discone. Comes complete with mounting hardware and brackets. (Ideal for the Experienced Enthusiast.)

**£19.95**

**MRW-100 (Super Gainer)**

(Rubber Duck) Wideband extra sensitive Dedicated VHF/UHF all mode Length 400mm. PP £2.00

**MRP-125 (Preamplifier)**

Freq Range 118-137 Mhz  
9-15v input (Battery not included)  
14 db Gain Complete with lead and BNC connectors.

**£44.95**

**MRP-2000 (Preamplifier)**

Freq Range 25-2000 Mhz 9-15v input (Battery not included) 14 db Gain. Complete with lead and BNC connectors.

**£49.95**

**G. SCAN II**

Freq. Range 25-2000 MHz.Length 620 mm.

Magnetic mount Mobile Scanner Antenna. 2 vertical loaded coils for good sensitivity complete with magnetic mount and 4mts of coax, terminated with BNC plug. (Good for when you are driving about)

**£24.95**

**CIVIL AND MILITARY RECEIVING ANTENNAS**

- AR30 (Length 1000mm GAIN 3.6 & 6.5) .....Price £39.95
- AR50 (Length 1500mm GAIN 5.0 & 7.5) .....Price £64.95



**ADD £6 P&P PER ORDER**

■ Greg Baker, PO BOX 3307, MANUKA, ACT 2603, AUSTRALIA

■ E-MAIL: greg@pcug.org.au

# Bandscan Australia

Since the last column, I have had the great pleasure to have flown on a Qantas 747-400 over part of the Antarctic continent. Having done that twelve hour flight out of Sydney, I don't think life will ever be quite the same again. I have also been bushwalking in some of Australia's high country complete with EPIRB for emergency use and a GPS receiver to confirm critical navigation decisions. The GPS receiver was certainly very impressive and fortunately did not have to try out the EPIRB.

This time I have more on Radio Australia, news on the demise of Australia Television, some snippets on telecommunications and local radio and television issues and a couple of listener reports.

## Australia Television

Australia Television International (ATI) has closed in yet another chapter of what seems to be failed broadcasting policy in this country. As I noted in this column way back in June 1997, Australia Television was sold in that year to Australian commercial television network Seven. The sale put less than SA10 million (less than £3.5 million) into Australian Broadcasting Corporation (ABC) coffers. The service continued with news content provided by the ABC and subsidised by the government.

However, the writing was on the wall when the government withdrew its subsidy in 1999 ostensibly not to be seen as propping up what it regarded as a commercial venture. Seven replaced the ABC news content with its Sydney-based nightly news, hence losing the depth of Asian content the ABC was able to provide. A hoped for increase in advertising revenue failed to materialise, particularly in the washup from the Asian financial crisis. Now Seven has closed the service altogether to prevent further losses.

Amusingly, if that is the right word, the government has offered SA10 million per year for the next five years - signalled in *SWM* last time - to anyone able to resurrect the ATI service. Negotiations with a group calling itself Australian Vision are apparently underway, but some commentators are urging that the task be given back to the ABC. However, such a reversal could well be too embarrassing for the government.

## Radio Australia

An interesting, and costly, by-product of the closure of ATI has been that Radio Australia (RA) appeared likely to lose its only satellite link across Asia and the Pacific. RA has been using ATI's facilities on the Indonesian-owned *Palapa C2* satellite to service its partner stations in the region and is totally dependent on that link. In particular, much of RA's broadcasts throughout Indonesia is rebroadcast on local stations fed by the *Palapa* satellite and Australian Defence Force (ADF) peace keeping personnel in East Timor rely on the satellite to bring them a range of ABC radio services.

The government, which in the early part of its term had difficulty in finding money for RA and the ABC, has now offered RA additional funding of \$600,000 (£210,000) to secure for six months the needed transponder space on the *Palapa* satellite. Amazingly Radio Australia is now renting time on its old transmitters on the Cox Peninsula in the Northern Territory. That must really be galling for RA management.

In addition to the re-introduction of Chinese, Vietnamese and Khmer broadcasts, RA has now increased its English and Indonesian output. And RA has recently added an English program guide to its web site. This guide is at <http://www.abc.net.au/ra/proguide.htm> RA frequencies can be found via <http://www.abc.net.au/ra> or for those without the patience to fight around the strangely convoluted RA site dive straight in at <http://www.abc.net.au/ra/hear/shortwave.htm>

## Spectrum Auctions

The much vaunted sale of 3G spectrum to telecommunications carriers has failed to achieve anything approaching the amount estimated by the government in advance of the sale. The government had thought the auction would yield somewhere in the order of SA2.5 billion (£875 million) and budgeted for this as income rather than as the sale of assets. The final amount realised was about half the estimate, leaving a SA1.2 billion hole in a previously predicted budget surplus.

## Anti-siphoning List

The list which ensures that major sporting events remain on free-to-air television is to be reviewed. The list was put in place for a ten year period in 1994 and the government has now asked the regulatory organisation, the Australian Broadcasting Authority, to report on the success of the list.

The relevant government minister has claimed that some events included on the list have not been broadcast for some time on free-to-air television. The idea seems to be to make more sporting events available for pay television operators.

## Telecommunications

An offer is on the table for Singapore Telecommunications (SingTel) to buy Australia's second largest mobile telephone carrier and pay television operator Cable & Wireless Optus. This has raised several interesting implications which hinge around the fact that SingTel is 78% owned by the Singapore government. One implication is the concern that the Singapore government would be in a position to interfere in Australia's telecommunications policies and practices.

The other, interestingly, is an Australian defence implication. Optus currently owns and operates two communications satellites, *B1* and *B2*. Part of the traffic carried on those satellites is sensitive military communications for the ADF. The great concern amongst commentators is Australian military traffic being in the hands of a foreign government. In addition, the ADF is underwriting the launch later this year of the satellite C1 for Optus and which will carry transponder facilities specifically for the ADF.

C1 will contain secret US and Japanese technologies - the great concern is that these should not be available to the Singapore government. Leading on from any delay in the launch of C1 is that the expansion of pay television capacity by Optus will be ham-strung. I will report further when this issue is resolved.

## DMG Radio

Since buying the licence for Sydney's newest commercial f.m. radio station, the Daily Mail Group - DMG Radio - has been building its station in virtual secrecy. The reason has been to spring a match on the large existing networks Austereo and Australian Radio Network and to have a go at the lucrative hundred million dollar advertising market. DMG Radio in Sydney can be found at <http://www.nova969.com.au> for the Internet connected.



## Reports

**Martin Goodey** from the Scilly Isles has reported hearing VL8A Alice Springs on 2.310MHz SINPO 33433 and VL8T Tennant Creek SINPO 12331 at around 2000UTC.

**Martyn Gardiner** from Portsmouth has been listening to RA again reporting 15.240MHz before 0900UTC on his Icom R8500 and 9.500MHz at 2100UTC on his Roberts portable and the Icom R8500 with a long wire antenna.

A *SWM* reader called **Steve** has E-mailed, taking me to task for not reporting last time which made the Royal Flying Doctor Service uses for its transmissions. I am happy to report that they are all u.s.b.

## Other News

Television black spots. The government has announced that part of the funds made available by the partial sale of Australia's national telecommunications carrier Telstra have finally been allocated to help fill in areas of poor television reception. With a federal election due later this year no doubt there will be many similar announcements.

Mobile telephone coverage. The government has let a \$25 million (£8.75 million) tender to Vodaphone to improve mobile telephone coverage along nearly 9,500km of eleven of Australia's major highways. That's a start I suppose on the more than 300,000km of bitumen and concrete roads in this country. The money for this has also come from the partial sale of Telstra.

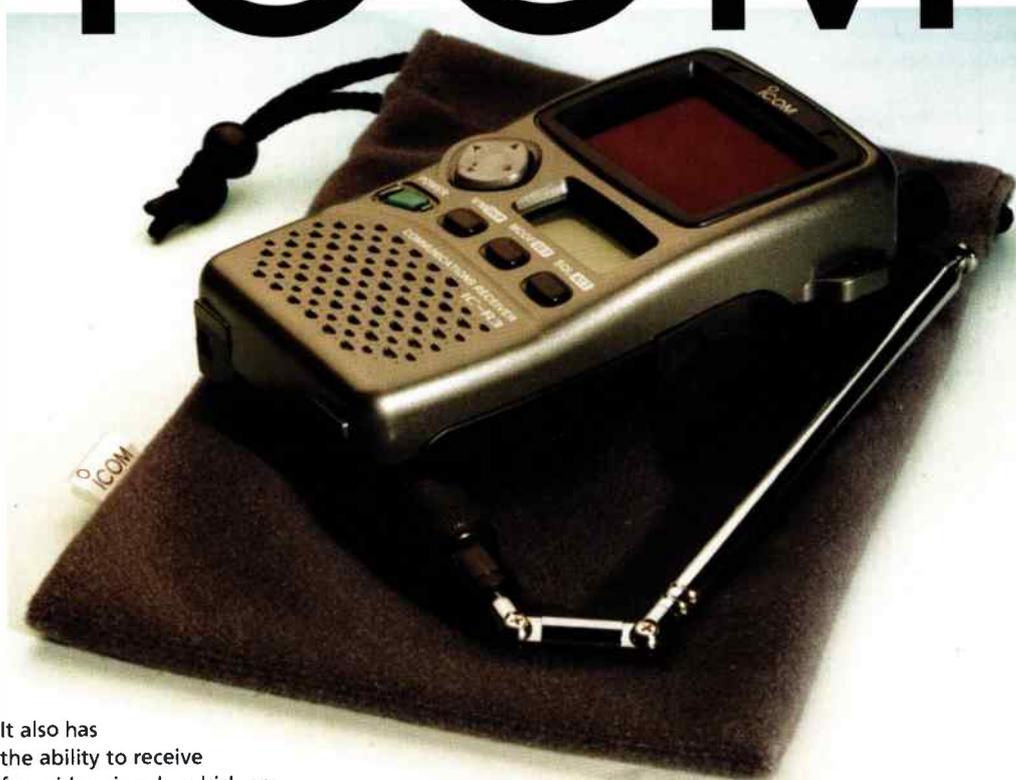
Aboriginal radio. A new national news service has started on the 122 radio stations in Australia run by Aboriginal people for Aboriginal people. The national news room in Brisbane is coordinated by the National Indigenous Radio Service.

I welcome any news and comments. In particular I am interested in any s.w.l. information on Australian stations heard by *SWM* readers so I can chase up more details and interesting snippets from this end. My address is **PO Box 3307, Manuka, ACT 2603, Australia**. For personal replies please send two IRCs. Those with an Internet connection can get me at [greg@pcug.org.au](mailto:greg@pcug.org.au) or [gregbaker@hotmail.com](mailto:gregbaker@hotmail.com)

Having been hounding the Editor for what seems like forever, Alan Gardener finally gets his hands on the latest and desirable hand-held scanner with built-in video capabilities.

# IC-R3 review

## ICOM



I don't know about you, but recently I've been getting a bit bored with hand-held scanning receivers. There seem to be an ever increasing number of them, providing a bewildering range of features, a fair proportion of which are never likely to be used. Unless you have a specific interest, which requires a special monitoring technique, finding a model, which suits you, is very much down to individual choice. But every once in a while something interesting comes along, so when I saw the first adverts for the Icom IC-R3 I immediately started pestering the Editor to get hold of one for me to play with. Er, I mean comprehensively review.

### Special

So what is so special about the IC-R3? Well, it's the first hand-held scanning receiver that I am aware of which is capable of receiving TV video signals, and not just broadcast ones either.

It also has the ability to receive f.m. video signals, which are used for analogue satellite TV broadcasting, Amateur TV, domestic video senders, security cameras and air-ground video links. I had already been experimenting with some home-built video scanning equipment, the details of which I obtained from the excellent Radproject website which can be found at

<http://www.geocities.com/ResearchTriangle/System/5140/>

But having whetted my appetite, I was very keen to try out Icom's new receiver.

### Specification

The basic specification is as follows, frequency coverage of 0.495-2450.095MHz split into 12 bands, tuning step sizes of 5, 6.25, 10, 12.5, 15, 20, 25, 30, 50 and 100kHz, a.m., n.b.f.m., w.b.f.m. and a.m. TV (above 30MHz), f.m. TV reception is

possible over the range 900-1300MHz and 2.25-2.45GHz, eight banks of 50 memory channels and a single bank of 50 memories for frequency search limits, alpha numeric tagging, CTCSS Tone scan function, and a four step r.f. attenuator. As you may imagine, most of this is similar in functionality to the IC-R2 which has proved to be a very popular receiver. So does the addition of TV reception make the new



model even more desirable? Well I had to wait quite a while to find out.

## When Will It Arrive?

Finally the great day came and the box arrived. On opening the package, I was pleasantly surprised by the size and general quality feel of the IC-R3. The unit measures 61 x 120 x 33mm (W) x (H) x (D) and weighs just over 300g. The front panel is dominated by the TFT colour display screen. Like the IC-R2, Icom have chosen to not provide a numerical keypad for direct frequency entry, but instead rely on using knob rotation in conjunction with the function button and separately defined bands to permit quick movement up and down the frequency spectrum. This leaves the front panel looking relatively uncluttered, with only three multifunction push buttons, a four way rocker switch and the on/off button for control purposes.

A small mono liquid crystal display sits neatly below the main TV screen, just to the right of the rocker switch, and provides a useful indication of the main receiver functions when the main screen is not in use. The remaining bottom half of the front panel incorporates the loudspeaker, which is capable of providing an adequate level of volume under normal conditions.

## Layout

The top of the receiver has a BNC antenna connector, earphone socket and rotary dial knob. Looking down the side of the unit, on the left there is the function push button, and on the right an A/V connector and 6V d.c. input socket. A small protrusion at the top acts as a fixing point for a wrist strap, if you want to fit one. The back of the receiver has a moulded



beltclip fixing point and the battery compartment, which is secured with a fairly substantial additional hinged clip. The battery compartment will accommodate either three AA batteries providing a special plastic divider plate is fitted, or alternatively a one piece Lithium ion battery pack can be installed to give longer battery life.

## "The front panel is dominated by the TFT colour display screen..."

Switching the unit on is not particularly spectacular, pressing the green power button causes the small l.c.d. display to spring into life and give an indication of mode, receive frequency and remaining battery capacity. The different frequency bands can be selected by pressing the left or right hand sections of the rocker switch, the mode can be changed by pressing the mode push button, and the frequency steps changed by rotating the dial knob whilst simultaneously pressing the mode switch.

So far so good, but now it starts to get interesting. Pressing the function button and the up section of the rocker switch for more than two seconds switches the main TV display on, revealing a wonderful blue background screen with white text stating the operating mode (although I

changed this later to one of the other background colours). When the colour TV display is on, the smaller mono display reverts to just showing the battery voltage and remaining battery capacity symbol. It was this feature that made me suspect that the additional battery drain when the TV display is enabled, must have been a major concern to the

design team. Thank goodness for the Lithium Ion cell which makes the battery life just about acceptable!

## Operation

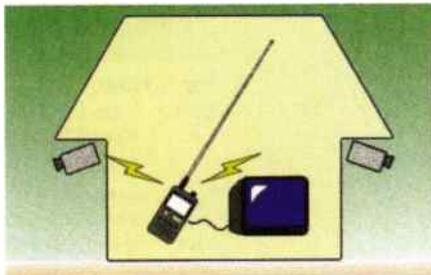
Pressing the function button and up section of the rocker switch allows you to navigate through other screens, each providing different sorts of information, until finally the screen fills with video noise and the loudspeaker bursts into life indicating that the TV receive function has been activated. A bit of further tuning produced reasonable colour pictures and sound from the four main analogue terrestrial TV broadcast stations, which was very gratifying. But before I discuss the TV feature in more detail, I'll step back a bit and describe the purpose of the other information screens, two

of which are probably the most useful. These are used to display the basic tuning parameters, memory contents, alpha-numeric tags and general set-up screens. Two other screens provide a bandscope function, which can display up to 1MHz wide chunks of the spectrum and a direction finding facility which I thought was more of a toy than providing any real value.

A lot of the features are actually very similar to those found on the IC-R2, the only real difference being the way in which the functions are selected by navigating around the various display screens. Initially I found this to be slightly frustrating, especially when I was expecting display screens to wrap around back to their original starting point after successively pressing the up, down, left or right key on the rocker switch. However, after using the receiver for the review period, I got more used to it and could find my way around the main functions without too much difficulty. The only thing I didn't get used to was the main TV display automatically switching off when frequencies below 30MHz were selected. I can only assume that this was done to reduce interference to short wave reception from the display backlight circuit.

## On Air

Tuning around a few favourite frequencies produced good results although the usual intermodulation interference from pagers operating at around 153MHz could be heard throughout the v.h.f. bands when a reasonably sized external antenna was connected. Tests confirmed the intermodulation free dynamic range as being around 50dB which is just about adequate for a hand-held receiver,



providing it is not connected to an external antenna in an urban environment. The receive sensitivity was measured as being, -110dBm for narrow band a.m., -120dBm for narrowband f.m. and -106dBm for wideband f.m., which confirmed the performance as being on a par with the IC-R2, as I expected. However in practice, I found that the supplied telescopic antenna produced better results than could be obtained with a standard multiband antenna of the type supplied with the IC-R2, especially if I took the trouble to extend it to the correct length for a particular frequency of interest.

### What's On The TV?

Next I concentrated on assessing the TV reception capabilities of the IC-R3. The nice thing about the a.m. TV reception mode is that it operates over the entire 30-2450MHz tuning range, and that you can set the intercarrier sound frequency to cope with different vision sound carrier spacings. The downside is that f.m. TV reception can only be selected in the frequency range 900-1300MHz and 2250-2450MHz which severely limits the usefulness of the receiver. Most Amateur TV in the UK and many other interesting transmissions use frequencies just outside these two frequency bands which is extremely frustrating.

As an experiment, I tried tuning to some f.m. video signals using the a.m. TV mode, but unfortunately I was not able to resolve any usable images. I don't really understand why Icom have chosen to set these limits. The only reason I can think of, is that they had to make some compromises with the design, and that this was the best range they could provide for the price, using the circuit components available to them. One nice touch they did provide was the ability to switch between positive and negative f.m. video modulation which can be very useful on occasions when you encounter transmissions that have got it the wrong way round.

"...the IC-R3 is already proving to be popular in both the security and commercial markets..."

### Difficult Reception

To get the best results from any receiver you need to have it connected to a decent antenna. This is especially true when you are trying to receive video signals at u.h.f. and microwave frequencies. So unless you are right next to a TV transmitter, you will probably have to forget about the supplied telescopic antenna. Signals on frequencies around and above 1GHz usually rely on high gain antennas to achieve good transmission ranges. This is made easier at these frequencies because the very short wavelength of the signals means that even very high gain antennas can be made with quite small dimensions. However, high gains can usually only be achieved by reducing the antenna beamwidth, (the angle over which signals can be received), so they tend to be directional, and need some method of pointing them towards the signal source. Fortunately there are a number of fairly simple designs (some of which can be found on the Radproject website I mentioned earlier) which will provide a

dramatic improvement in results if you are prepared to invest a bit of time in their construction.

So did I actually manage to receive any TV pictures other than from standard TV broadcast stations? Well yes I did, but only ones I had previously discovered using my own home-built set-up. My first attempt was at receiving a signal from a domestic video sender operating on one of the four de-regulated frequencies in the 2.4GHz band set aside for this purpose. This was very disappointing as I could only receive pictures at a maximum range of about two metres away from the transmit antenna using the supplied telescopic antenna. Connecting a higher gain antenna produced better results, but the range I could obtain was far from satisfactory, and would not be of much use under typical operating conditions. My attempts at receiving my local amateur TV repeater on 1.3GHz were not much better, and I was just about able to resolve a faint video signal (but not obtain lock) at a range of about a

1.6km from the transmitter site.

### Autopsy

I decided that it was time to measure the video receive sensitivity in the lab to see what the actual measured performance was like, and determine what sort of reception range it was capable of achieving. By connecting a low power video transmitter to the receiver via a suitable attenuator, I was able to measure the r.f. signal level required to just produce noise free pictures. This was achieved at a level of 60dBm, which is about 20-30dB less sensitive than I would expect to measure when compared to a dedicated receiver such that supplied with a pair of video senders or with an analogue satellite set-top box. In practice this means that signals from a 1W video transmitter could typically only be received at distances of less than 500m and from a 1mW video sender at a range of only a few metres, confirming my original tests, which was very disappointing.

**SWM**

## Summary



The Icom IC-R3 sets a new trend with the introduction of TV reception in a hand-held package. The standard receive performance is comparable to Icom's other hand-held, the IC-R2. The a.m. TV performance is also adequate and can provide good results with just the supplied antenna if used in a strong signal area. The f.m. TV performance is poor and although this could be considerably improved by connecting a higher gain antenna and external pre-amp, this somewhat defeats the object of having a small hand-held receiver. This, coupled with the restricted tuning range in the f.m. mode severely limits its usefulness. No doubt the IC-R3 will find its niche especially for those amongst us who love the latest gadgets, but a lot depends upon the price, Icom tell me that the IC-R3 is already proving to be popular in both the security and commercial markets.

My thanks to Icom (UK) Ltd., Sea Street, Herne Bay, Kent CT6 8LD. Tel: (01227) 741741 for the loan of the review receiver.

Contact Icom	
Address:	Icom (UK) Ltd., Sea Street, Herne Bay, Kent CT6 8LD
Tel:	(01227) 741741
FAX:	(01227) 741742
Web:	www.icom.co.uk
E-mail:	icomsales@icomuk.co.uk

# HAYDON

## Communications



Mail order: 01708 862524

PRICES SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. PLEASE VERIFY BEFORE ORDERING. E&OE. NEXT DAY DELIVERY TO MOST AREAS, £10.00.

### THE VERTICAL CYCLOPSE



This new short wave listeners antenna was initially made specifically for one of our commercial customers but we felt the general public would find it of great interest. At only just over 7 feet high this vertical short wave receiving antenna will give amazing results from 0.2-30MHz and thanks to its commercial construction you simply erect it and away you go. Length 7'6". Coax supplied: 20m and PL-259 plugs. SSP £129.00.

INTRO PRICE **£79.95** P&P £8.50

### Q-TEK WIRE CYCLOPSE



A unique ready to go antenna system that works from 0-30MHz. The antenna is centre fed with coax (supplied) and incorporates six tuned coils for optimum reception. The system also incorporates an anti-interference balun and comes ready assembled for immediate use. At only 15.5mtrs (51ft) long it will certainly fit most gardens. (Mounts horizontally down garden). Includes 20m coax lead and PL-259plugs.

INTRO PRICE **£69.95** P&P £8.50

### DX-1 PRO (R.F. SYSTEMS)



This is a professional wide band receiving antenna with a very high intercept point that ensures a low noise level allowing even the weakest signals to be heard. Constructed of high-impact plastic and aluminum alloy - the amplifier is protected inside a waterproof stainless steel vessel. The unit is supplied complete with mounting hardware and an indoor controller with PSU (coax not supplied). Freq. 20kHz-54MHz. Gain: +6dB (ref dipole). Intercept points:  $\geq +75\text{dBm}$  (2nd ord),  $\geq +50\text{dBm}$  (3rd ord). (Static protection included). For the true profile.

**£299.00** DEL £10.00

### Q-TEK D.C. 2000 DISCONE



A high performance wideband discone offering superb performance from 0.2-2000MHz. Transmit range: 6m, 2m, 70cm, 32cm & 23cm (power handling 200W). Fitted with low loss 'N' type connector. Supplied with mounting brackets.

OUR PRICE **£54.95** P&P £8.50

Comments from John Griffiths  
Putting the DC-2000 up gave me a tremendous boost to all signals with the ancient AR-2000 coming alive! Signals were well received and I found that I wandered out of airband.

### ROYAL DISCONE



(Stainless steel)  
Frequency range: receives 0.2-2000MHz, transmit 6/2 70 23cm, connector N type. High sensitivity with an amazing range of transmitting frequencies. Comes complete with mounting hardware & brackets. SSP £49.99.

SPECIAL OFFER **£39.95** P&P £8.50

### DX-10 (R.F. SYSTEMS)



A superb quality active antenna with a very high intercept point ideal for weak signal reception without increases in radiated noise. A truly amazing antenna! Freq: 100kHz-30MHz. Bomb-proof over loading figures, 90cm long, mains PSU + controller supplied (coax optional). Atmospheric-noise compensated sensitivity.

**£159.95** DEL £10.00

### AIR-44



(Airband base)  
Prof quality base antenna for AIRBAND. (Civil & military). With SO-239 fitting (1.7m long). Gain 4.5 7dB.

PROFESSIONAL QUALITY

**£69.95** P&P £8.50

AIR-33 (As above) 1m long. Gain 3/6dB.  
**£44.95** P&P £8.50

### NEW WSK-3000



Weather satellite antenna kit includes:  
A) A 2 element crossed dipole for receiving weather satellite pictures.  
B) Software for your PC. No interface needed (use your PC's sound card). Available at £4.50 extra. Requires scanner or receiver. SSP £44.95.

SPECIAL OFFER **£29.95** P&P £8.50

### MLBA (R.F. SYSTEMS)



Ready assembled wire antenna offering low noise reception on long, medium, short wave (100kHz-40MHz) 12.5mtrs long. Magnetically coupled transfer system ensures reduced static noise levels and allows unwanted build-up to leak harmlessly to earth without damaging the receiver. (Subject to recvr. being earthed).

**£59.95** POST £5.00

### GLOBAL AT-2000



Deluxe SW ATU 0-30MHz. SO239 fittings.

ONLY **£85.00**

(Probably the best ATU around) P&P £5

PATCH LEADS AVAILABLE IF REQUIRED.

### MINI-WINDOM



A low cost, superb passive broadband (500kHz-30MHz) antenna useable down to 150kHz. Ideal for indoor or outdoor use and at only 4mtrs long you most certainly will find the space! Using magnetic transfer technology, interference & noise is minimised. Ready assembled + PL-259/coax.

ONLY **£39.95** P&P £4.00

### MLB (R.F. SYSTEMS)



The MLB contains a special impedance matching transformer which converts any piece of wire between 6 and 20 metres long into a wide band receiving antenna. 100kHz-40MHz. Low noise - probably the best there is!

**£39.95** POST £3.00

### INTERFERENCE STOP IT



Rectangular snap-fixing ferrite cores suitable for: Radio coax/TV/mains/telephone PC & data cables. Plastic teeth prevent it from sliding on cable. Simply snap close onto cable and job is done! **2 for £7.95** (P&P £2.50)



**FERRITE RINGS**  
10 for **£10.00** or *Superb quality*  
20 for **£15.00** P&P £3.00

### NEW ACT-2010



Mini active antenna. ★ Ideal for all scanners/SW receivers ★ 15-24dB gain ★ 5MHz-1.8GHz ★ 2AA battery or ext DC 3V. Comes complete within flying lead with BNC.

OUR PRICE **£69.95** P&P £4.00

### DPX-30 ANTENNA DUPLER/COMBINER



Ant A (0-30MHz) } To receiver low  
Ant B (30-2000MHz) } insertion loss  
**£49.95**  
Allows two antennas to be connected to one receiver without interaction. P&P £3.50

### RECHARGEABLE ALKALINE CELLS



Starter kit includes charger & 4 x AA cells. **£13.99** + £2.50 P&P.

Please note that only the special cells can be recharged with this charger.  
Extra cells available @ 8 x AA pack £10.99 £1 P&P  
4 x AA pack £5.99 £1 P&P 4 x AAA £6.25 £1 P&P. Rechargeable Alkaline. No memory effects. 1.5V cells. 3 x capacity of nicads.

### SP-3 (PROFESSIONAL)



Two way combiner. one antenna feeds two scanners (without mismatch). 10-2500MHz. High isolation (BNC sockets).

**£49.95** P&P £3.00

### SP-1 TWO WAY COMBINER (PROFESSIONAL)



Very high quality combiner allows two short wave receivers to be connected to one antenna without interaction. 50kHz-30MHz (SO-239 fitting).

**£49.95** P&P £3.00

# HAYDON

Communications



**Mail order: 01708 862524**

PRICES SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. PLEASE VERIFY BEFORE ORDERING. E&OE.

NEXT DAY DELIVERY TO MOST AREAS, £10.00.

## hand-held scanners



### ICOM IC-R3

'A first!' TV/video picture & sound! Certainly a gadget for the future - see things you didn't know existed! A wide-band scanner covering 0.5-2.3GHz (AM, FM/WFM) with "TFT" colour display.

**NOW AVAILABLE £449.00**

NEW ACT-2000 superb indoor active antenna. (5MHz-1.8GHz). See your picture & sound improve! £69.95 P&P £4.00

## mobile base scanners

### NEW AR8600



Extremely versatile all mode receiver (530kHz-2040MHz).

REDUCED PRICE  
**£649.95**

AR5000.....£1345 SDU5500.....£799  
AR5000+3.....£1549 AR3000A.....£699

## shortwave receivers

### REALISTIC DX-394



★ Superb performance SW receiver ★ 0.2-30MHz (all mode)  
★ Selectable tuning steps (down to 100Hz)  
★ 240 or 12V ★ Digital S-meter ★ Attenuator ★ Key pad entry ★ 160 memories ★ Noise blanker. Was £299.00.

**SPECIAL OFFER £149.95** P&P £10

### AR8200 SERIES-2



Never before has one hand portable offered so much.

- ★ Covers 530kHz-2040MHz (all mode)
- ★ Computer control capability
- ★ 8-33kHz steps for the new airband spacing
- ★ Reaction tune capability
- ★ Includes nicads/charger/antenna and car lead.

**SALE PRICE £389.00**

Soft case for AR8200.....£19.99

### YAESU UR-5000



0.1-2.6GHz all mode receiver with DSP (optional) bandscope/world clock and too much more to print.

A SNIP AT **£649.00**  
(incl's PSU)

The latest state-of-the-art wideband communications receiver

PREVIOUS PRICE £629.00

### NRD-345



Superb performance communications receiver (0.1-30MHz) all mode.

**SPECIAL OFFER £369.95**  
LAST BATCH JUST ARRIVED!

Optional power supply.....£24.95

### ALINCO DJ-X3



Micro-handly scanner. 100kHz-1300MHz. 700 memories/stereo FM (earphones)/attenuator/bug detector/audio descrambler. AM, FM, WFM/ Selectable tuning steps (incl's 8.33kHz).

**£129.95**  
(incl's batteries charger)

### ICOM IC-8500



Next generation wideband receiver. 0.1-2GHz. (All mode)

**SPECIAL OFFER £1199.00**

2 YR G'EE Latest UK version

2 YR G'EE

### ICOM IC-R75



The short wave receiver for the true enthusiast.  
● 0.03-60MHz (all mode). ● Synchronous AM detection  
● PC control capability.

\*\*\* WRTI gave it 1 star rating.

Optional DSP unit £85.00

**OUR PRICE £629.00**

### MVT-7300EU



- Compact wideband hand-held receiver
- Covers 521kHz-1300MHz (all mode)
- 8.33kHz steps
- De-scrambler

**SPECIAL OFFER £259.00**

Optional nicads/charger.....£19.95

### FAIRHAVEN RD-5000X+



Superb wideband receiver (all mode) with over 50,000 memories capable of holding text. 20kHz-1750MHz.

**SALE PRICE £799.00**

UK'S NO1 PERFORMER.

SSP: £999.00

## frequency finders



WATSON HUNTER frequency counter covers 10MHz-3GHz. Incl's nicad/charger/antenna.

**ONLY £59.95 P&P £5.**

Techtoyz micro counter.....£69.95  
Opto Cub frequency counter.....£99.95  
Opto Mini Scout 10MHz-1.4GHz.....£139.00  
Opto Scout (400 memories).....£349.95  
Opto CD-100 multicounter.....£299.95

### MVT-7100EU



Wideband hand-held scanner covers 500kHz-1650MHz. (All mode). Includes nicad/car charger/charger/antenna. Extremely user-friendly hand-held receiver with outstanding performance unmatched by its rivals.

**SPECIAL OFFER £199.95**

Soft case for 7100EU/9000 - specify. £19.99

### ICOM PCR-1000



The PCR-1000 connects externally to your computer and offers exceptional receiver performance 0.5-1300MHz. (All mode).

**ONLY £289.00**

PSU & PC lead included.

Optional DSP unit.....£84.95

## REACTION TUNE COMBO



### Mini Scout + AR8200

Complete with lead ALL FOR

**£545.00**

CD-100 AR8200 combo.....special price £649.00  
Full Scout +AR8200 combo.....£749.00

### ICOM IC-R2



Miniature wideband hand-held scanner covers 0.5-1300MHz (AM, FM/WFM). Search banks memories and many more features.

**SPECIAL OFFER £129.95**

Soft case for IC-R2.....£16.99

### BEARCAT UBC-9000KLT



25-1300MHz wideband desktop scanner with turbo scan. (Selectable AM, FM/WFM).

Selectable tuning steps + alpha-numeric tagging.

"Our best selling desk-top scanner"

**SPECIAL OFFER £249.00**

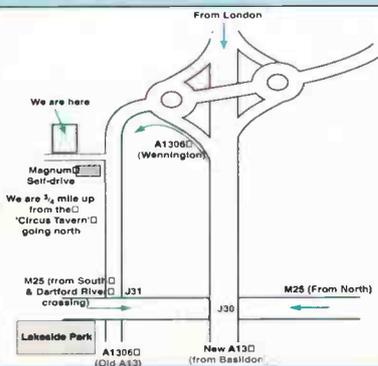
## SECONDHAND SELECTION

MVT-7200 as new.....£179.95  
AR3000 base scanner all mode.....£399.00  
SDU5000 monitor scope.....£399.00  
Signal R-535 (VHF-UHF) airband.....£249.00  
FRG-100 SW receiver as new.....£299.00  
IC-R75 + DSP as new.....£499.00  
IC-R10 as new.....£229.00  
AR8000 as new.....£199.00  
VR-500 as new.....£169.00  
MVT-7100 as new.....£149.00  
MVT-9000 as new.....£249.00

## THURROCK, ESSEX SHOWROOM & MAIL ORDER:

Unit 1, Thurrock Commercial Park,  
Purfleet Industrial Estate, London Rd,  
Nr. Aveley, Essex RM15 4YD  
TEL: 01708 862524  
FAX: 01708 868441  
Open Mon - Fri 8am - 4.30pm.  
Sat 8am - 1.00pm.

**5 mins from  
Lakeside**



## W. MIDLANDS SHOWROOM

Unit 1, Canal View Ind. Est.,  
Brettel Lane,  
Brierley Hill  
W. Mids.  
DY5 3LQ

Open Mon-Fri 9.30-5pm.  
Sat 9.30-1pm

**NO MAIL ORDER TO  
MIDLANDS BRANCH**

## portable receivers

### WORLDSPACE HITACHI RH-WS1



Over 40 channels of crystal-clear, fade-free programming direct from satellite to your portable digital radio. Original RRP £249.00.

OUR PRICE  
**£99.95** Incl del

Optional outdoor Yagi antenna kit £50.00

**HEAR SIGNALS FROM OUTER SPACE**

## items of interest

### WORLDSPACE ANTENNA



Picture for illustration only

4 element yagi (outdoor). Under 12" long! (You don't need a huge antenna like the one shown!). Supplied as a complete kit with 25m of coax plus a low noise amplifier. Easy to fit.

**£49.95** P&P £7.00

## garmin gps products

### GPS-12 NAVIGATOR



(Now with 24 hour battery life) 12 channel receiver. Includes: UTM, ordnance survey, waterproof to IPX-7 standard).

Normal sale price £129.95.

**LATEST MODEL**

**CRAZY PRICE**

**£99.95**

SUBJECT TO AVAILABILITY

## SANGEAN ATS-818 ACS



★ Portable SW receiver with built-in cassette deck  
★ 54 memory presets  
★ Continuous coverage 150kHz-30MHz (all mode)  
★ SW tuning in 1kHz steps  
★ FM coverage 87.5-108MHz.

SSP £199.95

SPECIAL OFFER **£119.95** P&P £10

## JM-838



JUMBO WALL/DESK CLOCK.

● Wide screen/2" digit time display ● Barometer  
● Calender ● Temp  
● Auto RF synch clock from Rugby.

PRICE **£59.99** P&P £4.50

## GARMIN ETREX SUMMIT



First combination GPS, altimeter and electronic compass in one small box.

**WATER PROOF**

SALE PRICE

**£189.95**

Etrx "CAMO"	new model .....	£129.95
Etrx	Special offer .....	£109.95
Emap	Special offer .....	£199.95

## SONY SW-100E



★ Miniature portable all mode SW receiver ★ Station presets for 50 frequencies ★ Single side band system ★ Synchronous detector ★ Tuning in 100Hz + 1kHz steps ★ Includes compact antenna/stereo earphones/carrying case RRP £229.95.

SPECIAL OFFER **£139.95** P&P £10

ACE-30	PSU for above .....	£24.95
AN-100	Active antenna .....	£64.95

## BAR-888U



WEATHER/RADIO CONTROLLED CLOCK.

● Supplied with one remote (wireless) sensor ● Weather forecast ● Barometer  
● 24 hr "radio" clock  
● Thermometer

**£69.95** P&P £4

## GARMIN GPSIII+



Powered by AA cells or 13.8V, this compact navigational system gives detailed maps of the UK & Europe. Supplied with data lead and free on-board maps.

Includes FREE map source CD worth £77.00.

SALE PRICE **£349.95**

★ ★ SAVE £77.00 ★ ★

## SONY SW-30



The ideal holiday partner!

★ Fully digital world receiver  
★ FM/MW/SW ★ Covers all short wave broadcast/MW plus FM stereo (on h/phones)  
★ Programmable memories  
★ Sleep timer + alarm function  
★ 1kHz tuning for short wave.

RRP £79.95.

HALF PRICE **£39.95** P&P £7.00

## Q-TEK APOLLO 2000 MWII



A brilliant new compact indoor antenna that covers 0-1650MHz and is just 20" tall (collapsed). Supplied with coax and BNC plug fitted.

Ideal for table top mounding or by the window.

ONLY **£49.95** P&P £5

## GARMIN STREET PILOT



UK's most popular GPS system. You may know where your coming from but do you know where your going? Garmin knows both. Superb-ready to use

(with maps) car GPS.

SPECIAL OFFER **£399.00**

Garmin Street Pilot UK combo kit complete ready to go **£489.00**

## SANGEAN ATS-909



A superb performance portable/base synthesized world receiver with true SSB and 40Hz tuning for ultra clean reception. The same radio is sold under the

Roberts name at nearly twice the price. Other features include RDS facility, 306 memories and FM stereo through headphones. The ATS-909 represents superb value for money.

SPECIAL OFFER **£139.00** P&P £10

## REGULAR-GAINER RH-770

BNC 21cm flexible whip that is ideal as replacement

OUR PRICE **£14.95** P&P £1.50

## SUPER-GAINER RH-9000

BNC 40cm flexible model for the ultimate in gain.

OUR PRICE **£19.95** P&P £1.50

## STREET PILOT COLOUR KIT



Includes 16 meg cartridge

Package includes UK metro guide mapsource CD, 16 megabyte datacard, PC interface cable, cigarette lighter adaptor, portable antenna + dashboard mount.

SPECIAL OFFER **£649.00**

Garmin Street Pilot colour **£549.00**

SSB Special



SSB utilities

Special

In this year's 'SSB Utilities' Special, Graham Tanner concentrates on just one particular aircraft type, and provides a complete list of KC-10A selcall codes.

Over the past few years in my 'SSB Utilities' special issues I have mentioned various USAF aircraft and ways to identify them when heard on h.f. A few years ago I gave an explanation of the way that tail-numbers for various USAF aircraft were allocated, along with a listing for the major transport types with some typical callsigns.

Last year I gave a rundown on the way that the USAF uses ALE (Automatic Link Establishment), along with a long list of ALE IDs for the various transport types that are likely to be heard. This time I am going to concentrate on just one particular aircraft type, and provide some more detailed information. I also have a complete list of KC-10A selcall codes for those of you who spend countless hours listening to long-distance air routes.

### Origins

During the mid 1970s the USAF fleet of KC-135 tanker aircraft varied in age from over 20 years old to just over 12 years old, but with the majority of the aircraft rapidly using-up their flying-hours during the 1960s and 1970s operating in Asia. The USAF needed a replacement aircraft, and asked American aircraft manufacturers for proposals and suggestions.

Boeing offered a modified Boeing 747 with a refuelling boom, while Lockheed suggested their L-1011 TriStar with a similar boom. The suggestion from McDonnell Douglas was a modified DC-10

aircraft with a refuelling boom and a large cargo door on the forward fuselage.

The USAF decided on the DC-10 aircraft, and ordered 60 aircraft from McDonnell Douglas, to be delivered over

eight years. In service with the USAF the type was given the designation 'KC-10A Extender'. The first KC-10A was delivered to the USAF in 1981, and the last one in 1989.

The KC-10A has nearly 90% commonality with its civil counterpart the DC-10, with the difference comprising the refuelling equipment, extra fuel tanks, military communications equipment, a forward cargo-door and the associated cargo handling systems. The large cargo door can accept most of the support equipment required to support a fighter unit flying overseas, allowing the KC-10A to refuel the fighters to their destination, and to carry all their ground equipment and support personnel.

In addition to the three main DC-10 wing fuel tanks, the KC-10A has three large fuel tanks under the cargo floor, one under the forward lower cargo compartment, one in the centre wing area and one under the rear compartment. Combined, the capacity of the six tanks carry more than 160,200kg of fuel - almost twice as much as the KC-135 Stratotanker.

Unlike the KC-135, the KC-10A can be air-refuelled by a KC-135 or another KC-10A to increase its range, and all the fuel it receives in this way can then be off-loaded to waiting fighters or transport aircraft.

### Operators

The USAF fleet of KC-10A Extender aircraft is based at two different Air Force Bases in the USA, one on the west coast and one on the east coast.

The KC-10A is operated by the 305th Air Mobility Wing (AMW) based at McGuire AFB in New Jersey on the east coast, and the 60th Air Mobility Wing at Travis AFB in California. These two Wings each consist of two Air Refuelling Squadrons (ARS) - the 2nd ARS and 32nd ARS make up the 305th AMW and the 6th ARS and 9th

ARS make up the 60th AMW.

There are also two Air Force Reserve Associate units who operate the KC-10A, but they do not have their own aircraft, they use aircraft from their parent Wings. The 349th AMW is based at Travis AFB and the 514th AMW is based at McGuire AFB. The following callsigns have been used in recent years by the above Wings:

**60th AMW** Astro, Hoist, Ouzi, Primo, Snap, Toner, Garbo, Elite, Gucci, Petro, Shamu, Toga  
**305th AMW** Gumbo, Opec, Debar, Hoist, Petro, Deuce, Primo, Team

There are some callsigns which appear to be used by both Wings, as there is conflicting information on their usage. The KC-10A is often used when Coronet's take place. These are large scale transfers of fighter aircraft from one location to another. Typically, these involve the swap-over of aircraft in the Gulf region, Turkey, Italy, or other parts of Europe, or the delivery of new aircraft to allied nations via airfields in Europe. On these occasions, typical callsigns are Adobe, Bobby and Cube.

### El Dorado Canyon

One of the most memorable events involving the KC-10A aircraft which I can remember was its participation in *Operation El Dorado Canyon* during 1986, when a fleet of fighter-bombers flew all the way from UK to the Mediterranean Sea to attack Libya.

In April 1986 two RAF airfields in the UK suddenly filled-up with KC-10A aircraft. This was quite extraordinary, as up until then it was only usual to see one or two aircraft at a time. RAF Fairford in Gloucestershire was hosting nine aircraft, while RAF Mildenhall in Suffolk had a further 15 aircraft.

One evening I went with a friend



A USAF KC-10A 'Extender' landing at RAF Sculthorpe in 1987, having refuelled six Air National Guard A-7D Corsairs across the Atlantic. Graham Tanner

straight from work to RAF Mildenhall to see these aircraft, and when we arrived we were most surprised to see them all queuing-up to depart. While we watched them taking-off we were aware of a number of F-111F aircraft departing from nearby RAF Lakenheath, with the evening twilight lit by the glow from their afterburners. By the middle of the evening peace had returned, and we

drove home none the wiser.

Early the following morning the newspapers and radio reports were full of stories of USAF and US Navy aircraft attacking Libya overnight, and it suddenly occurred to me that we had seen many of these aircraft departing from the UK just the previous evening. From all the media report we managed to piece together what had happened.

**Table 1: KC-10A Extender - The Fleet.**

Tail number	ALE ID	Unit	Selcall
79-0433	490433	32nd ARS	LM-AP
79-0434	490434	2nd ARS	LM-KR
79-1710	491710	2nd ARS	LM-PR
79-1711	491711	32nd ARS	GJ-AQ
79-1712	491712	2nd ARS	GM-ER
79-1713	491713	32nd ARS	GQ-AK
79-1946	491946	9th ARS	GQ-BL
79-1947	491947	2nd ARS	GR-EH
79-1948	491948	6th ARS	GR-FS
79-1949	491949	32nd ARS	GR-HQ
79-1950	491950	6th ARS	GS-JP
79-1951	491951	6th ARS	GS-KM
82-0191	420191	6th ARS	HJ-AQ
82-0192	420192	9th ARS	HK-DS
82-0193	420193	6th ARS	HK-PQ
83-0075	430075	6th ARS	KL-CR
83-0076	430076	6th ARS	HL-KQ
83-0077	430077	9th ARS	HM-BQ
83-0078	430078	6th ARS	HQ-GS
83-0079	430079	2nd ARS	HQ-LR
83-0080	430080	6th ARS	HR-KS
83-0081	430081	32nd ARS	HS-BC
83-0082	430082	32nd ARS	LM-AP
84-0185	440185	6th ARS	LM-KR
84-0186	440186	2nd ARS	LM-PR
84-0187	440187	6th ARS	GJ-AQ
84-0188	440188	32nd ARS	GM-ER
84-0189	440189	6th ARS	GQ-AK
84-0190	440190	2nd ARS	GQ-BL
84-0191	440191	6th ARS	GR-EH
84-0192	440192	2nd ARS	GR-FS
85-0027	450027	2nd ARS	GR-HQ
85-0028	450028	2nd ARS	GS-JP
85-0029	450029	9th ARS	GS-KM
85-0030	450030	32nd ARS	HJ-AQ
85-0031	450031	2nd ARS	HK-DS
85-0032	450032	32nd ARS	HK-PQ
85-0033	450033	32nd ARS	HL-CR
85-0034	450034	2nd ARS	HL-KQ
86-0027	460027	32nd ARS	HK-BQ
86-0028	460028	2nd ARS	HQ-GS
86-0029	460029	9th ARS	HQ-LR
86-0030	460030	32nd ARS	HR-LS
86-0031	460031	9th ARS	HS-BC
86-0032	460032	9th ARS	LM-AP
86-0033	460033	9th ARS	LM-KR
86-0034	460034	9th ARS	LM-PR
86-0035	460035	32nd ARS	GJ-AQ
86-0036	460036	2nd ARS	GM-ER
86-0037	460037	9th ARS	GQ-AK
86-0038	460038	9th ARS	GQ-BL
87-0117	470117	9th ARS	GR-EH
87-0118	470118	6th ARS	GR-FS
87-0119	470119	9th ARS	GR-HQ
87-0120	470120	32nd ARS	GS-JP
87-0121	470121	2nd ARS	GS-KM
87-0122	470122	32nd ARS	HJ-AQ
87-0123	470123	32nd ARS	HK-DS
87-0124	470124	2nd ARS	HK-PQ

The KC-10A aircraft and F-111F fighter-bombers had departed from the UK and flown due west out into the Atlantic, where they turned south. The F-111Fs were refuelled several times by the KC-10s before they entered the Mediterranean Sea via the Straits of Gibraltar. After attacking Libya the aircraft retraced their route back into the Atlantic, across the Bay of Biscay to the south-western approaches, and back to their bases in the UK. On the return journey all the F-111Fs took-on more fuel from the KC-10s.

Analysis of **Table 1** shows that there are no less than 13 examples of a single selcall code being shared by three different aircraft, and that only four aircraft have a unique selcall code amongst the whole fleet of KC-10A aircraft. This explains why there is so much confusion concerning KC-10A selcalls.

The problem with military aircraft in general, but particularly so with transport aircraft, is that they may file a flight-plan for one aircraft, but on the day that aircraft may be unserviceable so another aircraft does the flight using the original plan and original callsign. Therefore the aircraft heard by unsuspecting listeners uses the original callsign, but uses its proper selcall code; people then 'assume' the tail-number from the callsign (which is incorrect), and then assign the selcall to that tail-number. Hence all the confusion.

### The Future

One problem common to the KC-10A and its KC-135 predecessor is that both only have the ability to refuel a single aircraft at any one time. The KC-135 has a single boom, but this can be fitted with a 'basket' to refuel US Navy and US Marine Corps aircraft and suitable equipped aircraft of NATO forces.

However, this set-up cannot be changed once in the air. The KC-10A has two separate refuelling systems - a flying boom and a hose and drogue - but only one can be used at any one time. To extend the capabilities of the KC-10A they are being modified to carry wing-mounted pods which will contain a hose-and-drogue system. This will, in theory, give the KC-10A the capability to refuel three aircraft at once - one from each wing pod and one from the centre boom or hose - but I have not seen any evidence that this has been tried yet.

Within the past five years the entire KC-10A fleet has undergone various upgrades, and the most relevant one for h.f. listeners is the inclusion of selcalls.

### KC-10A Aircraft Characteristics

#### Primary Function:

Aerial tanker and transport

#### Prime Contractor:

Douglas Aircraft Co., a division of The Boeing Company

#### Power Plant:

Three General Electric CF6-50C2 turbofans

#### Thrust:

23,625kg, each engine

#### Length:

54.4m

#### Height:

17.4m

#### Wingspan:

50m

#### Speed:

535kt (Mach 0.825)

#### Ceiling:

42,000 feet

#### Maximum Takeoff

#### Weight:

265,500kg

#### Range:

(3,800 nautical miles)

(10,000 nautical miles)

#### Maximum Cargo

#### Payload:

76,560kg

#### Maximum Fuel Load:

160,200kg

#### Crew:

Four (aircraft commander, pilot, flight engineer and boom operator)

#### Inventory:

Active force, 59;

ANG, 0; Reserve, 0

SWM



# THE ROYAL INTERNATIONAL

15 pairs of tickets up for grabs...worth £870

**H**elp the RIAT celebrate its 30th anniversary over the weekend of **28/29 July 2001** at RAF Cottesmore in Rutland, home to Britain's famous Harrier 'Jump Jet'. So, fasten your seatbelt and get ready to take off with Europe's biggest airshow for the ultimate aviation experience of the year!

You can **win a pair of tickets** to the Tattoo - all you have to do to enter is answer the questions set out opposite, fill in the form and send your entries to us here at **Short Wave Magazine, Air Tattoo Competition, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Closing date is 29th June.** Photocopies of the form are acceptable, as long as they have the **original** corner flash attached. Best of luck!

## Aces High

RIAT 2001 will feature 350 fascinating aircraft, with old favourites like the Spitfire, the classic Hawker Hunter jet and majestic Lancaster sharing the skies with the next generation Eurofighter. There will also be sensational performances from some of the world's leading Top Guns, including the superstar Red Arrows and other high-flying aerobatic teams.

## Ground Alert

If you can take your eyes off the skies for just a few moments you'll find 250 aircraft in the static-line display, plus a fantastic show-ground party with stalls, exhibitions, roadshows, celebrities, aircrews, entertainers, buskers, marching bands, and flight simulators. This is also your chance to meet the international aircrew face to face - and to sit in the cockpit of some of the world's sleekest fighters.

## Salute to Women in Aviation

Britain's first woman pilot, Mrs Hilda Hewlett, was awarded a pilots licence in August 1911. Ninety years later RIAT 2001 will pay tribute to women pilots, aircrew and ground staff, representing the Royal Air Force and other air arms across the world. Airshow visitors will also meet some of the women who fly today's civil aircraft, together with members of the Air Transport Auxiliary who served so bravely during World War II.

## Training 2001

Pilots appearing at RIAT 2001 are products of cutting-edge 21st century training for military aviators, which includes state-of-the-art flight simulators, hi-tech classroom aids and exercise sorties. The Tattoo will be a unique insight into the training techniques that prepare air and ground crews for the increasingly complex demands of modern airpower.

## 60 Years of the Air Training Corps

What do Linford Christie, one of the world's top athletes, and actor Timothy Dalton, who has played the ultimate action hero James Bond, have in common? They are both past members of the Air Training Corps (ATC). The ATC, formed in 1941, is now one of Britain's largest and most successful youth organisations with 37,000 members. RIAT 2001 will celebrate 60 years of ATC achievements.

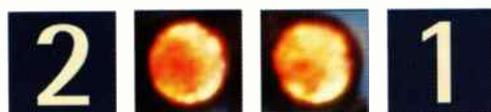


## Free Evening Concert Just add a picnic

Even when the flying display ends, the entertainment is not over. The Airshow Proms ring up the curtain on a two-hour free concert performed Royal Air Force Bands and guest performers - while you enjoy your family picnic, listen to the music and marvel at the splendid sight of 40 hot air balloons launching into the evening sky.



The Royal International Air Tattoo





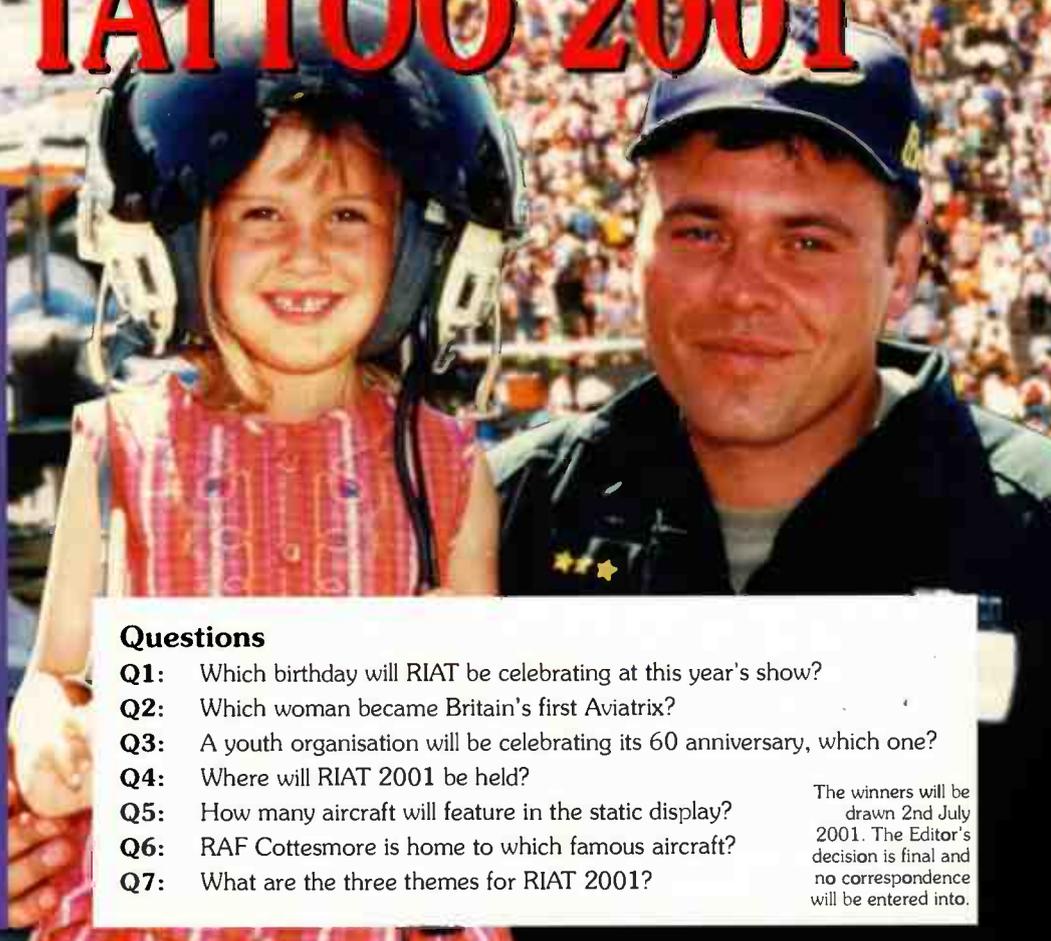
# NATIONAL AIR TATTOO 2001

## Timetable

The public gates to RAF Cottesmore, located off the A1 near the market town of Oakham, open at 0730 on Saturday and Sunday 28/29 July. The eight-hour flying display starts at 1000.

## Tattoo Admission

Advance adult tickets £23.95, on the day £29.00. Children under 16 free. Get the latest Tattoo news at [www.airtattoo.com](http://www.airtattoo.com) or for bookings, admission tickets, etc., call (0870) 241 0303. For up-to-date information about RIAT 2001 'phone the RIAT Information Line on (09068) 122999.



## Questions

- Q1: Which birthday will RIAT be celebrating at this year's show?
- Q2: Which woman became Britain's first Aviatix?
- Q3: A youth organisation will be celebrating its 60 anniversary, which one?
- Q4: Where will RIAT 2001 be held?
- Q5: How many aircraft will feature in the static display?
- Q6: RAF Cottesmore is home to which famous aircraft?
- Q7: What are the three themes for RIAT 2001?

The winners will be drawn 2nd July 2001. The Editor's decision is final and no correspondence will be entered into.

## ENTRY COUPON

Answer the questions set out below, and post your entry to **Short Wave Magazine, Air Tattoo Competition, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.**

### Answers

- Q1: .....
- Q2: .....
- Q3: .....
- Q4: .....
- Q5: .....
- Q6: .....
- Q7: .....

Name .....

Address .....

Post Code .....

Tel: .....

E-mail: .....

**Entries must reach us by 29th June 2001.**

From time to time the RAF Benevolent Fund may wish to send you details of other events or services, which they feel may be of interest to you. Please tick the box if you do not wish to receive this information.

■ **GRAHAM TANNER, 64 ATTLEE ROAD, HAYES, MIDDLESEX UB4 9JE**

■ **E-MAIL:** [ssb.ufils@pwpublishing.ltd.uk](mailto:ssb.ufils@pwpublishing.ltd.uk)

# SSB Special

# SSB Utilities

## the column

### She Files Again!

**F**ollowing the disastrous crash of an Air France Concorde at Paris in July 2000 the entire fleet of Concorde have been grounded except for special flights. So far, the only flights allowed have been flights from Paris to Istres in the south of France for tests, and back again. Both Air France and British Airways have publicly stated that they want to get their Concorde back flying again, and are still hopeful that they will be in service again this summer.

This took a giant step forward during early April when an Air France flight was heard working Stockholm Aeradio with a phone-patch to its Air France Operations in Paris. On the 11th April 2001 Air France Concorde F-BTSD called Stockholm Aeradio on 8.930MHz as they passed 48°N 005°W at speed Mach 1.0 and higher, and asked for a phone-patch with Air France Operations in Paris. Once connected, there followed a conversation in French - just a little too fast for me to fully understand - but I did manage to hear that 'everything was operating okay'. A while later Stockholm requested that the flight should QSY to 11.345MHz for a selcall check. They never showed up on that frequency, so I suspect that they eventually returned to 8.930MHz.

As a final postscript to the above, as I was preparing to send this column off to the Editorial offices, the BBC News showed footage of an Air France Concorde departing from Paris for a military test airfield in the South of France so that new tyres can be fitted and tested.

### New GHFS Station

In a surprise move (to me at least) the US Forces have 'opened' a new GHFS station as part of the 'Scope Command' Network. At the start of April listeners started to report hearing Emergency Action messages on some new and different frequencies. Everything became perfectly clear when a 'Reach' flight contacted Andrews Global and was given the list of frequencies for the new 'Sigonella' GHFS. The primary frequency is **6.724MHz** which is a well-known USAF frequency. They have also been heard on 9.007, 11.271 and 18.015MHz.

**NAS Sigonella** is on the island of Sicily, at the southern end of Italy, and has been one of the most important US Naval installations in Europe for many years. It has now become a Navy Tactical Support Centre, and I suspect that is why it has

acquired its status as part of the 'Scope Command' network.

**Update:** Just as I was preparing to send this column off to the Editorial Offices I found a NOTAM which confirms details of the change.

### "Air/Ground Facility change effective 1st May 2001:

Incirlik AB, Turkey Global HF System Station will be decommissioned and replaced by a new station located at Sigonella, Italy. Aircrews are to contact the Sigonella station on the following frequencies - summer and winter 1600-0400Z. Freq. 4.709MHz, 24 Hours freq. 6.724MHz, 24 hours freq. 9.007MHz, 24 hours freq. 11.271MHz, 0400-1600Z freq 15.038MHz. Note: Information will be published in the next *Flight Information Handbook* (FIH) effective Aug 10".

### Letters

Last month I answered a lot of questions for **Steve Jerome**. In fact, he asked so many questions that they have spilled over to this month. Steve is just starting to listen to h.f. using his Yupiteru MVT-7100, and is finding all the usual problems and questions that other 'newbies' encounter.

Steve asks if it is correct that higher frequencies are generally better during the day and the lower ones at night, and is night-time listening generally better overall? Well the answer to that question could fill several books, and there are so many variable factors that need to be considered. You need to consider if the signal path between your receiver and the transmitting station is in darkness or sunlight. If the path is in darkness then lower frequencies should be better, and if the path is in sunlight then higher frequencies may be better.

Steve asks that if you cannot scan h.f. frequencies, how do you know which ones to listen to? For example, there are lots of Shanwick frequencies, and are they assigned to particular Atlantic tracks?

Well Steve, a few years ago there was an article in *SWM* that explained how Shanwick used different frequencies for different routes - I know that I kept a copy of the article, but I can't find it at the moment. Maybe you could contact the *SWM* offices to see if they can locate the issue with the article. However, to briefly answer your question, aircraft crossing the North Atlantic using the NAT track system have a wide range of frequencies

available to them, but the choices are limited depending on the route flown.

There are five groups or networks of frequencies available in the NAT system - NAT-A to NAT-F (no NAT-E for some reason?), and each network has four h.f. frequencies available, spread between about 3 and 13MHz.

**NAT-A** is used by all aircraft flying the southerly routes across the Atlantic (say, Spain or Portugal area to Florida and the Caribbean).

**NAT-B** is used by aircraft flying the central or northern routes where the aircraft is registered in North, Central or South America.

**NAT-C** is used by aircraft flying the central or northern routes where the aircraft is registered in Europe, Africa, the Middle East or Asia.

**NAT-D** is used by aircraft flying the northern routes (say, UK to Iceland, then Greenland, and onto the northwestern USA and western Canada).

**NAT-F** is used by all aircraft using the polar routes.

This may seem quite straightforward at first, but consider the following scenario. Air France are currently leasing a Boeing 747 from an American company, and using it on their flights across the Atlantic on the 'central routes'. Using the above breakdown of the NAT network, you would be correct in assuming that the flight would be using either NAT-B or NAT-C.

As it is an Air France flight, you would naturally assume that the aircraft would be registered in France, and hence would use the NAT-C frequencies. However, the aircraft is actually still registered in the USA, so the flight should use the NAT-B frequencies. You also have to remember that you will never know in advance when this 'special' aircraft is operating the flight, so you would spend all your time listening to NAT-C, only to find that it had 'passed you by' on the NAT-B frequencies.

On the other hand, pilots who are more used to the NAT-C frequencies may naturally choose those instead of NAT-B - so maybe the flight would appear where you expect it. This is just a small example to show how you should expect the unexpected when listening to the NAT tracks.

The frequencies used by the stations in the NAT network - it's not just Shanwick, there are stations in Canada, Portugal and the USA - are well publicised in various frequency guides, but the only place that I can find which explains the breakdown of who uses which frequency is the *RAF En Route Supplement* covering the British Isles and North Atlantic. I have purposely not listed the NAT frequencies here, as I am sure they are well known and appear in print quite often - maybe it is time for another article covering this subject.

# JW on W-J x2

## - a tale of two pretties

John Wilson G3PCY shakes  
down a pair of Watkins-Johnson

desirables. How do they fare and why do they visit the EMC Centre's r.f. anechoic chamber?

"It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness.....", and so on. As with Dickens, so with my reviews which contain the best features of receivers and the worst; occasional wisdom and occasional foolishness, but the reason for the title is that the "Two Pretties" are a Watkins-Johnson HF-1000A and an 8711 from the same stable, and it has been a real privilege to have both these high priced receivers on the test bench at the same time. Actually, and it's fairly well known, the HF-1000A is a direct derivative of the 8711, and looking at my reference files of receiver brochures reveals that the HF-1000 sheets use the same photographs and performance graphs as the sheets for the 8711, so there can't be that much, if any, difference between the receivers themselves. The only immediate difference in the leaflet text is the absence of any mention of a notch filter in the 8711, but the notch function is certainly present in the 8711 I have been testing.

### Ultimate Accolade

Watkins-Johnson have been making high grade surveillance and monitoring receivers for a very long time, and enthusiasts

have always been keen to find their receivers on the second user market. In the early 1990s details were released of a stand-alone h.f. receiver, made for professional monitoring, and designated the model 8711. The unusual thing about the 8711 was that it employed d.s.p. at the end of the i.f. chain to provide a huge number of operating bandwidths, the standard issue receiver being configured for no less than 58, ranging from a few hertz wide to several kilohertz, thereby covering almost anything a user could want in any operating mode. A whole spectrum of h.f. listening enthusiasts were obviously interested, and Watkins-Johnson catered for that enthusiasm by introducing a second version of the receiver for the high-end hobby market called the HF-1000. I had the pleasure of tweaking the Watkins-Johnson tail at a convention we both attended in America, where I thanked Mike Cox K3GEG for giving my Lowe team the ultimate accolade by naming the new W-J receiver after the sequence we had already been using in the HF-125, HF-225, HF-235 and HF-150. Since that meeting things have changed, with Watkins-Johnson being broken up and sold to several buyers. If you look on the Watkins-Johnson web site today

you will find no mention of HF receivers because the HF receiver group still operating in Gaithersburg ended up as part of BAE Systems, so we have a British connection of sorts. The new Gaithersburg web site is at [www.sigintel.com](http://www.sigintel.com) where you will find details of the current

select each sideband. The receiver tunes in 1Hz steps, but the user can select any tuning step by using left/right buttons to move along the main frequency readout. I personally prefer this arrangement to the automatic speed-up found on many synthesised receivers, some of



The W-J 8711 (top) and HF-1000 are ostensibly the same radio.



Both finish and features vary however.

product lines. The HF-1000 is now discontinued, but the 8711A is still in the list.

The HF-1000 shows its professional upbringing by providing coverage from 5kHz to 30MHz in all modes including f.m., i.s.b. and synchronous a.m., although the synchronous a.m. does not allow the operator to

which decide to speed up or slow down the tuning rate at the most awkward times.

With all the i.f. bandwidths available there's not much one can say on that score, although I doubt if anyone would tell the difference between 94 and 100Hz. The best use of the different bandwidths is as an

# JW on W-J x2

## - a tale of two pretties

almost fully variable bandwidth control as provided in receivers such as the Kenwood R-820 many years ago, and in this respect the HF-1000 theoretically has bandwidth variable from 56Hz to 8kHz, but this is only

which the a.g.c. sits, thus giving a quiet background when listening to s.s.b. utilities. This is a selectable feature in the HF-1000, but is not mentioned in the information about the 8711. However, the facility operates in

together with scan step size and scan any frequency spectrum within the overall tuning range of the receiver. For medium wave enthusiasts 9kHz steps; for short wave 5kHz, for down converted v.h.f. 12.5kHz - whatever you need to do, the HF-1000 will do it.

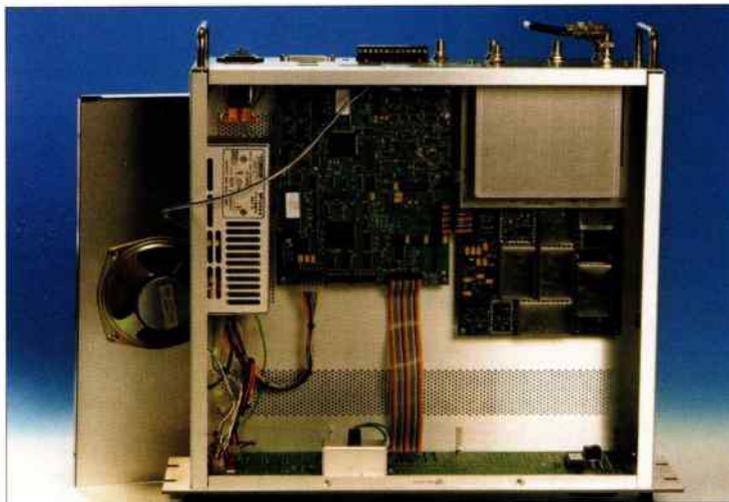
As one might expect, the r.f. performance of the 8711/HF-1000 is right in line with today's professional requirements. Quoted sensitivity (500kHz to 30MHz) is -112dBm in a 3.2kHz bandwidth for s.s.b./i.s.b., -116dBm for c.w. in a 300Hz bandwidth, and -103dBm for a.m. in a 6kHz bandwidth. This may not sound desperately whizzy, the s.s.b. sensitivity translating to a signal of 0.56µV, but it's ok for the majority of h.f. listening. A switchable preamplifier is provided for digging out weak signals in the quieter parts of the spectrum, usually above 20MHz, and a 15dB attenuator can also be switched in for those occasions when high powered signals drive the receiver into intermodulation. Third order intercept point is quoted as

30dBm typical, 25dBm minimum at 50kHz signal separation, whilst second order intercept point is a slightly disappointing +60dBm. Watkins-Johnson offer an optional band switched preselector unit of which I shall say more later. The preselector is an internal fitting.

That is a brief rundown on the basic facilities and performance of the HF-1000. How does it handle when used with an antenna and under the normal test regime I use on all review receivers?

### Handling

The HF-1000 is a good looking receiver in my eyes, largely because it occupies a full width panel carrying a control for (almost) everything so you drive it like a real radio without recourse to complicated menus. The control layout is very easy to understand, and because there are four bright displays with multiple functions on each, the operator has all the information needed right there in front of him (or her). The main frequency display shows eight digits, with a single decimal point separating MHz from kHz units. Left/right buttons underneath the display select the tuning rate, with the selected digit blinking to show which increment will change with tuning knob rotation. In use this is very easy and convenient, and gives you incredibly fine resolution at 1 or 10Hz increments, with instant access to racing speed frequency changes using the 1, 10 or 100kHz digits. You do need this speed of getting around because the receiver does not 'roll over' at each end of the tuning range, so if you are fiddling around trying to listen to



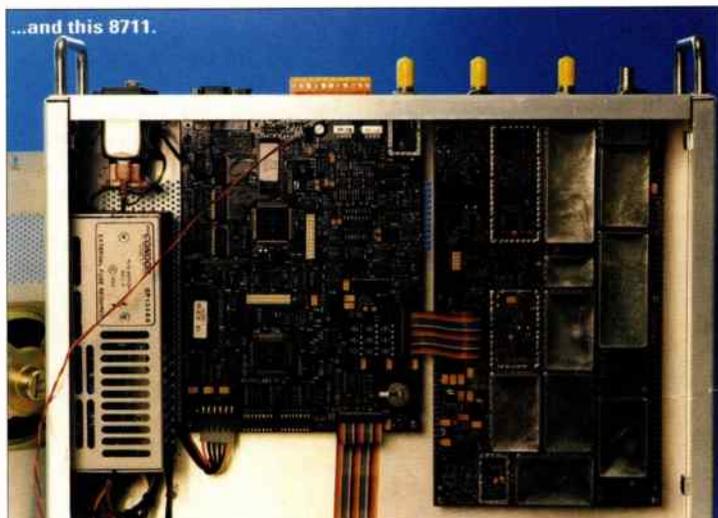
Compare the p.c.b.s and the firmware in HF-1000...

available by using a special function which is a bit tedious. Otherwise the variable bandwidth is limited to a suitable range according to selected mode, for example from 900Hz to 4kHz in u.s.b. or l.s.b. Alongside the variable bandwidth is a passband tuning system, but this is only available in c.w. mode which seems a bit short sighted and is a minor annoyance. Likewise the b.f.o. which is tunable in c.w. mode but not in the others. The last associated feature under this general heading is a fully tunable notch filter which is extremely good indeed, but is not available in c.w. mode because the knob you twiddle to tune the notch is used in c.w. to tune the b.f.o. offset. Frequency shift keyed (f.s.k.) modes have to be catered for by using the c.w. mode, there being no dedicated setting for f.s.k.

The HF-1000 uses a flexible a.g.c. system with three attack/decay time constants which can be tailored by the user within preset limits, together with a manual r.f. gain facility which again can be configured by the user to provide a 'pedestal' on

the 8711 in a different way in that if the operator selects manual gain control, the setting of the gain does not affect the signal strength reading on the front panel meter. Instead it allows you to reduce the gain until background noise is suppressed leaving the received signal standing out above the now silent background. The difficulty in this mode is that the a.g.c. is not operating, so a really strong signal will drive the 8711 into huge distortion (25 to 40%), whilst a weak signal will not be heard. The 8711 offers only two a.g.c. time constants against the three of the HF-1000 and lacks the provision for changing the decay times from the original default settings, unlike the HF-1000.

There are very comprehensive scanning facilities in both receivers, offering scanning of up to 100 memory channels, each containing complete receiver settings from the front panel. Since a fully adjustable all mode squelch system, calibrated in dBm is provided, each memory channel can have a different



submarines on 12kHz and need to get up to the 10m amateur band, you have to tune all the way there rather than tuning through zero to get to 30MHz. The tuning knob itself is large and obvious, but has the typical American dead feel. A finger recess is provided on the knob, but in both receivers I tested, this did not rotate so you rapidly realised that your fingertip was reaching a suitable temperature to light a Boy Scout's fire due to the friction generated. I would rate this as unacceptable in receivers of this class (and price).

The frequency entry keypad alongside the tuning knob is a delight to use, although the key tops have a strange shape on the HF-1000 which causes the occasional finger press of two keys, and I prefer the more conventional shape of the keys on the 8711. The keypad allows direct entry of many of the receiver functions simply by pressing the appropriate terminator key at the end of the numeric string. For example, entering 14.2 followed by 'M' puts you on to 14.2MHz, whilst entering 8864'K' tunes the receiver to 8864kHz. Entering +2400 followed by the 'BFO' key sets the b.f.o. to 2.4kHz above the receiver frequency. Similarly, terminating the numeric string with a poke at the 'NB' key can enter a noise blanker level. All clever; all well thought out; all simple.

The upper centre sub display shows the settings for a.g.c., b.f.o./Notch and noise blanker, whilst the lower centre display

shows settings for bandwidth, mode and squelch level. Below each display section is an illuminated push button that can either be used as a carousel type of selection or can transfer operation of the particular function to the digital shaft encoder at the bottom of the panel. This arrangement is truly excellent and instinctive to use, and as each button has a green l.e.d. in its centre to show that it is has been selected, a glance at the panel lets you know what is being controlled.

Below the shaft encoder is another button which selects a special function menu, the two receivers tested having a different menu selection. I don't know if all 8711 or all HF-1000 receivers have the same special functions enabled as the samples I tested, but I will limit myself to the HF-1000 in front of me as I write. The two main special functions most hobby users will find applicable are the pass band tune and the i.f. bandwidth. The pass band tune is smooth and easy to use, but as I noted earlier, is only available when in c.w. mode. Bad, bad mistake; it should be available in **all** modes. The i.f. bandwidth adjustment is available in all modes but has its bandwidth range limited by the mode in use, which again seems unnecessary for a hobby receiver under full local operator control. It's a small point but irritating none the less.

Alongside the upper sub display is a splendid moving coil signal strength meter calibrated in dB above 1µV, and this proved to

be very accurate over the whole range of the receiver. An interesting feature is that if you use manual gain control, with or without a.g.c., the signal meter reading remains the same, so either the 'r.f.' gain is presumably not of the type we find in other receivers, or the signal level metering is different. Quick scan of the circuit shows a PIN diode attenuator at 40.455MHz after the first mixer, whilst the signal level meter is driven from a DAC in the d.s.p. section. The diode attenuator is not driven by either a.g.c. or manual gain control, but is used to ensure that the level presented to the d.s.p. section is held within acceptable limits. I'm tempted to say "It's r.f. gain Jim, but not as we know it", but that betrays my age. I have not encountered such accurate measurement outside the professional test equipment field.

The left hand end of the panel is taken up by the memory and scan functions which are very comprehensive, well thought out and easy to use. As I said earlier, each memory channel contains all operational settings including squelch level, so h.f. channel monitoring is straightforward. The associated display tells you all you need to know, and it's rather relaxing to be able to glance at the HF-1000 panel and see exactly what the receiver is doing without a lot of button pressing.

Remaining controls deal with r.f. and a.f. gain, the HF-1000 having separate audio controls for the phones and speaker levels, a button for selecting the r.f. preamplifier, straight through

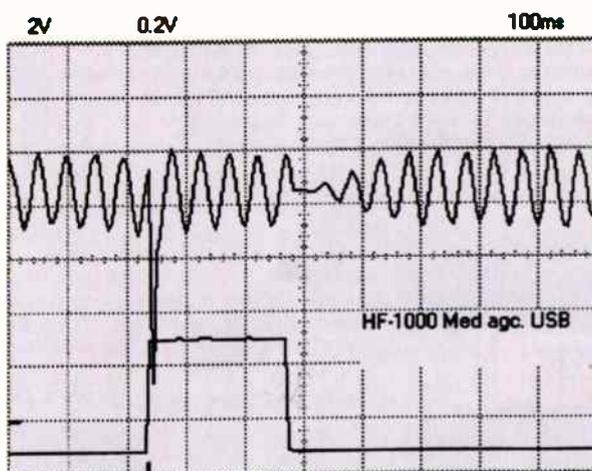
operation or 15dB attenuator and a button for selection of demodulated signals in u.s.b., l.s.b. or i.s.b. mode.

In use, the HF-1000 handles extremely well, with recovered audio that is clean and very intelligible. I listened to all my favourite frequencies in a.m., c.w. and s.s.b. modes and did not notice any of the 'monkey chatter' effects found in other d.s.p. receivers, even when conducting my '909kHz' checks at 900 and 918kHz. On very strong signals there are definite 'clicks' at each tuning increment as you approach the signal, and these could be annoying if you wanted to wrinkle out weak signals alongside strong ones, and of course these effects do not occur in high quality analogue (i.e. non-synthesised) receivers. I did notice a distinct 'pop' at the beginning of each syllable in s.s.b. speech and this when investigated turned out to be a similar effect to that noted in the Collins 95S-1. (See SWM June 2000 - Ed.)

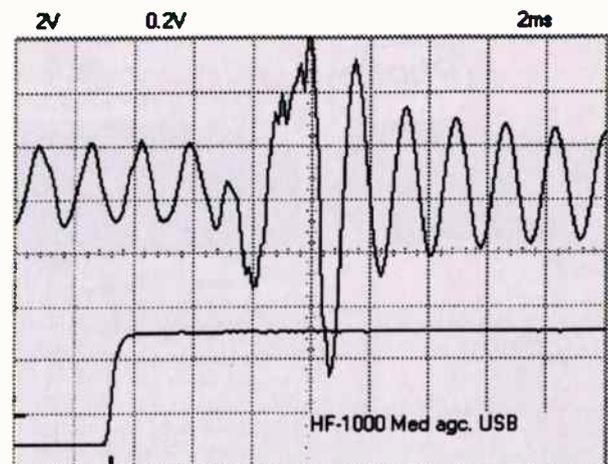
## Enter The 'Pop'

The overall a.g.c. response can be seen in Fig.1, with the bottom trace being the shape of the r.f. burst into the antenna and the top trace the audio output from the receiver. The 'pop' is easy to see, and Fig. 2 shows the detail of the leading edge of the r.f. step with the audio containing an uncontrolled oscillation, which starts about 5ms after the incoming r.f. signal. The trailing edge of the burst shows the

**Fig.1: The overall a.g.c. response, with the bottom trace being the shape of the r.f. burst into the antenna and the top trace the audio output from the receiver.**



**Fig. 2: The detail of the leading edge of the r.f. step with the audio containing an uncontrolled oscillation, which starts about 5ms after the incoming r.f. signal.**



# WATERS & STANTON



## NRD 345 COMMUNICATIONS RECEIVER



**£399.95**

Plus £7.50 Carr.

The new NRD 345 is one of the best value packages on the market. Covering the range 100kHz to 30MHz, it offers SSB, CW, AM and synchronous AM modes. Includes 4kHz and 2kHz switched IF filters, noise blanker, scanning, pass mode, keypad entry, RS 232 port, timer function, 100 memories, low/high impedance antenna switch and more! Requires external 12V supply, (available as extra) @ 800mA approx.



## S-3878

**World Space Hitachi Satellite Receiver External Antenna**

Frequency: 1452-1492MHz

Supplied with LNA, 4 element Yagi, mounting bracket and fittings, and 25m of 50 Ohm\* coaxial cable with 'F' plugs

**£49.95**

Plus £7.50 Carr.

## HITACHI WORLD SATELLITE RECEIVER

This new Hitachi receiver comes complete with mini flip-up dish letting you receive high quality radio broadcast signals from around the world. No more background noise and atmospherics. It also covers the FM VHF broadcast bands, medium wave and the major short wave bands.

**NEW**



**£99.95**

Plus £7.50 Carr.

## YUPIITERU MVT-7000EX SCANNER

- \* 100kHz - 1300MHz Displayed
- \* 8 - 1300MHz Guaranteed
- \* NFM/WFM/AM
- \* 200 memories (10 banks)
- \* 20 steps per second scan speed
- \* Steps 5/10/12.5/25/50/100kHz
- \* Sensitivity (NFM) 0.5µV 12dB SINAD
- \* Sensitivity (AM) 0.5µV 10dB S/N
- \* Size 65 x 159 x 40mm
- \* Weight 330g
- \* Accessories Supplied
- \* 4 x AA Ni-Cads
- \* AC charger & mains adaptor
- \* 12V DC cigar lead
- \* Telescopic antenna
- \* Belt clip

**£149**

Plus £7.50 Carr.



**AMAZING DEAL!**



## ICOM IC-R3



**NEW**

- \* Full UK TV coverage
- \* 0.495-2450 MHz
- \* Advanced Lithium battery
- \* ALL DAY battery life
- \* 450 Memories
- \* FM / WFM & AM
- \* 2" TFT colour display
- \* Bandscope & automatic squelch
- \* 8 background colour choices
- \* Size 61 x 120 x 33mm

also receives 23cm amateur FM-TV

**Phone**  
Plus £7.50 Carr.

## ICOM IC-R75 RECEIVER 30kHz - 60MHz



The IC-R75 has received rave reviews in the Amateur Radio Press. It's a very serious short wave receiver with coverage right up to the exciting 6m Ham Band. Features include: USB, LSB, CW, AM, FM \* 101 Memories \* Super High Dynamic Range \* Synchronous AM detection \* Twin Pass band Tuning \* Digital Signal Processing \* Automatic Notch Filter \* 101 Alphanumeric Memories \* RF Gain/Squelch \* Clock \* Numeric keypad \* Attenuator \* 2-level Pre-Amp \* Scanning.

**£595**

Plus £7.50 Carr.

## VR-5000

## AR-8600

**Phone**  
Plus £7.50 Carr.

**NOW IN STOCK**

**£719**

Plus £7.50 Carr.



- Yaesu's exciting new scanner.
- \* 100kHz - 2599MHz
  - \* FM AM SSB CW
  - \* Real-time band scope
  - \* DSP Noise and notch filters
  - \* 2000 Memories
  - \* Optional digital voice recorder
  - \* Large digital display
  - \* Super HF performance
  - \* Ultra sensitive
  - \* Fully programmable

- AOR's exciting new scanner.
- \* 500kHz - 2040MHz
  - \* FM AM SSB CW
  - \* 1000 Memories
  - \* 2000 pass frequencies
  - \* 37ch sec scan
  - \* 8.33kHz airband steps
  - \* RS232 PC interface fitted
  - \* 10.7MHz IF for SDU5500
  - \* Accepts up to 5 slot-in cards
  - \* Detachable MW bar aerial

## NEARFIELD MONITORS

### Zoom into Any Frequency between 30MHz - 900MHz

Zoom into any FM transmission between 30MHz and 900MHz and monitor the audio. It takes a fraction of a second. **The WR-5001** comprises a complete receiver with auto tuning, skip button, squelch adjustment and built-in speaker. **The WR-5002** is similar, but adds an auto-hold control and a bargraph signal meter. It also adds a CI-V port for reaction tuning Icom and AOR receivers fitted with this feature. These monitor receivers are designed for nearfield use and the range is from a few hundred metres to around 1km, depending on frequency and power of the transmitter.  
**WR-5001 £99.95 WR-5002 £159.95**

**NEW**



**£159**

Plus £7.50 Carr.

**£99.95**

Plus £7.50 Carr.

## YAESU

## FRG-100 RECEIVER 50kHz - 30MHz



The FRG-100 has stood the test of time. It offers full coverage of the short wave bands plus long wave and medium wave. It features: \* USB, LSB, AM, CW, \* 50 memories \* 2 stage attenuator \* Noise Blanker \* Band Scanning \* Memory Scanning \* Dual Speed AGC \* High and low impedance antenna inputs \* Programmable steps from 10Hz - 1kHz \* Optional Narrow Filters, PSU and FM board \* BFO reverse for CW \* Twin Clocks. Ask for leaflet.

**£389**

Plus £7.50 Carr.

## 0kHz - 32MHz AOR-7030 RECEIVER

Needing little introduction, this receiver has become a classic of design. Features USB, LSB, CW, AM, FM. \* 100 Memories \* Dual VFOs \* Resolution to 10Hz \* Clock and Timer \* Variable Bandwidth \* Wide Dynamic Range \* Seamless Tuning using Single Loop DDS \* Clear LCD Readout \* Infrared Remote Controller \* AC Power Supply.



**Phone**

**HOCKLEY SHOP**  
**MON-SAT: 9am-5.30pm**  
**TEL: 01702 206835**  
**01702 204965**  
**FAX: 01702 205843**  
**22 MAIN RD, HOCKLEY, ESSEX,**  
**SS5 4QS**

**MATLOCK SHOP**  
**MON-FRI: 9am-5pm**  
**SAT: 10am-4pm**  
**TEL: 01629 582380**  
**CHESTERFIELD RD, MATLOCK,**  
**DERBYSHIRE, DE4 5LE**

**FAST MAIL  
ORDER**

**YUPITERU MVT-9000EU MK2**  
**100kHz - 1.996Hz**

**Latest Mk2 Version**

Here's your chance to purchase the latest scanning receiver from Yupiteru at an unbelievable price. Covering the complete radio spectrum from long wave to UHF, you have a complete station in your pocket. Features include NFM, WFM, NAM, WAM, LSB, USB, CW, \* 7 Frequency steps \* 1,000 Memories in 20 banks \* 500 Pass memories \* 10 Priority channels. \* Band Scope display \* Duplex receive function lets you hear both sides of the conversation \* Fast tune function, \* Built-in AM antenna \* Dual frequency display \* Fast keypad entry, \* Rechargeable batteries, AC charger and helical antenna.



**Phone**  
Plus £7.50 Carr.

**UBC - 220XLT  
HANDHELD SCANNER**

Ideal for general listening, this scanner covers all the major bands from 66MHz - 956MHz AM and FM. 200 memories and a very fast scanning speed make this a very attractive buy. You also get the flexible short antenna, AC charger and batteries. Very popular with Airband listeners.

**£149.95**  
Plus £6.00 Carr.

**UBC - 120XLT  
HANDHELD SCANNER**

The Uniden UBC120XLT Handheld Scanner is ideal for the listener who does not want to have the expense of one of the more complex scanners. It covers with some gaps from 66 to 512MHz, AM and NFM preselected for the band in use.



**£129.95**  
Plus £6.00 Carr.

**ROBERTS R-827**

**£99.95**  
Plus £6.00 Carr.



**Phone**  
Plus £6.00 Carr.

**YUPITERU MVT-7100EX**  
**100kHz - 1.656Hz**

Probably the best value for money, it has stood the test of time and is very sensitive. Offers USB, LSB, CW, AM, FM, WFM, \* 1,000 memories \* 500 Pass channels \* 12 Tuning steps \* Fast scan speed \* Rechargeable batteries, AC charger and telescopic antenna.

- FM-STEREO / MW / LW / SW
- PLL DIGITAL WORLD RADIO
- \* AM, FM, FM Stereo, SSB & CW
- \* 45 Station presets
- \* Direct keypad tuning
- \* Rotary tuning
- \* BFO for SSB & CW
- \* Selectable wide / narrow AM
- \* FM stereo via earphones
- \* Digital clock
- \* Alarm/timer functions
- \* Complete with AC Adaptor

**ICOM PCR-1000 10kHz - 1300MHz**  
**COMPUTER CONTROLLED RECEIVER**

Mode: USB, LSB, CW, AM, FM, WFM. Connect this up to your PC and enjoy high quality reception with an amazing station data base and memory log. Can be used remotely from PC. Requires PC (not included)



**£295**  
Plus £6.00 Carr.

**WATSON CAPTURE THAT FREQUENCY!**

**10MHz - 36Hz**  
**Hunts down Frequencies**

Supplied with telescopic antenna and AC battery charger. If you are within 200 ft or so of the handheld, you should be able to read off the frequency. Note it down and enter it in your scanner. It's that simple and it's pocket sized.



**£59.95** Plus £6.00 Carr.

**Yupiteru MVT-7300**

**NEW SCANNER**

**£289**  
Plus £6.00 Carr.



- \* NFM, WFM, NAM, WAM, USB, LSB, CW
- \* 521kHz - 1320MHz
- \* 1,000 memory channels
- \* High sensitivity
- \* Signal strength meter
- \* High speed scanning & searching
- \* MONitor button
- \* Descrambler function
- \* Telescopic rod antenna
- \* Clock timer function
- \* Variable colour display
- \* Key illumination
- \* Clone function
- \* 8.33kHz airband spacing
- \* 12V DC/230V AC mains

**WS-DESKTOP**

The answer to those who want to improve the scanner performance using an indoor antenna. Covers 25 - 1300MHz and includes coax cable terminated with BNC plug.

**£49.95**  
Plus £7.50 Carr.

**WS-MOBILE ANTENNA**

Just 0.9m high with magnetic base and 4m cable terminated with BNC plug. Covers 25 - 1300MHz and is the ideal choice for scanner users.

**£24.95** Plus £7.50 Carr.

**AOR-8200 SERIES 2**  
**500KHz - 2040MHz**

This wide range scanner is fitted with a data port for computer control. Features include USB, LSB, CW, FM, WFM \* Programmable steps \* 1000 memories in 20 banks \* Alphanumeric display \* Built-in AM antenna \* 8.33kHz steps for air band \* Rechargeable ni-cads, AC charger and helical antenna.

**Phone**  
Plus £6.00 Carr.

**IC-R10E**  
**500KHz - 1300MHz**

USB, LSB, CW, AM, FM, WFM \* 1,000 Memories \* Bandscope \* Noise Blanker \* Wide range of tuning steps \* alphanumeric Display \* Real Time Band Scope \* Voice scan feature \* Data output port \* Programmable scanning \* Ni-cad pack, AC charger and helical antenna.



**£259**  
Plus £7.50 Carr.

**IC-R2**  
**500kHz - 1309MHz**

This palm size handy offers great performance. Offers FM, WFM and AM \* Auto squelch \* 400 Memories \* 11 Tuning steps \* CTCSS decode \* Duplex monitoring feature \* PC Programmable \* Built-in attenuator \* Priority watch \* Needs 2 x AA cells (extra). Antenna included.

**£149**  
Plus £7.50 Carr.

**VR-500**

This lovely little scanner from Yaesu offers superb performance.

- \* 100kHz - 1300MHz
- \* 1000 Memories
- \* 100 Skip channels 10 Search bands
- \* 8 Character alphanumeric display
- \* Band scope Priority monitoring
- \* PC programmable
- \* Smart search feature
- \* Alpha numeric recall
- \* Size 58 x 95 x 24mm 220g

**£199**  
Plus £7.50 Carr.

**NEW YAESU VR-120 RECEIVER**



- \* 100kHz - 1300MHz \* AM, FM, WFM
- \* 12 Channel steps \* 640 Memory Channels
- \* 64 frequency skip channels
- \* 21 Smart Search \* 8 Search bands
- \* 1 Priority channel \* Dual watch
- \* 8-Character Alpha-tags
- \* Preprogrammed broadcast frequencies
- \* VFD search feature
- \* PC programmable with optional ADMS-3 kit.
- \* Antenna: BNC \* Supply 9.0-13.8V DC
- \* Battery voltage: 2.2-3.5V DC (nominal 3V)
- \* 2 x AA cells \* Size 59 x 85 x 26mm
- \* Weight: 195g (approx)

**£159**  
Plus £7.50 Carr.

**SWL OX-1 HF Ant.**



Covers 1.5 - 30MHz and is 50cm long. With 10m feeder wire back to receiver. An ideal general purpose antenna.

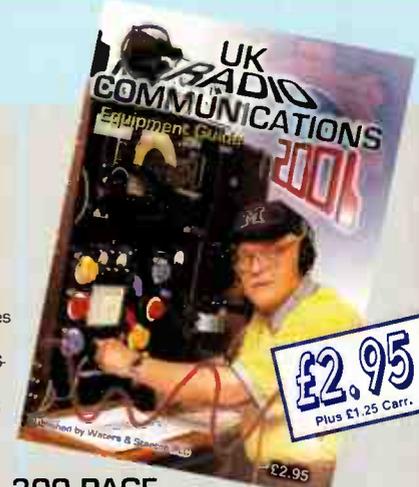
**£25.95** Plus £8.00 Carr.

**GLOBAL AT-2000**

The classic wire antenna tuner for short wave listening. Covering 1.8 - 30MHz, it includes our exclusive G-switch, which improves front-end selectivity. Just connect a random length of wire and connect a coax cable from ATU back to receiver.



**£89.95** Plus £8.00 Carr.



**£2.95**  
Plus £1.25 Carr.

**300 PAGE  
RADIO COMMUNICATIONS  
GUIDE**

# JW on W-J x2

- a tale of two pretties

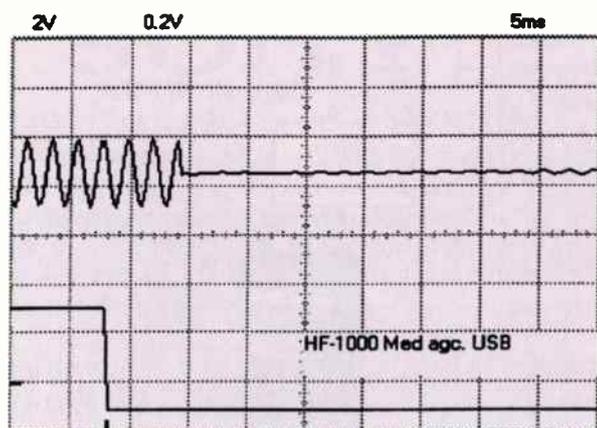


Fig. 3: The trailing edge of the burst shows the audio carrying on after the r.f. input signal has stopped.

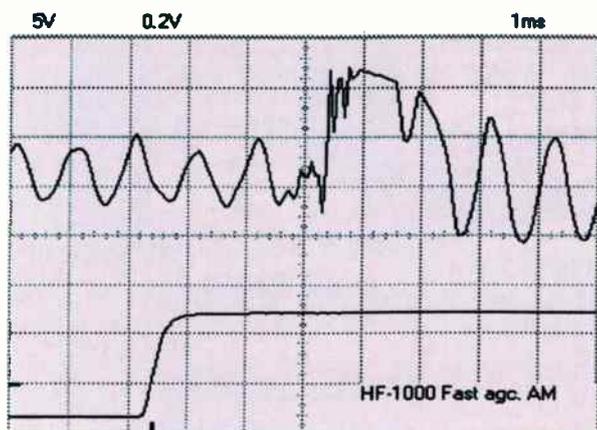


Fig. 4: The leading edge of audio in a.m. mode generating the same uncontrolled 'pop'.

audio carrying on after the r.f. input signal has stopped, shown in Fig. 3. I assume that the 5ms shift is due to the digital processing used for demodulation in the receiver, and it's interesting that the 95S-1 showed exactly the same characteristic. The problem comes from the fact that there seems to be no r.f. derived a.g.c. applied around the analogue section of the receiver, with the result that the DSP system is seriously overloaded in the interval before the digital a.g.c. comes into operation, and during that overload you get a 'squawk' of uncontrolled audio which appears as a loud 'pop' in the loudspeaker.

To complete the story, Fig. 4 shows the leading edge of audio in a.m. mode generating the same uncontrolled 'pop'. I did check out the receiver under manual gain control and there was no sign of any 'pop', so the effect is certainly linked to the a.g.c. performance. Space precludes any more pictures unless someone wants to pursue the question, and remember that I am evaluating these receivers as a locus for the average hobby user and reporting simply what happens in that situation.

My standard measurements of r.f. performance confirmed the handbook figures, sensitivity for 12dB SINAD averaging -112dBm in s.s.b. with a 2.4kHz bandwidth, -120dBm in c.w. with a 500Hz bandwidth, and -103dBm in a.m. with a 6kHz bandwidth. The sensitivity degrades below 500kHz but at these frequencies sensitivity is hardly an issue. Third order intercept point measured +28.5dBm with a dynamic range of 107dB, and second order intercept was better than spec. although still disappointing at +77dBm with a dynamic range of

103dB. However, the receiver tested had the Watkins-Johnson automatic preselector fitted, so I bypassed this and tested again. This time the second order intercept came down to +67dBm using my standard signals at 6.5 and 7MHz, resolving the intermod product at 13.5MHz. Those who know will realise that the preselector wasn't doing much for the intermod performance, and when I looked at the handbook specification I saw that the band pass section selected when receiving 13.5MHz was only 10dB down at 5.3 and 21.5MHz. This seemed a bit broad chested so I measured it, with the results shown in Fig. 5. The centre marker is at 13.5MHz and the left hand marker at 7MHz, only 4dB down. Compare this with any other front-end selectivity curves I have shown you and it is patently obvious that at least for general listening, the preselector is an expensive addition which serves little purpose. I checked all the other preselector pass bands with similar findings. The handbook notes that the preselector option improves the second and third order intercept performance and then quotes exactly the same figures as the standard receiver specification. "Curiouser and curiouser" thought Alice. One thing it does achieve is to introduce a 2dB loss between the antenna and the receiver input.

## Digitally Generated Hash

Then I hit the real problem. Having used the keypad to enter favourite frequencies, I keyed in 21.470MHz and tried to extract the Atlantic relay from the noise. I put my hand on the main tuning knob to gently tune around, but the signal was instantly drowned

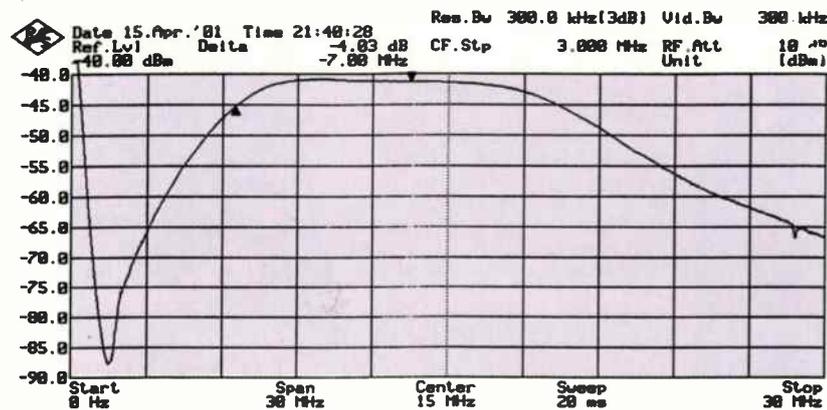


Fig. 5: The preselector characteristics. The centre marker is at 13.5MHz and the left hand marker at 7MHz, only 4dB down.

out by digitally generated hash. I took my hand away from the knob and the hash disappeared. I have heard that some operators reported this effect in the past, and I well remember reviews commenting on the same effect in the JRC NRD-535, so I simply had to try and evaluate what was happening. I sniffed around the front panel with a screened probe connected to a spectrum analyser and found that all the displays were radiating broad spectra of noise, as was the main tuning knob. However, the 8711 tuning knob was not radiating anything like as much noise as the HF-1000, so I took off the knobs to discover that the 8711 knob drove a shaft encoder with a metal shaft, running in a metal bush which was firmly and electrically bonded to the front panel, whereas the HF-1000 knob drove a metal shaft in a plastic bush which totally isolated the shaft from the metal panel, and electrical checks showed that the shaft, and hence the knob, were completely floating from ground. Now I see this kind of problem many times in my work as an EMC engineer, and it is simply bad practice to have floating metal shafts penetrating a metal enclosure. I decided that a more formal approach was needed so I took both the HF-1000 and 8711 receivers, together with other representative receivers in to the EMC Centre and looked at the problem properly.

The tests were carried out in a compliant r.f. anechoic chamber using a calibrated Rohde & Schwarz HFH2-Z6 active whip

antenna coupled to a Rohde & Schwarz ESHS-10 measuring receiver. The first test configuration was according to MilStd 461 and DefStan 59-41 with the receiver placed on an elevated metal ground plane and the measuring antenna 1m away from the front panel. First tests on the HF-1000 indicated broadband noise levels being radiated at levels up to 30dB microvolts with narrow band single emissions at 2MHz intervals from 14 to 30MHz at up to almost 40dB microvolts (That's S9 on a signal strength meter). I then tested the receiver by standing in the chamber with my hand on the tuning knob and the levels increased dramatically with peaks at 60 to 65dB microvolts (20 to 25dB over S9), so there was clearly a problem. However, testing with an antenna at 1m from the receiver was not representative of a typical hobby situation so I removed the metal ground plane, leaving the receiver standing alone on a wooden bench at 800mm above the chamber ground plane, and moved the measuring antenna to a position 4m away from the front panel. Now for the results which are plotted on a graph with marker lines at the equivalent levels of S9 and S6. The reference trace at the bottom of the graph is the noise floor of the chamber with no equipment in it.

The radiated emissions in the range 2 to 30MHz from the HF-1000 operated with my hand on the tuning knob can be seen in Fig. 6. The results for the 8711 receiver under the same test conditions can be seen in Fig. 7,

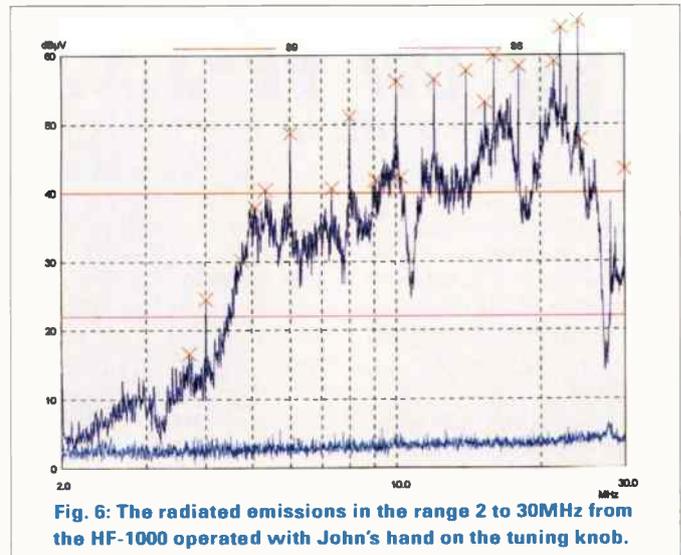


Fig. 6: The radiated emissions in the range 2 to 30MHz from the HF-1000 operated with John's hand on the tuning knob.

and it is obvious that there is a huge difference between the ostensibly identical receivers. I pursued these tests a bit further with other receivers as a comparison and Fig. 8 shows the results from the AOR AR7030, whilst Fig. 9 shows the Collins 51S-1. I don't have to point out the obvious superiority of both receivers over the HF-1000. The only emissions from the AR7030 come from the 11.135MHz clock oscillator and its second harmonic, whilst the 51S-1 speaks for itself in having no detectable emissions at all, which is one great advantage of a wholly analogue receiver.

Bearing in mind that the AR7030 contains operating digital devices which have been designed to go to sleep whilst the receiver is not being tuned, I rocked the tuning knob backwards and forwards during

#### Peak Search Results

Frequency (MHz)	PK Level dBµV
3.69	16.57
4.0	24.49
4.755	30.10
5.07	37.87
5.325	40.44*
6.0	48.64*
7.325	40.66*
8.0	51.04*
9.05	41.86*
10.0	56.17*
10.22	42.28*
12.0	56.44*
14.0	57.78*
15.325	53.20*
16.0	59.98*
18.0	58.42*
21.325	59.13*
22.0	64.04*
24.0	65.02*
24.26	47.82*
30.0	43.44*

\* greater than S9

Fig. 7: The results for the 8711 receiver under the same test conditions as Fig. 6.

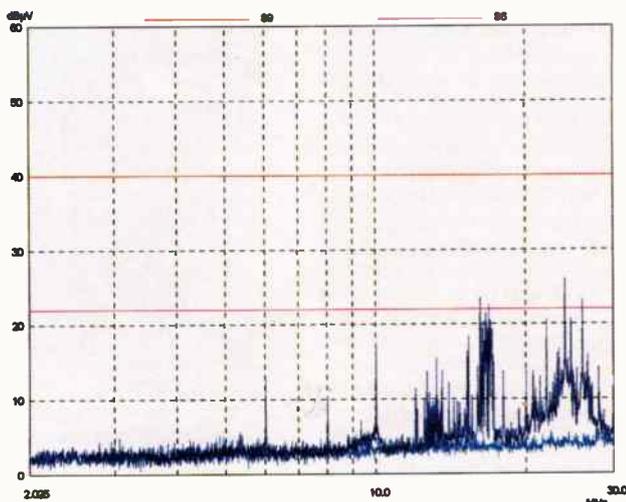
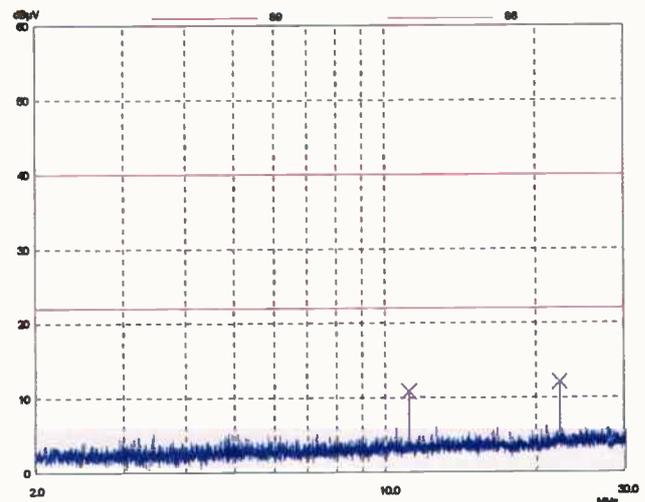


Fig. 8: The results from the AOR AR7030.



Continued on page 34

Continued from page 33

# JW on W-J x2

- a tale of two pretties

the test to ensure worst case conditions, but it was so impressive that I contacted Richard Hillier at AOR UK and asked him for comments. I was interested to learn that AOR disassemble (or should that be dissemble?) the optical encoder driven by the tuning knob and

'poppy' a.g.c. is unpleasant to the user's ears. I did try the HF-1000 on a variety of antennas and found that the Wellbrook loop antenna (as one might expect) rejected some of the local noise from the receiver, but the most dramatic results came when using the HF-1000

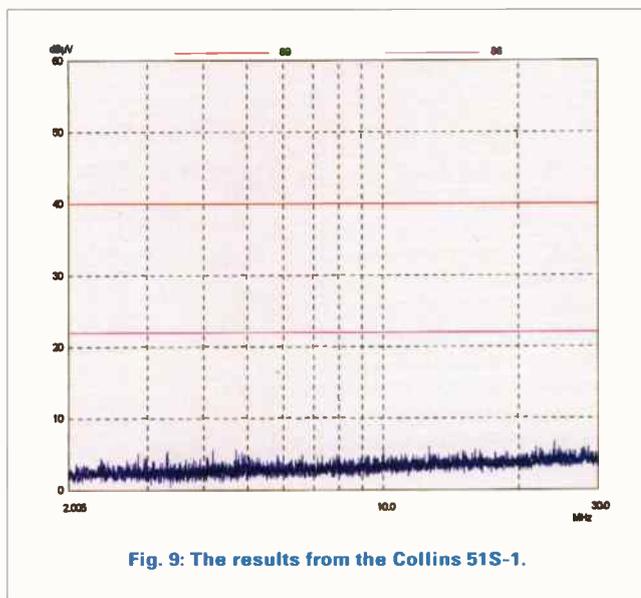


Fig. 9: The results from the Collins 51S-1.

fit custom engineered metal brushes inside which ground the encoder shaft, and that Lowe Electronics in their HF-250 fit a conductive foam grounding pad externally to the encoder to achieve the same thing. I don't need to remind you that these receivers share a common designer ancestry.

## Conclusions

Remember that I am not testing these receivers as a military or professional evaluation of something that will sit in a 2m high screened rack with antennas located a kilometre away, but as receivers for the individual private user, and it is as your representative that I make my comments. The HF-1000 and 8711 receivers are a joy to use and have every facility you could wish for and a few more besides. However, the radiated noise from the HF-1000 tuning knob makes it virtually unusable at frequencies higher than 4MHz, and the

and the 8711 together in the same location, when a hand on the tuning knob of the HF-1000 generated enough noise to wipe out reception on the adjacent 8711. Bearing in mind the price of an HF-1000, which retailed at around £4000 in this country when it was a current model, I would not entertain one for my own use, but would buy an AR7030 at less than a quarter of the price and put up with the menu structure in exchange for r.f. performance, which is better than the HF-1000 and radiated emissions which are so low as to be of no consequence. Finally, perhaps you can see why I still like the 51S-1 above all others.

"It is a far, far better thing that I do, than I have ever done; it is a far, far better rest that I go to than I have ever known."

Happy listening (And reading, to the Dickens fans).

SWM

# Just the job-

## THE

Rugged, small, basic and easy to operate...it can only mean the FT-70G. Dave Roberts reminisces back to the early eighties, when he was in Canada with his 'reliable friend'.

From December 1982 the US Congress had been putting the heat on the CIA to cut back on funding for the anti communist resistance in Nicaragua. Promises of aid had, however, been made to the 'Contras' by members of the intelligence community in the United States. Promises that they felt duty bound to keep. Seeing as Congress cut back on funding (and eventually stopped it), it became imperative that alternative sources of cash and equipment were made available. The Contras were a cause close to President Reagan's heart. In the words of Duane (Dewey) Claridge who headed the CIA's Latin American Division, "they were his (Reagan's) boys".

Once the decision was made to continue paying for the Nicaraguan resistance, the scene was set for the course of events which rolled out to become known as the Iran-Contra Affair.

Donations were obtained from Saudi Arabia and other countries and channelled to the Nicaraguan Resistance. But the President's boys needed communications as well as guns. A portable, mobile or base radio with coverage from between 2-30MHz would be just the job. It had to be rugged, small, basic and above all easy to operate.

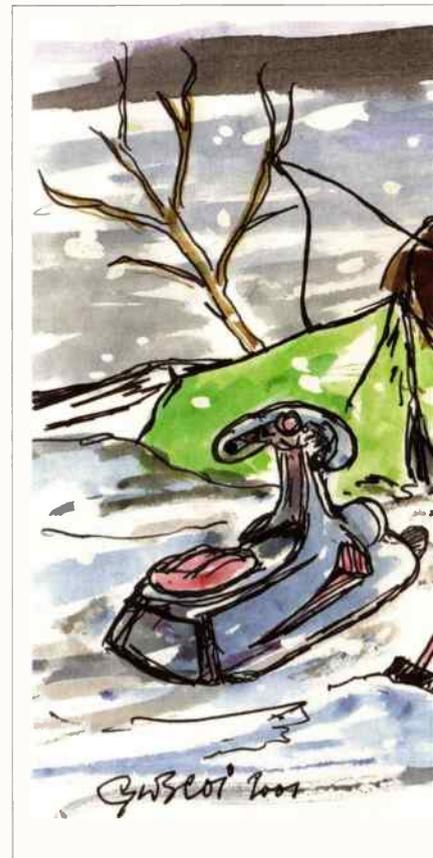
## Enter Yaesu

Yaesu made such a set. In use with the Nigerian, Sri Lankan, Indian and other armies. The FT-70G seemed to fit the bill. Tuning between 0.5-30MHz on receive and with a 2-30MHz transmit

capability, the 70G could operate u.s.b. and l.s.b., a.m. and c.w.

With 10 or 4W output on s.s.b. or c.w. and 5 or 2W on a.m., together with a carrying harness, antenna pack, battery and tuner, it gave the Contras the basic comms that they needed within the diverse territory of Nicaragua which ranges from dense tropical forest and swamp on the Caribbean coast to a mountain range and plains.

These all transistor radios are tuned in 100Hz steps via six decade switches mounted on the



# FT-70G

front panel. A semi waterproof case and extremely rugged construction made the FT-70G just the job for chucking out the back of a C-130 transport plane.

There's a chance that should you be looking at one of these units you may not know it as some of the sets designated for covert operations have no manufacturers markings on them at all. I first came into contact with one of these little low power radios in the mid nineteen eighties. Having used one overseas for a while, I came rather to look on it as a reliable friend. Even if they do pack up, you have a good chance of fixing one up and getting back on air as access is easy and the innards and boards are easy to work on.

**"...at this point he throws a line over one tree branch..."**



## Picture This

If you can picture the scene (and I'm sure you would rather not) of a small Ski Doo pulling up at the side of a trail in the Yukon Territory. It is twenty below and the muffled figure on the snowmobile moves slowly because of the thickness of his clothing and the fact that notwithstanding the clothing layers he is desperately cold. He thinks that his right thumb is some thirty kilometres down the trail because he hasn't felt it on the control for that distance, despite wearing two pairs of gloves and fur lined mittens.

His breath fairly crackles as he assembles his minute tent and stows his sleeping gear inside. He fires up the Coleman stove outside the tent's entrance and puts a pan of snow on it to melt. At this point any onlooker may think that the cold has robbed the poor man of his mind because at this point he throws a line over one tree branch and then after a few minutes pondering the locale and its flora, he chucks another line over another one. Then he pulls on each line and a thin lead is stretched between two trees. The simpleton has erected a dipole antenna.

After he's brewed some food and a hot drink he retires into the tent to eat, dragging in the stove to warm up the inside. It's now getting dusk and the snow has eased for a time. You would be forgiven for thinking that the man would be asleep by now, but the glow from the shelter shows that the fool is still awake. In the top of his pack inside the front of the tent the torch is lighting the front panel of a '70G. There is a telephone handset plugged into it and wires lead to the costly cold weather battery inside the pack.

After tuning the antenna a four minute contact is made with a colleague. This colleague is over three hundred kilometres away some distance outside the town of Whitehorse. A conversation lasting a few minutes takes place. Usual stuff. Where are you. How are you. Any messages. That kind of traffic. The man shuts the radio off and puts it carefully back in the pack. Now that's communication. The cold causes a nearby pine tree to snap like a rifle as he drops off to sleep.

## Simple Controls

The controls on the '70G are simple. There are two rows of three switches in the top left hand corner. Working from the top left we have high/low power, noise blanker, a switch which toggles the meter to read either signal strength and power out or battery voltage. On the second row are on/off lamp and tune. To their right is the meter and right of that the six decade switches that control frequency.

The bottom row has the speaker/mic and key sockets followed by a four position mode switch squelch, volume and clarifier follow on. The SO-239 socket for the antenna is top left and an earth post bottom right. On the rear are power input and speaker sockets. Apart from the meter there are two indicator lights. One for power and the other which indicates an antenna mismatch or synthesiser fault. I said it was simple.

Operation means plugging into the usual 13.8V type power, dialling up frequency, either having a correct antenna set up or tuning one and transmitting either by key microphone. Away you go. The front of the set is 235 x 86mm and allowing for the power plug to stick out of the back, you'll need a shelf just over 300mm deep to sit it on. This little workhorse draws 3.3A at



**The trusty FT-70G radio, which now lives a more peaceful life under the dash of Dave's old Jeep.**

13.8V and a little more when supplied by a 12V supply.

For the keen utility band listener, you can dial up the frequency that you want to monitor and be sure that your '70G will still be bang on channel at the end of the week. For the amateur operator it covers 60 through to 10m. Obviously it has commercial communication uses and you can listen to a.m. broadcasts too.

## Sought After

The other version is the FT-70F which has diode matrix programming allowing 11 simplex and 11 semi duplex channels. Now available in the '70GH and 'FH versions, current models run 20W on high power. The general accessories for these babies are not cheap with NiCad packs and chargers, tuners and carry case options leading the cost field. Yaesu made antennas for these sets are also available.

The 70G and 70F sets are available on the second-hand market and are still very sought after. A price of between two hundred and two hundred and fifty pounds should secure one in good condition.

By the way, that cold feller in Canada was me. I still have that set. Mounted in my Jeep truck and firing into a Watson mobile whip I've worked stations all over Europe and the Eastern USA. And it isn't for sale...

# NEVADA

**LARGE STOCKS  
FAST DELIVERY  
EXPERT ADVICE**  
www.nevada.co.uk

## Bearcat

### UBC 3000XL



- 25 - 550, 760 - 1300 MHz
- AM/FM/WFM
- 400 memory ch
- TURBO SCAN 100 Ch/Second
- TURBO SEARCH 300 St/Second
- Automatic Freq Storage
- Selectable Attenuator
- Automatic Freq Sorting
- Data Skip
- Delay Key
- Channel Count Key
- Supplied complete with earphone, case, belt clip, charger and rubber duck antenna

NEVADA PRICE- £199.95

### YAESU VR120



- PROFESSIONAL GRADE WIDEBAND POCKET SCANNING RECEIVER
- 100kHz - 1299.995MHz
  - AM/FM/WIDE-FM
  - 640 Memory channels
  - Preset 'Quick Tune' mode
  - Selection of scanning modes
  - 'Channel Counter' feature measures frequency of local signal
  - Clone capability

NEVADA PRICE- £159

### ICOM R3

**NEW!**



REVOLUTIONARY NEW HANDHELD!

- 495kHz - 2451MHz
- 450 memories
- Modes: FM, AM, WFM, AM-TV, FM-TV
- Alpha tagging
- CTCSS with tone scan
- 2" colour TFT display
- Video audio output

SUPPLIED C/W

- telescopic antenna
- belt clip
- charger
- LILION battery pack

NEVADA PRICE- £449

### YUPITERU MVT 3300



- 66 - 88MHz, 108 - 170MHz
- 300 - 470MHz, 806 - 1000MHz
- MODES: AM/NFM
- STEPS: 5, 6.25, 10, 12.5, 25kHz
- MEMORIES: 200
- BAND MEMORIES: 10 (user re-programmable)
- PRIORITY CHANNELS: 10
- SCAN/SEARCH SPEED: 30/sec
- Requires 4 x AA batteries
- SUPPLIED WITH: Antenna, Earpiece, Carrying Strap and built-in Desk Stand

NEVADA PRICE- £154 £129

### UBC 220XL



- 66 - 956 MHz (with gaps)
- AM/FM
- 200 memories
- TURBO SCAN 100 Ch/Second
- TURBO SEARCH 300 St/Second
- Data Skip facility
- 10 Priority Channels
- Memory Backup
- Supplied c/w earphone, belt clip, charger and rubber duck antenna

NEVADA PRICE- £149.95

### YAESU VR500

**SPECIAL!**



- ULTRA COMPACT RADIO
- 100kHz - 1300MHz
  - FM, Wide FM, USB, LSB, CW, AM
  - 1091 Memory channels
  - Weight 220g
  - Comes complete with Antenna, carrystrap, Belt clip
  - Optional Charger: NC60

Optional Accessories

- FNB-59 NiCad battery pk
- NC-60 AC adaptor
- CSC-72 Soft case
- EDC-5B DC cable with cigar lighter plug
- EDC-6 DC cable
- CT-35 Cloning cable

NEVADA PRICE- £244 £199

### ICOM IC-R2

**SPECIAL!**



One of the smallest radios we have ever seen, Palm size wide band size is not everything. Packed in this receiver's small package are some pretty big features.

- 500kHz - 1310MHz
- AM/FM/WFM
- 400 memories plus 25 band edge memories for easy scanning between specified frequency

NEVADA PRICE- £154 £139

### YUPITERU MVT 7100



- Probably the most popular high end Scanner. It's easy to use and can receive just about anything!
- 530kHz-1650MHz
  - AM/FM/WFM/SSB/CW
  - 1000 memories
  - Steps 50Hz, 100Hz for tuning LSB & USB
  - 155H x 64.4W x 32Dmm
  - Weight - 320g
  - Supplied with NiCads, mains charger, 12VDC cigar lead, belt clip, carry strap

NEVADA PRICE- £244 229

### UBC 120XL



- 66 - 512 MHz (with gaps)
- AM/FM/WFM
- 100 memory channels
- TURBO SCAN 100 Channel/Second
- TURBO SEARCH 300 St/Second
- Data Skip facility
- 10 Priority Channels
- Programmable Search
- Channel Lockout Key

NEVADA PRICE- £129.95

### Bearcat UBC 860XL

AIRBAND Base Scanner

- A stylish low profile base scanner with TWIN TURBO scan and search facility. Covers civil airband, marine, police, cellular plus more!
- 66-88, 108-174, 406-512, 806-956MHz
  - 100 mems • Turbo Scan - 300 steps/sec

NEVADA PRICE- £139

### MAYCOM AR108

Palm sized Airband & VHF Scanner



- Airband: 108 - 136.975MHz
- VHF: 136 - 180MHz
- Selective Channel Steps: 5, 10, 12.5, 15, 25, 1MHz
- Modes: AM or FM
- Memories: 99
- Dual Watch Function
- Key Lock
- Battery Save Function
- Battery Voltage Indicator
- Supplied C/W Belt Clip, Carrying Strap

Mains Charger £8.95 (£2.75 p&p)

NEVADA PRICE- £69.95

### YUPITERU MVT 7300



- 520kHz - 1.32GHz
- 1000 Memories
- 8.83kHz Airband
- Duplex reception
- Descramble function
- Clock timer
- Signal strength meter
- Auto memory write
- Supplied c/w Mains adaptor, NiCads, Belt clip

NEVADA PRICE- £289

### UBC 60XL



- A brand new low cost scanner that covers MARINE, POLICE, LAND MOBILE and more!
- 66 - 512 MHz (with gaps)
  - 30 memories
  - Channel or Freq display
  - Priority Channel
  - Channel Lockout
  - Scan Delay

NEVADA PRICE- £79.95

### UBC 9000XL



- 25 - 1300 MHz (with Gaps)
- 500 memory channels I VFO Control
- Selectable Attenuator I Selectable Delay
- Selectable Mode AM/WFM/NFM
- TURBO SCAN 100 Ch/Sec
- TURBO SEARCH 300 St/Second
- Alpha Numeric Display
- Automatic Store I Frequency Transfer
- Auto Tape Record I Data Skip facility
- Programmable Search

NEVADA PRICE- £269

### AR 8200 MkII

**SPECIAL!**



- 530kHz-204MHz
- All Mode inc. 8.33kHz AM
- 1000 Memories
- Plus LOTS MORE!

- WE CARRY THE FULL RANGE OF ACCESSORIES here's just a few!
- CT8200...CTCSS .....£69.90
  - EM8200...External memory...£59.90
  - RU8200...Record/Play Back...£59.90
  - TE8200...Tone eliminator...£39.90
  - VI8200...Voice inverter...£59.90
  - SC8200P...Padded soft case...£19.95

LATEST model!

NEVADA PRICE- £434 £399.95

### YUPITERU MVT9000EU



FLAGSHIP MODEL, with a range exceeding 2000MHz, a real time bandscope.

- 531kHz - 2039MHz
- 1000 memory channels
- W-FM, FM, N-AM, AM, LSB, USB, CW
- Scanning steps 50Hz-125kHz
- Duplex receive capability
- Fast tune facility
- Built-in ferrite rod antenna for AM broadcast reception

OP90 Soft Case £26.95 (£2.75 p&p)

NEVADA PRICE- £369



USE YOUR CREDIT CARD FOR SAME DAY DESPATCH!

**023 9231 3090**

e-mail: info@nevada.co.uk • website: www.nevada.co.uk

ALL GOODS SHIPPED for 24 hour delivery (UK MAINLAND ONLY) PLEASE ADD £10.00 (unless otherwise stated)

NEW OPENING HOURS  
MON - FRI 9.30 - 5.30  
CLOSED ALL DAY SATURDAY

• Unit 1 • Fitzherbert Spur • Farlington • Portsmouth • PO6 1TT



- NO HASSLE
- NO CATCH
- NO PROBLEM!



Buy the radio of your choice at the best price and pay by 3 POST DATED CHEQUES - INTEREST FREE! or part exchange your old radio & pay the balance by CHEQUESPREAD - EASY ISN'T IT!

## GRUNDIG SATELIT 800

The ultimate in features, performance, convenience, and sound. It's incredibly powerful, technologically sophisticated, yet easy and intuitive to use. Whether you're an experienced Shortwave listener or a newcomer to the world of international broadcasting, this is the radio to get.

### Frequency Range:

- 100-30,000kHz (0.1-30MHz) for AM Broadcast and Shortwave
- 87-108MHz for FM Broadcast
- 118-137MHz for Aircraft Band

### Modes:

- AM, USB, LSB modes (0.1-30MHz)
- AM mode only for 118-137MHz
- WFM mode only for 87-108MHz

### Tuning:

- Direct Input digital key pad combined with manual tuning
- Synchronous detection
- Excellent sensitivity and selectivity
- Three built-in bandwidths for shortwave
- You aren't limited to SW signals.
- Sure direct keypad digital tuning
- 70 user memory presets
- Two timer clocks keep track of time

### EU version features

- 240V AC mains adaptor & Deluxe Headphones included
- Full UK warranty
- CE Approved



NEVADA PRICE- ~~£544~~ £549

## WORLDSPACE

### DIGITAL SATELLITE RADIO

NEW!

Receive over 40 channels of FADE FREE DIGITAL PROGRAMS direct from satellites to this radio - from almost anywhere in the world!

### Hitachi radio features:-

- WorldSpace satellite PLUS FM/MW/SW
- SW1: 2.3 - 7.3MHz, SW2: 9.5 - 26.1MHz
- Portable, battery powered with AC adaptor
- Stereo headphone socket
- Stereo line out connectors for integration with your stereo or home theatre system
- Built-in easy to aim antenna
- Decryption and narrowcast capability
- Program selection by language and category
- 10 presets and last station memory
- Clock display/timer function
- 1-line 8 character LC display
- Port for easy attachment to the WorldSpace PC card to enjoy multimedia services
- Easy to set up and operate

SPECIAL!



NEVADA PRICE- £99.95

## GRUNDIG YB400

PORTABLE SW RADIO

- General coverage RX (144kHz - 30MHz)
- SW: 1.711-26.1MHz
- FM Stereo MW/LW
- SSB reception
- 40 station preset
- Narrow/Wide bandwidth
- Mains or Battery powered (with optional mains adaptor)
- Supplied c/w SW Handbook, Carrying case, External Wire Antenna, Carry Strap

PRICE MATCH

NEVADA PRICE £99



## PORCHE P2000

- FM Stereo
- AM/FM/MW 13 SW bands from 2.3MHz-26.1MHz
- 20 station presets
- Auto search
- Clock, alarm, sleep function, world times
- Supplied c/w leather cover & in-ear stereo headphones
- Mains or Battery (Optional AC adaptor)

A stylish radio designed by F.A. Porsche

NEVADA PRICE £89.95

## YAESU VR 5000

www.nevada.co.uk



- 100kHz - 2,599MHz
- Multi mode
- Real time band scope
- Optional DSP bandpass, notch & noise reduction
- Optional filters

NEVADA PRICE CALL!

## AOR AR-8600

NEW!



- All mode wideband base RX
- 530kHz-2040MHz
- 8.33kHz airband steps
- Optional slot cards

OPTIONAL PSU AVAILABLE

NEVADA PRICE £699

## ICOM IC-R75

The LATEST HOT Receiver from ICOM

- 0.03 - 60MHz
- Twin PBT built-in
- PC control capability
- Synchronous AM detection

PRICE MATCH

NEVADA PRICE £699

## ICOM IC-R8500

PRICE MATCH

- Yes, we've got them in stock! This receiver is everything we hoped it would be, covering 100kHz - 2GHz and lots of features including computer control. Pay by 3 post dated cheques!

NEVADA PRICE £1344 £1299

## YAESU FRG-100

PRICE MATCH

- This receiver provides solid coverage from 50kHz to 30MHz with all mode reception of AM, SSB and CW.
- Supplied c/w AC mains supply

NEVADA PRICE £499 £399

## AOR AR 5000

PRICE MATCH

- \*10KH - 2.6GHz
- All mode top class receiver & scanner packed with features

SHIPPED TODAY!

AR 5000+3 £1799

NEVADA PRICE £1,544 CALL

## ROBERTS R861

DIGITAL WORLD BAND RADIO WITH CORDS

- Covers MW/LW/FM/SW
- Receives SSB short wave
- 307 presets
- Clock/alarm facilities

Supplied with dual voltage AC supply, sw antenna, earphone, carrying case

NEVADA PRICE £200 £179

## ROBERTS R9914

DIGITAL WORLD RADIO

- Covers MW/LW/SW/FM
- SSB & CW reception
- Ideal for BBC World Service
- Clock/alarm facilities

Supplied c/w AC adaptor, earphone, carrying case

NEVADA PRICE £99.95

## SONY SW30

FULLY DIGITAL WORLD BAND SHORTWAVE FM, MW & LW PORTABLE RADIO



NEVADA PRICE- £74 £39.95

## TIMEWAVE DSP S992X V-S

NEW! NOW WITH PSK 31 INTERFACE

- Reduces noise
- Eliminates heterodynes
- Filters QRM
- Improves ALL radios!
- ENHANCED NOISE REDUCTION

NEW FEATURES:

- BRICKWALL PSK31 FILTER
- SOUND CARD INTERFACE
- BINAURAL CW + CW SPOTLIGHT
- ENHANCED NOISE REDUCTION

NEVADA PRICE- £59.95

## ICOM PCR 1000

COMPUTER RADIO SYSTEM

- 100kHz - 1300MHz
- ALL MODE RECEPTION
- Plus Lots More!

PRICE MATCH

NEVADA PRICE £319

PCR OPTION DSP UNIT UT 106 £82.00 £2.75 p&p

## ANC 4 ANTENNA

NOISE ELIMINATOR

- Remarkably reduces noise from power lines, electric motors, light dimmers, TVs and home electronics - up to 40dB.
- Wipes out the S9 line noise before it hits your receiver. 500kHz-80MHz

NEVADA PRICE- £199.95

## PALSTAR AM30

Active Antenna/Preamp

COMBINED 3-IN-1 UNIT



- ACTIVE ANTENNA
- SW PRE-AMPLIFIER
- ACTIVE ANTENNA/TUNER

- Frequency: 100kHz-30MHz
- Power: 12V DC/battery (supplied)
- Antenna: Telescopic whip included for use as an active antenna

NEVADA PRICE £69.95

## SCANMASTER SPSS

Wideband Preamp

- Improve the reception of your scanner!
- 24 - 1500MHz
- Variable gain (-3dB to +20)
- 3 bandpass filters
- Battery or 12V operation

NEW LOW PRICE!

NEVADA PRICE- £59.95



## ITS EASY TO PAY - Pay by three post dated cheques!

- Simply divide the price into 3 equal payments. (ON ANY ITEM OVER £100)
- Write 3 cheques dated in consecutive months starting with today's date.
- Write your telephone No, cheque card No & expiry date on the back of each cheque.
- Post them to us, enclosing your name & address & we will (subject to status) send your goods immediately.



Godfrey  
Manning  
G4GLM has  
now acquired  
his GMDSS  
Short Range  
Certificate, just  
what does that  
enable him to  
do? Read on  
and see.

# GMDSS Global Maritime

## Can I have it

It seems to be collecting transmitting licences the way some people collect vintage radios or QSL cards. To add to my amateur and aeronautical qualifications, I have now acquired the Global Maritime Distress and Safety (GMDSS) Short Range Certificate. So, what does that do for me?

GMDSS isn't entirely a new scheme. It formalises some existing marine communications and introduces or strengthens two updated concepts. The first is that distress signals can be picked up by satellite and the second is Digital Selective Calling (DSC). These changes mean that some older facilities are now redundant.

### What Does It Do?

The system enables ships at sea to communicate with each other and with shore-based authorities. It is rarely available on inland waterways such as the British canal system, but will be found on the larger expanses of water in the Lake District. Larger rivers, such as the Thames, are also covered; being tidal, does that count as inland?

In the Netherlands, for example, large commercial-carrying canals do have allocated frequencies. Ship to shore is only permitted when contacting an authorised fixed shore station.

Such communications have many purposes with technical names (such as 'Port Operations') but I'll make things simpler by describing the main ones in plain language. Distress is the most important as help may be

summoned in an emergency and other ships may be warned of hazards that they would be best to avoid. Weather broadcasts and reports are routine, but their observance could also prevent disaster.

Again, on the subject of safety, rescue services can co-ordinate their operations. Inshore, that is near the coast, this involves a combination of life-boats, the coastguard and helicopters.

Ships also communicate

with each other for various operational reasons, picking up or dropping a pilot, and perhaps for avoidance. This latter sometimes causes more problems than it solves.

Arranging a berth at a marina is much easier if they can be contacted on the radio. Some ports are actually controlled and you are obliged to follow the instructions of the port authority, obtained by prior radio contact. There is also provision for the



Fig. 3. Godfrey calls for port entry (Christine Mlynek)

### Abbreviations

<b>ACARS</b>	Aircraft Communications Addressing And Reporting System
<b>f.m.</b>	frequency modulation
<b>GHz</b>	gigahertz
<b>GPS</b>	Global Positioning System
<b>h.f.</b>	high frequency
<b>kHz</b>	kilohertz
<b>m.f.</b>	medium frequency
<b>MHz</b>	megahertz
<b>N</b>	north
<b>QSL</b>	Acknowledgement receipt of radio message
<b>S</b>	south
<b>s.s.b.</b>	single sideband
<b>s.s.r.</b>	secondary surveillance radar
<b>u.s.b.</b>	upper sideband
<b>v.h.f.</b>	very high frequency



# Distress and Safety System

# too?

convenience of yacht clubs which might want to co-ordinate the running of events such as races.

Until Spring 2000, you could even make a telephone call through the Public Correspondence service. A shore station connected the ship, no doubt at great expense, to the Public Switched Telephone Network. Ship-borne radios can't dial a telephone number so callers had to tell shore stations what to dial on their behalf.

That's all gone now, killed off by the convenience of the cellular telephone (which is quite effective inshore) and lack of profit. Deep sea, there is always satellite. See the article 'Receiving Inmarsat' (September 2000 SWM page 14).

## What Frequencies?

Not all the GMDSS is a voice system. The best known is perhaps v.h.f. marine band,

156-174MHz, 25kHz

channel spacing, f.m. apart from channel 70. In Fig. 1 I list the frequencies of the v.h.f. channels mentioned in this article as found in the UK.

There are international differences, especially in the USA (typical!). Also available for routine u.s.b. voice communications, are all the usual m.f. (1.605-4.000MHz) and h.f. (4.000-27.5MHz) allocations that Graham Tanner writes about in the 'SSB Utilities' column. Morse might

still occasionally be heard on m.f. (415-535kHz).

It is possible to communicate with rescue aircraft without holding a separate aeronautical licence, but a hand-held transceiver limited to 121.5 and 123.1MHz must be used.

For rescue co-ordination, try the Emergency Position Indicating Radio Beacon (EPIRB). Some are kept with you in a life-raft, others activate themselves if chucked overboard. Keep one loosely attached to the boat's roof. If the boat sinks, the EPIRB floats off and calls for help. Same principle applies to attaching one to a life-ring.

Rescue craft such as helicopters can home in on an EPIRB signal on the aeronautical distress frequencies of 121.5 and 243MHz. Better still, 406MHz transmitters send a signal to the SAR/SAT/COSPAS polar orbit satellites. The ship's position and the serial number of the EPIRB are included in the signal, so the ship in distress can be identified. Inmarsat does much the same but in geostationary orbit, receiving on 1.6GHz. You need to wait for the next pass of a polar orbiter. A geostationary satellite is always there, but can't be expected to see you above/below latitude 70°N/S.

To attract the attention of passing ships, a Search And Rescue Transponder (SART) can paint a target on 9.2-9.5GHz ship-borne radar. The bright image of the beacon is emphasised by a line of dots or rings that show between it and the radar centre (the rescuing ship). It's a simple version of the s.s.r. transponder used by aircraft. Again, a SART attached to a life-ring will enable you to re-locate a 'Man OverBoard' (MOB) casualty in a rough sea.

Another useful

safety facility is NAVTEX.

Broadcast on 518kHz, this data transmission carries weather and navigation warnings for different sea areas.

## Listening Watch

In the old days, periods of silence were maintained on 500kHz (Morse), 2.182MHz and v.h.f. channel 16 (distress and calling) voice. Any vessel in distress had the most chance of being heard at these times. That's no longer necessary as, on the high seas, satellites can receive your signal.

Inshore, an initial distress alert may be sent by digital code on channel 70 (DSC). Just pressing the red 'SOS' button on the radio (Fig. 2) sends the identity of the vessel in distress, the position (if entered into the equipment either manually or via direct link from a GPS receiver) and type of distress. If possible, the caller should then transmit a conventional voice distress message on channel 16. Small boats are not yet obliged to carry DSC, but if they do, the receivers on any nearby big ships will automatically tune to channel 16 ready to hear their voice message.

There are three types of emergency message. 'Pan Pan'

Fig. 1: VHF Marine Band Frequencies.

Channel	Frequency (MHz)
6	156.300
8	156.400
13	156.650
16	156.800
67	156.375
70	156.525
72	156.625
77	156.875
80	See text (Duplex - ship TX 157.025, Shore TX 161.625)
M1	157.850
M2	161.425

(from French *en panne*, to have a failure or breakdown) means that something awful is about to happen. 'Mayday' (from the French *m'aider*, help me) means that things are getting worse, something awful actually has happened.

'Sécurité' (French for safety) precedes a warning that, if ignored, could lead to a situation where you'll need one of the other two messages. This latter is no longer recognised in aeronautical usage.

On a conventional receiver, the data burst sounds just like an ACARS message as heard on the airband. The identity of the ship is pre-programmed into the radio as a string of nine digits. The first three represent the country of registration (232, 233 and 234 for the UK) and the remaining six identify the ship within that country. This is called the Maritime Mobile Service Identity (MMSI)

continued on page 43



Fig. 2: DSC controller sending distress message.

# ML&S martin lynch & sons

Suppliers of Communications Equipment

## MARTIN LYNCH & SONS

128 & 140-142 NORTHFIELD AVENUE, EALING,  
LONDON W13 9SB OPEN SIX DAYS A WEEK - MON - SAT 9.30 - 5.30

### The JRC NRD 545 Deluxe Receiver

Internationally accepted as the benchmark receiver throughout the world, the NRD-545 is still the professional's choice.



#### Specifications

- Frequency Range .1 - 29.9999MHz
- Type of reception USB, LSB, CW, RTTY, AM, FM, WFM (When CHE-199 installed)
- Memories-1000 channels
- Receiving system Triple superhetrodyne
- Image rejection 70dB or more
- IF rejection 70dB or more
- Dimensions 330W x 130H x 285D (mm)
- Weight Approx. 7.5kg

#### Features

- Digital Signal Processing by One-Chip DSP
- Wide Band 30-2000MHz
- Converter option (CHE-199)
- Remote control by PC

**ML&S £1399**

Available on **FREE finance**,  
**£199 Deposit & 12 payments of only £100 per month.**

**FREE FINANCE**

**FREE UT-106**

**FREE CASE**

## antennas

**MYDEL**

MyDel Magnetic Long Wire Balun  
Only **£19.95**

MyDel Skywire Antenna Kit  
Only **£39.95**

MyDel Discone 25/1300MHZ  
Only **£39.95**

Dressler active antennas  
The full range of dressler antennas are now available from ML&S.

ARA 60 **£169**  
ARA 2000 **£169**

This outstanding range is ideal for use with all base station receivers, the ICR-8500, AR-5000, PCR-1000, NRD-545, FRG-100 & more! Beautifully constructed and designed in Germany.

**NEW DRESSLER ANTENNAS IN STOCK**  
The ARA 100HDX and ARA 2000HDX....at **£349 each**



**YAESU VR-5000**

**MLS PRICE: £699**

**INTEREST FREE FINANCE**  
**£99 DEPOSIT AND 12 X £50.00 PER MONTH**

- 12 volt operation
- 100kHz - 25999.9998MHz frequency range
- Operating modes are CW, LSB, USB, AM, AM-N, WAM, FMN AND WFM
- Real Time Band Scope
- 2000 memories
- World Clock
- Case size is 180w x 70 h x 203 deep. (Weight approx 1.9kg).

**Options include:**  
■ DSP Bandpass, Notch and Noise Reduction Filters  
■ Digital Voice Recorders



- Pocket Scanner
- 100kHz - 1.3GHz
- AM/FM/WFM/SSB/CW
- Band Scope
- PC Programmable

**YAESU VR-500**

**MLS PRICE: £199**

**OR £239 WITH NICADS & POWER SUPPLY**  
**NO FINANCE AVAILABLE ON THIS MODEL**



**ICOM IC-R75E**

**MLS PRICE: £699**

**FREE FINANCE!**  
**£99 DEPOSIT AND 12 X £50 PER MONTH**



**ICOM IC-R8500**

**MLS PRICE: £1349**

**FREE FINANCE!**  
**£149 DEPOSIT AND 12 X £100 PER MONTH**

Our dear friend Mr John Wilson gave this superb all band all mode receiver the thumbs up and it's hardly surprising. Icom have actually sold more of this product to HM Governments than enthusiasts. If it's good enough for 'them' it's good enough for you and me.

World Radio History



RRP: £719

**AOR AR-8600**

**MLS PRICE: £699**

**NO DEPOSIT**  
**AND 48 X £21.27 PER MONTH**

#### Base version of the AOR8200.

While the operation and logic of this unit are the same as the AOR8200 the AOR8600 front end is re-designed to cope with base antennae. This radio will be at home in the car or on the desk top.

- Coverage: 500kHz - 2040MHz.

#### Options include:

- Computer control, Plug-in memory module for 400 memories, CTCSS decode, Record Chip for 20 seconds of audio, Tone Eliminator and Voice Inverter.



**DSP UT-106 at only £79.95**

**ICOM PCR-1000**

**MLS PRICE: £365**

**AVAILABLE ON FREE FINANCE - ZERO APR**  
**ONLY £65 DEPOSIT, THEN 12 X £25 PER MONTH**



**ICOM IC-R2E**

**MLS PRICE: £159**

**NO FINANCE AVAILABLE ON THIS MODEL**



RRP: £499

**YAESU FRG-100**

**MLS PRICE: £449**

**NO DEPOSIT**  
**AND 48 X £13.66 PER MONTH**

This is an Ideal radio for a newcomer to short wave that wants something a bit better than a budget radio. Performance is excellent and options include

FM100 FM board, Narrow CW filter YF110C, YF110CN (600hz or 250hz) and PC interface IF232C.

● TEL: 0208 566 1120

● FAX: 0208 566 1207

● Web site: hamradio.co.uk

● e-mail: sales@MLandS.co.uk



**AOR AR-3000A**  
**MLS PRICE: £799**

NO DEPOSIT  
 AND 48 X £92.79 PER MONTH

THE HITACHI WORLDSpace  
 RADIO OFFERS DIGITAL  
 SATELLITE RADIO, FM  
 BROADCAST AND SHORT  
 WAVE AM BROADCAST, ALL  
 IN A PORTABLE PACKAGE.  
 A NEW CONCEPT IN  
 RADIO.



HITACHI  
**WORLDSpace RADIO**  
**MLS PRICE: £99.95**

plus £7.50 CARRIAGE



AOR ARS000A+3  
 RRP: £1799  
 NO DEPOSIT, THEN  
 48 X £54.74  
 PER MONTH

**AOR AR-5000A**  
**MLS PRICE: £1395**

NO DEPOSIT  
 AND 48 X £42.45 PER MONTH



THIS NEW YAESU  
 HANDHELD SCANNER, THE  
 VR-120, AT ONLY £159.00  
 OFFERS AM, FM AND WFM  
 COVERING  
 500hz - 1300Mhz

NEW YAESU  
**HANDHELD SCANNER**  
**MLS PRICE: £159**

NEW VR-120 from Yaesu



**ICR-9000L**  
**Communications Receiver**

This is the ultimate  
**communications receiver!**  
*Used by Government Agencies  
 world-wide.*

Covering 100hz to 200MHz all modes  
 (am, fm, wfm, usb, lsb, cw and video).  
 For no-compromise reception this is the  
 best there is.

**Available for £7199**  
 or £199 deposit and 48 x 213.01 per month



NOW WITH HIGHER  
 POWER NICADS, TXCXO,  
 NEW BLACK CABINET  
 AND OTHER  
 ENHANCEMENTS.

**AOR AR-8200MKII**  
**MLS PRICE: £419**

FREE FINANCE!  
 £59 DEPOSIT AND 12 X £30 PER MONTH



FREE  
 FINANCE

ICOM  
**ICR-3E**  
**MLS PRICE: £449**

FREE FINANCE!  
 £41 DEPOSIT AND 12 X £34 PER MONTH



GRUNDIG  
**YACHT BOY 400**  
**MLS PRICE: £119**

FULL RANGE OF GRUNDIG PORTABLE RADIOS IN  
 STOCK NOW



NEW  
 IN STOCK  
 NOW

MAYCOM  
**AR-108**  
**MLS PRICE: £69.95**

POCKET SIZED AIRBAND RECEIVER

- Shortwave: 1.711 - 26.1MHz
- FM Stereo: 87.5 - 108MHz
- MW/LW
- 40 station preset
- SSB reception (both USB/LSB) 1Khz fine tuning
- Narrow/Wide bandwidth
- DX/Local sensitivity
- Auto Search
- And lots More!



RRP: £599  
**SATELLIT 800EU**  
**MLS PRICE: £549**

FULL RANGE OF GRUNDIG PORTABLE RADIOS IN  
 STOCK NOW

The Grundig Satellit 800 Millennium gives you the ultimate in  
 features, performance, convenience, and sound. It's incredibly  
 powerful, technologically sophisticated, yet easy and intuitive to  
 use. Whether you're an experienced shortwave listener or a  
 newcomer to the world of international broadcasting, this is the  
 radio to get!

PHONE FOR FULL SPEC & VERY BEST PRICE.



TIMEWAVE  
**DSP599ZX DSP FILTER**  
**MLS PRICE: £359**

PAY NOTHING FOR 6 MONTHS - INTEREST FREE  
 OR 36 X £15.58 PER MONTH

The DSP-599zx is the latest generation DSP filter  
 incorporating the newest high speed CPU. The extra  
 power gives the user unparalleled features and field  
 upgradeability for the future. The new LCD display,  
 pushbuttons, and Visible Memory let you see the exact  
 settings of the filter. The optical encoders give the  
 operator continuous tuning of the filters.

**Still Available!**  
 MVT-9000MKII  
 MVT-7100  
 MVT-7300  
 Icom IC-R10

World Radio History

**GPS @ ML&S**

**Garmin Street Pilot**

The Street pilot is an excellent in car GPS unit with  
 map detail down to street level. The amber backlit  
 display is easy to read and makes the unit ideal for  
 navigation in unknown territory. The Street Pilot is  
 also at home with APRS when used in conjunction  
 with a THD7E or TMD700E. Supplied with *The UK Metro  
 Guide* on CD Rom, a 16mb Ram module, cigar Lead  
 and PC lead. The system is all ready to go at  
 £595.00 including delivery to your Door.



**Garmin E Map**

The Garmin Emap is a hand held version of the  
 Street Pilot and comes with Data lead, 16mb Ram  
 Card & UK Metro Guide on CD Rom at only £329.00.



**The Garmin GPS3plus**

The ever popular GPS3 now has more map detail  
 and allows upload to street level. Available at  
 £339.00 with FREE CD-ROM software!



SEE THE NEW  
 'SHOPPING  
 BASKET' ML&S  
 WEB SITE AND  
 SAVE EXTRA  
 POUNDS!!  
 VISIT  
[hamradio.co.uk](http://hamradio.co.uk)

**FINANCE EXAMPLE**  
 All examples do not include P&P.

Cash Price	Deposit	PAID IN 6 MONTHS	APR
£299	NIL	£299	0%
OR Cash Price	36 Payments of	Total Credit Price	APR
£699	£30.34	£1092.24	26.9%

Written quotations available on request

Martin Lynch can also offer finance terms up to 48  
 months with no deposit. We welcome your part  
 exchange against any new (or used!) product, provided  
 its clean and in good working order. Call the Sales Desk  
 today. APR: 26.9%. Payment protection is also available  
 up to 36 months. All units are brand new and boxed and  
 offered with full manufacturers RTB warranty. All prices  
 quoted for cash/cheque or Switch Delta card. No  
 additional charges for credit cards. Martin Lynch is a  
 licensed credit broker. Full written details are available  
 on request. Finance is subject to status. £30E £10 p&p  
 on all major items.

Martin is pleased to  
 announce that Chris Taylor  
 has been made a Director  
 of ML&S in recognition of  
 his input to the company  
 over the years.  
 Congratulations Chris!

Looking forward to the next issue of *Practical Wireless*? Take a look at what's on offer!

next **month**

**PRACTICAL WIRELESS**

THE UK'S BEST AND ONLY INDEPENDENT AMATEUR RADIO MAGAZINE

**REVIEWED**

Carl Mason **GW0VSW** gets to grips with the Yaesu FT-1000 Mk V h.f. all-mode transceiver.

**RADIO HOLIDAY**

Jack Drake **GM4MOX** has some useful tips and suggestions for taking your hobby on holiday with you.

**FEATURE**

Take a trip back in time with Dick Pascoe **GOBPS** as he remembers Thomas Edison and his inventions.



**BUILD**

Build a 3-band c.w. QRP transmitter - Carmel Fenech **9H1AQ** shows you how.

**LOOKING AT .....**

Join Gordon King **G4VJV** as he looks at the audio stages.

Next Month in *Practical Wireless*, the magazine that brings you Amateur Radio & So Much More .....

Plus all your regular favourites including:

- Amateur Radio Waves
- Bargain Basement
- Club News
- Keylines
- News
- Radio Scene
- Valve & Vintage

and much, much more!

\*Contents subject to change

next **month**

**CAN YOU AFFORD TO MISS IT?**

**JULY ISSUE ON SALE 14 JUNE PLACE YOUR ORDER TODAY!**

airband basics

backchat

on the road

satellite monitoring

amateur airwaves

software spot

world of cb

scanners

IN THIS MONTH'S

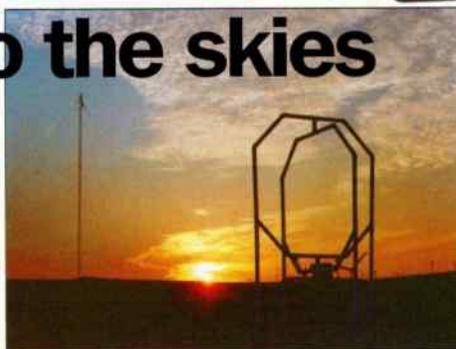
**radio ACTIVE**

Order a regular copy from your local newsagent or, better still, take out a subscription and receive a FREE binder.

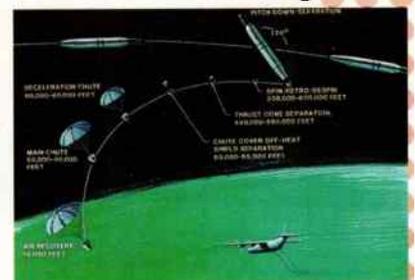


**Listening to the skies**

- 70 Years of Ionospheric Listening
- Alinco DJ-446 Review
- Radio Beacons
- Your First CB Station
- All your favourite columns



- Yaesu VR-5000 Review
- Satellite Monitoring



**RADIO ACTIVE JUNE ISSUE ON SALE 18th MAY**

Radio Active is published on the third Friday of each month - available from all good newsagents or direct by calling (01202) 659930, priced at only £2.25

# GMDSS

## Can I have it too?

and is the same concept as identifying your home 'phone by its telephone number.

On channel 70, you can call another ship by sending its MMSI (assuming you know it). If not, then you'll have to call by voice on channel 16 - after checking that no distress traffic is taking place. Get this wrong

the Rules for the Prevention of Collision at Sea and give way to you. If you're in a small, manoeuvrable motor yacht then this would be rather cheeky and unhelpful.

Also, the large ship to whom you are speaking might well agree to give way in the respected fashion. If it happens

calling or they won't know on which they should reply to you as one person could be trying to listen to both loudspeakers. If it's a naval port then you will speak to someone with the grand title of Queen's Harbour Master (QHM).

By and large, it's not as strict as air traffic control and radio procedure is slightly more relaxed than on the airbands. However, there are

much smaller than a cross-channel ferry. You can tell the coastguard of your whereabouts on channel 67 (Small Ship Safety). Then, if you sink without trace, they know where to start looking for the wreckage.

### Information Sources

You too can take the exam and obtain a GMDSS Short Range Certificate. This permits you to transmit on the v.h.f. marine band and to supervise other unlicensed crew members to do likewise. However, you still need the captain's permission to send messages (assuming that you and they are not one and the same person!). The exam is straightforward and to the point, write out an emergency message, answer some multiple choice questions and convince the examiner that you'll say the right thing by speaking messages into a dummy microphone.

Most of what you need to know is in *VHF Radio Including GMDSS*, booklet G22/99 from the Royal Yachting Association (RYA House, Romsey Road, Eastleigh, Hampshire, SO50 9YA). Enquire from them about prices and also the location of your nearest approved examiner. You might also consider their booklet G26/99 *VHF Radio (inc GMDSS) Examinations* which contains example questions. They can also point you in the direction of courses if you want tuition prior to the exam.

Information as to which channels are allocated to harbours world-wide can be obtained in various ways. Nautical almanacs (such as *Macmillan/Reed's* for UK and near continent) can be seen in reference libraries or bought if you can afford it.

Again, vital if you actually put to sea, are the volumes of the *Admiralty List of Radio Signals* from the UK Hydrographic Office. For Customer Services & Sales Tel: (01823) 337900 ext. 4242.

**SWM**



Unlikely to have GMDSS equipment fitted yet.

and the Coastguard will reply with a firm 'Silence Distress' which is actually pronounced 'Seelonce' like they do in French.

### Inter-Ship

Having made contact with another ship, you choose a working channel. Idle chat is never allowed, but a brief conversation about intentions would be fine. If you're friendly with the captain of a cross-channel ferry, you can arrange to meet for lunch when you anchor your yacht near Calais. Never on channel 16, though; you keep it short, just the minimum to agree on a working channel chosen from one of 6 (primary), 8, 72 or 77.

Large ships should also monitor channel 13, bridge-to-bridge. This is a mixed blessing. If, (outside of a traffic separation scheme or fairway) a big ship appears on your left, you can politely ask if it intends to do the honourable thing by

to be a case of mistaken identity and the vessel bearing down on you through the mist is an entirely different craft then you could be in for a memorable voyage! Co-ordination should be by eye, avoid and apply the rules. Attempts to short-cut procedures by radio can actually lead to a collision because of mistaken identity or misunderstandings.

### Is That All?

The v.h.f. marine band has other purposes. Harbours may have a frequency on which to call when requesting a berth for the night. They'll allocate the berth according to size of boat and then tell you where to moor so that you know in advance.

Some ports actually require you to obtain permission prior to entry (Fig. 3) and, if there's more than one channel, you must state on which you are

facilities to keep ships from colliding with each other, such as Vessel Traffic Service (VTS).

Some marinas and yacht clubs have access to so-called private channels. These (M1, M2 and 80) are paradoxically available to all. They might be private to the marina, but they want you to berth there (for the necessary fee!) and so you're welcome to call them. M2 is also used by yacht clubs to co-ordinate their races.

In France, channel 80 is used by the coastguard for weather broadcasts. As these channels are theoretically private, there is no need for international standardisation. Indeed, M1 is also known as M, P1, P37 or channel 37 in other countries. Channel 80 is actually duplex, ships transmit on 157.025 and shore stations on 161.625MHz.

Your friendly local coastguard worries about you if you're in a small yacht. That means just about anything

# More Like Old Times

*The PC verses the Laptop...Bob Ellis considers both.*



Last time I wrote of the impracticalities of owning something like a Rascal RA17 due to the space it took up, I justified it by saying that a fairly standard PC takes up about the same space, only to find my eye drawn to the thing all the time. There can be nothing uglier in the house than the switched-off PC. Or do I mean powered-down? Unbooted?

Anyway, I now know why husband's justify the home computer by sticking a Tesco CD in it to shop online for her, surf the web for him. I can't think of anything worse than their van backing up your drive taking the one branch off the ornamental cherry that supports your long wire antenna and delivering unto you five litres of bleach where lo, was it not written in the Tesco tablet yea, even unto the

**"...you have to be deformed to have it on your lap..."**

third attempt until the Wrath Of God did smite the 'submit' button and wrent modem and BT in twain causing a tribulation and vexation to rise upon the face of the deep and lay a distant server low, when what you really wanted was cling peaches...

## Enter The Laptop

The PC has gone now. I have a laptop. Why they call them that I'll never know, you have to be deformed to have it on your lap. The sheer weight with the special long-life battery pack will require a steel pin in each knee - that phrase 'long-life' obviously does not refer to me. To write this piece I have a groin-top computer, a

printer, power supplies everywhere, a modem to inflict digital tedium on a distant Editor who has never done me the slightest harm and a tray with tea and Hobnobs. I think that's what we ordered...

I wonder what you get if you put 'hobnob' in a search engine? Anyway, my 'station' now takes up the space of a decent train set or a couple of Rascal's with perhaps room for an 18 Set at the end.

And all these cables? Back in the quondam days of a radio youth, you could grab a wire and if it did not knock you through the serving hatch into your luxury kitchenette stroke diner with 1400V on the way to the most linear p.a. ever made, you could say what it is for. The

p.a. is linear because I designed it and who will be listening at the seventh harmonic anyway? I digress.

All these wires seem acceptable on the PC, but back in the shack, you'd be high on adhesive fumes, tripping over MDF off-cuts boxing them all in. One chum who has given up on our hobby has gone all out on Sky and DVD, refers to his inter-connects as his 'little power station'. His wife calls it something shorter. Another chum used a printer cable as a

towrope. It gets out of hand.

## Radio For Me

It's radio for me. The AR7030 is the smallest wireless I have ever had, its installation comparatively wireless. The Sky chum says I can do Internet Radio on the PC and I have tried it. Pages of stations are listed when you click the 'Radio' folder, click on one of them and you already know all about it before the audio loads. You can read that WXXX is LA's foremost f.m. rocker, playing yesterday's hits tomorrow. No sound yet? Ah, yes. That's because the Real Audio player has gone off somewhere else to get an update. It now tells me it can handle embedded test messages and so to a distorted rendition of 'Don't Fear The Reape'r by Blue Oyster Cult, a little box comes up to tell me

that WXXX is LA's foremost f.m. rocker, playing yesterday's hits tomorrow and anytime I'm in town, remember to call The Crazy Kow Diner for all I can eat for \$6.99.

That's audio. When it's good, it can be very good. Most of the time it either drops out or sounds like a Dalek singing in the shower. Add that to the poor quality of add-on PC speakers and its back to short wave for me. Turn the dial and the usual suspects are broadcasting on the same channels they have for years. Old friends. Turn the dial through the channels in between and you have no idea what will come up.

As I write this, Africa No 1 is romping in, some zipping guitar stuff - a bit like Bert Weedon on acid. I had no idea it was here even after forty years of listening. SWL'ing is about serendipity. (I think I got that right - real men don't use spell-checkers!). You choose your Internet station on the PC. On the radio, the ionosphere makes the selection - the station chooses you. All you need is an open mind to take on what conditions bestow upon you.

### Brief Flirtation

The cost! My brief flirtation with Web Radio was done over an 0845 dial-up which Lycos said was 'free'. I have just paid the 'phone bill. For the same price, I could have flown out to LA, taken a cab to WXXX, married the DJ who promised yesterday's hits tomorrow, divorced her in Vegas and made off with half of our CD collection, flown home in tears and still had enough money to bore the locals in the pub on how fickle DJs can be and CDs are cheaper over there anyway. An exaggeration? Having no mates means a Low User Rebate...

One day we will have the bandwidth to allow good radio by modem. One day, a Telecomms firm will forget its OFTEL membership and give we Children Of The New Frontier 0800 rates. One day...

Until then, I think I'll delete the dial-up connection on this PC, pack up the cable spaghetti if I can get it all in the case, then it's back to radio for me. Apparently we need the table space for something called lunch. One last modem call, the one that mails this to your soaraway SWM. They have got to pay me for this one; it's cost me 0.43p to get it to them!

**SWM**

# The SHORT WAVE Magazine

## Subscriptions

**A**s an avid reader of SWM, you might like to consider taking out a subscription this month. By paying up front for your magazine, you can be assured of never missing out on the latest news and reviews, plus you will be saving yourself money over the period of the year. For example, 12 issues at the current cover price would cost you £39, but by taking out a subscription, you are saving £3 - over 7.5%!

By subscribing to SWM, you also get the extra benefits of:

- Seeing your copy of SWM before it gets to the newsagents.
- Ensuring that you're bang up-to-date with all the latest news and reviews.
- Checking out the 'Trading Post' bargains first.
- Having Britain's best radio magazine delivered direct to your door every month.
- Protecting yourself against cover price rises for the duration of your subscription period.

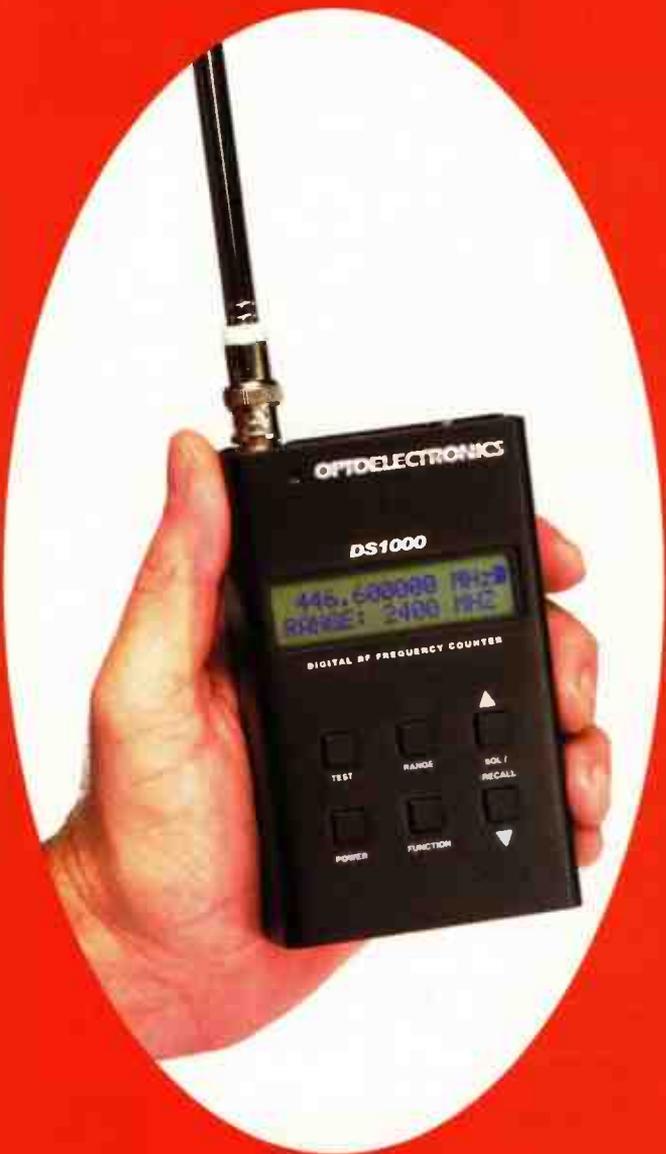
### Subscription Rates (1 Year)

£36	UK
£43	Europe Airmail
£48	Rest of World Airsaver
£54	Rest of World Airmail

To order a subscription, please use the Order Form on page 78 or call the Credit Card & Order Hotline on (01202) 659930 and quote SWM Subs 6.

Subscribe & Save!

# Let's Get Digital



TA100S antenna, power supply, RS232 cable and download software are included.

## All New DS1000

**FOR THE FIRST TIME EVER**  
a frequency counter that captures DIGITAL RF.

\*The NEW **DS1000** is the only frequency counter in the world capable of locking onto Digital modulations. TDMA, GSM, APCO 25, Tetrapol, On/Off Keying and other pulsed RF (Minimum 500uS pulse required for capture by the DS1000).

The **DS1000** also incorporates the \*patented Optoelectronics feature, Reaction Tune. Using the CI5 output, the DS1000 can automatically tune a compatible receiver to the frequency it captures (Analog signals only). The DS1000 also has an RS232 output for direct connection to a PC for downloading the 1000 internal memories (RS232 cable and download software are included).

- Frequency Range 10MHz-2.6GHz
- Captures Digital and Analog RF
- 1000 memories with a 65,000 hit counter
- Reaction Tune with ICOM IC R10, R7000 R7100, R8500 and R9000. AOR AR8000 and AR8200. Optoelectronics Optocom, OS456/Lite, OS535 and R11. BC245XLT.
- Download memory with built-in RS232(Cable and software included)
- Accurate .5ppm TCXO timebase

### Recommended Accessories

- N100 FM Broadcast Notch Filter
- CBCI5 Reaction Cable for ICOM
- RT8200 Reaction Cable for AR8200
- RT8000 Reaction Cable for AR8000
- DB32 Mini Antenna 150-1000MHZ

## Order Now from Waters & Stanton

Spa House, 22 Main Road, Hockley, Essex SS5 4QS  
Tel: 01702 206835 Email: sales@wsplc.com  
www.wsplc.com

# OPTOELECTRONICS®

5821 NE 14th Avenue  
Ft Lauderdale, FL 33334  
www.optoelectronics.com



### SIGNAL STRENGTH

The DS1000 can also be used as a field strength meter. The DS1000 displays the power level of the nearfield RF in dBm, which is calibrated at the input of the DS1000. Signal levels can be measured from -45 to -5 dBm with accuracy of +/- 5dBm.



■ **DAVE ROBERTS** c/o SWM EDITORIAL OFFICES, BROADSTONE

■ **E-MAIL:** scanning@pwpublishing.ltd.uk

**T**his month I shall start with the old warning which I really should mention more often. If the transmission is not amateur, broadcast or anything that you don't have a licence to listen to then the authorities take a very dim view of monitors and scannists.

Now that's out of the way, I don't know why anyone would want to buy a UBC 245XLT scanner. I mean who would want to spend money on a radio that decodes the Metropolitan Police trunked radio system? In fact, I have heard that the biggest purchaser of these radios has been the Met police themselves. I understand that they are not available in the UK, but most dealers in the United States are happy to supply to UK customers. If you live within the radio coverage area of the capital, therefore, make sure that you don't get one of these radios by mistake!

It doesn't seem that anyone is going to get into trouble for listening to foreign radio traffic and recently the West Virginia State Police have been heard on 42.100 and the California Highway Patrol on 39.260, 39.360, 39.400, 39.440, 39.680, 39.720, 39.800, 42.080 and 42.440. All are n.b.f.m.

I have never heard the CHP myself. I still live in hope. I believe that the CHP are still using the Ericsson-GE RANGR 100W mobile sets with a control head which controls the mobile repeater radio, siren and public address system on the vehicle. They have a Uniden MR8100 scanner fitted under the dash too. This set is automatically muted when the police radio is put into transmit. They have not had CB sets in the cars since the early eighties when the CB craze died out in the USA.

A company called **Tardis Communication Systems** are advertising a squelched inductive earpiece for sale at seventy five pounds a piece. Now these little gadgets come complete with an insertion tool, battery and wax guards (UGH!). The sketch of the unit that is shown in their advert shows a unit which appears identical to most covert earpieces as used by police, military and other agencies that run covert operations. Tardis don't sell the rest of the kit, but I think that the earpiece



would be the hardest bit to make.

For the induction circuit I reckon that a wound coil would do the trick. Does anyone have any ideas on this? It would be useful for those of us who take radios into crowded areas making it much more difficult for anyone to know that a radio was in use at all. Tardis are on (01296) 338747 and have a website at [www.tardiscomms.co.uk](http://www.tardiscomms.co.uk) I think that they may be in the Aylesbury area. (Or perhaps *Galifrey?* - Ed.).

## Efficient Antenna

**Simon Wood** from South Devon is a pretty useful sort of bloke. He has bought himself one of those broadcast band dipole antennas from a discount shop like B&Q or whatever and cut it to length for u.h.f. He changed the coaxial feeder from 75Ω broadcast stuff to RG58, mounted the antenna vertically and found that he had got himself a very efficient antenna indeed for just a few pounds.

Lift conditions on v.h.f. and u.h.f. can bring in all sorts of anomalies. Perhaps the biggest sources of interference on these bands (apart from pagers) are from lifts and static rain falling on base station antennas. While trolling around the v.h.f. low band during some pretty stormy, rainy weather I could hear static noise clearly coming from a repeater output on 82.050MHz.

I have spent many hours sat in front of radio kit listening to statically charged rain falling on antennas to be mistaken as to the cause of the noise. The level of noise and signal strength confirmed that this was a repeater output from somewhere. I had certainly never heard any signals on this frequency before.

I checked on the *PROMA*

*Scanning Scene* CD and found that it is listed as a Customs and Excise channel (paired with 68.550) on n.b.f.m. Continuing to search through v.h.f. I came across some other repeater outputs which I have never heard in use. So, it does pay to have a listen around.

## Telescopic Whip

I have received a mail from **Patrice Privat** who lives in Noailles which is about 60km north of Paris. Pat runs a Yupiteru MVT-7100 and recently copied an Argentinean amateur station on 29.580 n.b.f.m. from a town called Posadas in the Corrientes Province. This is pretty good with a Yupi '7100, but Pat runs it hooked up to an indoor 1m telescopic antenna, which is an Albrecht BNC27. Pat says that he finds it a bit difficult to buy *SWM* in Paris although some American magazines are more easily available. He's certainly doing fine with the telescopic whip.

## Airwave TETRA

It seems that Lancashire police have started the transfer to the Airwave TETRA radio system. They are slowly converting all their divisions to the new radios and it seems that they hope that all of Lancs will be on Airwave by June this year. Also seeing that the new Icom R3 scanner is being marketed in the UK, the powers that be are hoping to make all their police air to ground television systems digital sooner rather than later. This does not mean that they will achieve it swiftly, but it is obviously their intention to do so.

It probably won't take too long as the number of air assets and ground stations are not that great. The good news is that there will still be plenty to watch on the new sets as more folks are using radio

cameras these days. I even heard of one bloke running a 'Footcam' attached to his shoe so that he could peek up ladies skirts. It takes all sorts, anyhow if you are reading this, did you have any trouble with light levels?

## Radio Codes

I have been getting a few questions about the radio codes used by different authorities including the police to describe the ethnic appearance of people. For many years there has been a code system in place which was primarily designed to assist police, customs and immigration officers filling in some of their paperwork with regard to the appearance of people that they have either reported or detained. If anyone has ever overheard these authorities describing people's skin colour and appearance they will have been heard using the letters IC followed by a number from one to six. IC stands for Identity Code and the code is as follows:-

IC1	Light skinned European (Pamela Anderson, Sting, Paul McCartney, etc.)
IC2	Dark Skinned European (Romano Prodi, Sophia Loren)
IC3	Afro/Caribbean (Nelson Mandela, Frank Bruno)
IC4	Of the Indian Subcontinent (Benazir Bhutto, Gandhi, Dev from Coronation Street)
IC5	Of Oriental Appearance (Mao Tse Tung, Hirohito)
IC6	Of Arabic Appearance (Yasser Arafat, Sheik Yamani)

## Low Band

Finally if you live in Scotland or the Borders the Scottish Office now have ten low band channels which are being introduced throughout Scotland and are linked. Some of them were the old Royal Observer Corps channels, but there are some new ones. I think that they are in the 80-81MHz output range. I believe that the system is basically Philips or Simoco and that most sets run around 25W. They still have a simplex frequency too.

**SWM**

Scanning Scene

```

(PRI)
PRIO NFM
MKR 145.0000
144M HAMBAND
S_-----
  
```

```

ADJ
2VFO NFM 14.0k
U-A 145.2100
U-B 76.1000
S_-----
  
```

```

(DUP)
2VFO NFM 20.0k
U-A 439.9000
U-B 88.0000
-
  
```

```

(AFC)
2VFO NFM 20.0k
U-A 1295.0000
U-B 88.0000
-
  
```

```

COPY 232C
LOAD SAVE
ALL-DATA
Next
  
```

```

SCAN-GROUP 1
ABCDEFGHIJ
abcdefghij
BANK LINK
  
```

```

2VFO AM 25.0k
U-A 123.5000
M-WRITE E25
PROTECT OFF
  
```

```

HLD
80.000 ↔ 10M
MKR 80.000
  
```

```

EDIT MEM-CH
MEM LSB 0.05k
A29 14.200
BANK/CH SEL
  
```



*\*High sensitivity design*

# NEW AR8600

MOBILE - BASE - TRANS-PORTABLE

The AR8600 is an extremely versatile **all mode** receiver (530kHz - 2040MHz) which can be used virtually anywhere, mobile, base or trans-portable... powered from an external 12V d.c. power supply, optional d.c. lead from a 12V vehicle or from an optional internally fitted NiCad battery pack. A strong twin metal case with die cast front panel characterises the multi-purpose role. All mode receive capability is provided including Single Side Band with programmable tuning steps down to a resolution of 50Hz with the frequency

established by a highly accurate Temperature Compensated Crystal Oscillator (TCXO). An RS232 port further extends the capabilities with free supporting control software available from the AOR web sites. Although many microprocessor features have been adopted from the trendsetting AR8200 Series-2 hand portable receiver, **the AR8600 RF front-end is an all new (\*high sensitivity) design with a first rate switched attenuator and preselection around VHF to ensure the highest levels of adjacent channel rejection with software spuri cancellation.** In addition to a hinged telescopic whip aerial, the AR8600 is supplied with a **detachable plug in medium wave bar aerial** which locates on the rear chassis of the receiver for localised medium wave monitoring. An additional BNC socket is mounted on the rear chassis so that **10.7MHz i.f. output** may be extracted for use with external spectrum display and vector analyser units such as the AOR SDU5500. The TCXO ensures **high stability with minimal internal spuri** and is usually only seen in top of the range (more expensive) models such as the AR5000 and AR7030. The chassis is manufactured from two metal compartments, effectively a **metal chassis inside a metal cabinet...** this provides excellent screening characteristics and great robustness highlighting its multi application role. The **front panel** is also manufactured from **die-cast aluminium**. Size is 155(W) x 57(H) x 195(D) excl. projections, weight less than 2kg. The all important **8.33 kHz airband channel step is correctly implemented. Computer control** is available via a standard 9-pin RS232 D-type connector on the rear chassis, just a standard RS232 cable is required for connection to a PC, the extensive RS232 command list is printed in the operating manual. In addition, '**optional internal SLOT CARDS**' (which fit into the rear chassis of the AR8600) extend the capabilities even further, five cards may be fitted with two operational simultaneously. **Supplied with:** Swivel base telescopic whip aerial, MW bar, comprehensive illustrated operating manual with RS232 listing, d.c. lead.



# AR8200 SERIES-2

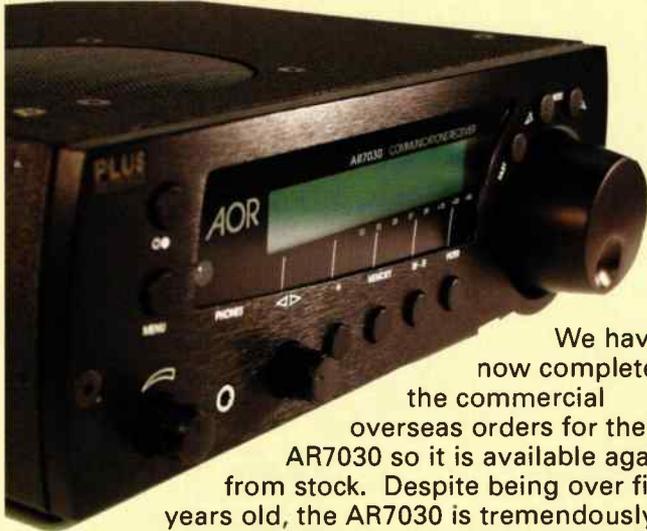
NEVER BEFORE HAS ONE HAND PORTABLE OFFERED SO MUCH

The AR8200 represented a beacon when first released, technology marches forward with the NEW AR8200 SERIES-2 keeping the innovative concept and forward thinking alive and bright. It has not been easy improving on what many thought to be the ultimate, however the NEW AR8200 SERIES-2 does provide even more with nothing taken away.

A Temperature Compensated Crystal Oscillator (TCXO) now forms the heart of the AR8200 SERIES-2, this ensures **high stability** with **minimal internal spuri**. Performance too has seen the AOR R&D team fine tuning the design for **best sensitivity and strong signal handling** over the extremely wide coverage of 530kHz to 2040MHz (all mode receive without gaps). The aerial has also been replaced by a **telescopic whip** on a swivel base, this ensures the best results, a medium wave bar aerial is also provided as standard. The design team have certainly been taking account of customers wishes, the keyboard ZERO key has been swapped in position with the DECIMAL to match the telephone layout, LCD illumination has been increased (for improved visibility) and following requests for longer operation between charges, the **4 x AA size NiCads have been increased in capacity**, again reflecting improvements in modern technology. The obvious change has been left for last... **the cabinet colour has been changed from green to black!**

The list of features is vast, tuning step sizes are programmable in all modes down to 50Hz with comprehensive step adjust and correctly implemented **8.33kHz** for the new VHF airband spacing. Connection to a computer is possible with the optional CC8200 lead/interface with free PC software available from the AOR web site. Unique optional slot cards further enhance features (CTCSS, tone eliminator, record / playback, external memories, voice inversion).

# 'REAL' SHORT WAVE LISTENING



We have now completed the commercial overseas orders for the AR7030 so it is available again from stock. Despite being over five years old, the AR7030 is tremendously popular **still beating off the competition. AR7030, the professional choice.**

Excellent strong signal handling, low noise local oscillator (producing extremely low reciprocal mixing figures) and excellent audio fidelity demonstrates the attention to detail carried through design and into manufacture... the analogue circuits of the AR7030 exhibit none of the strange AGC and poor audio characteristics found in other 'higher priced' DSP competitors. Many feel that the AR7030 is the best short wave analogue receiver ever. Receiver of the Year 1996/97 WRTH, 5-star award and editors choice Passport to World Band Radio for several successive years. Designed and built in the UK as a collaborative project between internationally acclaimed designer John Thorpe and AOR.

## FREE IMAGE TRANSFER EQUIPMENT PRESENTED

Regular readers of SWM (advert in March SWM) or visitors to the AOR UK web site may have noticed an offer of FREE image transfer equipment offered to a UK club or group. Well, it was not a hoax and to prove it here is a picture of **John Riley GORPG** (on the right), Secretary of the **Warrington Amateur Radio Club** who called to receive the equipment toward the end of April... on the left is a member of AOR UK staff with a strange expression on his face, it must have been the result of giving the equipment away for free! Many applications were received from the breadth of the country, each being extremely deserving making the decision of who to award very difficult. Thank you to all who applied.



The free equipment comprised of two brand new AR300 hand held image transfer systems (with camera & colour LCD), two TSC100E image transfer modems and a collection of 'useful bits'. The Warrington club has been active since 1947, hopefully the equipment will make a worthwhile contribution to their activities.



★★★★☆ **AR5000+3** awarded four stars by both the authoritative **Passport To World Band Radio** and **World Radio & TV Handbook**

### AR5000

True base receivers are few and far between, some have simply evolved from the hand held equivalents with little tangible improvement in performance or facilities over their smaller counterparts - *the AR5000 is not like this!* High performance, top quality build and true wide coverage all mode receive. The "+3" version offers even more with synchronous AM, AFC and Noise Blanker. Popular with government agencies throughout the world. **AR5000c** frequency coherent version for commercial applications, special order.

**Commercial & government operators** have selected the AR5000, AR5000+3 and AR5000c in great numbers over recent years resulting in the model being recognised within their organisations in the same manner as many household brand names & products. For counterintelligence surveillance, the AR5000 (often partnered with the SDU5500) forms the cornerstone of modern day monitoring. System training often revolves around the AR5000 which leads to even wider implementation across departments. Transform **your** hobby to a commercial grade listening post with the AR5000, **the professional choice.**

### AR5000+3 - Sync AM, AFC, NB

The "+3" version offers even more with synchronous AM (upper side band, lower side band and double side band with excellent lock range), AFC (Automatic Frequency Control for accurately tracking moving transmissions or unusual band plans) and Noise Blanker.

### AR5000+3

- ✓ Wide frequency coverage 10 kHz - 2600 MHz
- ✓ All mode reception: USB, LSB, CW, AM, Synchronous AM, NFM, WFM with automode tuning (any mode and bandwidth on any frequency is possible)
- ✓ Automatic Frequency Control
- ✓ Noise blanker
- ✓ High stability TCXO reference, 1 Hz NCO tuning
- ✓ 1,000 memories, 10 memory banks, 20 search banks, 5 VFOs (all twice!), alpha tag, EEPROM chip storage
- ✓ Multiple IF bandwidth 3 kHz, 6 kHz, 15 kHz, 30 kHz, 110 kHz, 220 kHz with an option position for 500 Hz CW. (30 kHz is ideal for WEFAX).
- ✓ High sensitivity and excellent strong signal handling assisted by a preselected front end from 500 kHz - 1 GHz
- ✓ Extensive RS232 control list
- ✓ SDU ready with IF output for spectrum display unit

### SDU5500 - SPECTRUM DISPLAY UNIT

The SDU5500 is a Spectrum Display Unit providing practical and cost effective spectral monitoring for band occupancy and identification of new transmissions. Coupled to the AR5000 receiver, it provides a spectrum display of 10MHz bandwidth anywhere between 10kHz and 2600MHz.



**AOR (UK) LTD** 4E East Mill, Bridgefoot, Belper, Derbyshire, DE56 2UA England



Tel: 01773 880788 Fax: 01773 880780  
info@aoruk.com www.aoruk.com E&OE

# ASK ELECTRONICS LTD

248/250 TOTTENHAM COURT ROAD  
LONDON W1P 9AD

Tel: 020-7637 0353/0590  
Fax: 020-7637 2690

web site: www.askdirect.com.uk E-mail: askinfo@ask2.com

PRICES SUBJECT TO CHANGE WITHOUT  
PRIOR NOTICE. PLEASE VERIFY BEFORE  
ORDERING.  
E&OE  
NEXT DAY DELIVERY (MON-THURS)  
£10.00. ORDERS BY CHEQUE WILL BE  
SUBJECT TO A 5  
DAY DELAY FOR CLEARANCE.

## SONY

ICF-SW07 Inc dual voltage mains adaptor and ANLP1 active loop antenna.....	Our price <b>£259.95</b>
ICF-SW07 Inc ANLP1 loop antenna.....	Our price <b>£209.95</b>
ICF-SW100S KIT inc. dual voltage mains adaptor and AN100 active antenna.....	Our price <b>£189.95</b>
ICF-SW1000T.....	Our price <b>£330.00</b>
ICF-SW7600GR Digital world band receiver.....	Our price <b>£129.95</b>
ICF-SW77.....	Our price <b>£350.00</b>
ICF-SW35 Digital world band receiver.....	Our price <b>£69.95</b>
ICF-SW12 11 band analogue receiver.....	Our price <b>£59.95</b>
ICF-SW11 12 band analogue receiver.....	Our price <b>£39.95</b>
AN-71 Wire antenna.....	<b>£7.99</b>
AN-100A Active antenna for ICF-SW100 and 7600G.....	<b>£49.95</b>
AN-1 Outdoor active antenna.....	<b>£64.95</b>
AN-LP1 Active loop antenna.....	<b>£64.95</b>

## HITACHI

WorldSpace digital and short wave radio...**£95.95**

## ROBERTS

R-881.....	£69.95
R-9914.....	£84.95
R-876.....	£114.95
R-861.....	£169.95
R-827.....	£139.95
RC-828.....	£169.95

## GRUNDIG

Yacht Boy 400...£89.95
Grundig Satellite 800eu.....£540.00

## SANGEAN

ATS-404.....£60.00
ATS-818.....£109.95
ATS-818ACS..£139.95

We also stock a range of books for frequency scanning

## IN-CAR NAVIGATION AND GLOBAL POSITIONING SYSTEMS

### GARMIN

Compact go anywhere GPS receivers

Etrex.....	£109.95
Etrex Venture.....	£139.95
Etrex Legend.....	£194.95
Etrex Summit.....	£174.95
Etrex Vista.....	£269.95
EMAP UK.....	£289.95
GPS III PLUS.....	£329.95
GPS MAP 76.....	£289.95
EMAP UK.....	£289.95

STREETPILOT UK.....£480.00

STREETPILOT COLOUR UK..£615.00

### MAGELLAN

GPS BLAZER 12.....	£89.95
GPS 315.....	£135.00
GPS 320.....	£170.00

### SONY

#### SONY STREET MATE

.....now only **£160.00** was £259.95

## SCANNERS & TRANCEIVERS

### YUPITERU

MVT-9000MkII 531kHz-2039MHz all mode.....	<b>£339.95</b>
MVT-7300 531kHz-1300MHz all mode.....	<b>£249.95</b>
MVT-7100 530kHz-1650MHz all mode.....	<b>£199.95</b>
MVT-7000 530kHz-1300MHz.....	<b>£149.95</b>
VT-225 Civil and military air band.....	<b>£199.95</b>
VT-125 Civil airband.....	<b>£149.95</b>

### ICOM

IC-R2 500kHz-1300MHz, AM, FM, WFM, 400 ch, hand-held communications receiver.....	<b>£135.00</b>
IC-R10 100kHz-1300MHz, all mode, 1000 channels hand-held communications receiver.....	<b>£270.00</b>
IC-PCR100 100kHz-1300MHz, AM, FM, WFM, PC communications receiver.....	<b>£185.00</b>
IC-PCR1000 100kHz-1300MHz, all mode PC communications receiver.....	<b>£325.00</b>
IC-R75 30kHz-60MHz, AMS, AM, FM, USB, LSB, RTTY, CW.....	<b>£645.00</b>
ICR 3 Full UK tv coverage, 500kHz to 2450 Mhz all mode.....	<b>Phone for price</b>
ICR 8500 100 khz to 2000 Mhz.....	<b>£1250.00</b>

### YAESU

VR-500 Compact handy 500kHz-1300MHz all mode .**£195.00**

VR-5000 100 kHz to 2599 Mhz all mode.....**£679.95**

**FT 817 TRANCEIVERS IN STOCK NOW PHONE FOR THE BEST PRICE AROUND**



AR5000 10kHz-2600MHz all mode receiver.....	<b>£1340.00</b>
AR5000+3 An enhanced version of the above..	<b>£1500.00</b>
AR3000A+ An enhanced version of the above.....	<b>£830.00</b>
AR8200 Series-2 Handy 530kHz-2040MHz all mode.....	<b>£370.00</b>
AR8600 (New) Inc. PSU.....	<b>£650.00</b>
SDU5000 Spectrum display unit SRP £799 now only.....	<b>£450.00</b>
SDU5500 New version of SDU5000 including PSU.....	<b>£799.00</b>
SDU 5000 Spectrum display unit..... 1 only	<b>£300.00</b>

ALL AOR ACCESSORIES ARE AVAILABLE

### License free transceivers

FOR COMMERCIAL AND LEISURE USE

Motorola TA200.....	<b>£110.00</b> for 2
TA288.....	<b>£150.00</b> for 2 (rechargeable)
Handiepro.....	<b>£300.00</b> for 2 (rechargeable)
ALINCO DJ-446.....	<b>£320.00</b> for 2 (rechargeable)
Icom IC-F4SR.....	<b>£160.00</b> (PMR-446 or SRBR)
Kenwood TK-361.....	<b>£160.00</b> (PMR-446 or SRBR)
Eurowave PMR446.....	<b>£110.00</b> for 2

For the best prices give us a call on: 020-7637 0353

PLEASE MAKE ALL CHEQUES PAYABLE TO: ASK ELECTRONICS All products are subject to a posting & packaging charge

ALL PRODUCTS COVERED BY A TOTAL MANUFACTURERS GUARANTEE

■ PETER BOND c/o EDITORIAL OFFICES, BROADSTONE  
 ■ E-MAIL: milair@pwpublishing.ltd.uk

# MilAir

**A**s I write this, it is the week after Easter and it appears that we are just starting to turn the tide of the Foot and Mouth crisis. Unfortunately, some non MilAir events, such as Balloon Festivals and light aircraft fly-ins, have already been cancelled, but as of this morning, the first big Military show of the year, Mildenhall Air Fete was still on.

By the time this issue of *SWM* is published, the show should be just a couple of days away. I am uncertain if I will be able to get there this year so don't forget to send in your frequency/callsign reports. I did have some concerns about the RIAT at Cottesmore, especially as much of the visitor parking is in the surrounding fields, but I am pleased to report that the show is very much on. Having spoken to them today, there are no problems with the use of this land and unless circumstances change dramatically, we should be in for a very good RIAT 2001.

## Airband E-groups

Four E-mails over the past few weeks have centred around the subject of MilAir/Airband e-groups. Varying questions and comments were made and for reasons which will become apparent - I have in general avoided this subject up until now. Groups do come and go and unfortunately this is sometimes because a small undesirable element has crept into the e-group world.

Let me explain. In 1999 I helped to start a public Military Airband e-group, the principal being that it would be a forum to exchange MilAir information including frequencies, callsigns and other related information including the suitability of radio, antenna and other equipment. Many new members joined and there was lots of useful information and a friend who moderated the group had an easy job.

Unfortunately, several people joined the group who for reasons only known to them, seemed hell-bent on disrupting the proceedings, starting controversial arguments and making snide and sometimes unparliamentary comments. Despite the moderator eventually throwing them out, they rejoined a short time later under a different name and E-mail address and soon starting causing trouble again. This highlights an unfortunate problem with Internet access.

There are now numerous Internet providers, many who offer free connection as part of the package, so consequently an individual can have a selection of different addresses on one computer, with which if they are so inclined, cause problems whilst attempting to remain undetected.

The unfortunate outcome was that we could see no solution to the trouble makers and so we closed the group in July 2000 and went underground. We started a private group with 22 trusted members, new people were added by invitation only and we now number 41 and the group suffers no problems. Regrettably, it will continue to operate this way out of the public domain.

This would explain why two readers could no longer find the old public group. I find it very sad that we had to take this action, but in the end we wanted to get on with the hobby and get rid of the



This month's photo is Kefflavik UP-3A visiting Mildenhall during Air Fete arrivals 1991.

trouble makers. Obviously, not all groups suffer from this problem, but in my opinion, there does seem to be a growing trend towards private e-groups, not just relating to aviation, but on many differing subjects.

There is another public Military Airband group which is currently active which is Mil-Scan, information can be found at:

<http://www.onelist.com/group/Mil-Scan> My correspondents tell me that this list contains useful MilAir information, but they also report that this group has also suffered from a lot of 'off subject' postings and personal squabbling during the last six months. Why do I get this feeling of *Deja-Vu*? In the end, it's down to personal choice, try a group, and if you don't like it, you can always un-subscribe.

## Offset

Lastly, **John T.** E-mails me regarding his Icom R8500. He comments that with the 5.5kHz filter selected, (a.m.), on some frequencies he can hear both sides of the conversation, (pilot/controller), and on others he could hear just the aircraft. Having queried this with Icom, he was told that aircraft's radio was probably offset from the centre frequency. John E-mailed me to ask if this was possible.

Well the simple answer is yes. Some frequencies, especially those which transmit from more than one antenna, have an offset to avoid interference. To give an example, as I type, I am currently tuned in to London Control on 126.075. With the 5.5kHz filter set, the aircraft can be monitored on the centre frequency of 126.075MHz, but not the controller.

By tuning down by an offset of 5kHz the controller can be heard on 126.070MHz. Consequently, with a centre frequency of 126.075 selected on the radio and the filter set to 5.5kHz, the approximate range allowed through the filter would be 126.0725 to 126.0775. Thus the aircraft transmissions on 126.070 may not be heard or can be faint or distorted.

This does of course depend on the filter bandwidth fitted to the aircraft's radio, whilst currently listening to the controller on 126.070, some aircraft are inaudible, some distorted and others are as clear as a bell. Selecting WAM, on the R8500 (12kHz filter), is one way to solve this problem. Alternatively, you could select a half-way frequency, say 126.0725 with the 5.5kHz filter set, (although this is perhaps not ideal).

A good example of an offset is to tune in to your local Volmet, in my case the London Volmet South transmission on 128.6. If I set the R8500 to the fine filter setting of 2.2kHz, (narrow a.m.), it cannot be heard. By then selecting 1kHz spacing and then tuning up a good signal is received on 128.607, the offset can therefore be seen to be 7kHz, (as shown by my R8500).

It should be noted that my comments are aimed at the R8500 where filters are selectable, some radios will just have an single a.m. selection with a fixed filter of say 7.5kHz.

TELEPHONE SALES ON:  
**01922 414796**

Ask for Dave (G1LBE)  
 Open Mon-Fri 9.30 - 6.00pm. Sat 9.30 - 4.00pm

WEB SITE: <http://www.radioworld.co.uk>  
 E-mail: [sales@radioworld.co.uk](mailto:sales@radioworld.co.uk)

There is NO CHARGE for  
 using credit cards



**RAI**  
**42 BR**  
**WALSALL**  
 Tel sa

- About Us
- Map
- Adonis
- Alinco
- AOR
- Bearcat
- Comet
- Cushcraft
- Daiwa
- Diamond
- Garmin
- Icom
- Kent
- Kenwood
- MFJ
- Roberts
- Sirio
- Sony
- Tokyo
- Watson
- Yaesu
- Yupiteru

	Model	Description	£ RRP inc VAT
	<b>AR5000</b>	High performance full featured wide band all mode base receiver 10kHz - 2600 Mhz. IF selection as standard 220kHz, 110kHz, 30kHz, 15kHz, 6kHz, 3kHz (500Hz optional). Supplied with mains power supply.	<b>£1295.00</b>
	<b>AR5000+3</b>	High performance base receiver with three enhanced options factory fitted: noise blanker, synchronous AM, automatic frequency control.	<b>£1449.00</b>
	<b>AR3000A</b>	Unique all mode extremely wide band base-mobile receiver 100kHz - 2036mhz with no gaps. RS232 port fitted.	<b>£699.00</b>
	<b>AR3000A + (plus)</b>	Customised AR3000A with switchable narrow SM & SAT filters, Tape relay, SDU ready and discriminator output.	<b>£799.00</b>
	<b>AR8200 Series 2</b>	New advanced wide band all mode hand-held receiver with enhanced microprocessor facilities, slot card options available, multi-function display.	<b>£395.00</b>
	<b>AR8000</b>	The New Concept. Wide band all mode hand-held receiver with many microprocessor facilities, dot matrix display and computer compatibility.	<b>£296.00</b>
	<b>ICOM R2</b>	0.1300mhz Handie. Fits in the palm of your hand. AM/FM, FM	<b>£139.00</b>
	<b>IC R8500</b>	Narrow - 450 memory channels 100kHz - 2GHz Continuous. All mode no gaps. 1000 Memories. 4IF band widths	<b>£1440.00</b>
	<b>IC-R75E</b>	Excellent all round for the professional listener 0-60MHz. High Stability receiver circuit 100 DB Dynamic range. Twin bandpass Tuning. Optional digital processor. Best selling receiver	<b>£629.00</b>
	<b>ICOM PCR1000 &amp; PCR 100</b>	ICOM PCR1000 - 0-1300mhz. All modes. Computer driven. On screen programming. Band scope. Instant band scope access via mouse. List of features, call for brochure.	<b>PCR 1000 £299.00, PCR 100 £199.00 (SAME SPEC WITHOUT SSB)</b>
	<b>PCR100</b>		

**THIS IS JUST A SMALL SELECTION OF OUR STOCK!!!**

**FINANCE NOW AVAILABLE. PHONE DAVE FOR DETAILS!**

**GARMIN GPSIII**



Moving map features basemap, built-in European, African and Middle East to 20mi; includes lakes, rivers, cities, railways, coastlines, motorways and roads. Uploadable CD ROM, detailed map data available from MapSource CDs.

RWP **£325.00**

**GARMIN STREET PILOT**



Built-in international map contains motorways, major roads, lakes, rivers, streams, airports, cities, towns, coastlines, motorway exits plus waypoints.

STREET PILOT COLOUR RWP **£545.00**  
 STREET PILOT RWP **£410.00**

**GARMIN GPS12**



The Garmin GPS12 series products are as rugged as GPS gets. Military-tough construction and waterproof cases make these units ideal companions for any outdoor adventure. All feature a 12 channel receiver that locks onto satellites fast and stays locked on, even under extreme conditions. These units may be tough on the outside, but their operations are easy and logical.

RWP **£129.00**



# Airband

This year's Popular Flying Association Rally is scheduled for the weekend of July 7 & 8 at Cranfield. Will Chris and I see you there? You are welcome to write in to arrange a rendezvous, please include an evening 'phone number.

## Information Sources

As Editor Kevin said in response to the letter from **Graham Havill** (Kent) on page 7 of the April edition, the way to start to find aeronautical information is to obtain my *Airband Factsheet*. Send a pre-paid, self-addressed reply envelope (to hold two A4 sheets) to the editorial office, Broadstone (not to me!). The *Factsheet* lists suppliers who sell paper copies of charts to the public by mail order. Having perused your chart, you're bound to think of lots of questions about it. That's where I come in! Write in and I'll answer those questions here.

There's no downloading or computer involved, after all, most aircrew are still sitting in their cockpits clutching paper charts! This has the advantage of being the easiest format for humans to read and you can see an entire route without being restricted to the 'window' view that a computer display offers. It's simple, reliable, appropriate technology.

If I might digress for a moment, many people describe themselves as engineers. When I was at university, long ago, the discipline was split into mainly electrical, mechanical and civil. There is one further branch that I'd like you all to think about and that is **socially appropriate** engineering. It applies in flying; if paper charts are easiest and most reliable in the air, then computerised displays should be avoided even though they are technically possible.

The same can be said of many of the scanners on the market, as letters in *SWM* (including the April edition) confirm. Just because a multitude of scanning modes is possible doesn't mean that they are of any use. Top priority in a radio is its r.f. performance, closely followed by ease of operation.

It's all very well thinking that familiarity will enable an operator to memorise many sequences of illogical second-function keystrokes. If the operator is surrounded by modern gadgets, all equally hard to learn, then no single item will be used enough to gain that subconscious familiarity. I say to manufacturers that you are now challenged to use all that microprocessor power to create devices that are intuitive to operate without multiple functions per key. Embedded software is cheap and easy to replicate, keys cannot be miniaturised and so represent fixed costs. Socially appropriate engineering says that you put in the number of keys needed to make operation easy rather than extract every penny of profit by replacing keys with difficult functions. Lesson over.

One technological offering of mine was taken up by **Derrick Hine** (Andover). The new 8.33kHz spacing gives rise to frequencies with awkward numbers and controllers therefore say an abbreviated channel number instead. My lookup table (yours if you send me a floppy with pre-paid return postage) ties the two sets of numbers together. No computer? You can also write in and I'll decode any specifically requested frequency.

## Air Traffic Control

I'd like you to imagine that I'm an airline executive in a country so poor that its government is having difficulty investing in the air traffic control infrastructure. By chance, many of the world's major air routes pass overhead on the

way to nearby, more prosperous, countries and this has the fortunate benefit of bringing in revenue from those airlines that overfly.

When a callsign first calls an air traffic sector, the flight plan computer bills the relevant airline for the provision of the service. Bilateral agreements mean that the fee is split between adjacent states in a defined way when passing flights across international boundaries.

Like most poor countries, we still manage to pump precious resources into an airline and an air force. Even better, the airline actually makes money and has recently been privatised. Now, if I bid to take over part of air traffic control, what's in it for me, given that the contract forbids the making of a profit from it?

Waste of time and money? An altruistic gesture? Well, I've got plans. Could I get away with increasing fees to other airlines and not charging my own? That way, I make more money on my airline, but without breaking the agreement that air traffic is not-for-profit. Of course, I couldn't get away with offering my flights queue-jumping expedient routings and on-time departures compared to my rivals, could I? Please don't think that I am suggesting that any of this could apply in the UK, though.



## Frequency & Operational News

Let's hope the latest *A/P* amendments (thanks **Martin Sutton** from the CAA) clear up the following muddled frequencies. At London City, ATIS is now on 136.35 instead of 127.95MHz. However, if 118.075 is unavailable for Tower, then the ATIS is stopped and Tower uses 136.35 instead. At Stansted, Clearance Delivery reverts to 125.55 instead of the more recent 121.95MHz. I also see that a new helipad is listed at Stainsby Hall, about 6nm ENE of Teesside.

Reduced Vertical Separation Minimum (RVSM) means packing aircraft into airways at 1000ft intervals, thereby increasing capacity. Until now, upper airspace has been partitioned every 2000ft. Enthusiasts won't notice much difference apart from some new phrases when pilots and controllers communicate. Controllers can ask pilots to "Affirm RVSM" and, should the aircraft not be suitably equipped, the pilot would reply "Negative RVSM." The other variations on this theme are all self-explanatory but *A/C* 16/2001 from the CAA lists them all.

The other current innovation is that airborne collision avoidance, ACAS II, is now mandatory for larger aircraft. Whereas some exemptions apply until the end of September, unequipped aircraft might be denied access to RVSM airspace and therefore be forced onto longer routes (see *A/C* 29/2001).

In the April 'Airband' (page 27) I announced the new upper sectors in the London area. Now *A/C* 25/2001 contains a chart that explains the next stage of the process. All flights from airports in the London FIR and destined for Paris or Brussels will be restricted to lower airspace, in this case not above FL290.

Opposite direction traffic bound for the North Atlantic tracks will also be funnelled through the London Middle sector, usually not above FL300 at this point. Also, traffic leaving UK airspace and entering French airspace, heading south over the Channel at SITET, will be

■ **Airband factsheet on-line:** [www.pwpublishing.ltd.uk/swm/airbandfactsheet.html](http://www.pwpublishing.ltd.uk/swm/airbandfactsheet.html)

directed along (U)N859, usually via Goodwood or VAPID.

## Follow-Ups

Unfortunately, one word in the February 'Airband' was somehow changed in the publication process. On page 62, 'The 8.33kHz Story' second paragraph, the filtering needs to be **narrow** and not wide. These channels are tightly packed. Your receiver might get within 1kHz of the centre frequency, but transmissions could be obliterated by adjacent-channel interference unless your filter is selective enough to prevent this. (*However Godfrey, being realistic, it is more likely that the desired channel will distort heavily on the edge of a narrow filter, than there will be an adjacent channel in use, hence the need to use a wide filter - Ed.*)

**Paul Beaumont** (Upper Norwood) spotted an odd situation made to seem even worse by the journalist who reported it in *Gatwick Skyport* of March 16. Although aircraft arriving at Heathrow via Bovingdon and Lambourne were affected by interference on 120.4MHz (No. 2 Director) the report says that Gatwick arrivals were affected. Hardly likely. Apparently, a faulty taxi radio could be heard by pilots.

The report goes on to say that channel spacing has been cut to 8.33MHz (*sic*), would that were true - it's 8.33kHz of course. In fact, the interference is unconnected with this narrower spacing and 120.4 is not an 8.33 channel anyway. Budding technical authors are welcome to check their facts with me first, before leaping into print!

A faulty transmitter can cause spurious emissions of the sort responsible here. Properly licensed, it can be tracked down and the problem dealt with. With pirate

broadcasters, it's a different story. It might seem harmless to transmit on f.m. in the v.h.f. broadcast Band II but, if it goes wrong, it won't be obvious just how much danger is being caused.

Some time ago, listeners were surprised to find the Police in Band II above 100MHz. These low powered transmissions were considered to be less likely to interfere with the adjacent 108-117.95MHz aeronautical navigation band. There are two types of beacon in this band, v.o.r.s for en-route navigation and i.l.s. localisers for landing.

Now, of course, high-powered broadcasters fill Band II and the Police have moved frequency. This means that some of the older airborne navigation receivers must be placarded with a warning that they are not immune to broadcast interference. Broadcasting is seen as commercial, navigation is safety-critical. It is instructive to compare the priorities afforded to the two services in this competitive day and age.

All letters received up to April 11 have been answered. The next three deadlines (for topical information) are June 11, July 9 and August 6. Replies always appear in this column and it is regretted that no direct correspondence is possible.



**Grumman Cougar.**  
Christine Mlynek.

## Abbreviations

AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
ATIS	Automatic Terminal Information Service
CAA	Civil Aviation Authority
E	east
FIR	Flight Information Region
FL	flight level
f.m.	frequency modulation
ft	feet
i.l.s.	instrument landing system
kHz	kilohertz
MHz	megahertz
N	north
nm	nautical miles
r.f.	radio frequency
v.h.f.	very high frequency
v.o.r.	very high frequency omnidirectional radio range

# dressler

## ACTIVE ANTENNAS - THE NEW ARA RANGE

AVAILABLE SOON -  
**ARA 2000HDX**  
HIGH PERFORMANCE ANTENNA

SOLE IMPORTERS AND DISTRIBUTORS WITH SALES AND SERVICE

### ARA 40

#### Technical performance

**Frequency range** 40kHz-40MHz at full performance 40MHz-108MHz  
2.3dB gain

**Output impedance** 50-75 ohm coaxial  
**Connector to Rx** PL comes as the standard. Other standards can be fitted upon request

**Gain** 5dB +/-0.2dBs

**Intercept Point** +45dBm IP 3rd order (10MHz/12V)

**DC power supply** 11.5-13 volt DC at 70mA typ. (230V mains adaptor for 12V DC is supplied with the antenna)

**Mast diameter** 30-50mm can be fitted

**Dimensions** **ARA40** 115cm total length with glassfibre whip. Antenna tube 40mm x 140mm  
**ARA40 TEL** 125cm total length with telescopic whip extended. 45cm minimum length. Antenna tube 40mm x 140mm  
**Ideal for portable radio**



### ARA 60

#### Technical performance

**Frequency range** 40kHz-60MHz (full performance) 60-120MHz  
2-3dB less gain

**Output impedance** 50-75 ohm coaxial  
**Connector to Rx** PL type delivered as standard. Other standards can be fitted on request

**Gain** 10dB +/-0.2dBs

**Intercept Point** +50dBm IP 3rd order (10MHz/12V)

**DC power supply** 11.5-13 volt DC at 80mA typ. (230V/12V DC stabilised mains adaptor is supplied with the antenna)

**Mast diameter** 30-50mm can be fitted

**Dimensions** 115cm total length. Antenna tube 50mm x 160mm  
**Ideal for base stations**



### ARA 2000

#### Technical performance

**Frequency range** 50-2000MHz

**Output impedance** 50-75 ohms coaxial

**Gain** 19dB -1000MHz  
18dB -1400MHz  
16dB -2000MHz

**Noise figure** 1.5-2dB -1000MHz  
1.8-2.5dB -1500MHz  
2.5-4dB -2000MHz

**3rd order IP** +35dB typical

**Output impedance** 50-75 ohms coaxial

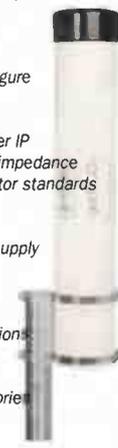
**Connector standards** N type connector at the antenna. BNC male connector to the receiver

**Power supply** 12V DC at 160mA DC. Power supply for 230V AC is delivered comes with the antenna

**Dimensions** Length 450mm.  
Diameter 90mm

**Weight** 2kg

**Accessories** Mains wall plug adaptor (230V A/12V DC). Interface unit (remote supply unit) 12m coaxial cable and mast mounting clamps



# CELEBRITY COMMUNICATIONS

E-mail: [celcomms@aol.com](mailto:celcomms@aol.com) Internet: [www.dressler@dressler.com](http://www.dressler@dressler.com)

11 Mulberry Close, Gidea Park  
Essex RM2 6DX  
Tel/Fax: 01708 782079

Visa,  
Mastercard,  
Switch, Amex,  
etc. accepted

# Amateur Bands

**N**o receiver is, or can be perfect and every one of us has a different 'ideal'. This was brought home to me by a character who has a beam and added a pre-amplifier. His receiver now showed little more than noise - what had gone wrong?

In simple terms, **too much gain** which led the receiver into overload. A receiver front-end is as broad as the proverbial barn door, damped as it is by the antenna impedance shunting it. Hence it can become non-linear due to a big signal outside the region you are tuned to. This largest signal makes the r.f. stage act as a mixer for all the dozens of other, weaker ones, and the result is noise.

What you then need is an attenuator. As you add attenuation, suddenly the noise goes away and lots of signals appear. What has happened is that the receiver has been made linear again. Ideally we want just enough gain to bring the minimum discernible signal up to a reasonable audio.

When a big signal hits the receiver, a.g.c. comes into play first, but a.g.c. is not normally applied to r.f. and mixer stages for good reasons. The old old problem of the lesser of two evils.

## Behaviour On The Bands

Thankfully, outside our European bands at 3.913MHz is that gang of yobbos from the USA. I very well recall a similar outburst of nastiness on Top Band, encouraged by similar noises on other bands. My own feeling is simple. 1) Take away the offenders licence for life, 2) Stiffen up the RAE pass requirements to equate to what the G3s had to know, plus 3) Revert to the idea of references - and examine references offered.

## Coming Up

Pitcairn VP6, will be applying for IARU membership - of a population of 45, ten are licensed. Rumour has it that Ducie Island in the Pitcairn group so qualify as a new entity on the distance criteria.

It is understood that XU7AAZ documentation has now been accepted for DACC; those who had their paperwork returned previously may now resubmit.

East Timor, 4W, has been activated from Dili by Nev VK2QF. QSL via **Nev Mattick VK2QF, Hargraves NSW, 2850 Australia**.

Just about every active listener will have the D68C Comoros expedition in their log. The final tally - some 168,731 contacts were made - so a lot of QSL cards must be written out by G3SWH! If you hope for a direct card, **do** enclose an s.a.e.! I guess the writing-out of all those cards will be a bigger chore than working the stations

## Mail

The first one opened came from **A. Uden of 12 Hampden Close, Aylesbury HP21 8NS**, advertising two volumes he has written on the question of barometric pressure and DX conditions. However the author did not offer a sight of the books so we cannot comment sensibly upon the contents.

Let's look next at **Colin Dean** in Barnsley. On 7MHz Colin logged FM5GU, HS0/K4MRH, JAs 3-7, SU1GS, TA3J, UN7TX, VK1MJ, V47KP, 4L1AN, 5N9EAM, after which a switch down to 18MHz found BQ9P, D68C, KH6BZF, OD5/OK1MU, PZ5RA, 3V8SZ and 5H3RK. At 21MHz Colin noted A52CO, BV4VE, BV4VJ, C6ANI, DU1UGZX, EZ8AQ, FS5/W3HMK, HR1RBM, HS0AC,

KL7LF, PJ5/UA1ACX, P40V, S21AR, TX8G, UP0L, VP2MDY, VR2IG, YF7PT, ZX0F, Z21GN and 9MOM.

The next step up was to 24MHz to find AP2JZB, A41LZ, RX2X, HI9/DJ7ZG, J79XC, 3V8BB, 4K6DI, 5R8FU and 9K2ZZ. Now a surprise - 28MHz c.w. accounted for PY0FM, before Colin cooled down and reverted to sideband to log A51AA, S52CO, A61AJ, A71BY, BQ9P, BV9CO, CC4A, DX1E, D2GG, EM1HO, EP2SMH, ET3AA, EY8MM, EZ8BP, FG5FC, HC8Z, J28FH, J37LR, KH6ND, KP3A, PY0FM, P40W, P49MR, TE8AA, UK9AA, VP5A, VQ9NL, VU2PCD, V51AS, XE1RBV, XV3AA, YB0A, YS1JR, ZD7VC, ZF2NT, 4J9RI, 5U2K, 5U5A, 7Z1ZZ, 8R1Z, 9M6BA and 9V1YC.

Our next envelope contained a copy of the International Listener Association magazine - this covers just about every facet of short wave listening. In particular, we note a column devoted to the complete novice. Details on the ILA from **Trevor GW40XB at 1 Jersey Street, Hafod, Swansea SA1 2HF**. Note the E-mail address is now: **world.radio@ntlwork.com**

We nearly omitted the all-c.w. letter from **Ted Trowell** at Minster, Isle of Sheppey. On Eighty he tickled the fancy of D68C and likewise on 7MHz, not forgetting A61AJ. On 10MHz Ted dealt with VK3TZ, VU2UR, 9K2/SP5INQ, FM/F2J//D, KP4L, PJ2/W6KK and JA3CSZ, while 14MHz showed V6PAK, CO8ZZ, VK7UJ, XE1ZW, VU2YK, 9M6AAC, D68C, A52CO, VR2KW, 4S7EA, 9K2/SP5INQ, C56/DL7CM, HK5YC, ZD8K and ZD7JC, etc. I guess we'll have to cut the lists from the **Goodhalls** and Ted Trowell to fit all in.

Problems are looming for the No. 2 most wanted DXCC entity, B57H Scarborough Reef. It seems the Phillipines have sent a gunboat to prevent China erecting structures there.

Next we come to the Goodhalls. Paul writes to enclose his own log and to advise that Peter is in the midst of exams. Despite his eye problems, the youngster is pretty confident he has done well - we hope so - for the sake of his father's nerves! We have noticed in the past that the younger generation are a lot more capable than we old fogeys give 'em credit for!

On a totally different question, Paul wonders how the foot-and-mouth epidemic will affect the RSGB National Field Day, since the Press say restrictions will go on until August. Page 9 of the RSGB *Radiocommunication* for April refers to the MAFF web site at **www.maff.gov.uk/animalh/diseases/fmd/** and I'm quite sure there will be updates. Paul's list for March runs some twenty-plus pages of typescript!

Now a query - **G3TIS** in Ashford refers to my comments in the February column on ambidexterity, and wonders why. A good question - but while I was away being 'seen to' by the specialists, my XYL 'tidied-up' my desk top. As I recall things, we were talking about problems generated by human 'handedness' in the amateur radio context. Some people naturally do some things left handed and others right handed - others tend to be totally, say, left handed.

However, if needs must, those people will teach themselves to use the other one, though probably less dextrously. They will probably also change the preferred layout of the station. For example, which side must the key go under the new conditions? But, let's hope the originator sees this and writes in again.

G3TIS is learning guitar. Experienced players say the brain rules the left hand where the tendency is for chords to be picked out cleanly and notes to be selected while the right controls the emotional content in the strumming and picking. We can relate this to say our preferred shack or rig layout.

## QSL Addresses

Ted Trowell offers these: KG4IZ to WA5PAE; A61AJ to W3UR; YI9OM to OM6TX; FM/F2JD to F6AJA; YS1JR to DJ9ZB; 3E500AC to HP1RCP; 7Q7HB to G0IAS and 3G0Y to KU9C. Ted also notes couple of reports of the Woodpecker on 7MHz. Let's hope, in the absence of other reports, that it's just another of the noises this band is heir to - or is he talking about my Morse?

## Finale

That's about it for this time. As usual we want to open Box 4 at the start of the month so the copy leaves here and reaches Broadstone in good time. To watch the Editor wailing and gnashing his teeth 'cos copy arrives late is a deed that requires a suit of armour! As always, **Box 4, Newtown, Powys SY16 1ZZ**, and of course you can phone on **(01686) 628958** at reasonable hours.

# YUPITERU

'FOR PROVEN RELIABILITY & EASE OF USE'

## SCANNERS FOR A NEW MILLENNIUM

### MVT-7300



- \* 100kHz -1320MHz Displayed
- \* 531kHz - 1320MHz Guaranteed
- \* NFM/WFM/NAM/WAM/USB/LSB/CW
- \* 1,000 Memories
- \* 500 PASS Channels
- \* 16 Steps includes 8.33kHz
- \* Scan speed 30 Ch per sec.
- \* Multi-colour display
- \* MONitor button
- \* Descrambler
- \* Clone function
- \* Timer function
- \* Supply 3xAA cells (4.5V)
- \* Size 60 x 120 x 32mm
- \* Weight 310g
- \* Accessories Supplied:  
Telescopic antenna, Belt clip,  
Carry Strap

£249

### MVT-7100



- \* 100kHz -1650MHz Displayed
- \* 530KHz -1650MHz Guaranteed
- \* AM/LSB/USB/NBFM/W/WBFM
- \* 1,000 Memories
- \* 500 PASS Channels
- \* 12 Steps
- \* Scan speed 30 Ch per sec.
- \* Sensitivity AM 0.5  $\mu$ V  
10dB S/N
- \* Current 140mA
- \* Current (standby) 100mA
- \* Save Mode <10mA
- \* Size 64 x 155 x 39mm
- \* Weight 320g
- \* Accessories Supplied:  
4xAA Ni-Cads, AC charger,  
12V DC cigar lead,  
Telescopic antenna,  
Earpiece, Belt clip,  
Carry Strap

£229

### MVT-9000MKII



- \* 0.5310-2039MHz Guaranteed
- \* NFM/WFM/NAM/WAM/LSB/USB/CW
- \* 16 Frequency steps
- \* 7 Frequency steps (WFM)
- \* 1,000 memories (20 banks)
- \* 500 Search Pass memories
- \* 20 memory bands
- \* 10 Priority channels
- \* 30 Ch/sec. scan speed
- \* 30 steps/sec. search speed
- \* Voice scrambled decoder
- \* 100mW Audio (4.8V 8 ohms)
- \* 220mA at max. output
- \* 140mA at standby
- \* Size 66 x 155 x 40mm
- \* Accessories Supplied: Helical antenna, Hand strap, Earphone  
4xAA Ni-Cads, 12V DC cigar lead, AC adaptor/charger,  
Belt clip, Owners Manual

£339

### MVT-7000



- \* 100kHz - 1300MHz Displayed
- \* 8 - 1300MHz Guaranteed
- \* NFM/WFM/AM
- \* 200 memories (10 banks)
- \* 20 steps per second scan speed
- \* Steps 5/10/12.5/25/50/100kHz
- \* Sensitivity (NFM) 0.5 $\mu$ V  
12dB SINAD
- \* Sensitivity (AM)  
0.5 $\mu$ V 10dB S/N
- \* Size 65 x 159 x 40mm
- \* Weight 330g
- \* Accessories Supplied:  
4xAA Ni-Cads, AC charger &  
mains adaptor, 12V DC cigar lead, Telescopic antenna,  
Belt clip

£149

SCANNER OF THE YEAR 2000

LIMITED OFFER

ALL WITH FULL 12 MONTHS WARRANTY

Waters & Stanton PLC, Spa House, 22 Main Rd, Hockley, Essex, SS5 4QS

Tel: 01702 206835 Fax: 01702 205843 E-mail: sales@wsplc.com Web: www.wsplc.com

Worldradiohistory.com

■ LAWRENCE HARRIS, 5 BURNHAM PARK ROAD, PEVERELL, PLYMOUTH, DEVON PL3 5QB

■ E-MAIL: info.orbit@pwpublishing.ltd.uk ■ WEB SITE: http://www.itchycoo-park.freemove.co.uk

# Info in Orbit



Fig. 1: NOAA-16 pass at 1240UTC on 20 March 2001 - up to the crash!

**Y**ou know the sickening feeling that you get when you hear a crash outside the house? It was morning and although the wind was little more than breezy, I had positioned my h.r.p.t. (high resolution picture telemetry) dish at stow (pointing vertically upwards) for safety. In this position, its wind resistance is minimal for most situations.

As the time for the first NOAA-16 pass approached, I checked the wind: it was still breezy with gusts, so I set the computer to take the pass. I watched the data come in and the picture form on the monitor. For easterly passes I only see half the image because the satellite soon goes behind the wall of our house.

STATUS FOR LRPT CONVERSION, SATELLITES IN POLAR ORBIT

Operator	Satellite	Launch (M/Y)	Service	Start	Stop
EUMETSAT	Metop-1	12/2005	LRPT	2006	
	Metop-2	05/2010	LRPT	2010	
	Metop-3	12/2014	LRPT	2015	
USA	NOAA-9	12/1984	APT	12/1984	
	NOAA-12	05/1991	APT	05/1991	08/1995
	NOAA-14	12/1984	APT	12/1984	
	NOAA-15	08/1997	APT	08/1997	
	NOAA-L	08/2000	APT	08/2000	
	NOAA-N	04/2001	APT	04/2001	
	NOAA-N'	12/2003	APT	12/2003	
	NOAA-N''	07/2007	APT	07/2007	
China	FY-1C	05/1999	None		
	FY-1D	12/2001	None		
	FY-3A	2004	None		
Russian Federation	Meteor 3-21	08/1991	APT	08/1991	
	Meteor 3-5	08/1991	APT	08/1991	
	Resource-D1-N4	07/1996	APT	07/1996	
	Meteor 3M-1	03/2001	None		
	Meteor 3M-2	2003	APT/LRPT	2003	

[ 12 ]

Last updated on: 01 Feb 2001

Fig. 2: Data supplied by Don Hinsman of the WMD.

whole system over on to the ground. The base of the mount was weighed down heavily with paving slabs that I can barely lift, but somehow it had dislodged one and forced the dish, mast and



Fig. 3: METEOR 3-5, 1119UTC 28 February 2001.



Fig. 4: METEOR 3-5, 1101UTC 1 March 2001.

Fig. 5: METEOR 3-5, 0953UTC 17 March from Kevin Hughes.

motors on to the hard concrete. I kept my cool and decided to check the damage.

The worst damage was done to the elevation drive unit of the rotator. Falling on its back, the elevator connector was forced into the casing of the rotator and converted the switches into a mass of broken material. The dish was deformed, though not severely. **Figure 1** shows the portion of the pass received before the system went down. The Yaesu motor unit was despatched to Timestep for check-out and a hope-for repair.

## NOAA-15 'Fixed' By NOAA

The success of NOAA's winter tests and fault analysis of the NOAA-15 WXSAT became evident first to h.r.p.t. users when images retained synchronisation. Earlier, h.r.p.t. images had been almost useless, and therefore correspondingly, a.p.t. (automatic picture telemetry) images.

NOAA reported: "Tests during December and January have shown that lowering the temperature of the instrument has restored a degree of stability. The AVHRR has shown the ability to retain synchronisation for longer periods with this daily reset. When the AVHRR is in synchronisation, usable images may be obtained. When the AVHRR synchronisation is out of limits, images are unusable. Daily re-synchronisation of the NOAA-15 AVHRR instrument will begin on 20 March 2001. This will occur at 0730 daily. There is a very short disruption of all data synchronisation in the h.r.p.t. data during re-synchronisation, amounting to a few seconds. Daily re-synchronisation of the AVHRR will allow more usable AVHRR data in the h.r.p.t. and a.p.t. transmissions".

The interesting event to look out for now is the daily resync at 0730UTC. This is within the morning timeframe of NOAA-15 passes, and can be predicted in advance using a satellite tracking program.

## METEOR 3M-N1 - No APT

The story of METEOR 3M-N1 generated much interest in discussion groups on the Internet. I believe that during its original planning, an a.p.t. system was considered, but it became evident that





Fig. 6: *METEOR 3-5*, 0959UTC 23 March 2001.

the idea was dropped for the first satellite in the series. The World Meteorological Organisation - <http://www.wmo.ch/hinsman/LRPT.html> - publish a table - see Fig. 2 - showing the status of the polar satellites with regard to their proposed transmission formats.

Some months ago I contacted Vitaly Ippolitov of ScanEx - <http://www.scanex.ru> - a private Russian company, to ask about a.p.t. systems on subsequent *METEOR-3M* WXSATs. He kindly commented "I hope the a.p.t. will be installed on *METEOR-3M N2* too. The absence of a.p.t. on *METEOR-3M N1* is only connected with MSU-E scanner installed there; before, this scanner was not planned there, but taking into account unhappy situation with Russian Earth remote sensing mission *RESURS-O*, the necessity of installation of MSU-E scanner on board *METEOR-3M N1* occurred. So as MSU-E was not previously planned on *METEOR-3M N1* it will be installed instead of a.p.t."

Vitaly explained "the date of launch of *METEOR-3M* can be changed, and it was changed several times. Taking this into account I can assume this possibility". Vitaly mentioned a Russian proverb - "it is better one time to see, than one hundred times to hear!". [This referred to rumours of a.p.t. on N1.] He believed that there was "confusion in many spheres here in Russia, we cannot be sure in all; unfortunately it is reality of our life here in Russia now. The experience of the *RESURS-O* mission, and the present status of Russian-Ukrainian *OKEAN-O* No1, unfortunately, do not give possibility to believe on successful *METEOR-3M* mission. We very much hope it will be successful".

Thanks, as always, to Vitaly for providing this insight. Meanwhile, the launch of *METEOR 3M-N1* has been postponed again - this time to May.

## Spring Melts The Ice Again

The slow precess of *METEOR 3-5*'s orbital plane coincided nicely with the approach of spring across the northern hemisphere, so this year I made a point of recording the gradual melting of the ice fields in Bothnia. Figure 3 to Fig. 7 show the changes seen from February through March. Lake Lagoda remained frozen throughout.

## Correspondence

The majority of received communications are E-mail, but **Martin Rolls** sent a welcome letter from Bedford where he told me about his

holiday last September. He and his wife enjoyed a cruise around the Mediterranean sea, experiencing storms on the 9th and also on the 20th, during the return trip to Palma. Martin was keen to know whether there were any archived images available to the public that cover the Mediterranean sea, and whether they can be viewed via the Internet. The answer is yes and yes. I decided to check out both NOAA's Satellite Active Archive - about which I wrote in the weather satellite special last November - and also the Meteosat archive.

Firstly Meteosat. You can locate the Meteosat archive via Eumetsat's main web page at: <http://www.eumetsat.de> from where you can navigate to images, or you can go directly to the archive site at: <http://www.eumetsat.de/en/dps/archive/historic.html>

By selecting the image type and format required, you can retrieve a small version of the required area. High resolution images are available on request to the Meteorological Archive and Retrieval Facility (MARF) by completing a form and submitting the request. I used this facility to request *METEOSAT* images of the Mediterranean region for September 9 and 20 - see Fig. 8 and Fig. 10.

NOAA's SAA facility can be found at: <http://www.saa.noaa.gov> and its use was detailed in the last 'WXSAT Special' in November 2000 *SWM*.

## WXSAT Station

**Les Hamilton** is well-known as the software expert who keeps a large selection of programs for members of the Remote Imaging Group. I had the pleasure of meeting Les at the RIG residential conference a few years ago, and following my request he kindly forwarded details of his WXSAT receiving station.

Les comments: "My weather satellite ground station is very much a minimalist affair - just a 500MHz Pentium II PC and an oldish laptop in a corner of my study, with a Proscan receiver and an RX2 on the shelf above - and that's it. Visitors hardly suspect that it's there! The PC is fed by an RX2 receiver, which is fed by a turnstile antenna in the loft space under the roof. The laptop is frequently connected to the Proscan, which is fed from a QFH antenna situated on the garage roof between my house and next door's. The laptop is frequently used for overnight monitoring.

When I embarked on this interest way back in 1987, I utilised a turnstile antenna mounted on the chimney-stack, but this never proved very satisfactory, picking up reflections that spoiled many an image. Experiments with an indoor turnstile immediately gave better results, and thus things



Fig. 7: *METEOR 3-5*, 0848UTC 27 March 2001.

Fig. 8: *METEOSAT-07* - Primary Data image of 9 September 2000.

Image 'copyright © 2000 EUMETSAT'.

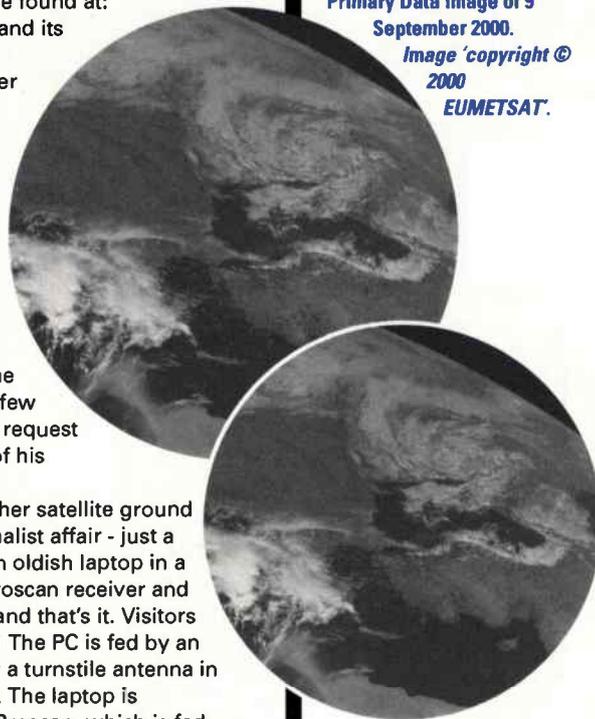


Fig. 9: *NOAA-14*, 18 September 2000 GAC water vapour channel

# Timestep



PROsat for Windows is used by most leading weather satellite enthusiasts. They have grown up using Timestep products and now rely on the superior image quality and ease of use provided by PROsat for Windows. Features such as real time reception, auto-scheduling, temperature readout, totally automatic reception of all NOAA's and Soviet satellites and automatic animation have made PROsat the preferred package. For weather satellite systems contact :

Timestep PO Box 2001 Dartmouth TQ6 9QN England  
 Tel: 01803 833366 Fax: 01803 839498  
 www.time-step.com email information@time-step.com

# QSL COMMUNICATIONS

TELEPHONE 01934 512757  
 E-mail: jayne@qslcomms.f9.co.uk



**FERRELLS  
 CONFIDENTIAL  
 FREQUENCY  
 LIST**

12th edition  
**£19.99** P&P £2.50



Wide range of binoculars and scopes + tripods, etc. Phone or call in with your requirements

Send SAAE for product information & second hand listings

**MAYCOM  
 AR-108**  
 Airband receiver



**£69.95**

**YAESU  
 VR-120**  
 500Hz-1300MHz  
 AM/FM/WFM



**£159.00**

Cable price per metre  
 RG58CJ ..... 30p  
 RG-213 Milspec ..... 80p  
 WC 519 ..... £1  
 Special offer on full reels  
 (100 metres)

**MFJ-956**



LW/MW/SW  
 Preselector/tuner  
**£39.95** P&P £4.00

### MISCELLANEOUS

- Mobile airband with mag mount.....£12.99
- Base station antenna discone.....£39.95
- Amalgamating tape .....£4.99
- Enamelled copper wire 50m .....£7.99
- Ribbed insulators.....70p each
- Hatch/boot mount .....£14.69
- SWL QSL cards matt pack (100) .....£4.50
- Various plugs and adaptors
- T&K brackets

+ MUCH, MUCH, MORE  
 Carriage charge dependent on items

### FERRITE RINGS

PACK OF 10

**£10**  
 Inc P&P



**UNIT 6, WORLE INDUSTRIAL CENTRE, COKER ROAD,  
 WORLE, WESTON-SUPER-MARE BS22 6BX**

# Howes Kits for the SWL

### ACTIVE AERIALS:

- AA2 150kHz - 30MHz.....£9.50
- AA4 25 - 1300MHz .....£21.50
- AB118 VHF Air Band .....£19.95
- MB156 VHF Marine Band.....£19.95

### AERIAL TUNERS:

- CTU8 500kHz - 30MHz.....£32.50
  - CTU9 500kHz - 30MHz.....£44.50
- with balun and bypass switch

### AUDIO FILTERS:

- ASL5 for SSB/CW, with audio output stage...£18.75
- HA50R case for ASL5 .....£16.50
- CSL4 = ASL5 less o/p stage - for mounting inside your RX .....£11.95

### RECEIVERS:

- DXR20 SSB/CW RX for 80, 40, 20m + one other of choice .....£44.50
- HA20R case/hardware .....£28.90
- TRF3 SW broadcast TRF RX.....£17.95
- HA33R case/hardware .....£28.50
- DCS2 S meter kit .....£11.95

P&P CHARGE OF £2.00 ON ALL KITS

Sorry! No catalogues - download full data from our web site. Secure on-line ordering available.

**www.G3TUX.com**

**DEDICATED TO THE SCANNING  
 AND SHORTWAVE ENTHUSIAST.  
 WE'RE MORE THAN JUST SOFTWARE!**

**NEW JUST  
 RELEASED  
 VERSION 8.0**

### SCANCAT® GOLD for Windows

Since 1989, The Recognized Leader in Computer Control

Once you use SCANCAT with YOUR radio you'll NEVER use your radio again WITHOUT SCANCAT!

SCANCAT supports almost ALL computer controlled radios by: AOR, DRAKE, KENWOOD, ICOM, YAESU and JRC (NRD) Plus PRO-2005/6/35/42 (with OS456/535), Lowe HF-150, and Watkins-Johnson.



### Announcing Scancat-Gold for Windows Ver. 8.0

We've added a lot of new features to our latest Scancat. AND...We have made it EASIER than EVER! Scancat-Gold for Windows-New Features for Ver 8.0

- Completely redesigned Graphical Interface
- Two Scanning modules:
  - A Simple Basic Module for beginners
  - Plus
  - An Advanced Scanning System for the "experts".
- New "Folder Tabbed" GUI puts everything at your fingertips
- Faster scanning speeds
- Extensive on screen help
- Completely revised printed manual - Over 160 pgs.
- EXPANDED Trunking support for BC780, BC895, BC245 and Pro2052
- Supports all radios in ONE program - share files with all radios.
- Monitor and log all TalkGroup activity - Export to other files
- Completely revised trunking database management with expanded capabilities. Make programming your radio a breeze!
- Expanded import from databases such as EXCEL.
- NO ONE supports your "Trunk Tracker" with more features!

### Scancat-Gold for Windows-SE - Improved Features for Ver 8.0

All the features of our "Standard Scancat" plus these additional functions:

- Long term logging of frequencies to your hard drive.
- Record Audio to hard drive using your computer's microphone.
- NEW - Records audio when "Trunktracking" or conventional scanning.
- Improved spectrum analysis with several great graphical analysis screens.

**STILL THE SAME  
 GREAT PRICE:**

- Scancat-Gold for Windows .....\$99.95 usd
  - Scancat-Gold for Windows-SE .....\$159.95 usd
  - Upgrades: Scancat-Gold for Windows ..\$39.95 + S&H\* usd
  - Scancat-Gold for Windows-SE.....\$79.95 S&H\* usd
- \*WITHIN 1 YEAR OF ORIGINAL PURCHASE SHIPPING \$10.00 FOREIGN

FREE FREQ FILES WEBSITE - www.scancat.com  
 E-MAIL - info@scancat.com FREE DEMOS

Order direct or contact your favorite dealer

### COMPUTER AIDED TECHNOLOGIES

P.O. Box 18285 Shreveport, LA 71138

Phone: (318) 687-4444 FAX: (318) 686-0449

Info/Tech Support: (318) 687-2555 (9 a.m. - 1 p.m. Central M-F)



remained till the QFH 'boom' started a few years ago. I built several, and discovered that the garage roof provided an unparalleled vantage point for the early afternoon passes of *NOAA 14*. The gap between the two houses provides a broad corridor directed from south-east to north-west, and almost always produces the best images of the day.

The laptop adds yet another dimension to my station, as it is easily transported out of town to receive low elevation passes free from unavoidable influences where nearby buildings block the satellite signals. It runs off its internal battery, while the *Proscan* receiver connects to the cigarette lighter point in the car. Yet another QFH antenna is slotted into a socket attached to a large board that stands on the roof of the car. This system is particularly advantageous in acquiring the low-elevation passes from *OKEAN-O*.

I have a variety of acquisition packages, ranging from *Prosat* for Windows, *Wxsat* and *Satmon* and *JVcomm*, but the software I find most versatile is an item called *Recall*. *Recall* records audio WAV files automatically when the receiver squelch opens, and the resulting WAV files can be decoded using either *Wxsat* or *Satsignal*. Moreover, by playing these WAV files from the laptop into the *Prosat* interface, it is also possible to produce images in *Prosat*, while playing them back through the PC soundcard allows them to be processed using *JVcomm*. I cannot imagine a more versatile arrangement, that truly permits me to get the best from all software packages".

Les adds that *Recall* can be downloaded from: <http://www.sagebrush.com/recall24.exe> and registration via the Internet costs \$15. My thanks to Les for providing a comprehensive description that may pass on ideas to those not yet 'bitten'!

## Encryption - Comments From NOAA

**Wayne Winston** explains: - continued from last month.

"In the 40 years of operating these satellites, we have discovered their capabilities in advancing the Earth sciences. Moving ahead will require complex sensors, with many more channels, producing greater quantities of data, at high sample rates. The transmission methods will also have to change to move these vast quantities of data. There is no rational justification to saying we will 'dumb down' the instruments, science or transmission techniques to provide some very low cost, low content, simple transmission service. In fact, there is no mission statement or requirement for NOAA to provide such a service that can be accessed by a \$1,000, or \$2,000 or some arbitrarily price-limited receiver, for some class or classes of users.

The hundreds of millions, or billions of dollars that will be spent on the NPOESS program will be for an environmental satellite system built primarily for one purpose - to meet requirements that have been laid out by NOAA and other US Federal agencies. That other users around the world will have essentially unrestricted access to the data for operational and research use is a by-product of the policy which NOAA continues to support. It's just that the required hardware to get access may well cost more than it has in the past. If you think about it in a rational, cool-headed manner for a while, that's still not a bad trade-off.

US taxpayers buy a system that meets their requirements, and everybody else in the world can tag along for the cost of a receiver! Pretty much what we have done for the past 40 years. That is the unofficial overview of the situation as it appears at this point in time.

This debate on who owns the data, who pays for its collection, how it should be distributed, free or otherwise, is not just limited to satellites. A similar data exchange has been going on since before the advent of the environmental satellites, with weather observation data. Generally, it has been freely exchanged among all nations - until the coming of the Internet and commercial, for-profit weather services. Weather observations from every country are generally available to every other country over a complex, global weather telecommunications system. NOAA collects every weather observation available world-wide, for input to analyses of present conditions and global numerical forecasts. Since we have it all in one place (and NOAA is not the only weather agency that compiles as complete as possible global data set), NOAA has made all this observational data available at a central FTP site. After all, there are many potential users who might be interested in such data, but could not reasonably have the means to gather it. As you might expect, that touched off a debate on who could get such data, and what it would be used for!

Right now, most of the world's weather observation data (and that is a lot of data) can be downloaded from the NOAA FTP site without restriction. The remainder is available from a second NOAA site (still free, though) that must be accessed by username and password assigned after acknowledging an agreement concerning use of the data. You can find out more about this, and a list of countries or agencies that restrict use of weather data at <http://www.nws.noaa.gov/cgi-bin/res40notice>

I hope this provides some insight into where it looks like we go from here. It is probably best to consider this 'unofficial', and as always, stay tuned".

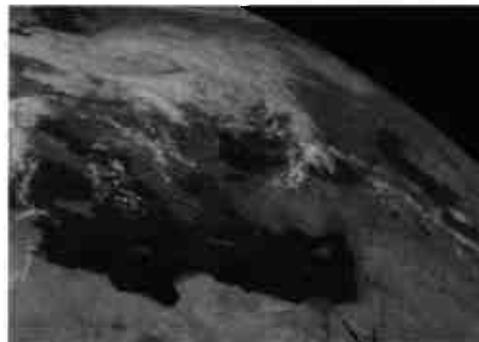


Fig. 10: *METEOSAT-7*, Primary Data image of 20 September 2000. Image 'copyright © 2000 EUMETSAT'.



Fig. 11: Les Hamilton with *WXSAT* computers.



Fig. 12: Les Hamilton's QFH antenna.

## Frequencies

*NOAA-12* and *NOAA-15* transmit a.p.t. on 137.50MHz.

*NOAA-14* transmits a.p.t. on 137.62MHz.

*NOAA-16* has currently unresolved faults with a.p.t.

*METEOR 3-5* uses 137.30MHz.

*OKEAN-O*, *OKEAN-4* and *SICH-1* use 137.40MHz for brief transmissions.

*RESURS 01#4* transmits a.p.t. on 137.85MHz.

*METEOSAT-7* (geostationary) uses 1691 and 1694.5MHz for WEFAX.

*GOES-8* (western horizon) uses 1691MHz for WEFAX.

ICOM

# What's on?

## The IC-R3 Handheld audio-visual receiver

The NEW ICOM IC-R3 is a compact and stylish handheld radio receiver with a 2" colour screen.

The merging of both radio and TV technologies into one product offers a varied combination of audio and visual broadcasts.

You can watch terrestrial television, view video images from wireless cameras or listen to broadcast bands. The Icom IC-R3 is a product guaranteed to open a whole new world of visual and listening pleasure to you.



# Everything, that's what!

### Icom (UK) Ltd.

Sea Street, Herne Bay, Kent CT6 8LD.  
Telephone: 01227 741741. Fax: 01227 741742.  
e-mail: info@icomuk.co.uk  
or visit our website at: www.icomuk.co.uk

Dealers throughout the UK. Call us for details.

Count on us!

Performance  
Video Images  
Multifunction  
Receiver  
Audio  
Visual  
Stylish  
Entertainment

■ KEITH HAMER & GARRY SMITH, 17 COLLINGHAM GARDENS, DERBY DE22 4FS  
 ■ E-MAIL: [garry.smith@g-wizz.net](mailto:garry.smith@g-wizz.net) WEB SITE: [www.test-cards.fsnet.co.uk](http://www.test-cards.fsnet.co.uk)

# DX Television

**M**eteor Shower bursts and the odd weak Sporadic-E opening typified long-distance Band I reception throughout March. To spice things up, Auroral activity was evident, particularly on the 31st, advancing well into the f.m. spectrum.

## Reports

From mid-morning until around 1300UTC on the 6th, **Peter Barclay** (Sunderland) discovered weak Norwegian NRK-1 signals from coastal transmitters at Stord (Channel E5) and Bjerkreim (E6). The opening was unusual, as it occurred around midday - some form of tropospheric scatter effect perhaps?

**Peter Barber** (Coventry) spotted the NRK-1 logo during a weak Sporadic-E opening to Norway, which occurred between 0952 and 1013 on the 15th on E2. During the same opening **Stephen Michie** (Bristol) resolved pictures on E3 from an unidentified source. As usual, Stephen kept an early morning vigil for Meteor Shower activity on E3, resulting in pictures from the Danish transmitter at Fyn on several dates.

At 2120UTC on the 28th, **Simon Hockenhill** (Bristol) detected a signal 'ping' from a French Canal Plus L3 outlet. There are two transmitters using this channel, both vertically polarised. One is located at Besancon, close to the Swiss border, and the other in the south of France at Carcassonne.

**Tim Bucknall** (Congleton) discovered Auroral activity from 1500UTC on the 31st affecting Band I. In Derby all the vision carriers were affected with severely distorted 'rumbling' noise bars. Unfortunately, the magical 'sleigh-bell' sound of the Aurora was missing.

## Mystery UHF Station

Last month we reported **Ian Milton's** Polish u.h.f. reception on Channel R30 from Szczecin, close to the German border. **Peter Barclay** (Sunderland) tells us he also received it plus a mystery System D/K (6.5MHz sound) station on Channel R23 lurking beneath ZDF and his local Channel 4.

## Conditions To The South

With the possibility of TEP (Trans-Equatorial Propagation) reception imminent during March, Channel E2 was regularly monitored, with the antenna facing south during the afternoons, when time permitted. Disappointingly, there was no sign of video from any of the few African outlets operating, even though in Europe an image of a low-power Niger FM station at Zinder (91.3MHz) was allegedly heard at 46.65MHz. Assuming this is correct, then the signal may have potential as an early warning system during the Sporadic-E season, although with TVE-1 hammering away on E2, African DX seems unlikely!

By contrast, things were somewhat different on the other side of the planet. In South Africa, dozens of transmitters in Europe and the Middle East were logged between 48 and 56MHz via TEP.

## Transatlantic Openings

**Tim Bucknall** asks the question of who was the first to receive transatlantic f.m. signals. Within recent years there have been unconfirmed reports of reception of signals on 87.75MHz, i.e. USA Channel A6 sound carrier. Transatlantic openings must occur more than many DXers realise - most of us tend to point our antennas in a more productive direction towards Europe feeling that we might miss something if

carrier is regularly monitored in the USA, so it is not as though openings are a blue-moon phenomena!

USA and Canadian TV signals have been received in the UK on a number of occasions, usually in June or July. One spectacular and memorable opening occurred in 1988 when on June 6th, from around 2200, the band was ablaze with USA and Canadian signals on Channels A2 (55.25MHz), A3 (61.25MHz), A4 (67.25MHz) and A5 (77.25MHz).

Channel A4 produced stable 'NTV Night Life' pictures from the 26kW CJCN-TV transmitter at Grand Falls, Newfoundland, while A5 appeared briefly and unidentified. There were so many co-channel signals competing on A2 and A3 that vision was difficult to separate; sound was reduced to babble with only a few words recognisable.

A day earlier, on the 5th, the late **Simon Hamer** had encountered 525-line signals on Channel A4. Amazingly, that was not the exotic catch of the day - Icelandic signals appeared on Band III channels E5 and E6!

## Reflections

**Peter Barber** (Coventry) comments on the views expressed by **Brian Williams GWOGHF** (SWM April 2001) regarding the reduction in signal strength from the Lopik NED-1 E4 transmitter. More than a decade ago the signal would occasionally emerge giving 15-45 minutes continuous viewing whereas in recent years it is mainly line syncs which are visible at approximately three-minute intervals. Peter wonders if there is any connection with aircraft reflection, as flights to Europe are roughly every three minutes.

**Stephen Michie** (Bristol) regularly receives the Danish PM5534 test card by what is assumed to be Meteor Shower propagation. Signal bursts occur around the same time each morning, leading to speculation that reception may be due to aircraft reflection rather than Meteor Shower propagation.

Fig. 4: Special BBC-1 Identification Symbol used in August 1982.

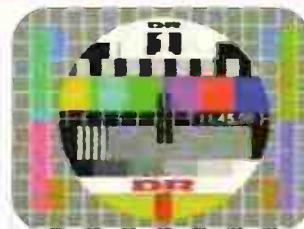


Fig. 1: The Danish PM5534 test card. Photo: Peter Barclay.



Fig. 2: Colour Bars from TV-Syd. Photo: Peter Barclay.



Fig. 3: RAI-1 Clock. Photo: David Bocca Corsico Piccolino.



## Service Information

France: '8-MONT BLANC' (regional TV for Savoy) recommenced last October after a break of three years. The station is affectionately known as 'la 8' and a new logo was launched in March.

Belgium: 'Club RTL' plans to broadcast terrestrially in Brussels. The station has a new logo.

Germany: 'RTL TV' plans to introduce regional news opt outs.

The second network 'ZDF' and Hessischer Fernsehen have introduced new logos.

Monaco: '2MI International' plans to broadcast around the clock.

Switzerland: 'TSR-2' (Romandie) is to be aired from La Dole.

This month's Service Information was kindly supplied by **Lionel Michelland** (France).

## Keep On Writing!

Please send your DXTV, slow-scan TV and f.m. reception reports, news, off-screen photographs and information to arrive by the first of the month to: **Garry Smith, 17 Collingham Gardens, Derby DE22 4FS**. We can also use off-air pictures stored as 'JPG' files on PC disks and good-quality video recordings. Please note that we have a new E-mail address. If you are writing via cyberspace, please send information to: **[garry.smith@g-wizz.net](mailto:garry.smith@g-wizz.net)** Our website address remains unchanged at **[www.test-cards.fsnet.co.uk](http://www.test-cards.fsnet.co.uk)**

■ ROGER BUNNEY, 35 GRAYLING MEAD, FISHLAKE, ROMSEY, HANTS SO51 7RU

# Satellite TV News

As your wordsmith composes this column at Easter, the nearby TV screen has just flashed up a test card 'Mobile Video Washington DC' - the past two days has seen much activity out of Washington and the 'WH POOL' (the White House news pool) feeding out President Bush/White House statements, press conferences, even the Pentagon is into the act. The main reason is of course the downed 'spy plane' into China, the crew 'detained' pending an apology - which of course came today which eased the friction somewhat.

About 1700 on April 10th, *NSS-K*, 21.5°W was running/preparing three simultaneous feeds out of Washington. The usual Reuters 11.462GHz-V was carrying spyplane (military) explanations out of the Pentagon, 11.550GHz-H featured President Bush with (political) explanations of the Chinese situation from the White House - meanwhile the Globecast ch.1, 11.590GHz-V (20190+3/4) was just coming off of colour bars with a further presidential offering. Scattered elsewhere on the satellite were at least three live 'our American reporter' feeds back into Europe.

The Chinese crisis did at least divert the media from Foot and Mouth and the Sophi-gate tapes drama in the UK!

Whilst scanning *NSS-K* on March 4th I found a live programme circuit being aligned - a major comms exercise involving Paris, London and several venues across the 'States, this in preparation for the 'Woman.Future' programme the following day. First alerted with a studio shot and an overlay segment captioned 'NY' which was simply colour bars with 'Sony Music' inlaid.

Another colour bar pattern then appeared alongside captioned 'Detroit', colour matching was then tweaked and the voice circuit held an informal discussion (i.e. studio worker USA to studio worker UK). Tests were completed around 2030 - 11.558GHz-H (SR 5632 + FEC 3/4) - the very prolonged 'Woman.Future' epic transmitted the following day for several hours with widespread European and US hookups.

Incidentally, just after the 'Woman.Future' technical line-up cut 'carrier' there appeared a hard sell corporate circuit for 'Yahoo! SAP', seemingly two Internet groups had combined and the viewers were being sold the advantages of this move by respective PR men in suits, via *NSS-K*, 11.489GHz-H, 5632+3/4.

Microsoft fired up a corporate promotional cartoon over *NSS-K* on Good Friday around 1740 highlighting the advantages of *Microsoft Office* and an enhanced feature called 'Clippy', but five minutes into the soft sell cartoon the 'carrier' cut abruptly never to return - most odd - via 11.489-H, 5632+3/4!

Nearby you'll see a picture of my new 1.2m Channel Master offset dish, the one that provoked the local planning enforcement officers to visit here some three times already and a fourth is threatened to supervise the removal of a nearby 1.5m dish - which has planning permission - on which I've been given 90 days to remove same!

The RSGB are looking into the matter...which has wider implications for radio amateurs and antenna experimentation. Incidentally, whilst scanning across the Clarke Belt seeking my new dish's motor settings, I found analogue TV signals beyond 48°E comprising colour bars - no audio - at 11.650MHz - this was eventually identified at the *ANATOLIA-1* sat at 50°E. **Hugh Cocks** (Algarve) has received several C-Band (4GHz) signals from this slot, but there's little information available about this little known sat.

Had a few lines from **Edmund Spicer** (Littlehampton), he's our reader with a 600mm (dented) old Sky dish. In March *Astra 1D* moved to 24.5°E and has been transmitting an analogue trailer for 'Castle Vision' in clear PAL, 10.774GHz-H, audio 7.02/7.20MHz, and another sighting

was the 'RTK1' Kosovon TV channel via *Eutelsat W2*, 16°E at 11.431GHz-B - audio 6.60MHz, again in clear PAL usually between 1700-2100.

The *Telecom 2B* satellite has moved through the skies to a new 11°W slot parking with the Russian *Express 3A* sat - there's been numerous news feeds noted from this slot in *Telecom* band upwards from 12.5 thru 12.75GHz - all digital and undoubtedly from the *Telecom* bird itself - don't forget the lower Ku-band as news feeds have been reported this past (Easter) week on 11.560, 11.569GHz-V, 6111+3/4.

Though a 600mm dish isn't going to worry Jodrell Bank too much, it does allow Edmund to monitor signals from the stronger satellites such as the *Hot Birds @ 13°E*. Edmund has just delighted in receiving a DVLA refund plus Halifax share returns, he's now invested his newly found wealth into a 0.6dB noise LNB and a Manhattan FTA digital receiver so more digital reports hopefully soon...

Towards the end of March, problems were brewing in Northern Germany. The authorities were planning to move nuclear waste - carried in leakproof giant flasks - into the Gorleben re-furbishment plant near Luneburg by rail. **Roy Carman** (Dorking) monitoring over this period on both *NSS-K* and *Eutelsat W2* noted the extreme security measures adopted by the polizei (German police) who in turn wheeled in the Bundesgrenzschutz - the anti-terrorist security force.

Demonstrators lurking under railway bridges were arrested by these forces scaling up ropes from dinghies - all caught on camera. Railway banks were covered with the polizei, a very high profile security and anti-demonstration operation. Grenschutz, equivalent to the Royal Marines, were also on the train carrying the waste - so the demonstrators never really stood a chance! The local media circus were active with ground and air cameras over *NSS-K*, *W2* and *Eutelsat 2F4* with additional feeds for their regional news.

**Nick**, *SWM* reader from Sutton, has been checking the *Hot Bird* airwaves in recent times and found the 'Canal+ Horizons' analogue offering at 11.402GHz-V is now deceased, being replaced with the 'Globecast Serte Paris' test caption. News feed anoraks might like to look on 11.581GHz-H digital (5632+3/4).

Nick found April 9th at 1330 a caption 'Satellite Television Transmission from JW to CBS', NTSC on colour bars. Following a CBS ID slide several news features ran including US defence cuts, spy plane in China and a VOX-POPS item (interviews with the public in the street) biased towards the US should apologise, etc. At 1346 a caption 'DNS-9WS APR/08/01 CBS SIMPSON' on colour bars and the next caption 'CCTV-1 Wrong Line Standard' (ooops!) then into PAL with 'Payout for CCTV via Microwave' and finally at 1400 the caption 'ARD German TV Studio Peking' (another oops - its called 'Beijing' these days!).

CCTV-1 is of course the National TV Channel 1 in mainland China. Eventually after several VTR payouts the more familiar 'APT' caption for Associated Press Television News appeared. So even if you have only a 600 or 800mm Astra dish, you can still check out the news action - there's lots of analogue Sky dishes being trashed with 94% of the BSKYB population now having opted into digital!

A final look at **Roy Carman's** letter, lot's of news pix end March showing the arrest of Milosovich in Belgrade appearing on *W2* 16°E, 2F3 21.5°E and *SESAT* 36°E. The last word is a 'feed' ex USA for Germany via *Telecom 2d*, 5°W - 11.530GHz-H (6671+7/8) - the Yanks have invented a new milk drink, it's carbonated, orange flavoured and called 'E-Moo' - and this wasn't received on April 1st!

\*query - does a digital signal actually cut carrier or does it just cut data stream, bit rate or what?



News chopper pix live into ch.7 San Diego over high school shooting and relayed via Reuters into Europe, *NSS-K*.



Never build houses on an old pond site, the waters returned this Autumn, live into Meridian news, via *Intelsat 801*.



German nuclear waste train and security guards on embankment in mega anti-nuclear protest event, North Germany.



Chinese spy plane crisis, statements from the Department of State and



more statements from the Pentagon, lives via *NSS-K*. Note - have an awareness of photograph backgrounds - this picture shows our military spokesman has grown a halo!



March 31 and another school shooting at Wallace High School, news chopper en-route with underslung camera live, note the housing with transmit antenna in centre of frame.



My new 1.2m offset dish that has caused grief with local planning enforcement officers.

## Summer book sale - large discounts!

World Airline Fleet and SELCAL Directory was £14.00.....Now £9.75  
List over 5,000 Selcals, details of over 10,000 aircraft and with FREE UPDATE

Scanner Busters 2 was £6.00.....Now £5.00  
How to tune into more frequencies and beat new technology.

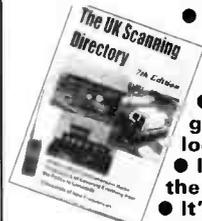
Scanning the Maritime Bands was £10.75.....Now £7.75  
Gives the channels and frequencies used by every Western Europe port and harbour.

Shortwave Eavesdropper CD ROM was £12.00.....Now £8.00  
Instant access to over 32,000 utility frequencies and 42,000 call signs on a database.

Fax, Satellite and RTTY Weather Reports was £11.50.....Now £9.50  
Shows how to receive great weather pictures and reports from around the world.

Weather Reports from Radio Sources was £7.50.....Now £5.00  
Tune into weather reports from London to Beijing.

## The UK Scanning Directory 7th edition



- Britain's best selling scanning frequency guide
- Lists tens of thousands VHF and UHF frequencies
- Covers everything from secret government frequencies down to your local traffic warden
- Includes all civil aviation frequencies in the UK and Ireland
- It's big - over 600 pages!

Tens of thousands of frequencies are listed which continue to amaze everybody. Included is the largest Police frequency list ever published, Civil and Military aviation, Army, Navy, DSS Snoopers, GCHQ, Eye-in-the-Sky links, Bailiffs, Prisons, outside broadcasting, motor racing, universities, railway, couriers and many more we dare not mention.

In the Civil Aviation band section every airport in the UK and Ireland is listed alphabetically making monitoring much easier and quicker.

And there is more! New articles on scanning for beginners, how to monitor the military and the civilian aviation bands, PMR, a European frequency list plus a scanning log to note your new frequencies.

Price £19.50 plus £2 postage. Overseas post to Europe add £5 or £12 elsewhere.



THE ABOVE BOOKS INCLUDE UK POSTAGE. SALE ENDS 30TH JUNE 2001  
Ask for full FREE catalogue. Allow 14 days delivery.

### INTERPRODUCTS (SW61)

8 Abbot Street, Perth PH2 0EB, Scotland  
Tel: (01738) 441199 Fax: (01738) 626953

E-mail: [interproducts@ukf.net](mailto:interproducts@ukf.net) Web site: [www.interproducts.ukf.net](http://www.interproducts.ukf.net)

Nunsfield House Amateur Radio Group  
presents the

# 32nd Elvaston Castle National Radio Rally & Computer Fair

Sunday 10th June, 2001

Attractions include:-

- ★ More than 150 trade stands
- ★ Grand Bring & Buy
- ★ Crafts
- ★ Flea market
- ★ Childrens entertainment
- ★ Full on-site catering
- ★ Morse tests on demand

Parking: Cars £3.00 - Coaches £12.00

Talk-in on 145.550 & 433.550

A GREAT DAY OUT FOR ALL THE FAMILY

FURTHER DETAILS: Les Bagnall, G4CWD. Tel (01332) 559965

TRADE ENQUIRIES: Phil Johnson. Tel (01332) 752277

CRAFT ENQUIRIES: Neil Davison, M1AFB. Tel (01332) 636362

Find us at: [www.elvastonrally.co.uk](http://www.elvastonrally.co.uk)

Elvaston Castle is located on the B5010, 6 miles from Derby.

## PHOTAVIA PRESS

### AIRWAVES 2001

NEW!!!  
PUBLISHED  
APRIL 2001

THE NEW 8th EDITION OF THE UK'S MOST COMPREHENSIVE AND UP TO DATE HF / VHF / UHF AVIATION FREQUENCY DIRECTORY  
A5/WIRE SPIRAL BOUND - FULLY UPDATED FOR 2001

TOWER - APPROACH - RADAR - GROUND - AIR TO AIR - RANGES - ATIS - GCI  
SQUADRON OPS - AIR REFUELLING - VOLMET - AIRLINE OPS - AWACS - SAR  
AIR DEFENCE RADAR (UK & EUROPE) - GROUND OPS - AEROBATIC TEAMS  
UK / EUROPEAN CIVIL & MILITARY AREA RADAR - MILITARY AIRFIELD STUDS  
4 LETTER AIRFIELD CODES - RUNWAYS - SSR CODES - UK BASED MILITARY UNITS  
MAPS OF - UK TRANSMITTER SITES AND FREQUENCIES - MILITARY TACAN ROUTES  
LOW ALTITUDE, AWACS & AIR REFUELLING AREAS - UK RADAR SECTORS/FREQS  
UK PRIMARY AIRWAYS AND REPORTING POINTS - UK SUPERSONIC ROUTES  
UK OCEANIC ROUTES & FREQUENCIES - MAJOR WORLD AIR ROUTE HF AREAS

MILITARY AND CIVIL HF DIRECTORY - INCLUDES MANY DISCRETE FREQUENCIES AND CHANNEL DESIGNATORS) - RAF/ROYAL NAVY - WORLD-WIDE / NATO MILITARY AIR-ARMS  
US MILITARY GLOBAL HF NET - MYSTIC STAR - US NAVY - US COAST GUARD - VOLMET  
HURRICANE HUNTERS - SEARCH & RESCUE - SPACE SHUTTLE - MAJOR WORLD AIR ROUTES - AIRLINE OPERATIONS - LONG DISTANCE OPERATIONS CONTROL - DOMESTIC HF  
UK PRICE £9.95 INCLUDING FREE P&P / EIRE & EEC ADD £1

### CALLSIGN 2001

NEW!!!  
PUBLISHED  
MARCH 2001

THE NEW 7th EDITION OF OUR CIVIL AND MILITARY AVIATION  
CALLSIGN DIRECTORY - FULLY UPDATED - OVER 3000 CHANGES  
A5/WIRE SPIRAL BOUND - OVER 8000 AVIATION CALLSIGNS

MILITARY DIRECTORY - CALLSIGNS ARE LISTED ALPHABETICALLY AND ALSO BY AIRARM / SQUADRON - INFORMATION INCLUDES: CALLSIGN  
AIRCRAFT TYPE - CODE - UNIT/SQUADRON - HOME BASE - REMARKS  
CIVIL DIRECTORY - CIVIL CALLSIGNS FROM OVER 180 COUNTRIES ARE LISTED ALPHABETICALLY AND ALSO BY THREE LETTER AIR TRAFFIC PREFIX  
INFORMATION INCLUDES: CALLSIGN - THREE LETTER ATC PREFIX  
AIRLINE OR OPERATOR - COUNTRY OF ORIGIN - REGISTRATION PREFIX

UK PRICE £9.95 INCLUDING FREE P&P / EIRE & EEC ADD £1

SORRY - NO CREDIT CARDS! CHEQUES/STERLING IMO%POSTAL ORDERS/PAYABLE TO:

PHOTAVIA PRESS (DEPT SW) - SUNRISE BREAK  
CHISELDON FARM - SOUTHDOWN HILL - BRIXHAM  
DEVON - TQ5 0AE - UK Tel: 01803 855599

VISIT OUR WEB SITE AT: [www.photav.demon.co.uk](http://www.photav.demon.co.uk)

## The SHORTWAVE Shop

18 FAIRMILE ROAD, CHRISTCHURCH, DORSET BH23 2LJ  
Phone/Fax 01202 490099 SHORTWAVE HOTLINE: 07000 CQDXCQ (27392)

### THE COMMUNICATION SPECIALISTS

Receivers - Scanners - Transceivers

Call & discuss which part of the radio spectrum you wish to operate and we will advise you on the most cost effective way achieving it.

- Full range of new & secondhand equipment available.
- We stock all leading brands:-  
Airband Amateur CB, Marine Shortwave  
Licence-Free Family Radio
- Business and security radios



### WorldSpace

digital satellite  
radios now in  
stock.

From £99.00



SHORT WAVE ADVICE LINE  
01202 490099

ALINCO, AOR,  
AKD, BEARCAT,  
COMTEL, DRAKE,  
FAIRHAVEN,  
ICOM,  
KENWOOD,  
JRC, LOWE,  
MAYCOM, MFJ,  
OPTO,  
WELLBROOK,  
YUPITERU,  
YAESU



Call for latest second-hand list or visit our  
website <http://www.shortwave.co.uk>

4 MILES FROM BOURNEMOUTH INTERNATIONAL AIRPORT ON B3073  
300 YARDS FROM CHRISTCHURCH RAILWAY STATION. FORECOURT PARKING FOR DISABLED

# SRP TRADING

1086 Bristol Road South, Rednal, Birmingham B45 9TZ

★ ★ TRADE AND EXPORT ENQUIRIES WELCOME ★ ★



## YUPITERU MVT-7300 THE SCANNER OF THE YEAR

The MVT-7300 scanning receiver incorporates the new 8.33kHz frequency steps used by Civil Aircraft. Frequency coverage:- 531kHz-1320MHz.

**SPECIAL INTRODUCTORY PRICE!**

£289.95 **£259.95** + P&P



## SANGEAN ATS-505 FM-STEREO/MW/ LW/SW/PLL SYNTHESISED RECEIVER

Professional digital multi-band world receiver. Continuous coverage 150-29999kHz.

**£99.95** + P&P



## SANGEAN ATS-909 QUALITY PORTABLE SHORT WAVE RECEIVER

153kHz-30MHz (AM/SSB).  
87.5MHz-108MHz (FM).  
Features: (RDS) Radio Data System.

**£139.95** + P&P



## MAYCOM FR-100 AIR AND 4 MORE BANDS 5 BANDS COMMUNICATION RECEIVER



30 x 5 Banks Memory  
Capacity AM / FM / WFM  
Memory / Memory Recall  
Memory Bank Scan  
AA x 3 Cells  
With Alert Beep  
LCD Display With Back Light

420 to 470 MHz NFM  
136 to 174 MHz NFM  
108 to 136 MHz AM AIR  
88 to 108 MHz WFM  
66 to 88 MHz NFM/WFM

**'WITH NEW AIRBAND  
8.3 STEPS'**

**£99.95** + £5 P&P

### WM-918 ELECTRONIC WEATHER STATION

Allows the measurement and display of weather data. Includes PC software and lead.

**£199.95**  
+ P&P

### MAYCOM AR108

#### COMPACT CIVIL AIRBAND SCANNER

Frequency coverage:-  
108MHz-137MHz  
(AM).  
136MHz-180MHz  
(FM).

**£59.95** + P&P

### 225 BASE SCANNER

#### 500 CHANNEL PROGRAMMABLE SCANNER

Continuous coverage  
Range: 25-1300MHz. 'no gaps'.

Modes: AM/FM/WFM switchable

~~£299.95~~ **£249.95**  
+ £10.00 P&P

### YUPITERU MVT-7100

All mode wide range hand-held scanning receiver. Ranges 530-1650MHz. Modes: AM, FM, WFM, USB, LSB.

**£229.95** + P&P.  
Size 6.1 x 2.5 x 1.5 inches.

### SRP PILOT ANTENNA

Dedicated civil & military airband. 108-137MHz & 225-400MHz.

**£24.95**  
+ P&P

### WIDEBAND PRE-AMP

100MHz-1GHz. With adjustable amplification level of up to 20dB.

**£39.95**  
+ P&P.

### The UK Scanning Directory

#### UK SCANNING DIRECTORY

7th edition. This frequency list covers 26MHz-1.8GHz with 1000s of frequencies.

**£19.50** + P&P

### AIRBANDER

Micro magnetic car antenna for better reception on the civil aircraft band. 108-136MHz. BNC plug.

**£19.95**  
+ P&P

### WIDEBANDER

Wideband "super strength" micro magnetic antenna. Wideband (25-2000MHz) plug.

**£29.95**  
+ P&P

### SKYSCAN V1300 DISCONE

Vertical & horizontal elements enhance reception from 25-1300MHz. Constructed from the best s/steel & aluminium. Complete with pole & pole clamps.

**£49.95** + P&P

### RECHARGEABLE NI-MH BATTERIES

"No memory effect".  
Over twice the capacity of Nicads.

AA cell	1500mAh @ 1.2V	.....£2.00 each
AAA cell	550mAh @ 1.2V	.....£2.40 each
C cell	2200mAh @ 1.2V	.....£3.99 each
D cell	2200mAh @ 1.2V	.....£3.99 each
PP3 cell	150mAh @ 1.2V	.....£3.99 each

**CHARGERS FOR ALL  
SIZES AVAILABLE**

### G5RV ANTENNAS

Full size G5RV is 102' long & transmits 80m-10m amateur bands. Half size G5RV is 52' long & transmits 40m-10m amateur bands. Full size G5RV:- **£19.95** + P&P. Half size G5RV:- **£16.95** + P&P.

Opening times: Mon-Sat 9.30am to 5.15pm. We are Kenwood, Yaesu, Icom, & Alinco dealers.

**Trade customers are you getting the best deal? Phone and find out!**

Call Mary (MOBMH) or Dave on

**0121-460 1581, 0121-457 7788 FAX: 0121-457 9009**

# Attention-123!

## V24 - Another New Station

This unusual station was first noticed by us in mid March on 10.080MHz in a.m. at around 2100UTC, with a female announcer repeating phrases or sentences (in Farsi?). Further investigation and information gleaned from Clandestine Radio Watch (who don't specialise in Numbers Stations) indicate that it is believed to be a 'Numbers-type' station and not a clandestine broadcaster. Its habits are certainly very odd. It operates on 8.600, 10.080 and 12.450MHz in parallel, between 1730 and 2130. Its timing is erratic due to its efforts to avoid heavy jamming on all three channels. The announcer (usually female) repeats a 'message' of approximately two minutes duration and long pauses are not uncommon. This continues in 10-15 minute blocks, followed by long pauses or breaks in transmission of up to 30 minutes, after which the whole cycle starts again.

Iraqi and Kurdistanian clandestines rarely venture outside the 4-8MHz range. This station's use of 8-12MHz suggests that the target area is further away. CRW monitors claim that the language used is Farsi and the broadcasts are directed from Iraq. However, all we can be reasonably certain about is that it is aimed at Farsi speakers in Iran or elsewhere. On Friday March 30th, following a 1730 transmission, 12.450 remained on air and a second format was noted. Music, of a typically Middle eastern style, was played for five minutes and then interspersed with announcements by a female voice - a cycle which continued until 1830. The use of phrases is rare nowadays, but was once more widespread, e.g. one of the Tyrolean music station's variants (G1B), and the famous BBC wartime broadcasts to the Resistance, and during the Suez crisis, etc. It is also possible that this station could be a CIA or MI6-backed initiative.

## The ENIGMA Information Booklets

We've recently had quite a number of requests for these publications. As the original has ended, we are having to photocopy these, so please bear with us and allow four weeks for delivery. Apart from the new stations which keep cropping up, and a few minor changes, these booklets are still the only detailed information available world-wide which helps in identification, etc. By the way, one of you wrote in without an address, so we cannot reply, so would **Angus of Strathclyde** please get in touch again. (The station you mention is Lincolnshire Poacher, E3, and the frequencies would have been 7.337, 9.251 and 11.545 at that time).

## A Few Oddities

Can anyone explain the so-called Russian Pseudo-Time Signal station M21, which has been around for many years? It operates continuously on various frequencies, between 3 and 5MHz - at present on 4.613MHz. It repeatedly sends a four figure group in Morse which represents Moscow Time (UTC + 3) to the nearest minute, however, its accuracy is not good and it couldn't in any way act as a time standard, so what is it doing? Has anybody heard any other traffic being sent?

Occasionally the Russian Family Ia stations may send **very** short messages of 2 or 3 groups (between 3 and 20 groups are virtually unknown). On 21st March an S6 sent a three group message at 0830 on 9.255: 912-548/3. The message was 44111 56778 74532. At 0840 only five minutes after this transmission had ended, another (stronger) S6 appeared just 5kHz h.f., on 9.260. Although the schedule number and decode key was different, the rest of the transmission was identical to the previous one: 328-907/3 = 44111 56778 74532. What was going on here? Clearly the two transmissions were intended for different recipients. Different transmitter sites/beam headings were probably used. (The carrier of the first transmission was still running when the second fired up). The different DKs suggest that two different One-Time-Pads

were in use and that the same encrypted messages was used, via the pads, to produce the same very short piece of plain text. The first message group is a bit suspicious as it could be a split 'stutter group' which would have a meaning of its own, independent of the OTP. S6B for example, sends two groups only, the first always being a 'stutter group', e.g. 11111.

Can anyone help us with identifying the location of the strong data transmission on 2.170MHz. This particular mode is widely used by the US military and sites such as Barford St John, Inskip, etc. are regular sources of these transmissions in this country. As 2.170 is so low in frequencies, and few h.f. sites are equipped with antennas capable of operation below 3MHz (Edlesborough is one, and Rugby's old 2.500MHz MSF antenna may still be operational) where can it be coming from? Even at 1200 it is very strong in N. England.

## Morse

As always, there is a great deal of Morse activity and its good to see logs being sent in. **Peter** (Saffron Walden) has queried a couple of stations. The station with the low level (rather strange) tone modulation ending in three short zeroes is the very active M1 (Family XIV). The other one ending the same way, which uses 2-figure DKs is M10. It often includes up to four messages each with their own fixed addressee numbers, and always uses two parallel frequencies. An MCW station with similar format, but beginning and ending with a one-minute tone sequence (for automated reception), only ever sends one message, and uses a single channel - this is M7. Both are run by Czech intelligence. M10 is very busy; M7 less predictable due to its lack of obvious schedules. Apart from the Russian Morse stations, another busy one is M13, sent in its characteristically slow Morse. It operates many predictable schedules.

M23 has been operating more of its 3-figure ID schedules, apart from the twice daily 579. Usually, these are made up of either three even or three odd numbers, and normally odd schedule numbers represent null message formats (transmission merely cuts off after 10 minutes), and even SNs indicate that a message will follow. Not to be confused with M10's most familiar 'circuit number', 555 has been active without any messages logged. Another one, a mixed odd/even SN (these are rare) is 532 (null message ID) at present active at 2100 on 5.140/?. M23 has numerous variant formats, so many that giving them suffix letters isn't appropriate. This particular type usually operate daily and on two parallel frequencies.

## A New S21 Schedule

Or rather new to us, for it is believed to have been around for some years, and audible in Siberia and Japan. Unlike the other Russian Families, two closely linked members of this one (XIV) M45 and S21 operate only a few schedules. This 'new' one is interesting because it appears in the 40m amateur band on 7.019MHz, every Thursday at 1100UTC. It may be very weak in Europe, as so far I've not managed to receive it in April, however, as it was last reported in March, it could well have gone higher in frequency. (Its other schedules tend to do this in the summer). It is very unusual for Russian stations to operate outside the Fixed allocations, and no doubt amateurs would have complained about this intrusion. The SN in use was 926. Both M45 and S21 use SNs which are made up of the last three figures of their lower parallel frequencies. So, 926 would suggest that its parallel was most likely 5.926MHz in the 49m band. (Russian stations do use this region). Its unlikely that the time had changed, so can anyone find its present frequencies? Transmissions usually last around 12-15 minutes, so a little diligent searching may uncover it.

That's all for now. Thanks to all of you who have written in, and to ENIGMA 2000 for carrying on from where we left off!

# Propagation Forecasts

## How to use the Propagation Charts

The charts contain three plots. The lower dashed line represents the lowest usable frequency (LUF), or ALF (Absorption Limiting Frequency). The chances of success below this frequency are very slim.

The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

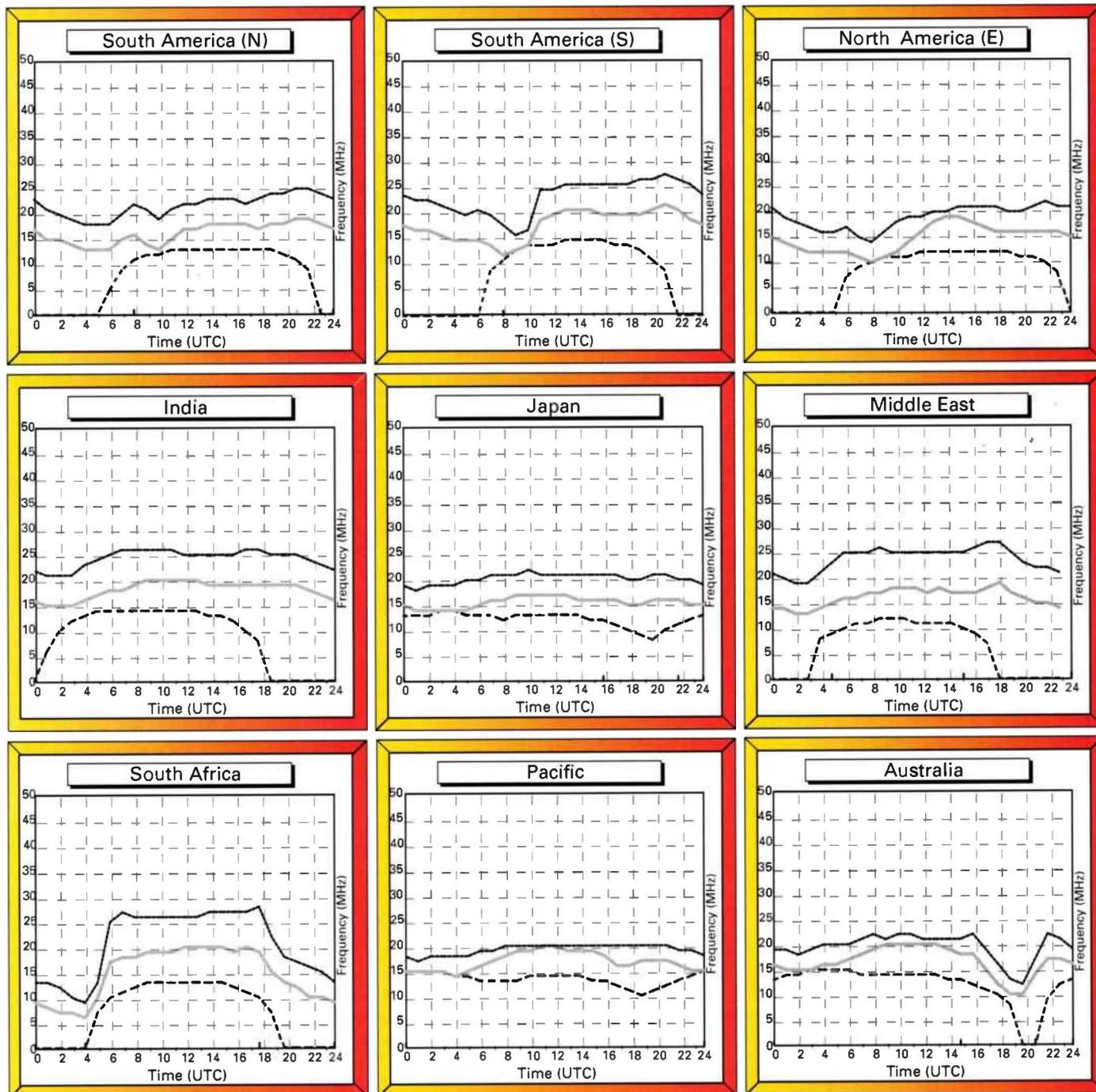
Lastly, the upper dashed line represents the maximum usable frequency (MUF), a 50%

probability of success for the path and time.

To make use of the charts you must select the chart most closely located to the region containing the station that you wish to hear. By selecting the time chosen for listening on the horizontal axis, the best frequencies for listening can be determined by the values of the intersections of the plots against frequency.

Good luck and happy listening.

June 2001  
Circuits to London



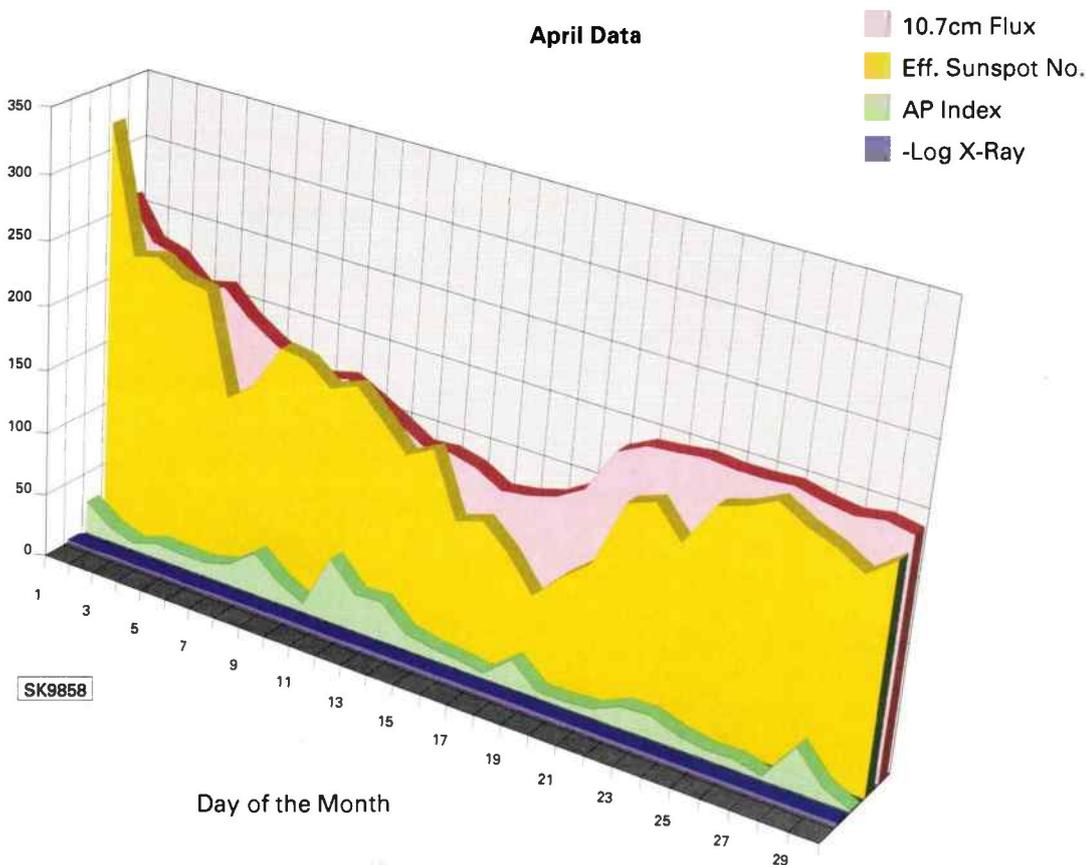
SK9857

# Propagation Extra

Ron Ham's barometric pressure chart, taken at Storrington, W. Sussex, April 2001.



April Data



## guide to the chart

The 10.7cm solar radio flux is used as an indicator of the general level of solar activity.

The K and AP indices are measures of geomagnetic activity.

The K index ranges from zero (very quiet) to nine (severely disturbed).

K values of five or greater correspond to geomagnetic storm conditions that can relate to poor propagation conditions.

The AP index ranges from 0 to 400. An AP of 30 is the threshold for geomagnetic storm conditions.

■ MIKE RICHARDS G4WNC, 49 CLOUGHS ROAD, RINGWOOD, HANTS BH24 1UU

■ E-MAIL: decode@pwpublishing.ltd.uk ■ Web: http://www.mikespage.btinternet.co.uk

# Decode

## DSP For All

Its happened again! As soon as I publish details of an interesting web site you can guarantee that it will close or change address! The latest to cause a problem is Bernd Reisers site that I recommended for his excellent d.s.p. filter. The URL of the replacement site is <http://atlantis.wh2.tu-dresden.de/~bernd109/amateurfunk/amateur.html> keep an eye on the SWM website links page for details of any other changed pages.

## Easy PSK

If you keep an eye on what's happening in the amateur data world, you will know that PSK31 is becoming well established as an h.f. data mode. Its success as a transmission mode plus its ease of implementation means you will probably find it being used by commercial operators as well.

One of the many advantages of the system is the excellent error protection, which makes it excellent for reliable communications. In fact, a basic laptop and mobile h.f. transceiver can very quickly and easily be set-up to create a high quality data link with world-wide coverage.

From a listener's point of view, the success of the system makes it relatively difficult to find and decode. Because of the system's very narrow bandwidth of around 30Hz, finding a weak signal can be like the proverbial needle in a haystack. Fortunately, help is at hand thanks to some neat new software from KH6TY, UT2UZ & UU9JDR.

Although designed for the amateur market DigiPan (v1.6d) is a really powerful tool for listeners and makes finding p.s.k. signals amazingly easy.

Let's start with a quick review of PSK31 so that you can understand the basics of the signal. The mode is really designed to handle hand typed communications, but can also be used to send all manner of data from computer files through to pictures.

Whereas most of the earlier data systems used either on-off transmitter keying (Morse) or frequency shift keying (RTTY), PSK31 works by changing the phase of the signal. This is rather like swapping the antenna leads or reversing the connections to your Hi-Fi loudspeakers. Thanks to modern digital electronics, this can all be achieved back in the audio stages of the transceiver or, in this case, generated in your computer.

The baud rate of the signal is a very modest 31 baud, but this is more than adequate to handle typed communications. Besides the clever modulation and narrow bandwidth, the real power of the mode rests with the ingenious coding system.

Those of you who have experienced RTTY decoding will recall the problems that happen when interference causes a shift or start bit to be missed. The result is usually a long string of rubbish until the system finally manages to get back in synchronisation.

Whilst there are a few neat solutions around such as Unshift-on-Space, these can cause their own problems by introducing other errors. During development of PSK31 much thought was put into designing a better system for showing where one character ends and the next begins. The answer, like all good ideas, was remarkably simple.

The code for p.s.k. was designed so that the pattern 00 could not appear in any character and would only be used to separate characters. This simple solution makes it really easy for the receiver to spot where individual characters start and finish.

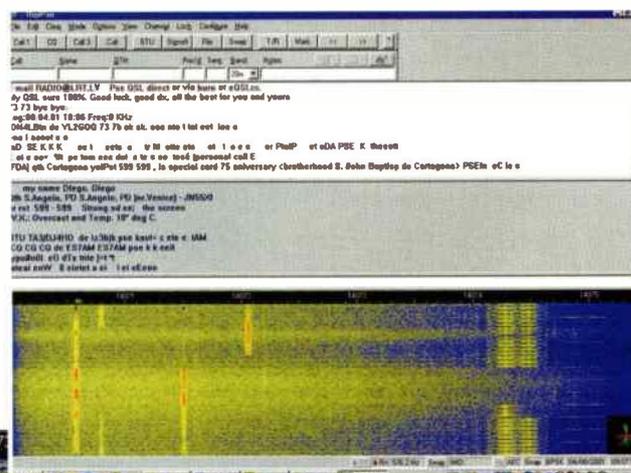
The next clever twist was to design a code that used a variable number of data bits depending on how often the character was likely to be used. This basic principle is not new and was the foundation of Morse code where common letters like 'e' and 't' used a single dot/dash.

Sorting-out the correct frequency of letters was done by analysing a huge number of modern English text files. The net result is known as Varicode and ranges from a single bit for a space through to 10 bits for the longest character. Using a Varicode rather than a fixed length code like RTTY produces an effective increase in speed which helps to make the relatively slow 31 baud signal a practical reality.

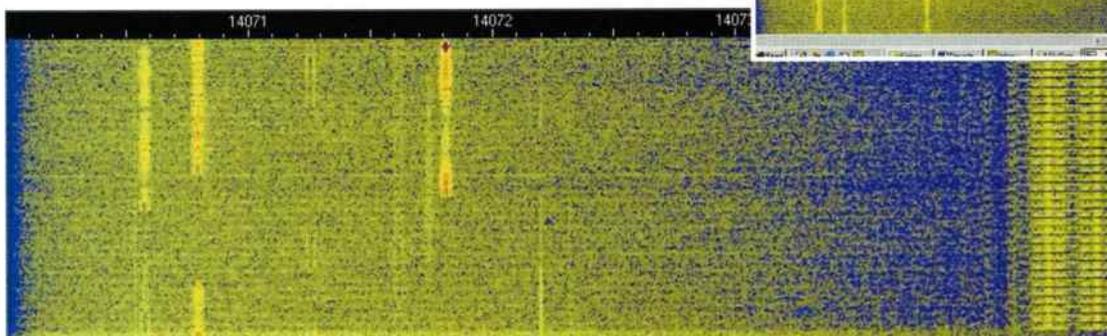
## Enter DigiPan

So what about DigiPan? One of the benefits of this type of transmission with a very good error detection

## DigiPan Dual Channel reception.



Close-up of the DigiPan's Panoramic Display.



system is that reliable links can be set-up using very low transmit powers. The combination of low power and narrow bandwidth makes the signals very hard to find and decode with a conventional narrow band receive system. This is where *DigiPan* really comes into its own.

Rather than concentrate on a very narrow band, it produces a panoramic view of a 3 to 5kHz wide section of the band. The actual width of the view depends very much on your receiver - the ideal is to be able to switch to a wide a.m. filter of 7kHz or more. This change of thinking is possible because the final filtering is done using your computer's soundcard.

I must admit, when I first came across this program, I thought it was just another tuning aid. However, it is a full-blown *PSK31* transceiver package with a few tricks thrown in for good measure!

Installation uses the normal Windows conventions and, when complete, takes a relatively modest 1.5Mb of hard disk space.

Once installed and running, you are presented with a screen with three main areas. At the top is a conventional Windows menu system with a selection of hot buttons, most of which are used for the transmit options. Immediately underneath the menus is the main receive screen where the decoded text will be displayed.

The bottom section is the real gem - a panoramic spectrum display showing up to 5kHz of your receiver's audio. By using this display system, *DigiPan* is able to show any active signals within the passband. A good p.s.k. signal shows-up as two tramlines right next to each other. Once you've spotted a likely signal, just click on it and the diamond indicator will jump to the signal, track it and start decoding - it really is that easy!

I must admit that I was really impressed with the performance. I tuned to the amateur p.s.k. section on 14.07MHz and thought I was going to be disappointed because I couldn't hear a signal, I was wrong. With *DigiPan* running there were two p.s.k. signals, both of which could be decoded with only slight erroring. (I would strongly recommend starting with the 14.07MHz band as it seems to be the most reliable spot for p.s.k. signals).

As if this wasn't enough, *DigiPan* is able to handle tracking and decoding two signals at a time. All you do is select Dual Channel from the Channel menu and an extra screen will appear along with a new triangular marker in the panoramic display. To use the system you just left-click on a signal for channel 1 or right-click for channel 2. This was really brilliant as you could continue to monitor one link whilst checking around to see if there was anything more interesting around.

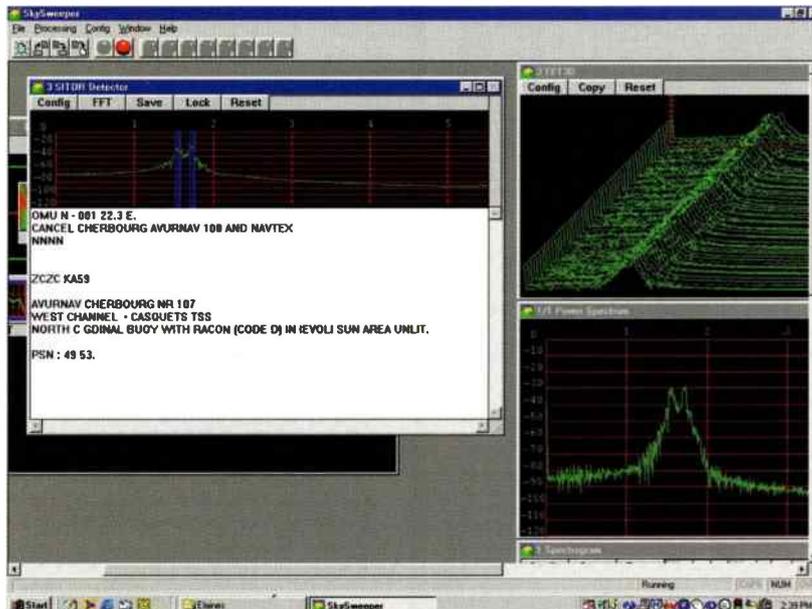
This program is seriously good and certainly the best way I've found to try your hand at some p.s.k. decoding. To get your copy of this excellent program visit this site:

<http://members.home.net/hteller/digipan/>

## SkySweeper 2.3

Yes, yet another release. This must be the fastest developing utility program around! The latest version is now available for download from their web site at: [www.skysweep.com](http://www.skysweep.com)

Here's a summary of the new features in version 2.3. A new option has been built-in for setting fixed



**SkySweeper decoding NAVTEX.**

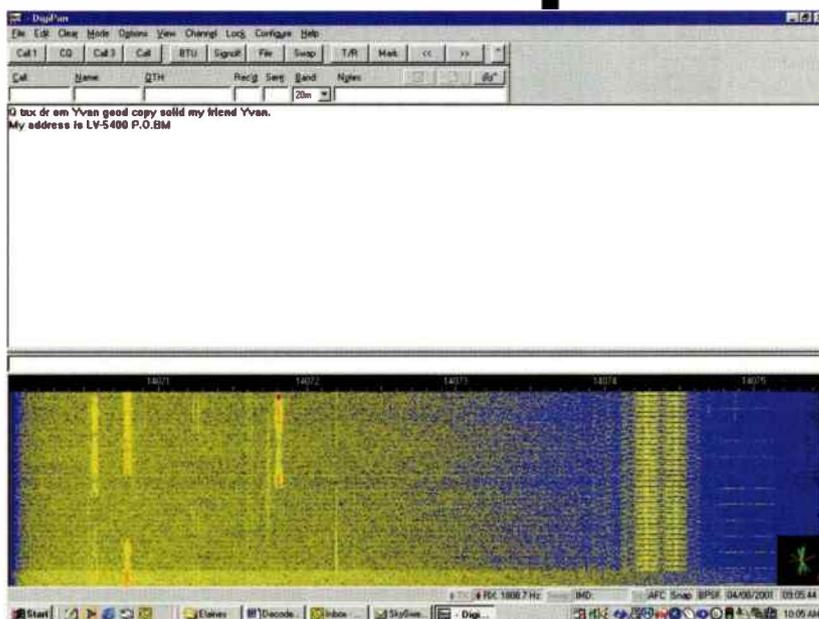
frequency offset for automatic scanning in RTTY and SITOR modes. The Constellation visualisation block now has a coherent mode for improved BPSK and QPSK transmission analysis.

Unshift On Space error correction has been added to the SITOR decoder. A continuous parameter adaptation option has been included in c.w.-decoder. The manual frequency set resolution has been increased in the decoders. There is also the usual selection of minor bug fixes.

## NAVTEX

**Terry** has E-mailed question regarding the equipment necessary to receive NAVTEX signals. The first thing you need is an s.s.b. receiver that can tune down to 490kHz. If you've got this, then you just need a decoder that can handle SITOR-B (FEC) signals. There's lots of these around and popular choices would be: *SkySweeper*, *HAMCOMM* or *RadioRaft*. I've shown a screen shot of a NAVTEX signal being decoded using *SkySweeper*.

**DigiPan Single Channel reception.**



# Maritime Beacons

A few quite distant beacons were heard by some of the listeners who searched the band at night during January, February and/or March. However, reception during daylight proved to be very disappointing, because so many of the nearby beacons have been closed down.

Commenting upon the propagation conditions at night, **Peter Rycraft** (Wickham Market) says "Generally I found the band to be very quiet, but things perked up a bit at the end of February and some beacons were received with unusual clarity". Particularly good reception was noted from Ristna, Estonia (RS) on **307.5**; Cabo Estay Lt, N.Spain (VS), which was on **317.0** instead of **312.5** as hitherto; also Myggenaes, Faeroe Is (MY) on **337.0**. In contrast the beacon at Prins Christian Sund, S.Greenland (OZN) on **372.0** was buried in all sorts of noise and hetrodynes and Peter had to use three notch filters to isolate it! A rare one for him was Holsteinsborg, Greenland (HB) on **328.0** which he had received on only one previous occasion. Peter has suggested that a list of the equipment used by contributors would be of interest, so an appendix has been added hereto.

Whilst searching the band at night during February **Peter Pollard** (Rugby) heard the beacon at Cala Figuera, Majorca (FI) on **286.5**. Three along the coast of N.Spain were also received - see chart. From the opposite direction he picked up the sky waves from the beacons on the Faeroe Is at Myggenaes (MY) **337.0**, Akraberg (AB) **381.0** and Nolso (NL) **404.0**. Very clear reception of the Myggenaes beacon was noted on February 28.

In nearby Northampton, **Fred Wilmshurst** searched the band mainly at night and he found "the conditions as bad as at any time". Nevertheless, he heard the beacon at Cala Figuera, Majorca (FI) on **286.5**; also Rota, SW.Spain (D) **303.0** and three on the coast of N/NW.Spain - see chart. The Faeroe Is beacons (MY **337.0**; AB **381.0**; NL **404.0**) were also heard. After midnight he was surprised to find reception of the

Greenland beacon (OZN) on **372.0** extremely good - without the usual co-channel interference from an aero beacon. Fred also searched the band during daylight and picked up the ground waves from Cabo Machichaco, NE.Spain (MA) on **284.5** but no others were detected.

During daylight, the ground waves from the beacon at Cabo Finesterre Lt, NW.Spain (FI) on **288.5** travelled over a long sea path to reach **Fred Pallant** in Storrington but nothing else was heard until after dark, when the sky waves from Cabo Machichaco, NE.Spain (MA) **284.5**; Cabo Mayor, N.Spain (MY) **304.5**; also Cabo Estay, N.Spain (VS) **317.0** arrived.

An interesting list was compiled by **Robert Connolly** in Kilkeel - see chart. During this quarter he noticed an improvement in reception. The Spanish beacons were stronger than before and part of the Baltic chain (BT and BK on **312.5**) was heard on a regular basis. However he could find no trace of the other beacons in that chain and suspects that they have been closed down. He mentioned that Portugal closed all of its maritime beacons at the start of the year. During a listening session in early March, at about 1020UTC, he was surprised to hear the beacons on the Faeroe Is (MY on **337.0**; AB **381.0**; NL **404.0**); also the Greenland beacon (OZN) on **372.0** during daylight. Dawn was at about 0700UTC.

An up-dated 7th edition of Robert Connolly's comprehensive guide to the long wave radiobeacons, which he first produced some time ago, is now available. All of the maritime radiobeacons known to be still active are detailed therein. Also included is an extensive list of aero radiobeacons (NDB), some of which share the maritime beacon band, but they are outside the scope of this article. If you would like an information sheet about this very popular and inexpensive guide, please send an s.a.e. to Robert via me at the above address.

**The 'PQ' beacon located at Porquerolles near Toulon, southern France. Gerard Giraud F1HUM.**



## Long Wave Maritime Radiobeacon Chart

Freq (kHz)	C/S	Station Name	Location	DXer
215.0	EM	Egedsminde	Greenland	→A*
284.5	MA	Cabo Machichaco	NE.Spain	A,B*,C*,D*,E*
286.5	FI	Cala Figuera	Majorca	A*,C*,D*,E*
288.5	FI	Cabo Finesterre Lt	N.W.Spain	A,B,D*,E*
288.5	UD	Cabo Saiou	S.Spain	A*
289.5	BT	Bjartangar Lt	Iceland	A*
290.5	VI	Cabo Villano Lt	N.Spain	A*,D*,E*
291.0	SN	Cabo San Sebastian	S.Spain	A*,D*
291.9	NA	Punta Lantaila	Canaries	A*
292.0	MH	Mahon, Minorca	Balearic Is	A*
293.5	RO	Cabo Silleiro Lt	N.Spain	A*,D*
295.0	DV	Djupivogur	Iceland	A*
296.0	KN	Skrova Lt	Norway	A*
297.0	B	Cabo Trafalgar	SW.Spain	A*
297.5	PS	Cabo Penas Lt	N.Spain	A*,D*
298.0	TA	Cabo Gata	S.Spain	D*
299.0	O	Tarifa	S.Spain	A*
299.5	VS	Vieste Lt	Italy	A*
300.5	IO	Ilichevsk	Ukraine	A*
300.5	KS	M.Kanin	Artic Russ	A*
301.5	L	Torre de Hercules	N.Spain	A*,D*
303.0	D	Rota	SW.Spain	A*,D*,E*
303.5	IA	[C]Llanes Lt	N.Spain	D*
303.5	OR	Punta de Llobregat	S.Spain	D*
304.5	MY	Cabo Mayor Lt	N.Spain	A,B*,C*,D*,E*
305.0	KA	Klaipeda Rear Lt	Lithuania	A*
305.7	DA	Dalatangi Lt	Iceland	A*
306.5	H	Hel Lt	Poland	A*
307.5	RS	Ristna	Estonia	A*,D*
309.5	AL	Algiers	Algeria	A*
309.5	BA	Punta Estaca Bares	N.Spain	A,C*,D*
309.5	SW	M.Khersoneskiy	Ukraine	A*
309.5	TR	M.Tarkhankutskiy	Ukraine	A*
310.5	BR	El Burullus	Egypt	A*
310.5	DA	Damietta Mouth	Egypt	A*
310.5	GV	Genova	Italy	A*
311.5	SA	Senigallia	Italy	A*
312.5	BK	Baltiysk	Russia	A*
312.5	BT	Mys Taran Lt	Russia	A*,E*
312.5	DB	Doobskiy	Ukraine	A*
312.5	KA	Mys Kyz-Aul	Ukraine	A*
313.0	PA	Cabo de Palos Lt	S.Spain	A*,D*
314.5	SK	Strandhofn	Iceland	A*
314.5	TL	Punta D.Penna	Italy	A*
315.5	ND	Nida	Lithuania	A*
316.0	IN	Ingolfshofdhi Lt	Iceland	A*
317.0	VS	Cabo Estay Lt	N.Spain	B*,D*
328.0	HB	Holsteinborg	Greenland	D*
337.0	MY	Myggenaes	Faeroe Is	A,C*,D*,E*
367.0	JV	Jakobshavn	Greenland	A*
372.0	OZN	Prins Chris's Sund	Greenland	A,D*,E*
381.0	AB	Akraberg	Faeroe Is	A,C*,D*,E*
404.0	NL	Nolso	Faeroe Is	A,C*,D*,E*

Note:

Beacons marked [C] have now been or soon will be closed down. Entries marked \* were logged during darkness.

All other entries were logged during daylight or at dawn/dusk.

### Contributors equipment used:-

- (A) Robert Connolly, Kilkeel: JRC NRD-525 + Timewave DSP9+ filter + Datong AD-370 active antenna.  
 (B) Fred Pallant, Storrington: Trio R-2000 + Howes CTU-9 a.t.u. + random wire antenna.  
 (C) Peter Pollard, Rugby: Sony ICF-2001D + random wire antenna.  
 (D) Peter Rycraft, Wickham Market: AOR AR7030 + spiral loop. Three audio notch filters.  
 (E) Fred Wilmshurst, Northampton: Icom IC-R70 + Global AT-1000 a.t.u. + r.w. in loft.

■ **ANDY CADIER, 28 ROMNEY AVENUE, FOLKESTONE, KENT CT20 3QJ**

■ **E-MAIL:** [off.the.record@pwpublishing.ltd.uk](mailto:off.the.record@pwpublishing.ltd.uk)

# Off The Record

This month we are investigating the case of the missing medium wave stations, well in reality they are there and can easily be heard in many areas of the UK. However, for a number of strange reasons, these stations are not shown in many broadcast or hobby magazines or even the international listening guides. They also almost always operate on frequencies not primarily allocated to Britain, but they are not pirates and are licensed by the Radio Authority.

The broadcasts to which I refer are called LPAM stations, a term that originated in America standing for **Low Power Amplitude Modulated** station, as most of us are aware the medium wave band in the States is known as the a.m. band.

In Britain, LPAM stations are five year RSLs (Restricted Service Licence) - they are usually restricted to a 1W output using an intentionally inefficient 10m vertical antenna. The intention is to restrict the station's radiation so that many transmitters may use the same frequency without causing interference to each other or anyone else.

From personal experience I notice that the nominal daytime range of these transmitters is about 20km using a car radio. However, using a sensitive receiver and a directional loop antenna considerable distances have been achieved with many being received in the Channel Islands and in Germany.

Although these low powered stations offer DX opportunities, do not be surprised if they do not QSL with people reporting long distance reception. This is partly due to the red tape contained in their licence.

They may not address their broadcasts to anyone outside the perimeter of the establishment they are licensed to serve, which are usually educational establishments, military bases or large hospitals. So, in essence, listeners in the overspill area do not officially exist and even if they do, they are prevented from any acknowledgement of the fact on air.

Most stations will reply to E-mails and give details of their station, but will fall short of giving verification to someone situated outside their licensed reception area. The intention of these rules is probably to prevent a school or hospital radio station turning itself into a community broadcaster and compete with the established commercial or public sector radio.

## Where Are They?

So where do you find LPAMs? Well, at present there are about 40 stations on air using nine different frequencies: 1251, 1278, 1287, 1350, 1386, 1404, 1431, 1449 and 1575kHz. There are a few low power f.m. stations, but these are only licensed in sparsely populated areas like Scotland, Northern England and mid Wales and only use 50mW.

Other unlisted transmissions are likely on 972kHz from a site near Telford in Shropshire, these are to be industrial technical test transmissions for a crossed field antenna. The tests have been delayed due to the transmitter sites rural location and the foot and mouth epidemic.

## Hospital Radio

While a few of the larger hospitals have now started using the LPAM transmitters, which with licence charges and installation is far from cheap, others still use the traditional 600Ω 100V line headphones. However, developments are taking place here too. A company called Patientline - a subsidiary of Granada Media - has received a national contract to provide bedside communications to all large NHS hospitals.

The system is card operated and includes a bedside telephone and a multi-channel flat screen television (like that available in many aircraft) and several radio channels too. Usually the audio is free and customers are just charged on a daily basis for the use of the telephone and TV. Hospitals that have their own headphone radio service have been included, usually on channel 3, and patients are benefiting from better quality stereo sound than provided by the old traditional plastic stethoscope type of headset.

During early February, Stoke Mandeville Hospital Radio had their LPAM transmitter shed broken into. Articles stolen were a Radica AM50 50W TX valued by them at £3000, an Innovonics limiter/audio processor £1,400 and an Alice Mix-Pak £150. A member of the station's management said they thought the equipment had been pinched by f.m. radio pirates who may not have realised it was an a.m. rig. London's Liberty Radio has also had a 1kW m.w. transmitter stolen from Southall.

## Good Buddies

For those that still persevere with CB radio, the news that solar cycle may have reached its peak, or may not, will be quietly relieved. To receive what

sounds like Russians with an S9+ signal throughout daylight hours during the winter has not been the greatest of experiences. Previous cycles have produced a variety of stations, particularly the Italians.

I do wonder what circumstances are causing this area to be received with such monotonous clarity and regularity? Having said that, I did have a remarkably clear QSO with a CB operator at Sliema in Malta during March. Looking at the messages on the *SWM* readers E-mail list, many readers surprisingly still make use of CB radio.

## Radio Caroline

Peter Moore, Radio Caroline's station manager, has published a revealing article called *Sour Grapes and Impossible Dreams* in which he defends his management decisions against a number of critics. The impossible dreams refer to a small offshore radio fraternity that insist that Caroline is not Caroline unless it is from a ship anchored outside territorial waters. There have been rumours of a new bigger and better ship coming to restore Radio Caroline to its position on the m.w. dial.

In 1964 Radio Caroline took to broadcasting from the high seas as there was no way a private broadcaster could operate a radio station within the UK. This was a commercial venture, which was also intended to force the governments hand on the independent radio issue, of which Radio Caroline had hoped to be a part.

The days of offshore radio are well and truly over, not entirely because of the government's anti-pirate laws, though armed intervention must be a deterrent, but simply because of the economics. Why would anyone want to risk illegally buying advertising on an offshore station when there are hundreds of legal stations offering more advantageous terms? The way forward has to be in the direction of satellite and the Internet or through collaboration with other established broadcasters.

For the benefit of the dreamers who believe Radio Caroline has to broadcast from international waters, Peter Moore sets out a few questions: Where would they put their administrative offices? From where would the ship receive its supplies? How would they resist direct action to close the station? Where would they find staff willing to face prosecution or deportation? Who would pay for all of this and why?

## Deejay In Hospital

I have recently been informed that former Radio Scotland, Radio Northsea International and Caroline DJ Tony Allan has been admitted to hospital in London. The Radio Caroline Newsbeat says that he is not in good health and is set to be in and out of hospital for the foreseeable future. The Radio Caroline office will forward any messages or cards to him but insist alcohol or cigarettes would be inappropriate. **Radio Caroline, 426 Archway Road, Highgate, London N6 4HJ.** Tony did manage to be out of hospital long enough to brilliantly present the final analogue satellite programme for Radio Caroline on 31st March.

Radio Presenter Mark Stafford says that Caroline will be available from 1st May on Astra digital platform 19°E. This is not available on the normal UK Sky package, but further developments and precise details will be available shortly. Programmes will continue to come from the studio at Maidstone, Kent. Preliminary discussions are taking place with WorldSpace and Sky to hopefully make their service more accessible to UK listeners in the future.

## Napster Moving Offshore?

Napster, the website that allows subscribers to swap and download digital music, has recently been in the news after prosecutions in the USA by the music industry. The reproduction of copyright music and the losses incurred by the music industry are estimated to be very substantial. Napster are attempting to police itself and introduce a blocking system to prevent the extraction of copyright music. It is suggested that this is easier said than done.

Another alternative being considered is a move to servers in another friendly country. One of the places being considered is HavenCo who have their base at Sealand. Whether Sealand, an offshore wartime fort called Roughs Tower, actually constitutes a recognised territory has been the subject for debate for many years. A similar nearby structure called Sunk Head Tower was blown-up by The Royal Engineers during August 1967.



## Euroradio 2001

Offshore Echo's and Radio Club de France are holding their annual Euroradio event at Calais on Saturday 7 July. This year focus will be on REM Island, a purpose built offshore structure that housed both a pirate television and radio station that broadcast to Holland during the middle 1960s. Some of the engineers were Belgian, Ludo Gijs worked for TV Noordzee and also Radio London is one of this year's guests. Ludo also spent many years working in the Belgium electricity power generation industry. Further details are available from **Chris Edwards** on **0208-840 8580**.

## Short Wave

Ozone Radio and BBMS are reported to be testing around 5.8MHz - if tests are successful, this is likely they will continue to use this band. It is also worth keeping watch on the former Radio Free London frequencies, a possible revival appears likely, even if under another name.

Alan Weiner, operator of the 50kW American s.w. station WBCQ, is again proposing to launch a ship based s.w. station off the coast of Belize - he says he has a suitable ship in Boston harbour. Alan's previous attempts for ship based short wave stations have never materialised.

Jolly Roger Radio International from Waterford in Ireland is back with Joe Vincent on 6.240MHz with a full power of 180W. Relays now include Laser Hot Hits, Riverside Radio, Cochiguaz and Radio Blandengue.

## The Radio Scene

LBH Radio is reported to have now left 1386kHz. LBH have been using a powerful transmitter in Russia to broadcast their programmes to Britain and most of Europe during the late evenings. Ray Anderson for LBH is reported to have said that audience response from the m.w. service was poor. The programmes that come from the former EAP studios at Frinton-On-Sea, Essex, will continue on Sky digital and the Internet.

Disc-Jockey Johnnie Walker during his Radio 2 programme used the voice of Radio Caroline's founder as part of a quiz. The mystery voice was identified as that of Ronan O'Rahilly after which the Radio Caroline theme *Caroline* by the Fortunes was played. Johnny, like many others, started his broadcasting career with Radio Caroline.

Pilots circling London on approaches to Gatwick and Heathrow airports have had serious problems with radio-controlled mini-cabs being heard on ATC frequencies. It is usually land based f.m. pirates that get blamed for this kind of interference. On this same subject is an interesting website at **[www.veronicafm.co.uk](http://www.veronicafm.co.uk)**

The books listed have been selected as being of special interest to our readers. They are supplied direct to your door. Many titles are overseas in origin.

# SWM Book Store

## LISTENING GUIDES

### Airband

	Pages	Price
AIRBAND RADIO GUIDE 5th Edition	112	£8.99
AIR TRAFFIC CONTROL (abc) 8th Edition	112	£8.99
AIRWAVES 2001	134	£9.95
CALLSIGN 2001	168	£9.95
CIVIL AIRCRAFT MARKINGS (abc)	384	£7.99
FLIGHT ROUTINGS 2001, Williams	160	£7.95
MILITARY AIRCRAFT MARKINGS (abc)	224	£7.99
NORTH ATLANTIC FLIGHT COMMUNICATIONS 2nd Edition (inc. software)	172	£16.50
UNDERSTANDING ACARS		
3rd Edition, Aircraft Communications Addressing and Reporting System, Ed Flynn	80	£9.95
WORLD AIRLINE FLEET & SELCAL DIRECTORY	300	£16.00
WORLDWIDE AERONAUTICAL COMMUNICATIONS FREQUENCY DIRECTORY		
2nd Edition, Robert E. Evans	260	£19.95

### Datamodes

FAX & RTTY WEATHER REPORTS, Philip Mitchell	88	£11.50
KLINGENFUSS 2001/2002 GUIDE TO WORLD-WIDE WEATHER SERVICES 2th Edition Joerg Klingenfuss	436	£20.00
WEATHER REPORTS FROM RADIO SOURCES 3rd Edition, Philip Mitchell	32	£7.50

### DXTV

DXTV FOR BEGINNERS, Simon Hamer	31	£3.95
GUIDE TO DXTV, Keith Hamer & Garry Smith	36	£3.95
GUIDE TO WORLDWIDE TV TEST CARDS	60	£4.95
MASTS - PRACTICAL IDEAS FOR THE DXER, Keith Hamer & Garry Smith	36	£4.95
THIS IS BBC TV - FIRST 30YRS OF TV GRAPHICS, Keith Hamer & Garry Smith	38	£4.95
THE FIRST 30 YEARS OF BBC-2, Keith Hamer & Garry Smith	60	£4.95

### Frequency Guides

2001 SUPER FREQUENCY LIST on CD ROM, Joerg Klingenfuss	n/a	£16.00
FERRER'S CONFIDENTIAL FREQUENCY LIST, 12th Edition	450	£19.95
GLOBAL BROADCAST GUIDE 2001	32	£1.95
GUIDE TO UTILITY RADIO STATIONS 2001, 19th Edition, Joerg Klingenfuss	580	£26.00
PASSPORT TO WORLD BAND RADIO 2001	528	£15.50
PROMA SCANNING SCENE CD	n/a	£4.75
RADIO LISTENERS GUIDE 2001	128	£5.25
SHORTWAVE FREQUENCY GUIDE 2001 - 5th Edition, Joerg Klingenfuss	564	£23.00
SHORTWAVE INTERNATIONAL FREQUENCY GUIDE	176	£12.95
WORLD RADIO TV HANDBOOK 2001	640	£19.95

### General

BUYING A USED SHORT WAVE RECEIVER - New 4th Edition, F. Osterman	78	£5.95
GETTING ON TRACK WITH APRS, Stan Horzepa WA1LOU	165	£11.50
POP WENT THE PIRATES, Keith Skues	568	£16.95
RADIO COMMUNICATIONS HANDBOOK, New 7th Edition, Dick Biddulph/Chris Lorek	580	£28.00
RADIO SCIENCE OBSERVATION Volume 1 (inc. CD ROM), Joe Carr	414	£26.95
SHORT WAVE COMMUNICATIONS, Peter Rouse GU1DKD	187	£4.50
SHORT WAVE EAVESDROPPER CD ROM	n/a	£16.50
SHORT WAVE RADIO LISTENING FOR BEGINNERS	174	£14.95
SHORTWAVE RECEIVERS PAST & PRESENT (3rd Edition)	450	£25.95

### Satellite

AN INTRODUCTION TO SATELLITE COMMUNICATIONS BP326, F.A. Wilson	230	£5.95
ARRL SATELLITE ANTHOLOGY 5th Edition	150	£11.50
NEWNES GUIDE TO SATELLITE TV, Derek Stephenson	371	£19.95
SATELLITE HANDBOOK (ARRL) New Edition		
Martin Davidoff K2UBC	370	£15.50
SATELLITE PROJECTS HANDBOOK, Lawrence Harris	174	£14.99
SATELLITE TELEVISION, A layman's guide, Peter Pearson	73	£1.00
WEATHER SATELLITE HANDBOOK, 5th Edition, Dr Ralph E. Taggart WB8DQT	192	£15.50

### Scanning

AN INTRODUCTION TO SCANNERS AND SCANNING BP311, I.D. Poole	152	£4.99
SCANNER BUSTERS 2, D.C. Poole	100	£6.00
SCANNERS 2 INTERNATIONAL, Peter Rouse GU1DKD	261	£12.95
SCANNERS 3 PUTTING SCANNERS INTO PRACTICE, 4th Revision, Peter Rouse	271	£10.95
SCANNERS 4 SCANNING INTO THE FUTURE, Bill Robertson	245	£9.95
SCANNING THE MARITIME BANDS, 2nd Edition	158	£9.75
UK SCANNING DIRECTORY New 7th Edition	604	£19.50
ULTIMATE SCANNING GUIDE, Richard Allport	640	£19.99

## AMATEUR RADIO

### Amateur Television

AN INTRODUCTION TO AMATEUR TELEVISION, Mike Wooding G6IQM & Trevor Brown G8CJS	156	£5.00
THE AMATEUR TV COMPENDIUM, Mike Wooding G6IQM	104	£3.50

### Antennas & Transmission Lines

25 SIMPLE AMATEUR BAND AERIALS BP125, E.M. Noll	63	£1.95
25 SIMPLE INDOOR AND WINDOW AERIALS BP136, E.M. Noll	50	£1.75
25 SIMPLE SHORT WAVE BROADCAST BAND ANTENNAS (BP132)	48	£1.95
25 SIMPLE TROPICAL AND MW BAND AERIALS BP145, E.M. Noll	54	£1.75
ANTENNA IMPEDANCE MATCHING (ARRL), Wilfred N. Caron	195	£15.50

Pages Price

ANTENNA TOOLKIT (inc. CD-ROM), Joseph J. Carr	214	£25.00
ARRL ANTENNA BOOK 19th Edition	732	£24.00
ARRL ANTENNA BOOK ON CD-ROM	n/a	O/P
ARRL ANTENNA COMPENDIUM Volume One	175	£10.50
ARRL ANTENNA COMPENDIUM Volume Two	208	£10.50
ARRL ANTENNA COMPENDIUM Volume Three, Edited by Jerry Hall K1TD	236	£11.50
ARRL ANTENNA COMPENDIUM Volume Four	204	£16.50
ARRL ANTENNA COMPENDIUM Volume Five	200	£16.50
ARRL ANTENNA COMPENDIUM Volume Six (inc. CD-ROM)	200	£18.50
BACKYARD ANTENNAS, Peter Dodd G3LDO	200	£18.99
BEAM ANTENNA HANDBOOK, W.I. Orr W6SAI & S.D. Cowan W2LX	268	£8.95
BUILDING & USING BALUNS, Jerry Sevick	125	£18.95
CUBICAL QUAD ANTENNAS 3rd Edition, William Orr W6SAI and Stuart Cowan W2LX	110	£8.95
EXPERIMENTAL ANTENNA TOPICS BP278, H.C. Wright	70	£3.50
G-QRP CLUB ANTENNA HANDBOOK		
Compiled and edited by P. Linsley G3PDL & T. Nicholson KA9WRI/GW0LNQ	155	£7.25
HF ANTENNA COLLECTION (RSGB), Edited by Erwin David G4LQI	233	£9.99
HF ANTENNAS FOR ALL LOCATIONS (RSGB), Les Moxon G6XN	322	£7.99
MORE OUT OF THIN AIR (PWP)	112	£6.95
"ON4UN'S" LOW BAND DXING (ARRL), J. Devoldere	330	£23.00
PHYSICAL DESIGN OF YAGI ANTENNAS (Hardback) D.B. Leeson W6QHS	200	£15.50
PRACTICAL ANTENNA HANDBOOK 3rd Edition, (inc. software) Joseph J. Carr	580	£33.45
RADIO ANTENNAS & PROPAGATION, William Gosling	260	£19.99
RADIO AMATEUR ANTENNA HANDBOOK, W.I. Orr W6SAI & S.D. Cowan W2LX	188	£8.95
RECEIVING ANTENNA HANDBOOK, Joe Carr	189	£17.50
SIMPLE, LOW-COST WIRE ANTENNAS FOR RADIO AMATEURS	224	£8.95
THE RIGHT ANTENNA, How To Select & Install Antennas For Entertainment & Communication Devices, 2nd Edition, Alvis J. Evans	78	£16.95
THE TRUTH ABOUT CB ANTENNAS, (Orr & Cowan) W.I. Orr W6SAI & S.D. Cowan W2LX	188	£8.95
VERTICAL ANTENNAS, W.I. Orr W6SAI & S.D. Cowan W2LX	192	£8.95
VERTICAL ANTENNA CLASSICS (ARRL), R. Schetsen	123	£11.50
W1FB'S ANTENNA NOTEBOOK (ARRL), Doug DeMaw W1FB	123	£8.00
WIRE ANTENNA CLASSICS (ARRL)	144	£11.50
YOUR ANTENNA COMPANION, Paul Danzer	130	£7.50

### Beginners (inc RAE)

AN INTRODUCTION TO AMATEUR RADIO - New Edition, Ian Poole G3YWX	150	£4.99
BASIC RADIO PRINCIPLES & TECHNOLOGY, Ian Poole G3YWX	262	£14.99
BASIC RADIO & ELECTRONIC CALCULATIONS, Ray Petri G0OAT	160	£13.95
AN RAE STUDENTS' NOTEBOOK, Bob Griffiths G7NHB	76	£6.95
PRACTICAL RECEIVERS FOR BEGINNERS (RSGB), John Case GW4HWR	165	£14.50
PRACTICAL TRANSMITTERS FOR NOVICES, John Case GW4HWR	126	£12.50
RADIO AMATEURS EXAMINATION/END OF COURSE TEST PAPERS, Ray Petri G0OAT	104	£13.95
RAE MANUAL (RSGB), New Revised Edition	127	£15.00
THE NOVICE LICENCE STUDENT'S NOTEBOOK, John Case GW4HWR	124	£6.00
THE NOVICE RADIO AMATEURS EXAMINATION HANDBOOK (BP375)		
Ian Poole G3YWX	150	£4.95
THE RADIO AMATEURS' QUESTION & ANSWER REFERENCE MANUAL, 5th Edition, Ray Petri G0OAT	208	£13.95
TRAINING FOR THE NOVICE LICENCE A MANUAL FOR THE INSTRUCTOR (RSGB)		
John Case GW4HWR	101	£6.75
YOUR FIRST AMATEUR STATION, (RSGB) Colin Redwood G6MXL	120	£5.75

### Callbooks

JOINT INTERNATIONAL & NORTH AMERICAN CALLBOOK (CD-ROM)	n/a	£30.00
PW UK & EIRE AMATEUR CALLSIGN (CD-ROM)	n/a	£7.50
RSGB YEARBOOK 2001 Edition	460	£15.99

### Computing

AN INTRODUCTION TO THE WORLDWIDE WEB FOR PC AND MAC USERS, (BP390) D.C. & O. Bishop	148	£6.99
HOW TO EXPAND & UPGRADE YOUR PC BP450		
R.A. Penfold	170	£6.99
INTERFACING PCs AND COMPATIBLES BP467, R.A. Penfold	86	£4.99
NEWNES COMPUTER ENGINEER'S POCKET BOOK 3rd Edition,		
Michael Tooley	256	£12.95
PERSONAL COMPUTERS IN THE HAM SHACK (ARRL)	284	£11.50
THE INTERNET AND WORLD WIDE WEB EXPLAINED, J. Shelley	130	£5.95
WINDOWS '98 ASSISTANT (BP454) I. Sinclair	160	£6.99
WINDOWS '98 EXPLAINED (BP456), N. Kantaris & P. Oliver	160	£6.99
WINDOWS '98 - HARD DISK & FILE MANAGEMENT, (BP455) J. Gatendy	160	£6.99

### EMC

ARRL RFI BOOK (Practical Cures For Radio Frequency Interference)	316	£15.50
INTERFERENCE HANDBOOK, William R. Nelson WA6FGQ	250	£9.50
RSGB GUIDE TO EMC, 2nd Edition, Robin Page-Jones G3JWJ	204	£18.50

### Historical

100 RADIO HOOK UPS, 2nd Edition (reprinted)	48	£3.35
1934 OFFICIAL SHORT WAVE RADIO MANUAL, Edited by Hugo Gernsback	260	£11.85
COLLECTOR'S GUIDE TO ANTIQUE RADIO 4th Edition, Marty & Sue Bunis	248	£19.95
COLLECTOR'S GUIDE TO TRANSISTOR RADIOS (2nd Edition), Marty & Sue Bunis	320	£16.95
COMMUNICATIONS RECEIVERS - THE VACUUM TUBE ERA, R.S. Moore	141	£17.95
DOUBLE TESLA-ODUDIN COIL	24	£3.95
GUIDE TO OLD RADIOS, POINTERS, PICTURES, PRICES, David & Betty Johnson	278	£19.95
HENLEYS 222 RADIO CIRCUIT DIAGRAMS (1924)	271	£9.45
HOW TO BUILD THE TWINPLEX REGENERATIVE RECEIVER, Lindsay	63	£5.75
HOW TO BUILD YOUR FIRST VACUUM TUBE REGENERATIVE RECEIVER, T.J. Lindsay	127	£7.30
HOW TO BUILD YOUR RADIO RECEIVER (A4) (Popular Radio Handbook No. 1)	100	£6.95
HOW TO MAKE A NEUTRODYNE RECEIVER, Webb	63	£5.00
MARCONI'S ATLANTIC LEAP (H/B)	96	£6.99
RADIO TESLA	36	£5.95
SAGA OF MARCONI OSRAM VALVE (Paperback), B Vyse	346	£25.00
SECRETS OF HOMEBUILT REGENERATIVE RECEIVERS (Rockey)	127	£7.95
SEEING BY WIRELESS - THE STORY OF BAIRD TELEVISION, Ray Herbert	27	£4.95

	Pages	Price
TESLA - THE TRUE WIRELESS.....	16	£3.95
THOSE GREAT OLD HANDBOOK RECEIVERS (1929 & 1934).....	94	£6.95
TRANSISTOR RADIO! - A COLLECTOR'S ENCYCLOPEDIA & PRICE GUIDE. David & Robert Lane.....	170	£19.95
VISION BY RADIO (1925) (Jenkin).....	140	£7.85
WATCHERS OF THE WAVES. Brian Faulkner.....	118	£13.50

### Crystal Set Books (Xtal Set Society)

THE XTAL SET SOCIETY NEWSLETTER. Volume 1 & 2 Combined. Phil Anderson W0XI.....	96	£14.00
THE CRYSTAL SET HANDBOOK & VOL. 3 XTAL SET SOCIETY NEWSLETTER. Phil Anderson W0XI.....	134	£8.00
THE XTAL SET SOCIETY NEWSLETTER. Volume 4. Phil Anderson W0XI.....	88	£7.00
CRYSTAL SETS. The Xtal Set Society Newsletter. Volume 5. Phil Anderson W0XI.....	88	£7.00
CRYSTAL RADIO HISTORY, FUNDAMENTALS AND DESIGN. P.A. Kinzie.....	122	£8.00
CRYSTAL SET LOOPERS. A3 TUBER & MORE. Volume 8 Xtal Set Society Newsletter.....	128	£10.50

### Maps & Log Books

AMATEUR RADIO LOGBOOK (RSGB).....	50	£3.75
AMATEUR RADIO WORLD ATLAS (A4 size).....	20	£8.00
GREAT CIRCLE MAP 600mm x 600mm.....	n/a	£1.50
NORTH ATLANTIC ROUTE CHART.....	740 x 520mm	£9.00
QTH LOCATOR MAP OF EUROPE. New Edition.....	1080 x 680mm	£7.00
RADIO AMATEURS MAP OF THE WORLD. New Edition.....	980 x 680mm	£7.00

### Morse

SECRETS OF LEARNING MORSE CODE Mark Francis.....	84	£6.95
--	----	-------

### Microwaves

AN INTRODUCTION TO MICROWAVES (BP312). F.A. Wilson.....	134	£3.95
ARRL UHF/MICROWAVE EXPERIMENTER'S MANUAL. Various Authors.....	446	£15.50
ARRL UHF/MICROWAVE PROJECT MANUAL VOL 2.....	160	£11.50
ARRL UHF/MICROWAVES PROJECT MANUAL (ARRL).....	352	£15.50
MICROWAVE & WIRELESS COMMUNICATIONS TECHNOLOGY. Joseph J. Carr.....	436	£35.00
MICROWAVE HANDBOOK - COMPONENTS & OPERATING VOL 1 (RSGB).....	110	£12.00
MICROWAVE HANDBOOK - CONSTRUCTION & TESTING VOL 2 (RSGB).....	120	£18.99
MICROWAVE HANDBOOK - BANDS & EQUIPMENT VOL 3 (RSGB).....	140	£18.99

### Operating & Handbooks

ALL ABOUT HAM RADIO. Harry Helms.....	290	£16.50
AMATEUR RADIO OPERATING MANUAL (RSGB).....	257	£24.99
ARRL HANDBOOK 2001 77th Edition.....	380	£25.00
ARRL OPERATING MANUAL New Edition.....	420	£18.50
ARRL RADIO BUYERS SOURCEBOOK VOL 1 (QST Reviews 1981-1991).....	280	£11.50
ARRL RADIO BUYERS SOURCEBOOK VOL 2 (QST Reviews 1991-1993).....	240	£11.50
ARRL VHF/UHF RADIO BUYER'S SOURCEBOOK.....	120	£11.50
COMPLETE DX'ER. Bob Locher.....	204	£9.50
DISCOVERING DX'ING (2nd Edition). John Zondlo.....	90	£7.50
GUIDE TO VHF/UHF AMATEUR RADIO. Ian Poole G3YWX.....	106	£8.99

HAM RADIO MADE EASY (ARRL). Steve Ford.....	204	£11.50
HINTS AND KINKS FOR THE RADIO AMATEUR. Edited by Charles L. Hutchinson & David Newkirk.....	129	£9.50
LOW PROFILE AMATEUR RADIO (ARRL). Jim Kearman KR1S.....	124	£7.50
SETTING UP AN AMATEUR RADIO STATION BP300. I.D. Poole.....	81	£3.95
TRANSMITTER HUNTING - RADIO DIRECTION FINDING SIMPLIFIED. Joseph D. Moell & Thomas N. Curlee.....	325	£24.95
RSGB PREFIX GUIDE.....	34	£6.95

### Packet

HF DIGITAL COMPANION. Steve Ford.....	120	£7.50
NOS INTRO. TCP/IP OVER PACKET RADIO. Ian Wade G3NRW.....	356	£11.50
PACKET RADIO PRIMER (RSGB). Dave Comber G8UYZ & Martyn Corft G8NZU.....	266	£8.95
PACKET, SPEED & MORE SPEED APPLICATIONS (ARRL).....	148	£10.50
PRACTICAL PACKET RADIO. Stan Horzempa.....	140	£10.50
YOUR PACKET COMPANION. Steve Ford W8BIMY.....	170	£7.50

### Propagation

AN INTRODUCTION TO RADIO WAVE PROPAGATION BP293. J.G. Lee.....	116	£3.95
YOUR GUIDE TO PROPAGATION (RSGB) Ian Poole.....	88	£6.95

### QRP

ARRL LOWER POWER COMMUNICATIONS - THE ART & SCIENCE OF QRP. Richard Ariand K7SZ.....	204	£11.50
LOW POWER SCRAPBOOK (RSGB).....	320	£12.99
QRP POWER (ARRL).....	168	£11.50
INTRODUCING QRP. Dick Pascoe G0BPS.....	48	£6.95
W1FB'S QRP NOTEBOOK (ARRL). 2nd Edition. Doug DeMaw W1FB.....	175	£8.00

### Test Equipment

AN INTRODUCTION TO THE ELECTROMAGNETIC WAVE BP315. F.A. Wilson.....	122	£4.95
BUILD YOUR OWN TEST EQUIPMENT. Davidson.....	285	£19.95

	Pages	Price
GETTING THE MOST FROM YOUR MULTIMETER BP239. R.A. Penfold.....	102	£2.95
HOW TO USE OSCILLOSCOPES & OTHER TEST EQUIPMENT BP267. R.A. Penfold.....	104	£3.50
TEST EQUIPMENT CONSTRUCTION BP248. R.A. Penfold.....	104	£3.99
TEST EQUIPMENT FOR THE RADIO AMATEUR. Clive Smith G4FZH.....	170	£10.95

### VHF

ALL ABOUT VHF AMATEUR RADIO. W. I. Orr W6SAI.....	163	£8.95
GUIDE TO VHF/UHF AMATEUR RADIO.....	180	£8.99
VHF/UHF HANDBOOK (RSGB). Dick Bidulph G8PDS.....	180	£22.00
YOUR MOBILE COMPANION. Roger Butch.....	190	£8.50
YOUR VHF COMPANION. Steve Ford.....	230	£7.50

### ELECTRONICS

#### General

BEGINNERS GUIDE TO MODERN ELECTRONIC COMPONENTS BP285.....	166	£4.99
CIRCUIT SOURCE BOOK 1 - BP321. R.A. Penfold.....	182	£4.95
CIRCUIT SOURCE BOOK 2 - BP322. R.A. Penfold.....	214	£4.95
DIGITAL ELECTRONICS (CD ROM). Mike Tooley.....	n/a	£45.00
ELECTRONIC PROJECT BUILDING FOR BEGINNERS. R. Penfold. (BP392).....	110	£4.95
ENCYCLOPEDIA OF ELECTRONIC CIRCUITS Vol. 7.....	1128	£32.95
FAULT FINDING ELECTRONIC PROJECTS BP391.....	133	£4.99
GETTING STARTED IN PRACTICAL ELECTRONICS BP345. Owen Bishop.....	198	£4.95
HOW ELECTRONIC THINGS WORK...AND WHAT TO DO WHEN THEY DON'T. Goodman.....	390	£16.95
HOW TO TEST ALMOST EVERYTHING ELECTRONIC.....	326	£16.95
LADDER CRYSTAL FILTERS. John Pivnichny N2DCH.....	134	£14.95
NEWNES AUDIO AND HI-FI ENGINEER'S POCKET BOOK 3rd Edition. Vivian Capel.....	210	£14.95
PARTS GALLERY & ELECTRONICS CIRCUITS & COMPONENTS (CD-ROM). Mike Tooley.....	n/a	£35.00
PICTUTOR (CD-ROM). John Decker.....	n/a	£45.00
POWER SUPPLY PROJECTS BP76. R.A. Penfold.....	89	£3.99
PRACTICAL DIGITAL ELECTRONICS FOR TECHNICIANS. Will Kimber.....	262	£12.99
PRACTICAL ELECTRONIC FILTERS BP299. Owen Bishop.....	89	£4.95
PRACTICAL ELECTRONICS HANDBOOK. Ian Sinclair.....	439	£14.95
PRACTICAL OSCILLATOR CIRCUITS BP393. A. Flind.....	136	£4.99
RADIO ENGINEERS FACTFINDER FOR WINDOWS (Floppy Disk) John Davies.....	n/a	£18.00
RADIO FREQUENCY TRANSISTORS, PRINCIPLES & PRACTICAL APPLICATIONS Dye/Granberg (Motorola). Hardback.....	235	£39.95
SCROGGIES - FOUNDATIONS OF WIRELESS & ELECTRONICS. 11th Edition.....	292	£19.99
TECHNICAL TOPICS SCRAPBOOK (RSGB). 1995-99. Pat Hawker.....	310	£13.50
THE ART OF SOLDERING BP324. R. Brewster.....	84	£3.99
THE SUPERHET RADIO HANDBOOK I.D. Poole.....	104	£4.95
UNDERSTANDING BASIC ELECTRONICS (ARRL).....	314	£15.50
UNDERSTANDING DIGITAL TECHNOLOGY. F. Wilson. (BP376).....	110	£4.95
W1FB'S DESIGN NOTEBOOK (ARRL). Doug DeMaw W1FB.....	195	£8.00

#### Data

ARRL ELECTRONICS DATA BOOK. Doug DeMaw W1FB.....	260	£8.95
ELECTRONIC HOBBYIST DATA BOOK BP396. R.A. Penfold.....	242	£5.95
LF SOURCE BOOK (RSGB) 2nd Edition. Peter Dodd.....	130	£8.99
PRACTICAL ELECTRONIC DESIGN DATA BP316. Owen Bishop.....	327	£5.99
PRACTICAL RF HANDBOOK (2nd Edition). Ian Hickman.....	302	£19.99
RF CIRCUIT DESIGNS. Chris Bowick.....	176	£18.99
SECRETS OF RF CIRCUIT DESIGN. New Edition (Hardback) Joseph Carr.....	405	£41.95
SOLID STATE DESIGN FOR THE RADIO AMATEUR (ARRL) Les Hayward W7ZOI & Doug DeMaw W1FB.....	256	£11.50
SPREAD SPECTRUM SOURCE BOOK.....	320	£15.50
TOWERS INTERNATIONAL MOSPOWER & OTHER FET SELECTOR.....	140	£19.95
TOWERS INTERNATIONAL TRANSISTOR SELECTOR - UPDATE 5.....	476	£24.95
TRANSISTOR DATA TABLES (BP401).....	178	£5.95

#### Projects

33 SIMPLE WEEKEND PROJECTS/CO.....	68	£7.95
BUILD YOUR OWN INTELLIGENT AMATEUR RADIO TRANSCEIVER. Randy L. Henderson.....	350	£25.95
COIL DESIGN & CONSTRUCTION MANUAL BP160. B.B. Babani.....	106	£3.95
HOW TO DESIGN & MAKE YOUR OWN PCBs BP121. R.A. Penfold.....	66	£3.99
MORE ADVANCED POWER SUPPLY PROJECTS BP192. R.A. Penfold.....	92	£2.95
PROJECTS FOR RADIO AMATEURS & SWLs BP304. R.A. Penfold.....	92	£3.95
RADIO RECEIVER PROJECTS YOU CAN BUILD.....	312	£20.95
SIMPLE SHORT WAVE RECEIVER CONSTRUCTION BP275. R.A. Penfold.....	88	£3.95

#### Valves/Tubes

ELECTRON TUBE LOCATOR. George H. Fathauer.....	350	£21.95
HANDBOOK OF RADIO, TV, INDUSTRIAL & TRANSMITTING TUBE & VALVE EQUIVALENTS.....	60	£3.45
RADIO VALVE GUIDE BOOK VOL 1.....	54	£3.45
RADIO VALVE GUIDE BOOK VOL 2.....	42	£3.45
RADIO VALVE GUIDE BOOK VOL 3.....	40	£3.45
RADIO VALVE GUIDE BOOK VOL 4.....	48	£3.45
RADIO VALVE GUIDE BOOK VOL 5.....	44	£3.45
MASTER INDEX TO VALVE TYPES, BOOKS 1-5.....	40	£1.50
TUBE SUBSTITUTION HANDBOOK.....	150	£15.50
VALVE AMPLIFIERS. Morgan Jones.....	374	£25.00
VALVE & TRANSISTOR AUDIO AMPLIFIERS. John Lindsay Hood.....	310	£19.95

Check out our Website for a selected description of these books

[www.pwpublishing.ltd.uk/books](http://www.pwpublishing.ltd.uk/books)

e-mail: [bookstore@pwpublishing.ltd.uk](mailto:bookstore@pwpublishing.ltd.uk)

CALL CLIVE G4SLU OR SHELAGH ON

**Telephone**  
**(01202) 659930**



OR USE THE ORDER FORM ON PAGE 78

Please note: Cash not accepted with mail orders.

## AIR SUPPLY AVIATION STORE

For personal and friendly advice, consult the Airband Experts  
 Web site: [www.airsupply.co.uk](http://www.airsupply.co.uk) E-mail: [ken@airsupply.co.uk](mailto:ken@airsupply.co.uk)

Air Supply, in conjunction with Ian Alan Tours, presents  
**A WEEKEND TRIP TO BRUSSELS AVIATION MUSEUM**  
 Flight from Leeds, two nights accommodation

19-21 OCTOBER 2001

SEE WEBSITE FOR DETAILS OR SEND FOR ITINERARY  
 SHOP OPEN 7 DAYS A WEEK

97 HIGH STREET, YEADON, LEEDS LS19 7TA  
 Phone Ken on 0113-250 9581 Fax 0113-250 0119

## JAYCEE ELECTRONICS LTD

20 Woodside Way, Glenrothes, Fife, Scotland KY7 5DF

Tel: (01592) 756962 • Fax No. (01592) 610451

Opening hours: Tues-Fri 9am to 5pm. Sat 9am to 4pm. Closed Sun & Mon.

**KENWOOD, YAESU & ICOM APPROVED DEALERS**

**A good stock of new and secondhand equipment always in stock.**

Check out our web site. See our secondhand list that is regularly updated.

[www.jayceecomms.com](http://www.jayceecomms.com)

## LAR COMMUNICATIONS

SUPERSLAB CB CENTRE

★ ★ The complete radio suppliers ★ ★

CONTACT STEVE POUNDER

BRADFORD ROAD, EAST ARDSLEY, NR. WAKEFIELD WF3 2DN

Tel: 0113-252 4586 Fax: 0113-253 6621

### SPECIAL OFFER

## RACAL H.F. Communications Receiver RA1792

● Fully synthesized solid state receiver as used by government departments

● 150kHz - 30MHz

● Modes: LSB, USB, AM, CW & FM

● Digital AGC scan facility

● 100 channel memory



Price: **£550.00** (incl. VAT @ 17.5%)  
 P&P £15.00 (mainland UK)

★ ★ Callers welcome strictly by appointment ★ ★

**TELFORD ELECTRONICS**  
 OLD OFFICERS MESS, HOO FARM, HUMBERS LANE,  
 HORTON, TELFORD, SHROPSHIRE TF6 6DJ UK  
 PHONE: (0044) 01952 605451 FAX: (0044) 01952 677978  
 Email: [telfordelectronics@telford2.demon.co.uk](mailto:telfordelectronics@telford2.demon.co.uk)  
 Web site: <http://www.telford-electronics.com>

WE NOW ACCEPT ALL MAJOR CREDIT CARDS. OVERSEAS ORDERS WELCOME. PLEASE SEND LARGE SAE FOR DETAILS.



## SUSSEX AMATEUR RADIO AND COMPUTER FAIR

Sunday July 8th 2001

10.30am to 4.00pm

### BRIGHTON RACECOURSE

Trade stands for: New and used amateur and CB radio equipment, computers and component sales, bring and buy stall, picnic area, refreshments and free car parking.

- - Admission £2.50 - -

For details telephone (01424) 428064

**Sharpen your reception!**

ONLY **£16.50**  
 plus £1.00 postage

By using a good Audio Filter it is easy to improve selectivity for SSB and AM reception. Clean up that hiss, sideband 'splatter' and those annoying whistles.

The NRF2 Noise Reduction Filter, plugged in to the phones or extension speaker socket, does just that at a very reasonable price.

SEND LARGE SAE FOR FULL DETAILS OF THESE AND THE REST OF OUR RANGE.

## LAKE ELECTRONICS

7 Middleton Close, Nuthall, Notts NG16 1BX

Tel: (0115) 9382509 Callers by appointment only please



## DEMODULATORS FOR JVFXAMCOMM SKYSPY RADIORAF DL4SAW & POCSSAG AND NOW JVCMM32 + PSK31 TRANSMIT

All Demods have 25 way female 'D' type - ORIGINAL RECEIVE ONLY £16.99  
 RECEIVE ONLY with SoundCard Cable (saves cable swapping) £19.99  
 POCSSAG RECEIVE version (as Rx only with variable hysteresis) £19.99  
 POCSSAG RECEIVE with SoundCard Cable (saves cable swapping) £22.99  
 Original TRANSMIT version (Pocsag Rx + Fax/SSTV/HamComm Tx) £24.99  
 JVCMM/PSK31 Tx (Pocsag Rx + Fax/SSTV/HamComm/JVC32/PSK21 Tx) £29.99  
 Adaptors 25m/9f £3.00 25m/25m £3.00 25m/9f Cable (ATX/Laptop) £6.00  
 4-way RS232 Switch Box £17.50 1m 25-way Cable £6.00 Shareware on 3.5" disks  
 JVFX7 + HamComm 3.1 + Pktmon12 + Pocsag (PD2.05) + Wxgraph + Freqs £2.50  
 RADIORAF V3.20 £2.50 DL4SAW SSTV (V1.2) £2.50 JVCMM32 V1.0 (3 disks) £4.50

### REGISTERED VERSIONS OF SOFTWARE

SkySpy V2.5 £24.99 DL4SAW/GSHPC SSTV V2.3 £34.99 JVCMM32 V1.0 £49.99  
 HamComm 3.1 £19.99 Pocsag (PO2.05) £19.99 RadioRaft V3.20 £24.99  
 All prices UK/Eire inc VAT + P&P. For non-EU deduct 17.5% VAT.  
 All products (except software) carry a full money back guarantee.  
 Minimum Credit Card order £15.00. Outside British Isles add £2.00.

Pervisell Ltd, 8 Temple End, High Wycombe Bucks HP13 5DR

Tel: (01494) 443033 Fax: (01494) 448236

[www.pervisell.com](http://www.pervisell.com) e-mail: [ham@pervisell.com](mailto:ham@pervisell.com)



## Aerial Techniques

59 Watcombe Road, Southbourne, Bournemouth, Dorset BH6 3LX

Tel: 01202-423555 Fax: 01202-425055

E-mail: [atech@dircon.co.uk](mailto:atech@dircon.co.uk)



## THOMSON MULTISTANDARD NICAM TELEVISIONS



21" 25" 28"  
 21"/25"/28" PAL/SECAM/NTSC colour TV

(with infra-red remote control)

■ 21"/25"/28" black matrix picture tube ■ Multi-system reception (8 systems) ■ Voltage: 165-265V, 50/60Hz ■ 2 Scart sockets ■ Nicam digital stereo ■ Fastext ■ Headphone socket ■ On screen display

■ Remote control ■ Sleep timer

Covers VHF (bands 1, 2 & 3), UHF, plus in between cable channels. PAL system 1 (for UK); PAL systems B/G (for Europe); PAL system D (for China); SECAM L (for France); SECAM D/K (for Eastern Bloc); SECAM B/G. Including NTSC 3.58MHz via the Scart.

21" model.....**£299.00**  
 25" model.....**£349.00**  
 28" model.....**£399.00**



## Pace 2500S3

Digital Satellite Receiver.

Complete system including 60cm dish kit

For reception of BBC1, BBC2, Channel 4, Channel 5, BBC Choice, BBC Knowledge and BBC News 24.

**£399.00**  
 inc VAT

You may also subscribe to Sky pay to view channels.

No subscription to pay. No phone line connection required.

We now stock multi-region DVD players. Ring for latest details!

### FULLY COMPREHENSIVE 35 PAGE CATALOGUE

Available by return of post for only £1.50 or ring with your credit card (fully refundable on first purchase over £20).

WE SUPPLY/STOCK THE VARIOUS EQUIPMENT WITHIN.

Overnight delivery by insured courier £10.00



## SUBSCRIPTION RATES

### SHORT WAVE MAGAZINE - 6 MONTHS

£19.00 (UK)

### SHORT WAVE MAGAZINE - 1 YEAR

£36.00 (UK)  £43.00 (Europe)

£48.00 (Rest of World Airmail)  £54.00 (Rest of World Airmail)

### SPECIAL JOINT SUBSCRIPTION WITH PRACTICAL WIRELESS (1 YEAR)

£60.00 (UK)  £73.00 (Europe Airmail)

£81.00 (Rest of World Airmail)

£93.00 (Rest of World Airmail)

Please start my subscription with the.....issue.

### MONITORING TIMES - 1 Year (12 issues)

£38 (UK)  £43 (Europe Airmail)

£49 (Rest of World Airmail)

### BACK ISSUES

Please send me .....SWM Back issue/s (state month and year)

@ £3.25 each (overseas add P&P, see below) .....£

### BINDERS

Please send me .....SWM Binders at £6.50 .....£

Postal charges: £1.25 for one, £2.50 for two or more (overseas surface)

FREE P&P if you order two or more (UK only) .....£

Please send me the following books

.....£

.....£

.....£

#### Postal charges.

**UK:** £1.25 for one item,

£2.50 for two or more items. ....£

**Overseas:** £2.50 for one item, £4.00 for two items,

then add an additional 50p per item .....£

**GRAND TOTAL** .....£

# Order Form

FOR ALL MAIL ORDER PURCHASES IN *SHORT WAVE MAGAZINE*

You can now order on-line.

See [www.pwpublishing.ltd.uk/books/](http://www.pwpublishing.ltd.uk/books/)  
for more information

Back issues at £3.25 inc. P&P.

Phone, FAX or E-mail for availability

**TELEPHONE ORDERS TAKEN ON (01202) 659930**  
between the hours of 9.00am - 5.00pm. Outside these hours  
your order will be recorded on an answerphone

**FAX ORDERS TAKEN ON (01202) 659950**

Or please fill in the details ticking the relevant boxes, a photocopy will be  
acceptable to save you cutting your treasured copy!

To: PW Publishing Ltd., FREEPOST, Arrowsmith Court,  
Station Approach, Broadstone, Dorset BH18 8ZZ.

#### PAYMENT DETAILS

Name .....

Address .....

.....Postcode .....

Telephone No.....

I enclose cheque/PO (Payable to PW Publishing Ltd.) £

Or  
Charge to my MasterCard/Visa/Switch/AMEX Card the amount of £

Card No.



Valid from.....to.....

Issue No:.....Tel:.....

Signature .....

Orders are normally despatched by return of post but please allow 28 days for delivery. Prices correct  
at time of going to press. Please note: all payments must be made in Sterling. Cash not accepted.

**TELEPHONE ORDERS TAKEN ON (01202) 659930**  
**FAX ORDERS TAKEN ON (01202) 659950**

## Index to advertisers

Aerial Techniques.....76	Lake Electronics.....76	QSL Communications.....60
Air Supply.....76	Leeds Amateur Radio.....76	Radio Active.....42
AOR.....48, 49	Lowe Electronics.....80	Radioworld.....52, 53
ASK Electronics.....50	Martin Lynch & Sons.....40, 41	Roberts Radio.....79
Celebrity Communications.....55	Moonraker (UK) Ltd.....14	SRP Trading.....66
Computer Aided Technology.....60	Nevada.....2, 3, 36, 37	Sussex ARC.....76
G3TUX.....60	Nunsfield House ARC.....65	Telford Electronics.....76
Haydon Communications.....19, 20, 21	Optoelectronics.....46	The Shortwave Shop.....65
Icom (UK) Ltd.....62	Pervisell Ltd.....76	Timestep Weather Systems.....60
Interproducts.....65	PhotAvia Press.....65	Waters & Stanton.....30, 31, 57
Jaycee Electronics.....76	Practical Wireless.....42	

**PUBLISHED** on the fourth Thursday of each month by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Printed in England by Warners Midlands PLC, Lincolnshire. Distributed by Seymour, 86 Newman Street, London W1P 3LD. Tel: 0171-396 8000, Fax: 0171-396 8002, Web: <http://www.seymour.co.uk>. Sole Agents for Australia and New Zealand - Gordon and Gotch (Asia) Ltd.; South Africa - Central News Agency Ltd. Subscriptions INLAND £36, EUROPE £43, REST OF WORLD (Airmail) £48, REST OF WORLD (Airmail) £54 payable to SHORT WAVE MAGAZINE, Subscription Department, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. SHORT WAVE MAGAZINE is sold subject to the following conditions, namely that it shall not without the written consent of the publishers first having been given, be lent, re-sold, hired out or otherwise disposed of by way of trade at more than the recommended selling price shown on the cover and that it shall not be lent, re-sold, hired out or otherwise disposed of in a mutilated condition or in any unauthorised cover by way of Trade, or affixed to or as part of any publication or advertising, literary or pictorial matter whatsoever.

# ROBERTS

*Sound for Generations*



## The New R9914 from Roberts

PLL digital world band radio – ideal for **BBC** WORLD SERVICE

- LW/MW/FM/SW wavebands
- 45 station presets
- SSB for reception of single sideband and CW transmissions
- Direct keypad tuning
- Rotary tuning
- Station tuning in 1kHz steps
- Dual conversion for improved SW image rejection
- Digital clock
- Alarm/time functions
- Key lock
- FM stereo via earphones
- Soft carry pouch
- Complete with AC adaptor



BY APPOINTMENT TO  
HER MAJESTY THE QUEEN  
SUPPLIERS & MANUFACTURERS  
OF RADIO AND TELEVISION  
ROBERTS RADIO LIMITED



BY APPOINTMENT  
H.M. QUEEN ELIZABETH  
THE QUEEN MOTHER  
RADIO MANUFACTURERS  
ROBERTS RADIO LIMITED

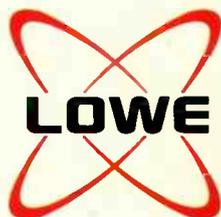


BY APPOINTMENT  
H.R.H. THE PRINCE OF WALES  
MANUFACTURERS & SUPPLIERS OF  
RADIO RECEIVERS  
ROBERTS RADIO LIMITED

ROBERTS RADIO LIMITED

PO Box 130, Mexborough, South Yorkshire S64 8YT

Tel: +44 (0) 1709 571722 Fax: +44 (0) 1709 571255 Website: [www.robertsradio.co.uk](http://www.robertsradio.co.uk)



# LOWE ELECTRONICS LTD

Check out [www.lowe.co.uk](http://www.lowe.co.uk)  
for the best secure on line shopping

## JRC NRD545



A superlative short-wave receiver, designed to fulfil the needs of professional monitoring stations, the NRD545 is equally at home with the serious hobby listener.

The DSP implementation starts at IF frequencies so don't confuse this with lesser DSP receivers that simply process the recovered audio. You can therefore control the IF bandwidth from 10kHz down to just 40Hz allowing total control for AM, SSB, CW or data signals, really helping to reduce interference. Heterodynes and noise can also be removed and the notch filter will automatically track changes in the frequency of the interfering tone. As you would expect from a top-flight receiver, computer control is fully integrated and there are 1000 memory channels, with memory and programmable scan features.

**SPECIAL OFFER**  
Genuine UK Stock.  
Full Manufacturers Warranty.

Ordering Information  
Product Code: NRD545

**Low Price £1195**

Carriage: £10.00 by Courier

## HF350

The new Lowe HF350 is a simple to operate receiver with excellent performance. The result is a receiver with very good strong signal handling capabilities using high performance ceramic filters to achieve selectivity.

The tuning control changes speed as the knob is rotated faster, also pushing the control in changes between fast and slow tuning speed. There are 100 memories available which hold all settings. The receiver has been designed with the requirements of operating in Europe in an environment of high powered broadcast stations in mind.

All external connections needed are available on the rear panel, and the receiver can be run from internal batteries or an external 12V DC power source. It is ready for an active antenna, with a DC feed already available at the antenna socket.

Ordering Information Product Code: HF-350

**Low Price £375.00**

Carriage: £10.00  
by Courier



## MVT7100

*In our view...simply the best!*

This is the scanner of choice for many of our serious users. If a radio is transmitting and you are close enough you will hear it on the MVT7100. Superb for monitoring military and civil airband channels - also allows you to listen to ground crews and base security. Its shortwave coverage with SSB offers opportunities for monitoring Shanwick and the trans-Atlantic routes!

- LSB/USB/AM/WBFM/NBFM Reception
- 1000 memory channels
- High sensitivity
- Signal Strength Meter
- Illuminated keypad
- High speed search & scan functions
- User friendly
- Battery save function
- Priority function
- Individual power/volume and Tuning dial
- Channel pass function on memory

Ordering Information  
Product Code: MVT7100

**Low Price £219.00**

Carriage: £10.00 by Courier



Ordering Information  
Product Code: IC-R2E

**Low Price £149.00**

Carriage: £10.00 by Courier

## IC-R2

Our lowest priced full coverage scanner also happens to be our smallest! The frequency coverage is from 0.495MHz to 1309.995MHz with NO GAPS making it ideal for monitoring military airband channels.

Ordering Information  
Product Code: MVT-7300

**Low Price £289.00**

Carriage: £10.00 by Courier



● Full coverage from 531kHz to 1320MHz ● Wide FM ● Narrow FM, AM ● Narrow AM, LSB and USB

- 8.33kHz channel steps are correctly implemented
- 1000 memories
- Supplied with belt clip, wrist loop, flexible antenna.
- Optional accessories include NiMh batteries at

£8.95 and matching charger at £9.95

**Lowe Electronics Ltd**  
Chesterfield Road  
Matlock  
Derbyshire  
DE4 5LE

Why not  
visit us at  
our  
showroom

Tel: (01629) 580800  
Fax: (01629) 580020  
E-mail: [info@lowe.co.uk](mailto:info@lowe.co.uk)  
[www.lowe.co.uk](http://www.lowe.co.uk)