

The
SHORT WAVE
Magazine
SWW

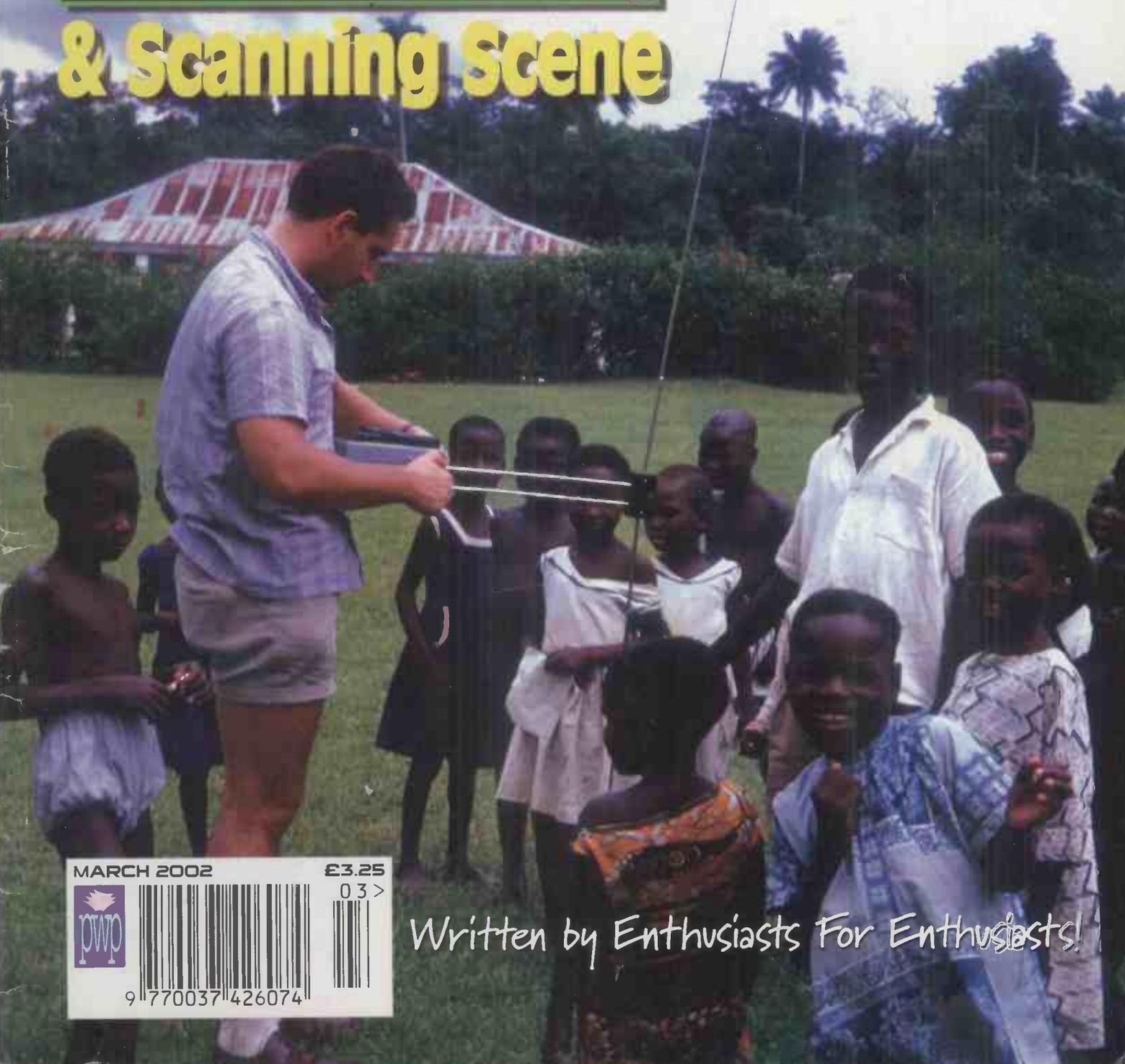
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- ShackWare Special Issue

- A Testing Time for JW

- Listening by Computer

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unmissable regulars...**



MARCH 2002

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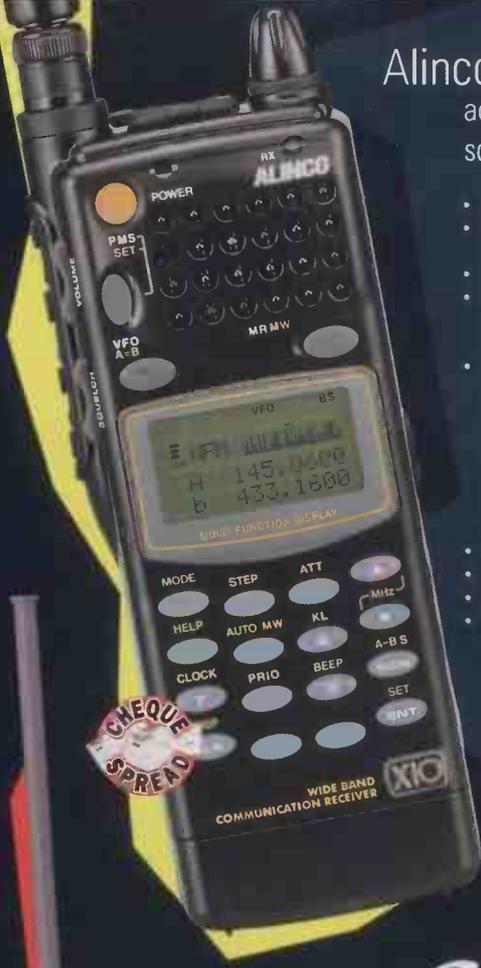
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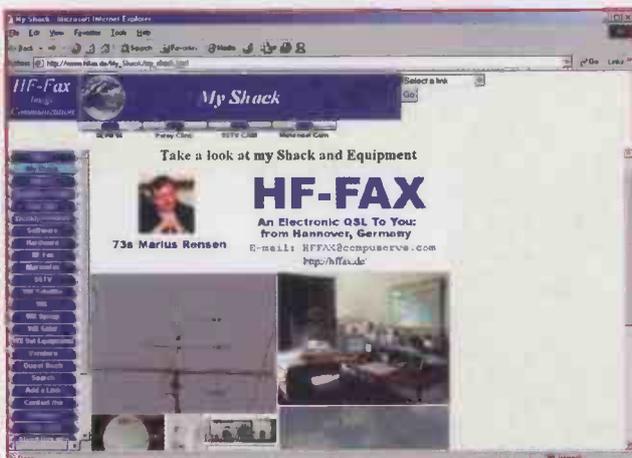
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39 ANTIQUE COMPUTERS

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

Amateur Bands
Clive Hardy G4SLU,
c/o SWM Editorial Offices
E-mail: clive@pwpublishing.ltd.uk

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,
49 Cloughs Road,
Ringwood,
Hampshire BH24 1UU. E-mail:
decode@pwpublishing.ltd.uk

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

Info In Orbit
Lawrence Harris,
55 Richville Road,
Shirley,

Southampton S016 4GH.
E-mail:
info.orbit@pwpublishing.ltd.uk

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

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

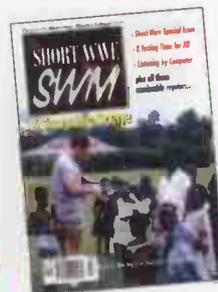
ShackWare
Jerry Glenwright,
56 Denbigh Road, Norwich, NR2 3HH.
E-mail: shackware@pwpublishing.ltd.uk

Sky High
Peter Bond,
c/o SWM Editorial Offices.
E-mail: skyhigh@pwpublishing.ltd.uk

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

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

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50 NO BATTERIES NECESSARY

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check out the SWM web site 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 to subscribe - don't miss the on-line action!

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- * Listening by Computer - Final Part
- * John Wilson examines a small but excellent performer, the RX-320 computer controlled d.s.p. h.f. receiver from Ten Tec.

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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
Simply add the name of the person you wish to contact. For example: kevin.nice@pwpublishing.ltd.uk

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

FINANCE/ACCOUNTS
Alan Burgess, Finance/Office Manager
Telephone: (01202) 659940
Facsimile: (01202) 659950

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

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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.**

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

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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

Paul Essery

First off I have very sad news to report. Former editor and long time contributor to this very magazine, Paul Essery, passed away on 1st February. Until recently, Paul compiled our monthly 'Amateur Bands' column, but ill health finally prevented his contribution. We all offer those Paul has left behind our very best wishes. Paul will be sadly missed by many.

The End Is Nigh?

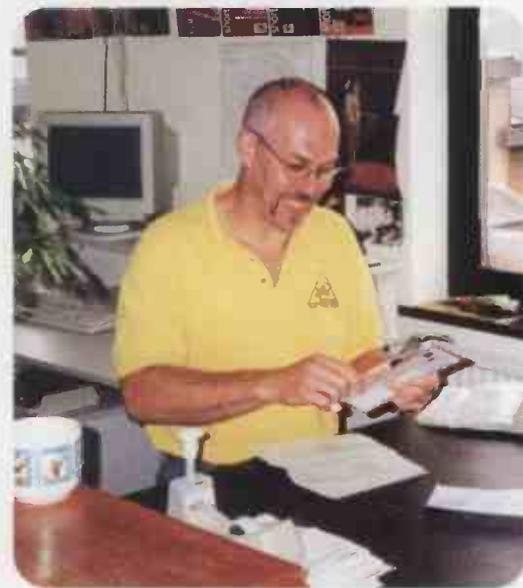
Reading some of the E-mails that drift across my computer screen from various radio related news groups and E-mail reflectors you'd think that hobby radio should pick up its bags and move on. For that matter it is an opinion that has been expressed by some that I've discussed it with in person. This very issue is also raised by Michael O'Beirne on the facing page. In my view, this is certainly not the case - there are many hundreds of areas interest to keep those of us already hooked and newcomers to the radio hobby fascinated for evermore. I am very interested in hearing any readers' views on this issue. If you have an opinion, please put pen to paper or fingers to keyboard. You can drop me a line at: **Is Radio Dying?, Short Wave Magazine, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW** or E-mail is-radio-dying@pwpublishing.ltd.uk If you don't have a great deal to say on the subject then a simple 'yes' or 'no' would be useful. I'll publish results of what you all think in a future issue.

Baldock

Last week I enjoyed the privilege of revisiting the Radiocommunications Agency's monitoring station at Baldock in Hertfordshire. Things have changed significantly since I was there last, some seven years earlier. I spent a very interesting day together with colleague **Rob Mannion**, Editor of *Practical Wireless*. We were both lucky to be invited to spend a very informative day at the newly refurbished and expanded listening station. I'll be bringing you more on my visit in next month's SWM.

Alignment Question

The other week we had some visitors to the Editorial Offices here in sunny Dorset. A couple of guys down from the Wrexham Club getting some



supplies for one of their local events. They spent a short time in the office and were really the guests of sister magazine PW. Anyhow one of these visitors turned out to be **SWM-Readers** list member Mark Harper 2W1MDH/MW3MDH. Nice to meet you Mark, shame you didn't let on your identity when you were here!

Further to his mammoth trek to the south coast, Mark sent me an E-mail in answer to G4RGA's comments on the 'QSL' section of February's SWM regarding where to point his WorldSpace receiver's antenna.

Mark suggests taking a look at <http://www.worldspace.com/technology/coveragemaps/antennaguide.html> since that page provides everything needed for antenna alignment for all the coverage areas for each of the three satellites.

Thanks for the note Mark, my own quick look at the WorldSpace site hadn't revealed that info. Sadly there just aren't enough hours in a day to spend time on all the issues I'd like to follow through. A regrettable fact of this job and modern life too I'm afraid.

For those of you unable to access the web page, most users in the UK need to have their antenna set at about 45° from vertical and pointing between south and south east. The beam width of the standard and high gain antennas are such that it isn't be too critical to get good results.

WV 73 Kevin

Dear Sir

The comments on the letters page by Mike Troon, Scotland, reminded me of a similar experience I had of receiving radio signals through a tape recorder. It was many years ago in my early teens when I decided that a 'communication' system to enable my next door neighbour and myself to talk to each other would be a good idea. We both had 4-track tape recorders, mine a Fidelity and my neighbour's a Grundig, and we linked the two using some very fine copper wire from a coil out of an old radio between the two houses. Although crude, it did the job even though it meant swapping the wires between the various input/output sockets depending on who's turn it was to talk.

The one thing that did happen was that there was a background of foreign language chattering whenever the tape recorder was switched on, and I can only assume from my now much greater knowledge, that the wire between the houses was acting as an antenna and somehow the innards of the tape was able to resolve the signal, albeit rather faintly.

Derek Roberts
N. Wales

Dear Sir

Having subscribed for many years to *SWM*, I now find myself asking whether it really is still a 'Short Wave Magazine'. I am fully aware that this has been raised many times already in 'QSL', therefore the purpose of this letter is really to try to offer what I feel might be a balanced view of the situation, for as we all know, "you can't please all of the people all of the time". (I would hate to be Editor!).

Over the years we have come to accept *SWM* as a magazine dedicated to what we have always understood to be purely 'short wave radio'. Anything outside this realm would have been considered taboo, and one is bound to ask if this is still the case in the 21st century. Well, yes, and no.

I am a short wave listener, and am always endeavouring to improve reception, as I'm sure we all are, by employing a varied selection of receivers, antennas, pre-selectors, a.t.u.s, and the like, without venturing into the more modern era of communications. This for me, is

Dear Sir

With regards to the features compiled by the respectable Mr Wilson, where he provides us with information which, to some extent, may be over the heads of the average radio listener, some people really do take things to heart and start throwing the toys out of the pram.

I refer to two letters published in the February 2002 *SWM* by mess'rs Shreeve and Freight. Both gents' material does have merit, but I suggest that Mr Freight, with the funds he saved from the sale of his sick RA1792, invest in an eye test, further through the magazine one company advertises various pieces of professional equipment (including RA1792) for a lot less than he paid for his. As for Mr Shreeve, yes Mr Wilson is clever, but there are some people out in the wide world who do

the enjoyment.

However, I can fully appreciate and understand the readership that wishes to improve their reception by whatever means is available, even if it isn't strictly 'short wave radio'. This line of thought led me to look up the definition of short wave in the dictionary. The concise Oxford describes short wave as: "a radio wave of frequency greater than 3MHz". Webster's defines short wave as: "an electromagnetic wave having a 60 metre wavelength or less".

It therefore becomes apparent that v.h.f., u.h.f. and microwaves are, by definition, short waves, (as those of us who are electrical/electronic engineers already know). This clearly validates *SWM* diving into the realms of DXTV, digital radio, computers, etc.

However, whether we, as the readers, like it may well be another matter. I think it probably comes down to a question of balance - and usage - familiarity - call it what you like. It's largely what we are used to, and what we expect, when we hear the term 'short wave'.

Therefore, 'on balance', my own view is that I would like to see a little more space devoted to the 'old familiar' definition of short wave, possibly - dare I say - slightly more along the lines of *Monitoring Times*, with more articles of the late Joe Carr type (with whom I have communicated on many occasions prior to his untimely demise). Short Wave Techniques, Antenna Topics and a Question and Answer column, might be suitable headings to consider including sometime in the future.

And would not other publications such as *Popular Communications* and *Radio Active* be more suited to coverage of the 'higher frequencies' or 'shorter waves'?

I don't know the answer, or even if there is one, but just thought I'd bounce my thoughts around the editorial office - and maybe perhaps even the readership?

Please don't tell me that everyone now knows all there is to know about short wave radio, for, as Victor Meldrew would say, "I don't believe it"!

Nevertheless, whilst there continues to be the inclusion of what I consider a modicum of 'short wave radio' articles, my subscription will continue. Thanks for doing

understand what he is talking about, welcome this knowledge and find it helpful as the once great radio industry of this country slips into decline and information and parts become scarce.

I have always viewed the radio business as being split into three distinctive trends:-

- 1) Radio Listener - general member of the public who plays a radio for pleasure.
- 2) Radio Operator - person who operates a radio professionally (not necessarily a service person) and
- 3) Radio Engineer - person who builds, tests or repairs radios.

What is evident in the last two (Engineer & Operator) is that both are professional, but that does not necessarily mean that an operator is a radio engineer or visa versa. Many good operators are not

the best with an impossible task. Long may you and *SWM* survive.

David Pannell
West Sussex

David, thank you for an interesting and thought provoking letter. The points you raise have been noted. The recent survey is currently being analysed - albeit very slowly - and I hope to have the results in the not too distant future. - Ed.

Dear Sir

Ian Johnson's reasons for not using a computer in the shack are compelling and I agree with everything he says (*SWM* February 2002). To his list of reasons, I would add another - the inevitable QRM from the PC itself. My PC stays at the office.

One point I tried to make was that if the programme you want to receive is being sent on parallel means, such as via satellite or the Internet (as many are nowadays), then listening via h.f. is doing it the hard way. By coincidence, in the same *SWM* issue, Martin Peters describes the thousands of stations world-wide who now provide a parallel programme via the 'net. Some such as SRI have even given up broadcasting to Europe. The 'net is the way ahead and I fear I shall have to learn how to tune in, but it will be many years before I give up my s.w. radios. As it happens, at least two of them spend most of their time tuned to 198kHz or 9.410MHz.

My second point was that for the current generation of kids, the PC is a way of life, and they treat E-mail and the Internet as the obvious means of world-wide communication. They see little point in the hassle and expense of becoming a s.w.l. or a radio amateur. I don't know what the antidote is. In my own club in Surrey, we now have far more funerals than youngsters joining and at this rate the hobby will inevitably decline severely. Does anyone have a solution?

Michael O'Beirne G8MOB
Surrey

Michael, an interesting final question you put. I wonder if anyone cares to supply an answer...? - Ed.

radio engineers, do they need to be? A basic understanding helps, but is it essential? I wonder if Mr Freight has ever taken the lid off his Kenwood R-5000 and replaced a leaking Liquid Crystal Display unit, I doubt it. This however can be achieved on a Racal RA1792 without the need for any special training and, Mr Wilson didn't tell me that in any of his reviews. What he does imply is be aware of the spares availability with these radios. Valuable information, please Mr Editor keep these articles coming, there are ex-professional operators out there who find them very interesting as well as the comments that are generated by them.

A.R. LacaR
In retirement
Nr. Poole

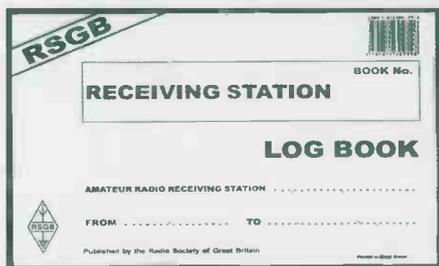
TOP
QSL

Communiqué

News and Products

They're Back!

At long last listener log books are back at the SWM Book Store after an extended period of being out of print. The log book is a shack essential for anyone keen to keep a record of amateur stations received across the band. Keep track of that distant DX or the locals with your very own *Receiving Station Log Book*. Tel: **(01202) 659930** and order yours for £4.95 plus P&P.



Catch The Concorde

Written for all aircraft and radio enthusiasts, specifically those who for whom BAe's Concorde holds fascination. Huw Davis, the book's author and publisher notes that, Concorde must surely effect a tremendous interest in the majority of people of all ages regardless of their county of origin. Indeed this is true.



Huw himself an ex RAF jet pilot, has put together a very comprehensive guide totalling some 86 detailed pages that take the reader on a journey from the flight principles of the Concorde aircraft, explaining the radio systems utilised by Concorde during routine flight, routes utilised and procedures used. Chapters also include frequencies used, h.f. and v.h.f. radio operations, Air France's Concorde and much more vital detail.

This A4 spiral bound book is truly an essential read for most aviation enthusiasts. *Catch The Concorde, Radio Enthusiast's Handbook* is available by calling (01446) 746834 and costs £14.95.

New Wideband Speech Coding Standard

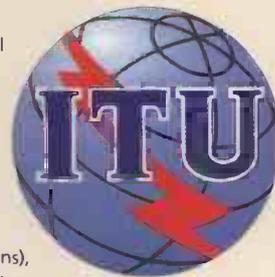
The International Telecommunications Union has approved a new Standard for high-quality digital wideband speech encoding that will bring significant improvements in terms of interoperability, easier implementation, and improved quality, for wideband voice applications and services across a wide range of communication systems and platforms.

Several important applications are envisaged for the standard. These include: Voice over IP (VoIP) and the Internet, third generation mobile communications, PSTN high-quality audio-conferencing and business applications (both in point-to-point and multi-point situations), streaming audio and speech, ISDN wideband telephony, and ISDN video telephony and video-conferencing.

The new standard, known as Recommendation G.722.2, is also referred to as the Adaptive Multi-Rate Wideband (AMR-WB) codec. It has been selected by the Third Generation Partnership Project as the Wideband codec for GSM and 3rd generation wireless W-CDMA applications. This marks the first time that both wireless and wireline services may be able to adopt the same codec. Pierre-Andre Probst, Chairman of ITU-T Study Group 16 notes, "The AMR-WB codec is a breakthrough in speech quality. The fact that the same codec has been adopted means that interoperation between 3G and fixed IP networks will be that much easier".

Wideband speech coding, using an audio band of 50Hz to 7kHz, offers major subjective improvements in speech quality compared to traditional narrowband telephone speech (200Hz to 3.4kHz). A bandwidth of 50Hz to 7kHz improves the intelligibility and naturalness of speech, adds a feeling of transparent communication and eases speaker recognition. The low-frequency enhancement from 50 to 200Hz contributes to increased naturalness, presence and comfort while the high-frequency extension from 3.4 to 7kHz provides improved intelligibility.

Rosario Drogo de Iacovo, Chairman of the subcommittee responsible for the work (ITU-T Study Group 16) adds, "experts from around the world have collaborated in the definition, selection and testing of this new codec. It is truly state-of-the-art". Simão Campos-Neto, Chairman of ITU-T Working Party 3/16 (Media Coding) notes, "The adoption of the same algorithm by both Standards Organisations is the result of a closely co-ordinated effort. We are proud to offer a single standardised solution that can be used across several industries."



Vintage Fair

This year, the **National Vintage Communications Fair** celebrates its 10th Anniversary (1992-2002) in Hall 11 at the NEC on Sunday **5th May 2002**, from 1030 till 1600. Since its inception in 1992, the NVCF has been recognised as the UK's leading vintage communications fair, aimed specifically at collectors of early radios, Bakelite and candlestick telephones, fifties television sets, old wind-up gramophones and classic valve audio equipment, etc., all saved from a bygone era and lovingly restored. As well as supplying the needs of collectors, the NVCF caters for all those interested in furnishing 20th century period homes and interiors and supplying the film and TV industry with authentic and genuine props.

The fair is held twice a year at the NEC and is supported by over 300 stallholders from all over Britain and as far afield as Europe, America and the Far East, who may be anything from full time specialist dealers to people selling surplus items from their collections. Several collectors' clubs and magazines also exhibit at the fair and are available to give helpful advice on the practical side of the hobby.

For further information, please contact the organiser **Jonathan Hill** at **Sunrise Press, 13 Belmont Road, Exeter, Devon EX1 2HF**, Tel: **(01392) 411565**, E-mail: sun.press@btinternet.com or visit www.angelfire.com/tx/sunpress

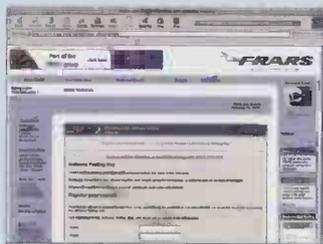


Wireless LAN Antenna Testing

In the UK, 802.11b 2.4GHz WLAN cards are being used in rapidly increasing numbers, both commercially and by home users, enabling computers to be easily networked without being tied to a wire connection. Utilising spread spectrum techniques in the licence free ISM bands these devices allow communication rates of up to 11Mb/s.

A growing band of radio enthusiasts around the UK are keen to establish wireless community networks. The key to success for these activities is to obtain clear line of sight links with off-the-shelf

hardware. There is a requirement for external antennas with both gain and directivity to surmount the limitations of the typical on-board p.c.b. antennas of most WLAN adapters.



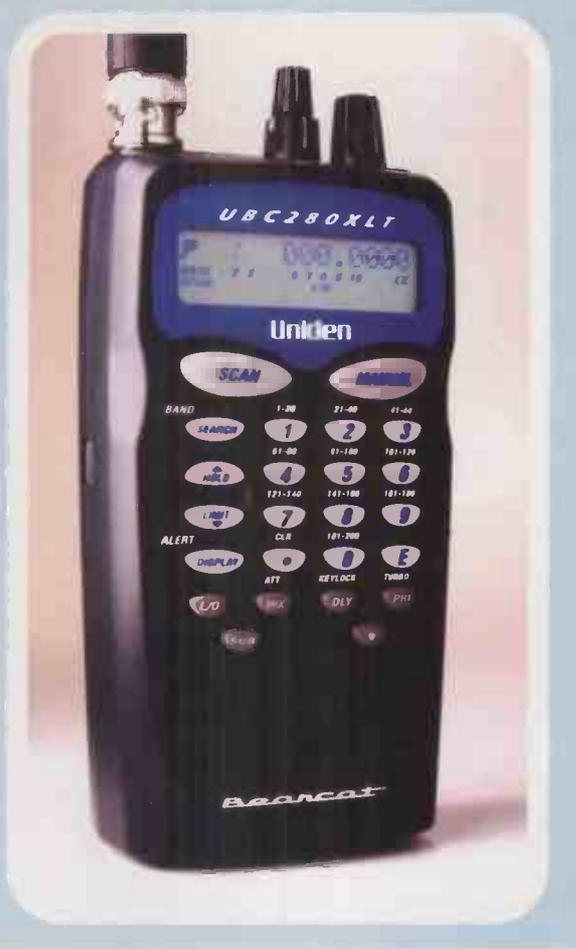
Flight Refuelling Amateur Radio Society - FRARS - are soon to hold a testing day for those who have constructed their own external antennas in the Poole and surrounding area. Currently the date has not been set, but to register your interest visit the FRARS antenna test page at <http://www.frars.org.uk/cgi-bin/render.pl?pageid=1050> and complete the form. Those registering interest will be notified when a suitable date has been set. There is a wealth of other WLAN and general amateur radio information on the site too.

Catch The Action!

Now you can catch all the sports action with Nevada's new Bearcat Sportcat UBC280XLT hand-held scanning receiver. This small, easy to program scanner will allow users to get inside the action - jump from car to car at a race meeting, hear the cockpit action at an airshow or use the Sportcat as a traditional scanner to keep up with all the action.

The twin turbo scan and search whips through 100 channels a second whilst the Turbo search can be used to select either 100 or 300 steps per second. CTCSS and CDCSS decode facilities are built-in to allow selective reception of commercially coded transmissions. Alpha numeric tagging and display allows easy identification of the station being received.

The set will sell for **£179.95**. For stockists, call Nevada on **023-9231 3090**. Look out for a review of this new Sportcat in *SWM* next month.



WRN



Agreement Signed

In a significant development for international broadcasting, London-based **World Radio Network (WRN)** has signed an agreement with RTL Radio in Luxembourg to transmit programmes in French, English and German from **China Radio International**, seven days a week. These comprise news and current affairs and features about China's people, places and culture including items on food, music, language and the arts.

The programming is specially produced by China Radio International in Beijing for a European audience, and is broadcast in French, English and German to the whole of Western Europe via RTL Radio's very high power transmitter on 1440kHz a.m. and the famous 208 metres medium wave. This will provide a potential audience of some 500 million Europeans with programming they can hear on any home or car radio.



One Day Hamfest

The **South Yorkshire Repeater Group**, in conjunction with the **RSGB** region 4, will be holding a one day Hamfest in April as well as the usual Great Northern Hamfest in November. The exhibition will be called The South Yorkshire Repeater Group and the RSGB Region 4 Hamfest. The event takes place on **Sunday 21st April 2002** at the **Metrodome Leisure Complex**, Queens Road, Barnsley, South Yorkshire. Doors open at 1000 and admission is **£2.50**.

The Leisure Complex is in the town centre and is less than two miles from junction 37 on the M1 motorway, five minutes walk from the train and bus station (follow the brown Metrodome signs from all directions).

The venue is on one level with excellent disabled facilities. There will be all the usual trade stands, component and specialist interest groups, not to mention a large Bring & Buy. Tables will be allocated to radio amateurs to sell their own equipment at a nominal charge. A talk-in will be via GB3NA on 145.675MHz.

For further information, including bookings, please contact the Hamfest Manager: **Ernie Bailey G4LUE, 8 Hild Avenue, Cudworth, Barnsley, South Yorkshire S72 8RN, Tel: (01226) 716339** or mobile on **(07787) 546515** between 1800 and 2000.

Anniversary Weekend

County Morse test teams will again be on the air during the 16th anniversary weekend of the **11th/12th May 2002**. For ease of identification, all stations will use a special event GB0 prefix, followed by the county code suffix, e.g. the Isle of Wight will use the callsign GB0IOW and London GB0LDN. The Chief Morse Examiner will use GB0CW and the Deputy Chief Morse Examiner GB0MTS.

There will be a minimum of 27 stations active and a Morse Test 16th anniversary certificate will be available to any amateur who makes contact with at least 10 of the GB stations. The cost of the certificate is **£2.50** (cheque or postal order made out to the RSGB), \$5 or six IRCs. Applications should be sent to the **Chief Morse Examiner, David Waterworth G4HNF, 116 Reading Road, Woodley, Reading, Berks RG5 3AD**. QSL cards are not required to claim the award, which is also available to listeners.

Activity will be concentrated in the 80 and 40m bands and in order to encourage newcomers to apply for the award, each team will spend some time calling slowly in the Novice c.w. section of the 80m band, above 3.560MHz. The event is not a contest and examiners will be happy to reply at any preferred calling speed. There are no restrictions on the type of Morse key used, all are welcome to call in and join the friendship.

Regular broadcasts commenced back at the beginning of February, after a month's trial period. This European initiative follows a collaborative agreement signed by WRN and China Radio International in Beijing in August 1999, since when English, French and German programming from the international arm of the Chinese national broadcasting organisation has been transmitted on WRN's international networks. This was followed most recently by the inauguration of news and current affairs programming in Standard Chinese for London-based speakers of the language on Spectrum Radio 558 AM in England.

RTL Radio is the on-air name of one of Europe's most renowned broadcasters that for decades has broadcast services to France, Germany and Britain. It is operated by Broadcasting Centre Europe, an RTL Group company.

China Radio International celebrated its 60th birthday in December 2001, and is established as one of the world's leading international broadcasters, offering over 200 hours of programming world-wide every day in 43 languages. For more information, visit WRN's web site at **www.wrn.org**

Communiqué

News and Products

Summer Science

Most of us only ever find out about new research advances or developments in scientific understanding when we hear a report on the TV or radio or read about it in our daily newspaper. But, once a year, the Royal Society - the UK's independent academy of science - makes sure that you have the chance to meet the scientists and engineers working on the UK's most innovative research, at its annual **Summer Science Exhibition**.

This year, you can come face to face with cutting-edge science and engineering at the Summer Science Exhibition from **2-4th July 2002** at the **Royal Society, 6-9 Carlton House Terrace, London SW1Y 5AG**. The exhibition, which is free to enter, gives you the chance to see the latest in cutting edge science and engineering and talk to the scientists behind the work. For more information about this exhibition, call **0207-451 2574** or visit www.royalsoc.ac.uk

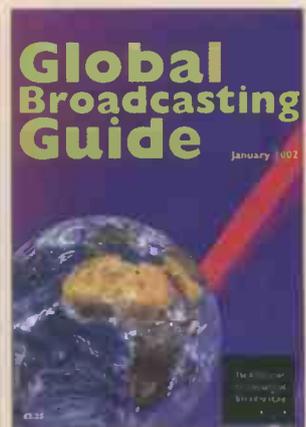
Radio At Your Fingertips

At the turn of a dial, at the click of a mouse, or the press of a remote control you can be transported around the world - by radio. But you'll need a map, and that's where the brand new edition of a guide to the world's radio and television from the **Association for International Broadcasting** comes into its own.

The **Global Broadcasting Guide** is a twice a year directory of all the world's English-language radio and television stations. It tells readers what station is on the air at what time, and guides them to the right frequency in the mass of short wave radio, satellite and Internet broadcasts on the air at any time.

The latest edition is the most up-to-the-minute guide in an ever-changing international broadcasting landscape. "We pride ourselves on producing the most accurate and comprehensive directory of this type," says Simon Spanswick, Editor of the *Guide* and one of the founders of the Association for International Broadcasting. "Just as you need a telephone book to check numbers you want to reach, or a map to guide you around a city, our *Global Broadcasting Guide* is the best way to find programmes you want from all over the world".

Whether you want live sports commentary and results from Australia, or financial news from Japan, or world music from Africa, the choice is there, 24 hours a day via international broadcasting. The *Global Broadcasting Guide* is the best source of information about how and when to listen to all this and more. Now available from the *SWM Book Store*, the *Global Broadcasting Guide* costs just **£2.25** in the UK.



IMD 2002

Throughout his life, Guglielmo Marconi pioneered the use of radio as a method of transmitting information over long and short distances - these experiments were conducted from many famous sites around the world. **International Marconi Day (IMD)** is a 24 hour amateur radio event held annually to celebrate the birth of Marconi on the 25th April 1874 and each year, usually on the Saturday closest to Marconi's birthday, amateur radio stations are set up and operated from the original sites, or nearby. These stations are known as the 'Participating Stations' and amateurs throughout the world are encouraged to make contact with these stations.

Organised by the **Cornish Amateur Radio Club (GB4IMD)**, *SWM* have

been informed that the date for this year's IMD is **Saturday 27th April 2002**. The Cornish Club would like to hear from any authorised Participating Stations with any interesting details of your particular Marconi site and if possible, any original/early photos. If there are stations out there who have direct historical connections with Marconi himself, and who would like to be added to the Participating Stations list, please E-mail **Richard A. Strafford G3MRT** at straфф@globalnet.co.uk for more information.



Obituary - Paul Essery GW3KFE

by Ray Marden G3MWF

I first met Paul in about 1956 or 1957 when he invited me to his home where he used to clarify certain points whilst I was studying for the RAE. We became friends then and remained so all these years. I was not the only budding radio amateur to whom he offered a helping hand, for he was always helpful to beginners throughout his life.

He helped umpteen people with their Morse training and did give practice sessions over the air, I believe that was via the Powys 2m repeater GB3PW. He was also an RSGB newsreader via the same repeater. I know that he taught the RAE in a Harlow College, Essex, long before he moved to Wales. Because of his work during the years I knew him, he moved about a bit and as a result was a member of several radio clubs, including Stevenage, Harlow, the Southgate Radio Club and the Powys Radio Club in Wales - there may have been more. Many people will be aware that he served as a Council Member for the RSGB and represented Powys.

He was a research and development engineer in electronics and the last company he worked for, before retiring, carried out contracts for the Royal Navy. I remember he told me he was always meeting Admirals and Captains down at Portsmouth.



He was at one time Editor of *Short Wave Magazine* when it was privately owned. Later, when it was sold to the present publisher, he lost his editorship, but continued writing a regular feature. He also wrote features for sister publication *Practical Wireless*, up until he was taken ill.

Some of his time was spent serving in the army and I'm sure he held the rank of sergeant. After leaving the army he was on reserve for a number of years and had to be away from home occasionally to attend army camps.

He was quite well read and had a wide knowledge and interest in many subjects and could converse on a number of them. After moving to Wales from East Anglia, he became interested in the canal conservation scheme around the Newtown area. He was also interested in narrow gauge railways and once took me to the one at Welshpool.

He could be cantankerous at times, but this was one of his endearing qualities. I remember that one of his daughters once told him he was eccentric and he seemed to warm to that label. I think they threw away the mould after Paul because he was a one off and quite a character.

His health started to deteriorate about two to three years ago. He died peacefully on 1st February 2002 at 0805. His wife, two of his daughters and his granddaughter were with him at the time. I shall miss him greatly as will his family and the many people who knew him. He leaves his wife Galina, three daughters, Margot, Jane and Katherine and his son Paul.

Chelmsford's Success

The **Chelmsford Amateur Radio Society's** Junk Sale was held back at the beginning of January. The event was attended by 50 members and was a great success. **Colin Page G0TRM**, complete with a splendid top hat, did an excellent job as Auctioneer.

The Chelmsford ARS meet at 1930 on the first Tuesday of each month at the Marconi Social Club, Beehive Lane, Great Baddow, Chelmsford. The club's recent foundation course ended up 100% oversubscribed and it is hoped to hold another course over a weekend in the near future.

For further information, contact **David Bradley M0BQC**, Secretary, on (01245) 602838, E-mail: DavidWBradley1@activemail.co.uk or visit the club's website at www.g0mwt.free-online.co.uk



rallies

March 9: The Lagan Valley Amateur Radio Society are holding their rally at the Conference Centre, Lagan Valley Hospital. There will be trade stands, radio and computer, Bring & Buy, catering and free parking, talk-in on S22. More information from **Ron** on 0289-260 1941 or E-mail: ronnie@mccaughy2.freemove.co.uk

March 9: Crystal Palace and District Radio Club Spring Fair takes place at St. John's Hall, Sylvan Road, London SE19, between 1030-1300. There will be amateur radio, electronics, computing, tools, etc. on offer. Admission, which includes one free drink, is just £1. Children free. **Bob G300U** on (01737) 552170.

March 10: The Wythall Radio Club are holding their 17th Annual Radio & Computer Rally at Wythall Park, Silver Street, Wythall, near Birmingham. Doors open from 1000 till 1600 and admission is just £1.50. There will be plenty of traders in three halls and a large marquee. There will also be a bar and refreshment facilities on-site, a Bring & Buy and a talk-in on S22. There will also be a unique free park and ride for easy comfortable parking. More information at www.wrcrally.co.uk or from **Martin G8VXX** on 0121-474 2077 evenings or E-mail: enquiries@wrcrally.co.uk

March 17: The Norbreck Amateur Radio, Electronics and Computing Exhibition, organised by the Northern Amateur Radio Societies Association (NARSA) at the Norbreck Castle Exhibition Centre,

Blackpool. Don't miss the largest single day exhibition in the country! Morse tests will be available on demand. **Peter Denton G6CGF** on 0151-630 5790.

March 23/24: The London Amateur Radio & Computer Show is to be held at the Lee Valley Leisure Centre, Picketts Lock Lane, Edmonton, London. Doors open at 1000 each day and daily admission is £3 for adults, £2.50 for OAPs and under 14s. There will be trade stands, special interest groups, Bring & Buy and lots more. More information on (01923) 893929, FAX: (01923) 678770 or visit their web site at www.radiosport.co.uk

April 7: The 45th Northern Mobile Rally & Computer Fair will be held in the Sports Hall of the Harrogate Ladies College, Clarence Drive, Harrogate. Details from **Gerald G0UFI** on (01765) 640695 or www.harrogaterally.co.uk

April 14: The Cambridgeshire Repeater Group are holding their annual rally at Bottisham Village College, Bottisham, which is six miles east of Cambridge. Access is via A14 and A1303. Features include a large hall, car boot sale, Bring & Buy and the group's renowned auction of radio and electronic equipment. Doors open at 1030 and admission is £1.50. Refreshments will be available and there will also be a talk-in on S22. More information from **Paul Dyke G0LUC** on (01462) 683574 or E-mail: g0luc@btinternet.com or visit their web site at www.gb3pi.org.uk

Club Corner

The **Bournemouth Radio Society** meet on the first and third Fridays of each month (except Bank Holidays) at the Kinson Community Centre, 'Pelhams', Millhams Road, Kinson, Bournemouth, in the bar from 1930 for a formal start at 2000. More information from **Chris R. Ellis M5AGG** (Hon. Sec.) on (01202) 893126 or visit www.brswebsite.freemove.co.uk

The **Bangor & District Amateur Radio Society** meet on the 1st Wednesday of every month in 'The Stables', Groomspoint, at 2000. On Wednesday 6th March 2002 the Society are hosting a talk on 'Shack Security'. Visitors and new members are (as always) most welcome. Plus, courses are also currently running for the new foundation licence. More information from **Mike G14XSF** on 0284-277 2383 or visit their web site at <http://welcome.to/bdars>

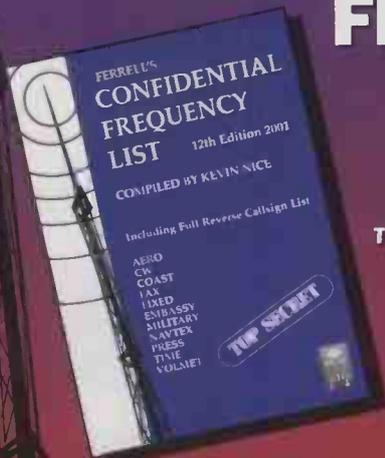
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■ BRIAN ODDY G3FEX, THREE CORNERS, MERRYFIELD WAY, STORRINGTON, WEST SUSSEX RH20 4NS

LM&S



No doubt the increasing hours of daylight are being welcomed by many people in the UK, especially those who engage in outdoor activities when they return home from work. However, some dedicated listeners enjoy searching the l.w. and m.w. bands after dark, so for them there will be a longer wait before their activities can commence.

Much lighter evenings will be evident in the UK when British Summer Time (BST) begins on March 31st. Clocks will then be advanced by one hour because BST is one hour ahead of Greenwich Mean Time (GMT), which is at present displayed on our clocks.

To account for seasonal changes in propagation, many of the s.w. broadcasters will introduce new transmission schedules on March 31st. The times quoted therein, also 'LM&S', will continue to be in Universal Time Co-ordinated (UTC), which for most purposes is similar to GMT, but derived from highly accurate atomic standards. To avoid confusion, place a clock by your receiver now and set it to UTC (=GMT). Do **not** alter it when BST starts on the 31st.

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 December.

During the early hours of December 8th and 21st favourable conditions for reception of the broadcasts from Rikisutvarpid (RUV) via Gufuskalar, W.Iceland on **189kHz** were observed by **Michael Wasley** in Scunthorpe. Around 0100UTC on the 8th, he rated the 300kW transmission SINPO 24243. Reception was even better on the 21st, with it peaking 34344 at 0030. He then tuned to **207kHz** and listened for RUV via Eidar, E.Iceland (100kW) - it was just audible under a high level of co-channel interference and resulted in a SINPO 11111 entry in his log!

On the 27th a co-channel broadcast under DLF via Donebach, Germany, (500kW) on **153kHz** was heard at 2235 by **Sheila Hughes** in Morden, which she presumes came from Bod, Romania. Ballad type songs, introduced by a man, were sung by a young lady. The transmission rated

22212. A broadcast from Bod, Romania, under DLF on **153**, was also heard by **Eddie McKeown** in Newry, Co.Down which he rated 21222 at 2014. He found the conditions less favourable than in November, nevertheless he compiled an interesting and quite extensive log - see chart.

Owing to financial difficulties the broadcasts from Atlantic 252 in Clarkstown, Ireland, have come to an end. Instead, a new all talk sports programme is now being broadcast on **252kHz** by Team Talk. It has been attracting the attention of **Adam Birchenall** (Coalville, Leics.) who has informed me that their ident is 'Team Talk 252, sports radio station'. Their broadcasts could well be of interest to anyone keen on sport.

Medium Wave Reports

After dark, some listeners enjoyed searching the band for the sky waves from m.w. stations in the Middle East, N.Africa, Europe and Scandinavia - see chart. Those from the 100kW outlet at Bushehr, Iran on **1503** were picked up in Newry at 0349 and rated 21321. The American Forces Network (AFN) outlet at Hohenfels, Bavaria (1kW) on **1485** was heard for the first time by **Ernie Strong** in Ramsey, Cambs on the 27th - it was peaking 23333 at 0440. Unusual reception during daylight

was also mentioned in the reports. On the 10th, RNE-1 via Madrid (600kW) on **585kHz** was clearly heard in Coalville at 1340. The Voice of America via Kuwait (600kW) on **1548** (Eng to Middle East) was received at 1420 by **John Parry** in Larnaca, Cyprus, and rated 34453. The Voice of Russia via Bolshakovo, Russia on **1386** was heard by **Sheila Hughes** in Morden between 1500-1600 in addition to 2000-2200UTC. Her husband Tony has become a regular listener to their 'Science and Engineering' programme.

The new outlet at Crystal Palace (0.75kW) on **720kHz**, which carries BBC R-4 and replaces Lots Road, was mentioned in three reports. During daylight it was rated SIO 333 by **George Millmore** in Wootton, IoW; also 44343 by **Fred Wilmschurst** in Northampton. After dark it was noted as 33232 in Ramsey, Cambs. Further reports on this transmission would be very welcome here for inclusion in 'LM&S' - please be sure to include a SINPO rating and state the time of reception in UTC.

The ground waves from some quite distant local radio stations were received during daylight - see chart. After dark, the sky waves from the BBC R.Newcastle outlet at Wrekenton (2kW) on **1458** were picked up by **Simon Hockenull** (E.Bristol) and rated 34333 at 1635. Those from the BBC R.Stoke outlet at Sideway (1kW) on **1503** were received in Wootton, IoW, and rated SIO 323.

Short Wave Reports

An interesting log was compiled by **Bill Griffith** while visiting Christchurch, New Zealand, between November 26 and December 8. He used his Sony ICF-SW55 portable plus 10m wire antenna to search most of the s.w. bands and found it quite difficult to get the BBC and easy to receive R.France Int (RFI), Deutsch Welle (DW), R.Netherlands, Voice of America (VOA) and the Voice of Russia (VOR). Quite a few of the New Zealanders he met resented the cuts in the coverage of the BBC World Service.

In the **25MHz (11m)** band Bill obtained excellent reception from Deutsche Welle (DW), Germany on **25.740** (Ger to Asia 0800-1400) and Radio France International (RFI) on **25.820** (Fr, Eng to E/C.Africa 0830-1300), with SINPO ratings of 44444 noted at 0830 and 0900UTC respectively on December 7.

Both transmissions are beamed away from the UK, consequently reception here is dependent upon back scatter and other unreliable propagation modes. The SINPO ratings noted in the latest reports for DW were 34423 at 0830 by **Vic Prier** in Colyton; 45444 at 0900 in Newry; 55544 at 0945 by **Bernard Curtis** in Stalbridge; 34333 at 0950 by **Thomas Williams** in Truro; 45422 at 1216 in E.Bristol; 24322 at 1240 by **Peter Pollard** in Rugby; 45433 at 1240 in Northampton. Those for RFI were 55545 at 0940 in Stalbridge; 44333 at 0955 in Truro; 45433 at 1150 in Northampton; 44243 at 1200 in Newry; 35522 at 1215 in E.Bristol.

Broadcasts from many areas have been reaching the UK in the **21MHz (13m)** band during daylight. Those from R.Australia via Shepparton were received during the early morning on **21.725** (Eng to Pacific areas 0200-0900) and rated 23322 at 0820 in Colyton; also later on **21.820** (Eng to Asia 0900-1400), rated 33333 at 1030 by **David Hall** in Morpeth. Also heard during the morning were R.Finland via Pori **21.670** (Eng to Far East 0730-0800), rated 55544 at 0755 by **Stan Evans** in Herstmonceux; Swiss R.Int via Sottens **21.770** (Eng, It, Ger, Fr to M.East, Africa 0830-1030) 25222 at 0857 in Newry; Voice of Russia **21.810** (Eng [WS]) 55424 at 0910 in Stalbridge; R.Prague, Czech Rep **21.745** (Eng to E.Africa, S.Asia 1000-1030) 55555 at 1000 by **Gerald Guest** in Dudley; BSKSA Riyadh, Saudi Arabia **21.505** (Ar to N.Africa 0900-1200) 44433 at 1011 by **Rhoderick Illman** in Oxted.

After mid-day DW via Wertachtal? **21.840** (Ger to Africa, Eur 0600-1400) was 44444 at 1242 in Rugby; Channel Africa via Meyerton, S.Africa **21.725** (Eng to W.Africa 1300-1455, Sat/Sun) 33333 at 1315 in Truro; UAE R.Dubai **21.595** (Eng to Eur, Africa 1330-1350) 43333 at

Long Wave Chart

Freq (kHz)	Station	Country	Power (kW)	Listener
153	Bechar	Algeria	1000	F*
153	Donebach DLF	Germany	500	A,C,D*,E,F,H*,J
153	Bod	Romania	1200	C*,D*,F*,H*
162	Allouis	France	2000	A,D*,E,F,H*,J
171	Nador Medi-1	Morocco	2000	F*
171	B'shakovo etc	Russia	1200	B*,C*,D*
171	L'vov	Ukraine	500	F*
171	Sasnovy	Belarus	1000	F*
177	Oranienburg	Germany	500	B*,D*,F,G*,I
183	Saarlouis	Germany	2000	D*,E,F,I
189	Gufuskalar	W.Iceland	150	D*,F,G*
189	Caltanissetta	Italy	10	F*
198	Droitwich BBC	UK	500	C,D,E,F,G*,H*,I
207	Munich DLF	Germany	500	B*,D*,E,F,G*,J
207	Eidar	E.Iceland	100	D*,G*
207	Azilal	Morocco	800	F*
207	Kiev	Ukraine	500	F*
216	Roumoules RMC	S.France	1400	B,C,D*,E,F,H*,J
216	Krasnoyarsk	Siberia	1200	F*
225	Polskie R-1	Poland	?	C,D*,E*,F,G*,I
234	Beidweiler	Luxembourg	2000	D*,E,F,H*,G*,I
243	Kalundborg	Denmark	300	B,C*,D*,E,F,H*,J
252	Tipaza	Algeria	1500	A*
252	Team Talk 252	Eire	500	A
261	Burg(R.Ropa)	Germany	85	B*,F,I*
261	Taldom Moscow	Russia	2500	C*
270	Topolna	Czech Rep	1500	B*,C*,D*,E,F,I
279	Sasnovy	Belarus	500	A*,B*,C*,D*,E*,F

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

Listeners:

- (A) Adam Birchenall, Coalville, Leics.
- (B) Simon Hockenull, E.Bristol.
- (C) Sheila Hughes, Morden.
- (D) Eddie McKeown, Newry.
- (E) George Millmore, Wootton, IoW.
- (F) Ernie Strong, Ramsey, Cambs.
- (G) Michael Wasley, Scunthorpe.
- (H) Thomas Williams, Truro.
- (I) Fred Wilmschurst, Northampton.

Tropical Bands Chart

Freq (MHz)	Station	Country	UTC	DXer
2.310	ABC Alice Springs	Australia	1524	B
3.200	TWR Manzini	Swaziland	0322	J,K
3.215	AWH	Madagascar	1629	K
3.220	R.Kara, Lome	Togo	0535	K
3.230	SABC Meyerton	S.Africa	1900	J
3.240	TWR Shona	Swaziland	0303	E,K
3.255	BBC via Meyerton	S.Africa	0304	E,F,J,K
3.270	Namibian BC,Windhoek	Namibia	2007	E,F,J
3.280	R.Huari Piacurho	Peru	0542	K
3.300	R.Cultura	Guatemala	0543	K
3.315	AIR Bhopal	India	1615	E,J
3.316	SLBS Goderich	Sierra Leone	0621	K
3.320	SABC (RSG) Meyerton	S.Africa	1733	E,F,J,K
3.325	R.Jupi, Sao Paulo	Brazil	0548	K
3.365	GBC R-2	Ghana	0544	J,K
3.365	AIR Delhi	India	1615	F,J
3.365	R.Milne Bay	Pap.N.Guinea	1000	B
3.915	BBC via Kranji	Singapore	2100	E,K
3.955	R.Korea via Skelton	England	2205	A,E,I,L
3.955	R.Taipei via Skelton	England	1800	A,E,H,J
3.965	RH Paris	France	0401	E
3.975	R.Budapest	Hungary	2230	A,E,H
3.985	Nexus, Milan	Italy	2204	E,J
3.995	DW via ?	Germany	2200	E,I,L
4.005	Vatican R.	Italy	2211	E,J
4.750	N. Mengou PBS,Hailar	China	2232	K
4.760	AIR Port Blair	India	1619	B,F
4.760	ELWA Monrovia	Liberia	0631	K
4.760	TWR Manzini	Swaziland	1639	K
4.770	FRCN Kaduna	Nigeria	2128	C,E,F,J,K
4.775	AIR Imphal	India	1619	FK
4.775	TWR Manzini	Swaziland	0339	K
4.783	RTM Bamako	Mali	2234	K
4.790	Azad Kashmir R	Pakistan	1956	E,K
4.800	CPBS 2, Beijing	China	2225	E,K
4.800	AIR Hyderabad	India	1648	B,F
4.800	LNBS Maseru	Lesotho	0327	K
4.820	R.Botswana, Gaborone	Botswana	2006	J,K
4.820	Xizang, Lhasa	China	2207	E,K
4.820	AIR Calcutta	India	1747	F
4.825	R.Cancan Noya	Brazil	0632	K
4.828	ZBC R-4	Zimbabwe	0453	K
4.830	R.Tachira	Venezuela	0307	E
4.835	RTM Bamako	Mali	2020	C,E,F,J,K
4.840	AIR Bombay	India	1650	E,F,K
4.845	RTM Kuala Lumpur	Malaysia	1747	F
4.845	DRTM Nouakchott	Mauritania	2021	E,F,J,K

Freq (MHz)	Station	Country	UTC	DXer
4.850	R.Yaounde	Cameroon	0447	C
4.850	CNR 1	China	2122	E,K
4.860	AIR Delhi	India	1747	E,F,G,J,K
4.865	R.Centenario	Bolivia	0309	E
4.880	AIR Lucknow	India	1450	G
4.885	KBC East Sea Nairobi	Kenya	1724	F
4.890	RRI Paris	via Gabon	0358	E
4.890	R.Port Moresby	Pap.N. Guinea	0900	B
4.895	AIR Kurseong	India	1553	D,E,E,G,K
4.895	Pakistan BC	Pakistan	1645	F
4.905	Amanguera	Brazil	0121	E
4.910	AIR Jaipur	India	1505	E,G,K
4.915	GBC-1, Accra	Ghana	0411	C,E,F,J,K
4.915	KBC Cent Sea Nairobi	Kenya	1759	FK
4.920	R.Quito, Quito	Ecuador	0412	E,K
4.920	AIR Chennai	India	1645	F
4.925	R.Nacional, Bata	Eq.Guinea	2009	K
4.927	RRI Jambi	Indonesia	1759	F
4.930	R.Internacional	Honduras	0450	C
4.930	AIR Shimla	India	1751	F
4.940	AIR Guwahati	India	1646	E
4.950	R.Nacional, Mulvenga	Angola	0504	K
4.950	AIR Srinagar	India	1715	E,G,K
4.950	VOA via Sao Tome	Sao Tome	1900	E,H,J,K
4.960	VDA via Sao Tome	Sao Tome	0329	C,E,K
4.965	Christian Voice	Zambia	1717	K
4.975	Fujian 1, Fuzhou	China	1000	B
4.975	R.Uganda, Kampala	Uganda	2014	E,J,K
4.980	PBS Xinjiang, Urumqi	China	1634	K
4.980	Ecos del Torbes	Venezuela	0300	E,K
4.985	R.Brazil Central	Brazil	0728	K
4.990	Hunan 1, Changsha	China	2244	K
5.005	R.Nacional, Bata	Eq.Guinea	2058	F
5.005	R.Nepal, Kathmandu	Nepal	1753	F
5.009	R.TV Malagasy	Madagascar	1751	E,K
5.010	Guangxi 2, Nanning	China	2131	F
5.010	AIR Thiruvapuram	India	1639	E,J,K
5.020	Solomon Is BC Honiara	Solomon Is.	1000	B
5.025	R.Parakou	Benin	0301	C,E
5.025	R.Rebeide, Habana	Cuba	0734	K
5.025	R.Uganda, Kampala	Uganda	0352	K
5.030	AWR Latin America	Costa Rica	0730	K
5.030	RTM Kuching	Sarawak	2132	F
5.040	PBS Fujian, Fuzhou	China	1652	K
5.040	Jeyapore	India	1649	K
5.050	R.Tanzania	Tanzania	2058	E,F,J,K
5.055	Faro del Caribe	Costa Rica	0515	K
5.060	PBS Xinjiang, Urumqi	China	1750	J,K

- DXers:-
 (A) Stan Evans, Herstoncoex.
 (B) Bill Griffith, while in New Zealand.
 (C) David Hall, Morpeth.
 (D) Rhoderick Illman, Oxted.
 (E) Eddie McKeown, Newry.
 (F) Fred Pallant, Storrington.
 (G) John Parry, Lamaca, Cyprus.
 (H) Clare Pinder, while in Appleby.
 (I) Peter Pollard, Rugby.
 (J) Vic Prier, Colyton.
 (K) Richard Reynolds, Guildford.
 (L) Thomas Williams, Truro.

1335 in Morden; R.Prague, Czech Rep **21.745** (Eng to E.Africa, N.America 1400-1429) 55445 at 1410 in E.Bristol; BBC via Cyprus **21.660** (Eng to S.Africa 1400-1700) 45544 at 1444 in Northampton; BBC via Ascension Is **21.470** (Eng to S.Africa 1300-1900) 24322 at 1531 in Scunthorpe.

Whilst in Christchurch NZ, **Bill Griffith** picked up an s.s.b. transmission from HCJB in Quito, Ecuador on **21.455** (Eng [u.s.b.] to Eur,

Pacific 0100-0600), which he rated 54445 at 0230.

At present a few broadcasters are using amplitude modulated (a.m.) transmitters in the narrow **18MHz (15m)** band instead of leading the way with single sideband (s.s.b.) transmissions, as planned for the future. They include R.Denmark via Sveio, Norway **18.950** (Da to Australia, N.America 1230-1255), rated 44444 at 1246 in Truro; R.Sweden **18.960** (Eng to N.America 1230-1300, 1330-1400, 1430-1500)

Local Radio Chart

Freq (kHz)	Station	ILR BBC	e.m.r.p (kW)	Listener
558	Spectrum, London	I	0.80	B,E,F,H
603	C.G.Litt'brne	I	0.10	A,E,F,H
630	R.Bedfordshire(3CR)	B	2.00	A,B,C,D,E,F,H
630	R.Cornwall	B	2.00	F
657	R.Clwyd	B	2.00	E,F,H
657	R.Cornwall	B	0.50	E,F
666	Cl.Gold 666, Exeter	I	0.34	B,E,H
666	R.York	B	0.80	A,F,G
729	BBC Essex	B	0.20	C,D,E,F,H
738	Hereford/Worcester	B	0.037	B,E,H
756	The Magic 756, Powys	I	0.63	A,E,H
765	BBC Essex	B	0.50	C,D,E,F,H
774	R.Kent	B	0.70	C,D,E,F,H
774	R.Leeds	B	0.50	E,G
774	Cl.Gold 774, Glos	I	0.14	E,H
792	Cl.Gold 792, Bedford	I	0.27	D,F,H
801	R.Devon	B	2.00	B,E,F
828	Cl.Gold 828, Luton	I	0.20	F,H
828	Cl.Gold 828, Leeds	I	0.12	G
828	Asian Netwk Sedgley	B	0.20	H
828	Cl.G 828 Bournemouth	I	0.27	E
837	Asian Netwk Leics	B	0.45	E,F,G
855	R.Devon	B	1.00	E
855	R.Lancashire	B	1.50	F
855	R.Norfolk, Postwick	B	1.50	C,F
855	Sunshine 855, Ludlow	I	0.15	A,B,H
873	R.Norfolk, W.Lynn	B	0.30	C,E,E,H
936	Brunel CG, W.Wilts	I	0.10	E,F,H
936	Fresh AM, Hawes	I	1.00	A*
945	Cl.Gold GEM, Derby	I	0.20	F,G,H
945	Capital G, Bexhill	I	0.75	B*,D,E,E
954	Cl.Gold 954 via ?	I	?	F
954	Cl.Gold 954, Torquay	I	0.32	E
954	Cl.Gold 954, H'ford	I	0.16	B,H
963	Asian Sd, E.Lancs	I	0.80	A*
963	Liberty R, Hackney	I	1.00	E,F,H
972	Liberty R, Southall	I	1.00	B,E,F,H
990	R.Devon, E.Devon	B	1.00	B,E
990	Magic AM, Doncaster	I	0.25	F*,G
990	Cl.G, Wolverhampton	I	0.09	F*,H

Freq (kHz)	Station	ILR BBC	e.m.r.p (kW)	Listener
999	Cl.Gold GEM Nottham	I	0.25	F,G,H
999	R.Solent	B	1.00	C,D,E
1017	Cl.G.WABC, Sh'rsire	I	0.70	F,H
1026	R.Cambridgeshire	B	0.50	D,F,G,H
1026	R.Jersey	B	1.00	B,E
1035	RTL City(Ritz)1035	I	1.00	A*,D,E,F,H
1035	R.Sheffield	B	1.00	F,G
1116	R.Derby	B	1.20	E,G,H
1116	R.Guernsey	B	0.50	E
1116	Valley R, Ebbw Vale	I	0.50	B
1152	Cl.G Amber, Norwich	I	0.83	A*,F
1152	LBC 1152 AM	I	23.50	D,E,F,H
1152	Cl.G, Birmingham	I	3.00	H
1161	R.Bedfordshire(3CR)	B	0.10	F,H
1161	Southern Counties R	B	1.00	D,E,G
1170	Cl.G Amber, Ipswich	I	0.28	F
1170	Capital G, Portsmouth	I	0.50	D,E
1170	Signal 2, Stoke-on-T	I	0.20	A
1170	Swansea Snd, Swansea	I	0.58	B
1170	1170AM, High Wycombe	I	0.25	C,E,H
1242	Capital G, Maidstone	I	0.32	E
1251	C.G Amber, Bury StEd	I	0.76	F
1260	Brunel CG, Bristol	I	1.60	E
1260	SabrasSnd, Leicester	I	0.29	F,H
1260	R.York	B	0.50	G
1278	Cl.Gold 1278 W.York	I	0.43	F
1296	Radio XL, Birmingham	I	5.00	D,E,F,H
1305	Magic AM, Barnsley	I	0.15	G
1305	Premier via ?	I	0.50	D,E,F,H
1305	Touch AM, Newport	I	0.20	E
1323	Capital G, Southwick	I	0.50	A*,E,F*
1323	SomersetSnd, Bristol	B	0.83	F*
1332	Premier, Batterssea	I	1.00	D
1332	Cl.Gold 1332, Ptbo	I	0.60	A,F,H
1332	Wiltshire Sound	B	0.30	A,E
1359	Breeze, Chelmsford	I	0.28	D,F
1359	Cl.Gold 1359, C'ity	I	0.27	E,H
1359	R.Solent, Bournemouth	B	0.85	E,F*
1368	R.Lincolnshire	B	2.00	E,G*,H
1368	Southern Counties R	B	0.50	D,E
1368	Wiltshire Sound	B	0.10	E
1413	R.Gloucester via ?	B	?	F*,G*,H
1413	Premier via ?	I	0.50	D,E,F
1413	Fresh AM, Skipton	I	0.10	F

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

- Listeners:-
 (A) Adam Birchenall, Coalville, Leics.
 (B) Simon Hockenhill, E.Bristol.
 (C) Sheila Hughes, Morden.
 (D) Rhoderick Illman, Oxted.
 (E) George Millmore, Wootton, IoW.
 (F) Ernie Strong, Ramsey, Cambs.
 (G) Michael Wasley, Scunthorpe.
 (H) Fred Wilmshurst, Northampton.



44444 at 1238 in Newry & 55545 at 1433 in E.Bristol; R.Denmark via Sveio, Norway **18.950** (Da to N.America 1630-1655) 42443 at 1645 in Colyton; Christian Science Herald via WSHB Cypress Creek **18.910** (Fr, Eng to E/S.Africa 1600-2000) 34434 at 1730 in Stalbridge; Family Radio WYFR via Okeechobee FL, USA **18.980** (Eng to Eur, M.East 1545-1945) 44333 at 1900 in Morden & 35343 at 1932 in Northampton.

Many broadcasters are making good use of the **17MHz (16m)** band during the day. Before noon, R.Japan via Yamata? **17.825** (Eng to C.America 0300-0400) was rated 22222 at 0315 in Christchurch, NZ; AWR via Moosbrunn, Austria **17.820** (Eng to W.Africa 0830-0930) 34333 at 0832 by **Vera Brindley** in Woodhall Spa; DW via Sri Lanka **17.800** (Eng to Asia 0900-0945) 44333 at 0900 in Morden; R.Australia via Shepparton **17.750** (Eng to Asia 0000-0500, 0600-1100) 33333 at 1035 in Morphett; Vatican R, Italy **17.515** (Various incl Eng to Eur 0930-1050, Sun) 33333 at 1040 in Truro.

During the afternoon R.Bulgaria, Sofia **17.500** (Eng to Eur 1200-1300) was 45444 at 1207 in Newry; R.Finland via Pori **17.660** (Eng to W.Eur, N.America 1330-1400) 55555 at 1330 in Dudley; Voice of Turkey **17.815** (Eng to Eur 1330-1430)

55544 at 1355 in Herstmonceux; R.Sweden **17.505** (Eng to Eur, M.East, Africa 1430-1455) 55545 at 1433 in E.Bristol; BBC via Oman **17.700** (Eng to S.Asia 1100-1700) 24343 at 1522 in Scunthorpe; Israel R, Jerusalem **17.535** (Heb [Home svce relt] to W.Eur, N.America) 44434 at 1656 in Oxted; WHRI via Maine, USA **17.650** (Eng to Eur, M.East, Africa 1600-2300?) 45544 at 1705 in Northampton; Channel Africa via Meyerton, S.Africa **17.860** (Swah, Fr, Eng to W.Africa 1600-1730?) 43433 at 1710 in Colyton.

Later, the BBC via Ascension Is **17.830** (Eng to W.Africa 0800?-2100) was 55444 at 1820 in Stalbridge; Swiss R.Int via Montsinery, Fr.Guiana **17.660** (It, Ar, Eng, Ger, Fr to N.East, Africa 1830-2130) 55555 at 1930 by **Clare Pinder** in Appleby; VOA via Greenville? **17.895** (Eng to Africa 2000-2200) 34343 at 2006 by **Fred Pallant** in Storrington; also via Ascension Is **17.885** (Eng to Africa 2000-2100) 24342 at 2050 in Storrington - by switching between these outlets, or using two receivers, a satellite delay of about two seconds can be observed in the UK on the Ascension Is transmission!

Sometimes R.New Zealand has reached the UK in the **15MHz (19m)** band. Their early morning transmission to Pacific areas on **15.340** (Eng

Listeners:

- (A) Adam Birchenall, Coalville, Leics.
(B) Simon Hockenhill, E.Bristol.
(C) Sheila Hughes, Morden.
(D) Rhoderick Illman, Oxted.
(E) Eddie McKeown, Newry.
(F) George Millmore, Wootton loW.
(G) John Parry, Lamaca, Cyprus.
(H) Clare Pinder, while in Appleby.
(I) Harry Richards, Barton-on-Humber.
(J) Ernie Strong, Ramsey, Cambs.
(K) Fred Wilmshurst, Northampton.

Medium Wave Chart

Freq (kHz)	Station	Country	Power (kW)	Listener	Freq (kHz)	Station	Country	Power (kW)	Listener
783	Dammam	Saudi Arabia	100	F*	1134	COPE via ?	Spain	?	E*,F*,J*
783	Barcelona (COPE)	Spain	50	J*	1143	AFN via ?	Germany	1	E*,F*
792	Limoges	France	300	B*,E*,F*	1143	COPE via ?	Spain	2	E*,F*,J*
792	Sevilla(SER)	Spain	20	E*	1152	RNE5 via ?	Spain	10	F*
801	Munchen-Ismaning	Germany	300	B*,E*,F*,J*	1179	SER via ?	Spain	?	B*
801	Ajlun	Jordan	2000	J*	1179	Solvastorg	Sweden	600	B*,E*,F*,J*,K*
801	RNE1 via ?	Spain	?	F*,J*	1188	Kuurne	Belgium	5	D*,E*,F*,K*
810	Madrid(SER)	Spain	20	F*	1186	Szolnok	Hungary	135	E*,J*,K*
810	Westerglen(BBC)UK	UK	100	D*,E*,F*,J*,K*	1188	San Remo	Italy	6	J*
819	Batra	Egypt	450	B*,F*,J*	1197	Munich(VOA)	Germany	300	B*,E*,J*,K*
819	S.Sebastian(EI)	Spain	5	E*,F*,J*	1197	Virgin via ?	UK	?	D*,E*,J*,K*
828	Hannover(NDR)	Germany	100/5	E*	1206	Bordeaux	France	100	B*,E*,F*,J*,K*
828	Heine Noord(Ci.Rock)	Holland	20	D*,E*	1215	Virgin via ?	UK	?	D*,E*,F*,J*,K*
837	Nancy	France	200	A*,B*,D*,E*,F*	1224	Vidin	Bulgaria	500	J*
837	COPE via ?	Spain	?	F*,J*	1224	Lelystad	Holland	50	E*,F*
846	Rome	Italy	1200	B*,E*,F*,J*,K*	1224	COPE via ?	Spain	?	E*,J*
855	RNE1 via ?	Spain	?	C*,E*,F*,J*,K*	1233	Nitra	Slovakia	40	E*
864	Santah	Egypt	500	F*	1233	Virgin via ?	UK	?	E*,J*,K*
864	Paris	France	300	B*,D*,E*,J*,K*	1242	Marseille	France	150	E*
864	Socuellamos(RNE1)	Spain	2	J*	1242	Virgin via ?	UK	?	E*,J*
873	Frankfurt(AFN)	Germany	150	C*,E*,F*	1251	Miacali	Hungary	500	E*
873	Zaragoza(SER)	Spain	20	F*	1251	Huisberg	Netherlands	10	F*
873	Enniskillen(R.U.I)	UK	?	E*	1260	SER via ?	Spain	?	E*,F*,J*
882	Barcelona	Spain	20	J*	1260	Guilford (V)	UK	0.5	D*,E*
882	COPE via ?	Spain	?	E*	1268	Neumunster(DLF)	Germany	600	A*,E*,F*,J*,K*
882	Washford(BBC)Wales	UK	100	D*,E*,F*,J*,K*	1269	COPE via ?	Spain	?	J*
891	Algiers	Algeria	600/300	A*,B*,E*,J*,K*	1278	Dublin/Cork(RTE2)	Eire	10	E*,F*,J*,K*
891	Huisberg	Netherlands	20	F*	1278	Strasbourg	France	300	J*
900	Bmo(CRo2)	Czech Rep	25	F*	1287	RFE via ?	Czech Rep	?	E*,F*
900	Milan	Italy	600	E*,F*,J*	1287	Lerida(SER)	Spain	10	E*,E*,F*,J*,K*
909	B'mans Pk(BBCS)	UK	140	F*,J*,J*	1296	Valencia(COPE)	Spain	10	F*,J*
918	Domzale	Slovenia	600/100	B*,E*,J*	1298	Orfordness(BBC)	UK	500	J*
918	Madrid(R.Int)	Spain	20	J*	1305	RNE5 via ?	Spain	?	E*,J*
927	Wolvertem	Belgium	300	E*,E*,J*,K*	1314	Kvitsov	Norway	1200	A*,B*,E*,E*,J*,K*
936	Bremen	Germany	100	E*	1323	W brunn (V.Russia)	Germany	1000/150	A*,E*,J*,K*
936	Venezia	Italy	20	F*	1332	Rome	Italy	30	E*,F*,J*
936	RNE5 via ?	Spain	?	F*	1341	Lisnagavey(BBC)	N.Ireland	100	D*,E*,F*,J*,K*
945	Toulouse	France	300	B*,E*,F*,J*	1341	Tarrosa(SER)	Spain	2	J*
954	Bmo (Cro2)	Czech Rep	200	F*	1350	Cesvaine/Kuldiga	Latvia	50	E*,E*,J*
954	Madrid(CI)	Spain	20	F*,E*,F*,K*	1359	Madrid(RNE-FS)	Spain	600	F*
963	Pori	Finland	600	B*,E*,F*,J*	1368	Foxdale(Manx R)	Is of Man	20	A*,E*,E*,H
972	Hamburg(NDR)	Germany	300	E*,E*,F*,J*	1377	Lille	France	300	A*,E*,F*,J*,K*
972	RNE1 via ?	Spain	?	E*	1395	Bolshakov	Russia	500	B*,C*,E*,F*,K*
981	Alger	Algeria	600/300	B*,F*,J*	1395	TV/R via Filake	Albania	500	D*,E*
981	Megara	Greece	200	J*	1395	Lopic	Netherlands	120/40	E*,F*,J*,K*
990	Berlin	Germany	300	B*,E*,F*,J*	1404	Brest	France	20	E*,F*,J*,K*
990	B.Bilbao(SER)	Spain	10	F*	1413	RNE5 via ?	Spain	?	E*,J*
999	Schwern (RIAS)	Germany	20	F*	1422	Heussweller(DLF)	Germany	1200/600	D*,E*,F*,J*,K*
999	Madrid(COPE)	Spain	50	J*,K*	1440	Mamachi(RTL)	Luxembourg	1200	C*,E*,F*,J*,K*
1008	SER via ?	Canaries/Spain	?	F*,J*	1449	Squinzano (RAI)	Italy	50	J*
1008	Flevo(NOS-5)	Holland	400	D*,E*,F*,J*,K*	1449	Redmoss(BBC)	UK	?	E*
1017	Rheinsender(SWF)	Germany	600	B*,E*,F*,J*,K*	1458	Filake	Albania	500	J*
1017	RNE5 via ?	Spain	?	E*,J*	1467	Monte Carlo(TWR)	Monaco	1000/400	E*,F*,K*
1035	Milan	Italy	5	J*	1476	Wien-Bismberg	Austria	600	E*,K*
1035	Lisbon	Portugal	120	E*	1485	AFN via ?	Germany	1	J*
1044	Dresden(MDR)	Germany	20	F*	1485	SER via ?	Spain	?	F*
1044	Sebaa-Aioum	Morocco	300	F*,J*	1494	Clermont-Ferrand	France	20	C*,E*,F*,J*,K*
1044	S.Sebastian(SER)	Spain	10	F*	1494	St.Petersburg	Russia	1200	B*,E*
1053	Zaragoza(COPE)	Spain	10	E*	1503	Bashehr	Iran	50	E*
1053	Talk Sport via ?	UK	?	D*,E*,F*,J*,K*	1512	Wolvertem	Belgium	300	C*,E*,F*,J*,K*
1062	Kalundborg	Denmark	250	A*,B*,D*,E*,F*,J*,K*	1521	Kosice(Citacat)	Slovakia	600	E*,K*
1062	R.Uno via ?	Italy	?	F*	1521	Castellon (SER)	Spain	2	J*
1071	Bilbao(EI)	Spain	5	E*,F*,J*,K*	1530	Vatican R	Italy	150/450	C*,E*,F*,J*,K*
1071	Talk Sport via ?	UK	?	F*,J*,K*	1539	Mainfingen(ERF)	Germany	350/700	A*,E*,F*,J*,K*
1080	SER via ?	Spain	?	F*,J*	1548	Kuwait(VOA)	Kuwait	600	G
1089	Talk Sport via ?	UK	?	D*,E*,F*,J*,K*	1557	Nice	France	300	C*,E*,J*
1098	Nitra(Jerok)	Slovakia	1500	B*,C*,E*,F*,J*	1575	Genova	Italy	50	B*,E*,J*
1107	RNE5 via ?	Spain	?	F*	1575	SER via ?	Spain	5	J*
1107	Talk Sport via ?	UK	?	D*,E*,F*,J*,K*	1602	SER via ?	Spain	?	C*,J*
1116	Pontevedra(SER)	Spain	5	F*	1602	Vitoria(EI)	Spain	10	E*,F*,J*
1125	La Louviere	Belgium	20	E*,F*,J*					
1125	Deanovec	Croatia	100	B*,K					
1125	RNE5 via ?	Spain	?	F*,J*					
1125	Liandringod Wells	UK	1	E*					
1134	Zadar(Croatian R)	Croatia	800/1200	A*,B*,E*,F*,J*,K*					

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

0359-0705) was rated 33233 at 0700 in Appleby. Later, their broadcast to NZ peacekeepers in Bougainville, the Solomon Is and E.Timor on **15.175** (Eng 1006-1205) was rated 44434 at 1029 in Woodhall Spa.

R.Australia has also been reaching the UK in this band. Two frequencies were quoted in the latest reports: **15.240** (Eng to Pacific, E.Asia 0000-1000), rated 23322 at 0830 in Colyton; **15.415** (Eng to E/SE.Asia 0600-0900) 33433 at 0815 in Herstmonceux. Their transmission on **15.240** was a potent 44444 at 0240 in Christchurch, NZ.

Also mentioned in the reports were the BBC via Skelton, UK **15.485** (Eng to W/SW.Europe 0700-1600) rated 44444 at 1113 in Newry; R.Bulgaria, Sofia **15.700** (Eng to W.Eur 1200-1300) SIO 222 at 1208 by **Francis Hearne** in N.Bristol; R.France Int. via ? **15.300** (Fr to Africa 0500-2000) 45444 at 1211 in E.Bristol; WEWN via Vandiver, USA **15.745** (Eng to Eur. Africa 1000-2100) 33333 at 1245 in Truro; R.Oman via Thumrait **15.140** (Eng to M.East, Eur 1400-1500) 43333 at 1435 in Morden; VOA via Kavala, Greece **15.205** (Eng to M.East, Asia 1400-1800) 33333 at 1503 in Scunthorpe; WYFR Okeechobee FL, USA 15.565 (Eng to Eur, M.East, W.Africa 1800-2245) 45444 at 1935 in Northampton; Voice of Nigeria via Ikorodu **15.120** (Eng) 44233 at 2000 in Newry & 55444 at 2220 in Stalbridge.

The occupants of the **13MHz (22m)** band include Swiss R.Int via Julich, Germany **13.635** (Fr, Ger, It, Eng to Africa 0600-0800), rated 44433 at 0745 in Herstmonceux; R.Netherlands via Flevo **13.700** (Dut to M.East, S.Asia 1330-1430) 45544 at 1352 in Northampton; R.Austria Int via Moosbrunn **13.730** (Eng to Eur. N.America 1430-1500) 44444 at 1430 in Truro; UAER, Dubai **13.675** (Eng to Eur 1600-1640) 44444 at 1627 in Newry; R.Denmark via Kvitsoy, Norway **13.800** (Da to Eur, M.East, Africa 1630-1655) 45544 at 1630 in Colyton; VOA via Botswana **13.710** (Eng to Africa 2000-2200) 44444 at 2015 in Morden; R.Canada Int via Sackville **13.650** (Eng to Eur, Africa 2100-2159) 44444 at 2100 in Dudley & 45444 at 2110 in E.Bristol; R.Havana Cuba **13.750** (Eng to Eur 2030-2130) 33222 at 2030 in Appleby & 34323 at 2115 in Rugby; WWCR Nashville, USA **13.845** (Eng to Africa 1900?-0100?) 44434 at 2225 in Stalbridge.

There is much to interest the listener in the **11MHz (25m)** band. During the early morning R.New Zealand's broadcast to Pacific areas on **11.675** (Eng 0706-1005) may reach the UK. It was rated 32323 at 0800 in Dudley & 44343 at 0953 in Newry. Later, R.Australia via Shepparton on **11.660** (Eng to Asia 1430-1700) has been heard here. It was logged as 33333 at 1530 in Stalbridge. R.New Zealand's broadcast to NE.Pacific, Fiji, Samoa, Cook Is on **11.725** (Eng 1650-1750) may also be heard here. It was noted as 22222 at 1740 in Truro.

Many other broadcasters use this band to reach listeners in selected target areas. They include R.Prague, Czech Rep **11.600** (Eng to NW.Eur 0800-0827), rated 55555 at 0825 in Herstmonceux; BBC via Cyprus **12.095** (Eng to W/SW.Eur 0500-1600) 33333 at 0930 in Christchurch, New Zealand; R.Romania Int, Bucharest **11.940** (Eng to Eur 1400-1456) 44333 at 1435 in Morden; R.Netherlands via Tashkent **12.070** (Eng to Asia, Far East, Pacific 1430-1625) 44434 at 1446 in Scunthorpe; R.Taipei Int via ? **11.550** (Eng to SE.Asia 1600-1800) 23322 at 1730 in Woodhall Spa; AWR via Agat, Guam **11.560** (Eng to M.East 1730-1800) 35444 at 1745 in Northampton; All India R. (AIR) via Bangalore **11.620** (Ind, Hin, Eng to Eur 1745-2230) 34433 at 1810 in Morpeth; R.Netherlands via Madagascar **11.655** (Eng to Africa 1730-2025) 44344 at 1911 in Newry; R.Kuwait via Kabd **11.990** (Eng to Eur, N.America 1800-2100) 33343 at 1930 in Colyton; Israel R, Jerusalem **11.605** (Eng to Eur, N.America 2000-2030) 44444 at 2000 in Appleby & SIO 444 at 2007 in N.Bristol; VOA via Sao Tome **11.775** (Fr to Africa 1830-2030) 33343 at 2013 in Storrington; HCJB Quito, Ecuador **11.890** (Eng to Eur 2000-2200) 34323 at 2145 in Rugby.

Good reception from many areas has been evident in the **9MHz (31m)** band. Noted before noon were HCJB Quito, Ecuador **9.745** (Eng to N.America 0100-0600), rated 54445 at 0430 in Christchurch, NZ; HCJB Quito, Ecuador **9.780** (Eng to Eur 0700-0900) 54445 at 0725 in Stalbridge; Swiss R.Int via Julich, Germany **9.885** (Fr, Ger, It, Eng to Nr.East, Africa 0600-0800)

33333 at 0740 in Rugby; R.Australia via Shepparton **9.710** (Eng to Pacific areas 0800-0900) 32232 at 0830 in Colyton; VOA via Philippines **9.760** (Eng to SE.Asia, Far East 1100-1500) 33433 at 1127 in Morpeth.

During the afternoon R.Netherlands via Wertachtal **9.860** (Eng to Eur 1130-1325) was 55545 at 1304 in Scunthorpe; BBC via Kranji, Singapore **9.740** (Eng to E.Asia 1000-1600) 44554 at 1317 in Larnaca, Cyprus; China R.Int via ? **9.785** (Eng to Asia 1500-1600) 43433 at 1555 in Herstmonceux; AWR via Guam **9.385** (Eng to M.East 1730-1800) 33333 at 1753 in Woodhall Spa.

Later, R.Thailand, Udonthani **9.535** (Eng to Eur 1900-2000) was SIO 444 at 1949 in N.Bristol; R.Australia via Shepparton **9.500** (Eng to Asia 1900-2130) 43333 at 1950 in Truro; Israel R. Jerusalem **9.435** (Eng to Eur, N.America 2000-2030) 55444 at 2000 in Appleby; TWR via Meyerton, S.Africa **9.510** (Fulani to W.Africa 1830-2045) 33443 at 2000 in Storrington; R.Polonia (Polish R, Warsaw) **9.540** (Eng to Eur 2030-2130) 34433 at 2052 in E.Bristol; R.Canada Int via Abu Dhabi **9.805** (Eng to Eur, Africa 2100-2159) 34233 at 2121 in Newry; R.Canada Int via Sackville **9.770** (Eng to W.Eur, Africa 2200-2229) 44444 at 2200 in Dudley; R.Vlaanderen, Belgium **9.925** (Eng to Eur 2030-2100) 55544 at 2033 in Northampton; R.Taipei Int via WYFR Okeechobee, USA **9.355** (Eng to Eur 2200-2300) 45544 at 2215 in Northampton; Swiss R.Int via Sottens **9.885** (Fr, Ger, It, Eng to S.America 2200-0000) 44444 at 2338 in Morden.

Despite the congestion in the **7MHz (41m)** band some of the broadcasts to Europe can be received quite well. Mentioned in the reports were R.Japan via Woofferton, UK **7.230** (Eng, Jap 0500-0700), rated 43333 at 0650 in Herstmonceux; DW via ? **7.175** (Albanian) 34554 at 1230 in Larnaca, Cyprus; Sudwestfunk via Rohrdorf **7.265** (Ger 24hrs) 33323 at 1257 in Scunthorpe; AIR via Bangalore **7.410** (Eng, Hind 1745-2230) 43332 at 1745 in Stalbridge; R.Polonia (Polish R), Warsaw **7.285** (Eng 1800-1855) 42243 at 1830 in Colyton; Voice of Turkey **7.125** (Eng 1930-2030) 44444 at 1942 in Woodhall Spa; R.Budapest, Hungary **7.135** (Eng 2000-2030) 44444 at 2000 in Morden; Voice of the Mediterranean, Malta via Russia **7.440** (Eng 2000-2100) SIO 333 at 2024 in N.Bristol & 33333 at 2040 in Truro; R.Bulgaria, Sofia **7.500** (Eng 2000-2100) 55544 at 2035 in Northampton; R.Polonia (Polish R), Warsaw **7.165** (Eng 2030-2130) 34333 at 2043 in Newry; R.Minsk, Belarus **7.105** (Eng 2030-2130, Tues & Thurs) 43334 at 2100 in Dudley; WYFR Family R. via Okeechobee FL, USA **7.580** (Eng 1945-2245, also to Middle East) 44243 at 2154 in Newry.

Some beamed to other areas have also been received here. They include R.Prague, Czech Rep. **7.345** (Eng to N.America 2230-2257), rated 33222 at 2230 in Appleby; R.Yugoslavia **7.115** (Eng to N.America 0100-0130, Not Sun) 55444 at 0110 in E.Bristol; WBCQ Monticello, USA **7.415** (Eng to N.America 2100-1100) 33433 at 0507 in Morpeth.

Many of the broadcasts in the **6MHz (49m)** band are intended for listeners in Europe. Some originate from R.Vlaanderen Int via Julich, Germany **5.985** (Eng 0800-0830), rated 55554 at 0805 in Herstmonceux; R.Netherlands via Julich, Germany **6.045** (Eng 1130-1325) SIO 333 at 1146 in N.Bristol; Deutschland R, Berlin **6.005** (Ger 24hrs) 23232 at 1251 in Scunthorpe; Deutsch Welle (DW) via Julich? **6.140** (Eng Service) 34433 at 1800 in Newry; R.Polonia [Polish R] Warsaw **5.995** (Eng 1800-1900) 43334 at 1815 in Stalbridge; Bayerischer Rundfunk, Germany **6.085** (Ger 24hrs) 55545 at 2000 in Colyton; R.Budapest, Hungary **6.025** (Eng 2000-2030) 45544 at 2025 in Northampton; R.Sweden, Stockholm **6.065** (Eng 2030-2100) 54444 at 2035 in E.Bristol; R.Bulgaria, Sofia **5.800** (Eng 2000-2100) 33333 at 2040 in Truro; Vatican R, Italy **5.880** (Various, Eng 2050-2110) 44334 at 2055 in Rugby; R.Japan via Skelton, UK **6.180** (Eng 2100-2200) 44333 at 2100 in Appleby; R.Taipei, Taiwan via WYFR Okeechobee, USA **5.810** (Eng/Chin 2200-2300) 45444 at 2210 in Northampton; R.Canada Int via Skelton, UK **6.045** (Eng, Fr 2200-2259) 43333 at 2215 in Morden.

Also received in the UK were three broadcasts intended for listeners in N.America. They came from R.Havana, Cuba **6.000** (Eng 0100-0500) 24222 at 0100 in Newry; WEWN Birmingham, USA **5.825** (Eng 0000-1300), logged as 54444 at 0620 in Morpeth; also WHRI South Bend, USA **5.745** (Eng 2000-1000) 44433 at 0827 in Oxted.



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

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★ Freq: 100-1300MHz Tx & Rx
★ Gain: 11-13dB
★ Length: 1.40mtr **£99.95**
★ Conn: N-type

MLP62 Log Periodic

★ Freq: 50-1300MHz Tx & Rx
★ Gain: 10-12dB **£169.95**
★ Length: 3.00mtr
★ Conn: N-type

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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.



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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).

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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).

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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
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SET OF FOUR 2"£49.95

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BNC (Solder Type)£1.00 each
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N TYPE for RG213£2.50 each
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N TYPE to SO239£3.00 each

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RG58 6mm mil spec£0.60 per mtr
RF mini 8 7mm mil spec£0.85 per mtr
RG213 9mm mil spec£0.85 per mtr
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★ Freq.: 1.0-50MHz
★ Type: Loaded
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Increase the performance of your hand-held, without an external antenna.

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(ADAPTERS FOR OTHER FITTINGS AVAILABLE)

MRP-2000

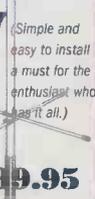
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WEATHER SATELLITE ANTENNA

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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). **£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**



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(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**



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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**



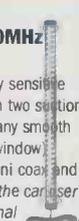
SWP 2000

FREQ. RANGE 25-2000MHz 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**



ADD £6 P&P PER ORDER



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Bandscan Australia

As I foreshadowed last time, the managing director of the Australian Broadcasting Corporation (ABC), Jonathan Shier, has left the organisation. Facing the prospect of being pushed, Mr Shier opted to jump, and resigned his position to be effective from 31 December 2001.

Before that time, however, Mr Shier agreed to take annual leave and effectively left the organisation on 8 November, the date at which Acting Managing Director, Russell Balding was appointed. The government, which appointed Mr Shier in 2000, put a good face on the episode, stating that Mr Shier left the ABC "a much stronger and more relevant cultural institution than when he took up the reins". Critics of Shier put a slightly different spin on the story, raising again issues of his management style.

Radio Australia

Maybe someone at Radio Australia (RA) has been reading my comments about the appalling RA web site. It has now sprung a shiny new look at <http://www.abc.net.au/ra/>. Very nice it is too and things are easy to find which is a first for RA. Radio Australia can be heard on 5.995, 6.020, 6.080, 7.240, 9.475, 9.500, 9.580, 9.660, 9.710, 9.815, 11.650, 11.660, 11.695, 11.880, 12.080, 13.605, 13.620, 15.240, 15.415, 15.515, 17.580, 17.715, 17.750, 17.775, 17.795, 21.725, 21.740 and 21.820MHz. Full schedules are on the web.

Radio New Zealand

Radio New Zealand International (RNZI) transmits on 11.725, 6.095, 11.675, 15.160, 15.175, 15.340 and 17.675MHz most days from 1650-1205. The full schedule is at <http://www.rnzi.com/pages/listen.htm> and the RNZI home page is at <http://www.rnzi.com/>

Asia Pacific TV

As I signalled in 'Bandscan Australia' for last September, the ABC has now launched Australia's latest attempt at an international television service. Dubbed ABC Asia Pacific, the new service is broadcast via PanAmSat's PAS-8 satellite. The service includes two feeds of the television program (one of them is two hours delayed) plus feeds of Radio Australia's English and regional language programming. Initially the service will be a four-hour repeating program loop refreshed with up-to-date news. In May 2002 the loop will expand to six hours.

The Australian government will provide funding of \$A90.4 million (about £32.5 million) over the five years to 2006. To answer criticism of possible political interference, the government has announced that the service will operate in accordance with the ABC Act and ABC editorial policies. In announcing the start of the service, the Minister for Foreign Affairs, Alexander Downer, displayed no apparent embarrassment at the many twists, turns and back flips that this saga has taken to get to this point. Either the political memory is short or our politicians would like the electorate to be in that state.

PanAmSat 8 is at 166°E; ABC Asia Pacific uses the 24c Pacific Beam transponder with a downlink frequency of 4.180GHz, horizontal downlink polarity, QPSK modulation, symbol rate 27500, FEC 3/4. The service is free and can be received on any DVB-S compliant receiver. The PAS-8 reception footprint can be found at <http://www.abcasiapacific.com/about/tune.htm> and the service's home page is at <http://www.abcasiapacific.com>

Antarctica

The Australian Antarctic Division (AAD) manages Australia's research programme on the Antarctic continent. Although short wave radio has been largely superseded by satellite communication systems, h.f. is the main mode of communications between Macquarie Island and field huts on the island.

On the continent itself, h.f. is used by field parties not equipped with satellite terminals and outside v.h.f. range. It is also used to communicate with aircraft flying between stations. Casey and Mawson have Rockwell Collins HF-8022 10kW transmitters and in addition, Casey and Davis are equipped with

Dansk 1kW transmitters. Codan 8528 transceivers are used at all stations; the Mawson and Macquarie Island sets are fitted with Transworld 1kW linear power amplifiers.

I have a very clear picture in my mind of flying directly over Macquarie Island in my flight to and over the continent last year. AAD is at <http://www.aad.gov.au/>

Regional Radio

The Solomon Islands national broadcaster Radio Happy Isles is operated by the Solomon Islands Broadcasting Corporation (SIBC) from the capital Honiara. The station opens at 1900 and closes down at 1100. It operates on three medium wave frequencies out of Honiara, Gizo and Lata and Honiara has an f.m. station.

In addition, SIBC operates two short wave frequencies out of Honiara; frequencies are 5.020 and 9.545MHz. Much of the broadcasting is in English including news, current affairs and sport from the BBC, Radio Australia and Radio New Zealand. The Internet connected can find SIBC at <http://www.sibconline.com.sb/>

Radio Fiji operates a network of f.m. and medium wave a.m. stations throughout the islands. As well as 27 f.m. transmitters, Radio Fiji has ten a.m. transmitters used for Radio Fiji 1 and Radio Fiji 2. The network runs from 1800-1300. On the Internet Radio Fiji is at <http://www.radiofiji.org/>

The National Broadcasting Commission of Papua New Guinea operates three networks including the national Karai Service broadcasting from Port Moresby on medium and short wave and the Kundu Service operating on short wave through nineteen provinces. The Karai medium wave service is extended to provincial stations by microwave links. Some short wave frequencies are 3.220, 3.245, 3.260, 3.275, 3.290, 3.315, 3.335, 3.345, 3.355, 3.365, 3.385 and 3.395MHz.

The Mauritius Broadcasting Corporation (MBC) covers the island with nine f.m. and three medium wave a.m. stations. One of the m.w. stations delivers BBC World Service programming. The Mauritius island of Rodrigues with a population of about 26,000 sports one f.m. station and one medium wave a.m. station. MBC is at <http://mbc.intnet.mu/> on the web.

The Vanuatu Broadcasting and Television Corporation web site VBTC Online is at <http://www.vbtc.com.vu/> and may be something to keep an occasional eye on; there is very little content at this stage.

Radio Kiribati is the re-badged Radio Tarawa operated by the independent Kiribati Broadcasting and Publications Authority. It broadcasts on the f.m. band, on medium wave and on 9.810MHz short wave.

The Association for Broadcasters of the Philippines is at <http://www.kbp.org.ph/>

Reports

Michael Beesley from Romsey in Hampshire reports that he has heard Radio Australia on 9.500MHz 43343 at 2020UTC, on 9.710MHz 35433 at 0839, 11.660MHz 32232 at 1522UTC, 15.240MHz 44544 at 0800UTC, 15.415MHz 55544 at 0740UTC, 17.750MHz 35443 at 0612UTC and 21.820MHz SINPO 24322 at 0905UTC; he says that RA has "amazingly good" ratings around S4 in the period between 0730 and 0900UTC. Michael alternates between a Sony ICF-2001D and a Sony ICF-SW100, clipping a loft-mounted long wire to the operational set's telescopic antenna. He says that he has been an avid RA listener since the 1970s when he was a member of the Listeners Club.

Martyn Gardiner from Portsmouth has E-mailed again with some more reception reports from RA. At around 0830 Martyn pulled in 15.415MHz on his Roberts portable. Later at 1300 he could clearly hear 21.820MHz on his Icom R8500 and later again on the same set he pulled in 9.475MHz at around 1600 RA. On another occasion, Martyn managed RA loud and clear at 2000 on 9.500MHz, but the signal faded an hour later.

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.



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N.B. Picture of radio above is not the latest model.

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Comments from John Griffiths

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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 supplied.

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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 aluminium 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: $\geq +75dBm$ (2nd ord), $\geq +50dBm$ (3rd ord). (Static protection included). For the true profile.

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

PROFESSIONAL QUALITY

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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.

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Ready assembled wire antenna offering low noise reception on long, medium, short wave (100kHz-40MHz)

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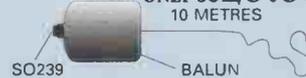


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Listening by

Comp

This month Martin Peters continues his journey through the world of alternative listening - the phenomena that is 'Internet Radio'. Are you ready to join the action?

Last month we took a look at the range of radio stations broadcasting over the web and the type of hardware you'll need to hear them. This month we're going over the different types of Internet connection available to you, the whys and wherefores of hooking the PC up to your hi-fi, and the jerky blur that one day will be the world of Internet TV.

ISP & Connection Type

Assuming you have a computer humming away in the corner the next important decision concerns your connection to the Internet. There are several technologies

WRN Control room. Courtesy WRN

Router

part 2

from which to choose and by far the most popular is a standard connection via your telephone line. With it, you can expect download speeds of up to 56 kilobits per second (Kb/s).

There's a host of Internet Service Providers (ISPs) out there and if you intend to use your PC for listening to webcasts a good deal of the time you'll need to study the tariffs and the conditions of service to find the right provider for you.

ISPs generally fall into two broad groups. Those which charge a fee each month and those who do not. Easy decision, you may think. Well, not entirely. In the case of my own former ISP, I had a choice. Either I pay a monthly fee - around £7 - and enjoy the benefits of their helpline for free or the monthly fee could be waived, but then calling the helpline would cost one pound per minute - ouch!

If you're new to the Internet

especially if you're a web radio listener. There are steps you can take to reduce your 'phone bill. For example, the Peters household, rather sadly, made our ISP our 'best friend' with BT's 'Friends and Family' option. This delivers 20% off normal rates and meant that we could log on for a little over 30 pence an hour at the weekend.

Recently, ISPs have begun to offer so-called unmetered access to the web which means that for a monthly flat fee you can remain on-line for as long as you wish without the worry of racking up huge call charges. Most companies run a two-tier system offering unmetered access evenings and weekends for, say £10 a month whilst £15 a month buys you unlimited access at all times. If you are a heavy user you'll definitely want to consider these options.

One word of caution. There is at least one service provider which specifically excludes connection to online audio on its unmetered service. They know that some users would, given half the chance,

connection, as described above, provides most people's gateway to the net. It can be an inexpensive route to getting on-line but ties up your 'phone line and with around 56Kb/s as your maximum speed, limits the audio quality of what you'll be able to hear.

Faster Still

Next up is a connection over an Integrated Services Digital Network, or ISDN line. BT, who provide the service, are slowly withdrawing ISDN whilst rolling out other faster, cheaper alternatives.

The second most common form of connection is that provided by cable TV companies. Here in Reading

hardware which will become redundant.

Be advised that there are numerous links in the Internet chain and your connection will only appear as fast as the weakest link. If you are surfing through websites from countries that do not enjoy reliable or fast communications, download



speeds can still be slow. Additionally, when Internet usage is at its greatest, i.e. when the United States is awake and on-line, down goes the

speed. Think of the Internet as a resource. More users simultaneously on-line inevitably results in a slowing-down of the system.

There are several other broadband options available either now, or in the near future. Inevitably there will always be something better just around the corner but sometimes it's best just to bite the bullet, take a deep breath - and go for it.

More Sophisticated

There are a couple of more sophisticated broadband options open to you right now. One is to use a wireless ISP.

Instead of being connected to your provider via the telephone (or any other) line, communication is maintained via a wireless link. Like cable broadband, the connection is always on, and payment is by means of a monthly flat fee.

The local operator in the south of England is called Tele2 and they operate their system at a frequency of around 4GHz. Not a problem to most other



The i1000.

you may be calling the helpline occasionally to get things sorted. If you're calling the helpline more than a few minutes a month you'll be needing the first option. Check that after a few months, when things have settled down, you can switch to the 'free' option.

Free, that is, except for your 'phone company' call charges to the service provider. These can add up to a tidy sum month -

remain logged on for hours. Isn't that the idea? Anyway, if in doubt, ask before you sign up.

Other operators automatically break the connection after a pre-determined time - two hours is common. You can reconnect straight away as many times as you wish so this may not be an issue for you.

A simple 'phone line

Listening by Computer part 2

spectrum users apart from those with C-band satellite reception systems which operate on similar frequencies. Around £47 a month gets you connection to their 512Kb/s service. As well as the regular standing charge, there's an up-front cost of around £150 for installation of the 300mm square, flat-plate antenna and associated equipment.

The concept of wireless Internet is a good one, however the choice of frequency, in this case, is questionable. The Radiocommunications Authority are auctioning off chunks of spectrum in the 28GHz region with a similar system in mind so 4GHz may be phased out over time.

What else? Well, there are some satellite-based options up and running. The more common of the two downloads pages direct from the satellite at lightening speed. However, requests for

telephone connection. This is because the data flow between you and the satellite is via your dish. Each time you click your mouse, the request is beamed direct

telephone line. Sending high speed data in this way will, if the lines aren't perfectly balanced, result in an unacceptably high level of interference to certain radio users. The majority of the public would not notice this increase in background noise, listening, as they do, to radio stations intended for their area.



Licensed radio amateurs and short wave

listeners, searching for that elusive, weak signal from some exotic location, may find their task that much harder.

Power Line (Tele)Communications - PLT or PLC - poses a similar, if not greater potential threat with high speed data travelling over power cables and house mains-wiring.

The concerns of radio enthusiasts will probably be sacrificed on the altar of broadband Internet for all and could eventually spell the demise of certain aspects of the listening hobby.

Internet TV

Is it there and can you watch it? The answer, on both counts is 'yes'. The pick of the world's television is available on your PC - right now. Too good to be true? Right again.

Unfortunately, with the vast majority of people's Internet connections at 56Kb/s, this severely limited bandwidth does not exactly lend itself to smooth, pin-sharp, full screen video with accompanying stereo sound. In fact the stereo sound alone can push the connection to its limits.

Given the restrictions of the system, what can you expect to see? To be brutally honest, the answer is best summed up with that well worn phrase, 'It's TV Jim - but not as we know it'. The best you can expect from a live stream over a standard Internet connection is an image with reasonable definition and smooth video but not much bigger than a postage stamp. Alternatively you can opt for a larger, beer mat sized image or even select the 'full screen' option. The downside of the big picture is blocky, distorted imagery that Picasso would have been proud of whilst the jerky video bears all the hallmarks of a pop video from the early eighties.

Either way, you'll not want to view any of this stuff for too long, not unless the content is extremely compelling. Despite the use of compression techniques, something has to give. Given time, things will improve and one day the Internet TV experience will be every bit as acceptable as that from your goggle box.

Many Internet TV webcasters realise the bulk of their audience's connections are restricted and in a bid to conserve bandwidth, limit their



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information, i.e., each time you click on your mouse, and uploading, has to be sent via a conventional 'phone line and call charges mount up, as before. Add to that, the installation costs of a small dish and the special modem card required - and the monthly flat fee. This system is currently available via the *Hotbird* satellites at 13°E. In the UK, subscribers to Sky Digital are being promised Internet via their minidish.

The second, more unusual satellite system requires no

the equipment - receiver board, transmitter board, and the dedicated dish to enable transmission to the satellite too expensive. Prices are set to fall though and Internet via satellite may end up being the food of the future.

Just around the corner are two controversial, to radio hobbyists, at least, methods of Internet delivery. One is called ADSL, the other is PLT.

ADSL stands for Asymmetric Digital Subscriber Line and, in a nutshell, involves squirting Internet data over your existing

transmission quality. So even if you opt for a high-speed connection, you'll not necessarily reap the benefits.

As with Internet radio, television need not be live. Archived streams are usually made available by the more net-friendly broadcasters. The potential exists to download a huge archived file that permits a VHS-quality video to your PC. It's not generally an option as doing this will not only take hours (literally) but clog up a fair proportion of your PC's hard drive.

It is usually news programmes that are archived for later retrieval so poor quality compromising artistic content of the stream shouldn't be an issue.

To kick you off, best to go to a reliable site to see how your system measures up. It's back to BBC Interactive www.bbc.co.uk. On the homepage, just under the search box on the right hand side, look for the BBC NEWS Video option

Click on this and Real Player will go through the motions, connecting, and then buffering in the stream. If you still need the player go to www.real.com and download it.

Then up pops the BBC logo accompanied by the voice of the announcer in the continuity suite, affectionately referred to as the 'broom cupboard' (the studio - not the presenter). And 'broom cupboard' is how it sounds - a function of the low bit rate reserved for the audio that streams with the pictures.

Home cinema with surround sound it ain't but 'jerk-o-vision' does possess a certain pioneering charm.

Now consider this. You can now sit back and watch, all right, squint, at TV from around the globe, brought quite often, on-demand, to your PC screen. Where else, apart from India, can you settle

back and watch the news from New Delhi?

For that matter, where else can you 'tune in' the Naked News? Watching the station with nothing to hide bringing you the bare truth is a surreal experience and the phrase



"Bush administration", will for ever after, bring a smile to your lips. Oh and yes, you'll have to find the website for yourself.

To be serious for a moment, the Internet knows no boundaries and provides an ideal platform for those wishing to disseminate otherwise unbroadcastable material. Protest groups, wishing to outlaw, for instance, abortion and capital punishment make available, on their websites, graphic and shocking videos to help make their point.

To the rescue comes www.comfm.com with a good listing of what's available - over 400 live television streams and rising.

Interfacing The PC With Your Hi-Fi

The final link in the chain between the radio station and your ears is the loudspeaker system. As mentioned last month, it is possible to buy quite a decent set of PC speakers or a conventional pair of headphones for a

reasonable outlay.

As an alternative, why not use wire-free headphones or 'speakers'? Internet radio



listening will become an 'armchair' experience as you're no longer tied to sitting in front of the PC.

Headphones first. Audio from the PC is fed to a small transmitter unit which broadcasts to the immediate vicinity by means of either infra-red or radio waves. A receiver, usually an integral part of the headphones, reconverts the signal back to audio where it is fed to the ear-pieces.

My personal preference is the radio solution. The infra-red variety do not have the necessary frequency response to provide anything like high fidelity added to which most models are mono only. Another big disadvantage of these is that they operate over a maximum range of about ten metres.



Finally, the wearer of the headphones must remain within line-of-sight of the infra-red transmitter box or else the signal will be lost.

Within the radio variety of wire-free headphones there are two types. Those that use v.h.f. frequencies at around 49MHz and those that use a

u.h.f. link at around 864MHz. The u.h.f. type are what you need.

Systems operating on v.h.f. are more prone to interference, not only from electrical appliances but also from other users of this part of the radio spectrum - baby alarms and walkie-talkies spring to mind. They also share some of the qualities of the infra-red headphones, that is, they are usually mono only and whilst not strictly line of sight, have only a short range of a few metres before interference makes their use undesirable.

In contrast, the u.h.f. variety offer much higher quality and are far less prone to interference. The u.h.f. models are more accomplished at transmitting through walls and ceilings so the prospect of listening to Radio Nepal via the Internet whilst cutting the grass becomes a real possibility.

Bottom line - use wireless headphones that employ u.h.f. radio as the link. Expect to pay around £50 for the kit - that's the transmitter and one set of headphones. If you have a friend, he or she can buy an extra set of and listen in as well.

If you want to listen remotely on loudspeakers then most of the above holds true. Infra-red remote speakers are not available. Go for the u.h.f. radio variety, as before. However, don't attempt to cut the grass with a pair of these strapped to your hips. It's not clever. It's not funny - and your teenage daughter will never speak to you again.

Of course the best sound system in the house will undoubtedly be the hi-fi. If you can tap the potential of that then you're in business.

If your PC is in the same room as your hi-fi then the solution is a simple one. Merely connect a suitable cable between the line-level output of your computer's sound card and the auxiliary input of your amplifier. Select AUX on the hi-fi or amplifier and enjoy.

Exercise caution whenever listening to Internet-derived audio sources as audio levels can vary enormously. Blowing your speakers - or worse still, your eardrums - does not make for a good day.

If your hi-fi is remote from your PC and you do not thrill to the sight of wires trailing all around the house then a radio link is called for.

If you are reading this in the USA then just pop along to BestBuy and purchase a device called a Sound Feeder. This neat, battery-powered, \$20 device, smaller than a pack of cigarettes, plugs into the line



output of the computer's sound card. It's actually designed for bridging the gap between a portable minidisc or CD player and a car radio and it suits our needs perfectly. It rebroadcasts audio, in stereo, on Band II f.m. 87.5-108MHz. Select the tuner option on your hi-fi, find a clear channel on the f.m. band, tune the audio sender to this and you're away. Of course, you can listen to your f.m. rebroadcast on any radio in the house. Be aware that your neighbours can also listen along so your secret passion for the Bay City Rollers may not be a secret for long. Unfortunately, these neat devices are not legal in the UK. In any case, congestion on band II, certainly in the London area, means that it would not be easy to find a clear channel.

Still in the States, and a device called the MP3 Anywhere is being marketed by X10. This uses 2.4GHz technology and looks like being OK for use in the UK - www.x10.com for more.

So is there a legal, readily available alternative? After an exhaustive search up and down my local high street, the answer would appear to be a definite maybe.

Some wireless remote speakers come equipped with a

line-out facility which can be connected to the hi-fi's auxiliary input but most do not.

I found one British company (QED) able to supply a package that more than meets our requirements, the only drawback



Video senders.

being that it probably costs more than your house.

The Best Option

So, millionaires aside, how do we wirelessly connect our PC to the hi-fi? The answer is to buy a video sender but only use the audio facilities on it. Video senders accept audio and video information from a VCR or DVD player and rebroadcast them on around 2.4GHz. The receiver unit picks up the radio signal and reconverts this into its video and audio components. The output is usually plugged into your TV or VCR via a SCART lead. For our purposes take the audio output of the receiver and plug it into the amplifier's auxiliary input. Quality is plenty good enough, the super high frequencies employed are perfect for passing through walls and ceilings and very unlikely to suffer interference from other users of similar devices. Range will be in the order of 30m.

Some models require a video (as well as audio) signal, present on the input otherwise the transmitter does not fire up. Try and check this out with the sales staff before you purchase - good luck.

Buying a video sender for your Internet radio needs

means you'll have such a unit to hand for other purposes. When Internet TV comes of age, permitting an image

larger than a pea with smooth motion, or, if you've committed your treasured photo collection to CD you'll be able to beam it around the house. PC World sell a 'DVD Sender', specifically designed for hooking up to your PC, which should do the trick.

Designer Interface

If you want the very best in designer PC to Hi-fi interfaces coupled with the convenience of armchair operation then there is only one solution. It comes in the form of the iM Remote Tuner.

It's super cool and here's how it works. First, install the Remote Tuner software. This comes included in with the hardware or alternatively, you can download it from their website - www.imnetworks.com

The hardware consists of three separate items. First, the base station, which plugs into your PC's USB and 'speaker sockets. The function of the base station is to not only accept commands from the Remote Tuner but also to broadcast to the receiver box, which you have connected to the AUX input of your hi-fi.

The radio link on the USA version is at around 900MHz and as such, is not legal to use in Europe. A CE-approved 863MHz band version is being worked on.

So far, this system mimics a simple audio sender. So what's different?

What is different is the

Remote Tuner that you can operate from the comfort of your favourite easy chair - or your second favourite if the cat has beaten you to it.

The tuner offers 25 bands of stations - sorted by type - 32 stations per band. Apart from the ability to scroll through the multitude of stations you can connect and disconnect to and from the web, call up station information or even details of

the track currently playing.

Finally, iM have teamed up with Philips and have come up with the FW - i1000 Internet Audio mini hi-fi system - the only solution that seamlessly integrates conventional a.m. and f.m. with iM - all in one box.

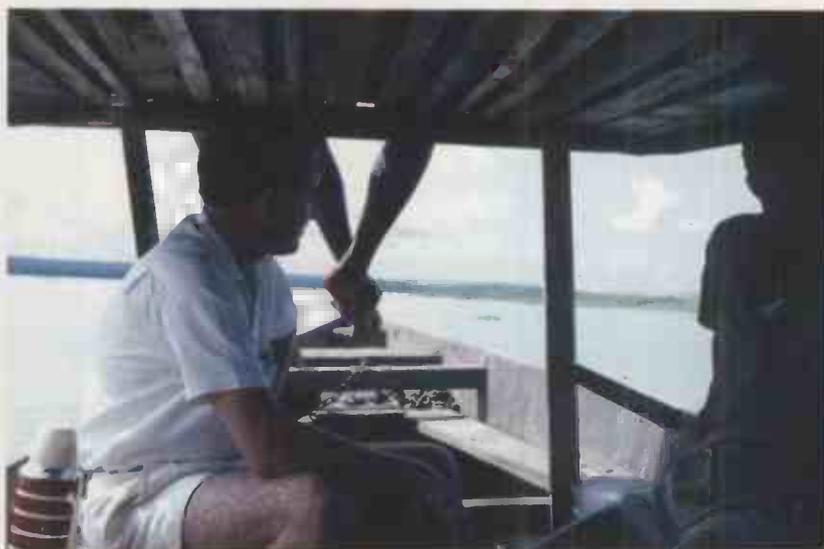
Plug into the mains. Plug into your broadband Internet connection and away you go. Apart from the a.m./f.m./iM tuner, the i1000 plays ordinary, recordable and rewritable CDs, and boasts a dual cassette deck - why not MiniDisc? Just released in the USA, a similar model should hit the UK high street sometime in 2002.

Next time we'll include a look at the various listings sites and online tuners to help find your station of choice, and how to start your own on-line radio station. See you there. To be concluded...



see to my surprise that I have been writing articles for the *Short Wave Magazine* since early 1995, and the flow of interesting receivers has still not come to an end. Nor indeed has my own education because hardly a day goes by when I fail to find something new about the hobby - but what hobby? It all started out at a 'Hobbies' exhibition in my home town when, at the age of about 13, I was swept away by a display of amateur radio in the grand old style, where most of the equipment was home-built, although the better-off amateurs could acquire brand new AR88s for about fifty pounds. I've held an amateur licence since 1961 and have been actively employed in the field of communications for the last 45 years, but the keen involvement continues even though I 'retired' after we sold the Lowe Electronics company, only to return to full time employment

importance of accurate performance measurement, whether it be on a single piece of equipment or a long and complex series of communications links which comprise a 'system', and this was never better impressed on my mind than when I worked in Nigeria for Marconi in the early 1960s. Sitting in a sweaty Nigerian (non air-conditioned) carrier room at midnight in Warri down in the Niger delta, trying to establish correct transmission levels all the way to Kano some 1000km further north on the edge of the Sahara, and using test equipment of the era was quite a trial, not helped by the fact that at least one



1) How wide did you say this river is?

some of today's superb test gear to ease the load (and bypass Benin)!

Keeping Links Running

The poor old test gear had a hard time in those days, being carted about in Land

bush, we transferred to a dugout canoe to cross the Niger (over a kilometre wide at this point) and eventually disembarked complete with test gear at Agenebode. The first picture is of my colleague Martin Hinton looking apprehensively at the distant river bank whilst the

A Testing Time

John Wilson pauses from supplying a steady stream of the analysis of receivers old and new to explain what's involved in producing his regular feature.

running a UKAS accredited EMC test facility down here in Devon. However, working for the leading communications companies in the world soon teaches the callow young engineer the

of my Marconi colleagues was actually talking to me from the bar of the local club in Benin and reading his input and output levels from the bottom of a gin glass. What wouldn't I have given for

Rovers down bush tracks, and used in 90°F temperatures at 90% humidity. As an example of the conditions, I have included a few pictures which show what we had to do to keep some of the links running. From Enugu, the capital of the Eastern Region of Nigeria, we would drive on a reasonable road to Nsukka then take off down a single track rutted series of foothills known as the road to Idah, pausing (sometimes for long periods) at a bush ferry across a deep river where the ferrymen wanted paying in lots of sixpence pieces, no other currency being accepted. At Idah, now being some 160km deep in the

second picture shows the signal generator and other bits being head loaded for carrying to the radio site. The biggest chap in the team is casually carrying a petrol generator on his head. Having carried out any system checks we than reversed the whole trip, arriving back home a long time from when we set out, and suitably caked in mud and red dust. It's a tribute to Marconi Instruments that their equipment stood up to this treatment. Not that it was any easier closer to base.

The third picture is of our repeater station at Aboh, and that tower is one hundred and twenty metres high. Our

method of antenna matching was to climb all 120m carrying a v.s.w.r. bridge and a box of calibrated lengths of coaxial cable which were inserted in the feed line at the antenna until the matching was reasonable. Then we took them out and climbed all the way down again to insert the same lengths at the bottom to fiddle the matching over the whole length, and woe betide you if you dropped the v.s.w.r. bridge from 120m up. Not even Marconi equipment could survive that fall, but my goodness were we all fit in those days.

A final reminiscence is in the fourth photograph when we were trying to establish why a single channel v.h.f. link across the delta was prone to fading, and we travelled up the Niger from Warri in the Government Launch (which was a flat bottomed stern wheeler with a crew of about 20) to a place called Bomadi, just to take signal strength readings. One of the small boys in the picture has just said "I say you chaps, have you considered the effect of Fresnel diffraction on the horizon tree line during the wet season?" Once again the poor old test equipment was being used in appalling conditions, and looking back I do wonder just how accurate our results were. At the end of my time in the bush I was asked to stay behind in Nigeria and join the staff of the training college near Lagos where a team of Marconi engineers were training local engineers to take over maintenance of the country's communications network. Among my own teaching schedules was a new task to establish the first

h.f. radio training courses and run them, with such up-to-date gear as the dear old T-1509 h.f. transmitters and brand new Marconi Atalanta receivers - wow! I've never liked the Atalanta from that day to this.

Traceable Standards

My experiences with Marconi did cause me to appreciate the importance of measurement accuracy, and in answer to my earlier question about "which hobby", I have to admit that test and measurement has become my abiding interest, to the point where I have actively disposed of a good part of my radio collection in order to improve my test facilities. Where some readers of the magazine will have racks of receivers, I have piles of test gear, and instead of winking out rare DX I am more likely to be thinking about alternative approaches to definitive measurement of equipment performance. I've carried out a lot of reviews in the last five years, and our editor thought it might be of interest if I described my



2) They've got strong necks in that part of the world, the generator weighs about 50kg.

measurement equipment and methods. Remember that this is my hobby, and no doubt many readers who are currently involved in the communications industry will have access to lots of very whizzy and expensive test gear. However, I chose my own equipment with some care, and since I am associated with a UKAS accredited calibration company (as well as the EMC test facility) I can usually guarantee that my measurements are regularly checked against traceable standards.

Starting out with signal generation, **Pic 5** shows my main signal sources. Starting at the bottom we have a Schlumberger synthesiser which is interesting in that it

will generate an s.s.b. signal with fully variable carrier level relative to the sideband, and is useful for checking s.s.b. or i.s.b. equipment intended for use with a pilot carrier, usually at -26dB relative to peak sideband level. Not often in use, but too useful to discard. Above that we have two HP 8640B signal generators which I use for two signal testing after having the 'John Thorpe' modifications incorporated. I know that some of you may say "That's 1980s equipment, can't he use something newer?" but when it comes to measuring low phase noise h.f. receivers the 8640B, being cavity tuned, is one of the best low noise generators in the business, unless you have about £20,000 to spend. I've made it a practice to check every signal generator which comes into the EMC lab for noise performance, and there is virtually nothing to match the 8640B. The only source which is potentially unbeatable is a properly engineered crystal oscillator, and that's why I use two such

3) Fancy climbing this tower?



oscillators spaced 20kHz apart for close-in intermodulation measurements. Otherwise, I always turn to the 8640s. Above those in the stack is a faithful Marconi 2019 which I have had for years and is still fine if I need a third signal source. You can currently buy the 2019 for under £500 and the 8640B for £600 to £1000, so they are within reach of the collector who pays similar prices for receivers. Sitting right on the top are a Racal 9008 modulation meter, and an HP 3400A true r.m.s. meter which I regularly used for signal to noise measurements until I moved on to a more

FSA spectrum analyser which I sweated blood and tears to acquire. I first met the FSA when we bought one for John Thorpe to use as his main development tool in the design of the HF-125/225/150 receivers, and I recall the price being in the region of £40,000 at the time. I can't go into all the details of this instrument because I would use up the whole magazine just describing its basic capabilities, but I haven't yet found anything I needed to measure which the FSA couldn't do for me. In my professional capacity I have been evaluating the latest Rohde & Schwarz mid-price



4) Fresnel diffraction did you say?

comprehensive instrument. The 3400A is a genuine true r.m.s. instrument rather than the typical audio power meter or voltmeter which are usually average or mean level reading, calibrated to read r.m.s. The drawback with these instruments is that the calibration normally refers only to sinusoidal signals, whereas the 3400A is waveform independent and is therefore capable of measuring complex signals such as audio in the presence of noise, whereas the other instruments could be in error.

Large Lump...

Having generated signals, I now have to measure them. **Pic 6** shows the equipment I use. The large lump at the bottom is a Rohde & Schwarz

analyser, the FSP, which has a price tag of £24,000 (but this is the mid-price analyser), and I still prefer the FSA, even though it weighs 140kg and gets quite warm in use. From 100Hz to 2GHz, in measurement bandwidths down to 6Hz and a noise floor of minus 150dBm, the FSA is quite astonishing. **Fig.1** shows a 100MHz signal at minus 140dBm clearly measurable above the noise floor. In the photograph of the stack, the FSA is showing off-air measurement of my favourite test station, Radio Five Live on 909kHz, and you should be able to see the absolutely rectangular spectrum occupancy demonstrated by these heavily processed a.m. stations.

Sitting on the FSA is



another signal generator, this time the HP 8657A which I find

very convenient for basic sensitivity checks simply because everything is driven from keypads and it's quick to enter test frequencies, signal levels and modulation depths. The reason for not having it in the 'generator' stack is that when stacked with the Marconi 2019, there is an inexplicable coupling between the two generators which produces a low frequency 'swish' in a test receiver. I suspect it's coupling between the two master oscillators, but it's just as easy to separate the two generators to avoid it. Above the 8657A is an HP 8903B audio analyser which I use for signal to noise, SINAD, and m.d.s. (minimum discernible signal) measurements. Being relatively modern, the 8903B makes life easy and accurate

for me, whether I'm measuring audio from a receiver or distortion from an audio system. The SINAD measurements are accurate down to about 2dB, and measuring m.d.s. at 3dB is stable and easy, although I do check using the HP 3400A just to make sure. In fact, I usually try to carry out critical measurements using two sets of instrumentation, just to have confidence that they are correct. This is an approach instilled in me by the NAMAS/UKAS accreditation examinations where you have to demonstrate exactly how you know the measurement you are making is both accurate and traceable. Because the 8903B has a built-in low distortion audio source, I tend to use this to externally modulate my signal generators when doing a.m. measurements on receivers so that I know that the eventual SINAD readings are not influenced by modulation source distortion.

continued on page 32

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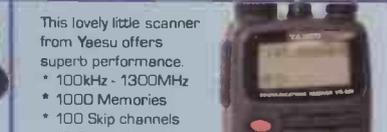
YAESU VR-5000



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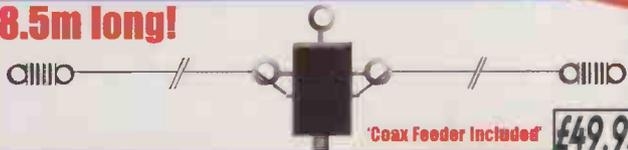
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 * Alpha numeric recall
 * Size 58 x 95 x 24mm

£199
 Plus £6.00 Carr.

WDP-30 SHORT WAVE DIPOLE

NEW

8.5m long!



'Coax Feeder Included' **£49.95**
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- * True Dipole Performance
- * Receive Only
- * 1MHz - 30MHz
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- * Low noise design.
- * Matching Module
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- * 10m Coax

This new design from Watson gives you dipole performance across the entire short-wave bands. Unlike random wires, it reduces the background noise and pulls in the signals. And its small size means it will fit most gardens. Absolutely no adjustment required.

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NEW FROM GARMIN

IT TALKS TO YOU

"TURN LEFT
IN 2 MILES"



It talks to you and is supplied with street level mapping, 32Mb storage card and card reader for quick PC programming. Examples of voice info are: "turn left 2 miles", "take 2nd left at next roundabout", "house number 17 is on your left", "turn right in 300ft." These are in stock now.

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WITH WAAS
for even greater accuracy



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IC-R75 RECEIVER 30kHz - 60MHz



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Phone

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ICOM IC-R8500 "EDITORS CHOICE"



The IC-R8500 has a wide frequency range continuously from 0.1 to 200MHz. It's ideal for the radio amateur or shortwave listener.

The IC-R8500's all mode capability allows reception of a variety of different modes, from the world over. SSB (USB, LSB), CW, AM, FM and WFM are included, along with several 'specialty' modes, CW narrow, AM wide, AM narrow and FM narrow are available (Requires optional Ft52A).

ICOM IC-R10E 500KHZ - 1300MHZ

USB, LSB, CW, AM, FM, WFM * 1,000 Memories * Bendscope * Noise Blenker * 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.



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Plus £6.00 Carr.

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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.

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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)

ICOM IC-R2 500kHz - 1309MHz



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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 CIV 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

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New modes - CD with latest programs

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Phone
Plus £8.00 Carr.

MFJ-461 MORSE CODE READER



£84.95
Plus £6.00 Carr.

The MFJ-461 is a stand-alone pocket sized Morse code reader. Similar in size to the MFJ Morse tutors, all you do is hold it close to your receiver and it instantly displays CW on the 32 character high contrast LCD. It has automatic speed tracking, a serial port - if you wish to connect to a computer to display the text on a bigger screen. It can also be connected to your receiver's audio if required. Truly pocket sized at 57 x 82.5 x 25.5mm and 156g.

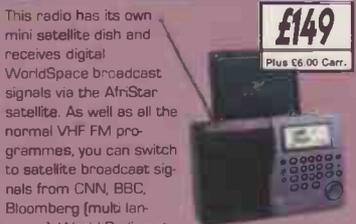
SANYO WS-1000 WORLD SPACE DIGITAL RECEIVER



Comes complete with detachable mini flip-up dish and with 5m of cable. Receives digital broadcasts from the WorldSpace Satellite. Runs from supplied AC mains adaptor or optional batteries. Audio output via internal mono speaker; external optional stereo headphones or stereo line out via phono connectors as well as a S/PDIF digital audio output. It also has 32 memories complete with remote control and a port for multimedia services. Amazing performance, amazing price.

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Plus £6.00 Carr.

HITACHI KH-WS1 WORLD SPACE DIGITAL RECEIVER



This radio has its own mini satellite dish and receives digital WorldSpace broadcast signals via the AfriStar satellite. As well as all the normal VHF FM programmes, you can switch to satellite broadcast signals from CNN, BBC, Bloomberg (multi language), World Radio network works 1 & 2, and lots more. High quality mono via the internal speaker and stereo via the headphone socket. Runs from AC, 4 x D cells (not supplied), or external 6V.

£149
Plus £6.00 Carr.

continued from page 29

Burst Tests

The elderly unit above the 8903B is a Lyons Instruments pulse generator which I use to drive the infamous a.g.c. burst tests which show up the failings of older receivers such as the RA17 and BC-348, as well as highlighting those receivers in which the a.g.c. performs well, such as the AR7030. This is the test which drew to my attention the unexpected problem with fully d.s.p. based a.g.c. systems such as that in the Collins 95S-1, in which the processing delay in the d.s.p. system meant that the analogue sections of the receiver went into severe overload until the processing delay had passed. TenTec avoided this problem in their RX-340 by having an analogue a.g.c. loop ahead of the digital a.g.c. system, thereby preventing the front-end 'chirp' demonstrated by

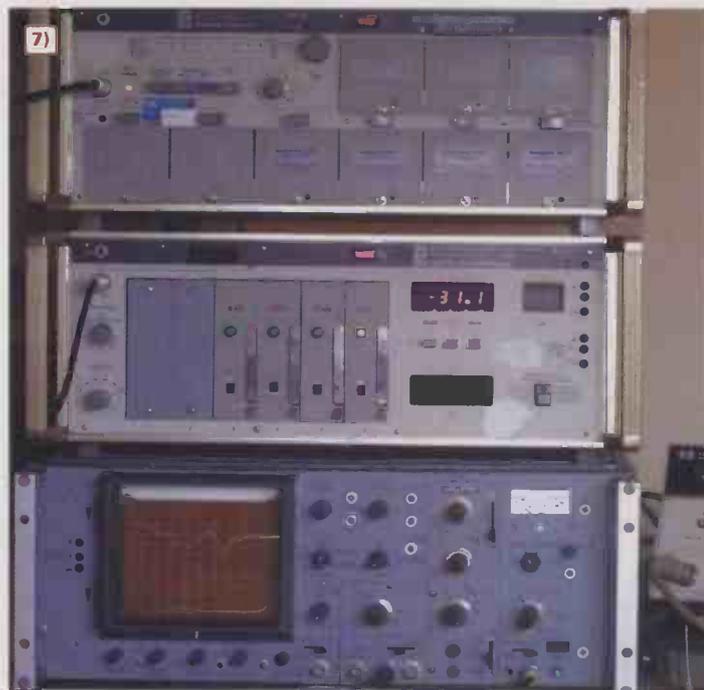
site in the photograph, is my full time companion the AR7030, which I use as a standard of reference when measurements on other receivers cause me to stop and think. I can switch on the '7030 and know absolutely that my test routines are correct, because it is not only a top r.f. performer but a never varying standard of excellence. It astonishes me every time I use the '7030 that this tiny unit can whip the pants off several examples of rack mounted professional equipment.

Other Aspects

That's not the end of my hobby, because I also try to find time to look at other aspects of radio, and I use an inventory of various units to build test configurations as the fancy takes me. The final photograph **Pic 7** is my current 'under investigation'

be able to see the basic frequencies at which the antenna is resonant, shown

to-end distortion in multi-channel systems. The method is basically to send into the



the 95S-1. Clever chaps over there in Dolly Parton Way. The pulse generator was very cheap to buy, but gives me the facility to vary rise and fall times of the r.f. burst and has given me a lot of pleasure in seeing how different receivers behave under controllable and repeatable test conditions. Finally, sitting on top of the pulse generator, but out of

bench which carries at the bottom an elderly Rohde & Schwarz video analyser which sweeps and measures between audio and 20MHz and which I use in conjunction with a Wiltron return loss bridge as a basic scalar network analyser. In the photograph I am using it to look at the return loss of my 'average listener's long wire' antenna and you may

by the impedance dips at around 4 and 6.5MHz on the screen. Above this are two units recently bought on a whim, which I am using to try a different 'single measurement' approach to h.f. receiver testing. In my system testing days, it was a common technique (introduced by Marconi Instruments) to use broad band noise to check for end-

system a broad band noise spectrum, in the case of these units on my bench from 6kHz to 25MHz. The level of this is measured at the other end of the system. Then at the sending end, a sharp filter is used to 'punch a hole' in the noise whilst at the receiving end a matching band pass filter is inserted to measure the noise appearing in the 'hole'. In a perfect system there should be no more noise in the hole than was sent, but any distortion in the intervening links would cause distortion products to appear in the measuring hole and would indicate the overall level of performance of the system. This single measurement therefore gave an overall picture of the

system distortion. I wondered if the same technique could be applied to h.f. receivers, by sending the noise with the punched-out hole into a typical receiver using the same receive bandwidth as the 'hole', in other words using the receiver under test as the

some merit in the idea.

So this then, is my hobby. Even it turns out to be fruitless, it will be interesting, and it stops my brains from atrophying. The unit to the side of the Rohde & Schwarz analyser is well known to most people as an HP 436A r.f. power meter. I

about £1000 for a 436A complete with a measuring head.

Happy To Explain

I hope that I haven't bored anyone by this review of test equipment, and I believe I have covered my actual test methodology in earlier

generator. If there are any old members of what was the Marconi Nigerian Maintenance Service (NMS) out there, I would love to hear from you and reminisce about those hair raising experiences climbing the rock at Idanre in the pouring rain, or running into the back of a parked mammy-wagon at 60 miles per hour as I did one dark night up Milliken Hill on my way to a fault at Aboh. My knees still bear the scars of their contact with the dashboard of the car - no seat belts in those far-off days.

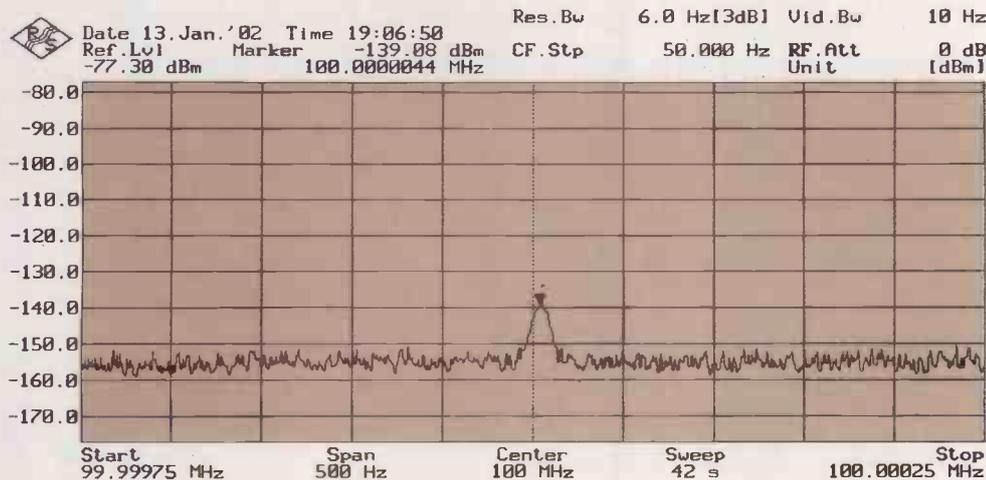


Fig. 1: R&S FSA displaying a -140dBm at 100MHz signal against a noise floor of -150dBm!

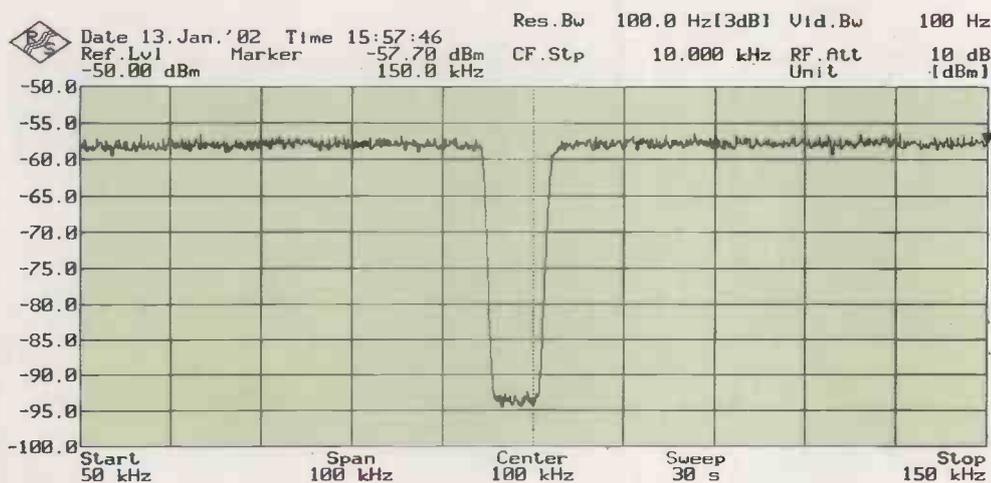


Fig. 2: The new meaning of 'hole punch'.

system receiver in the link measurements. Although the sending end holes were punched out at relatively low frequencies, with modern solid state high level mixers it should be possible to mix-up the noise plus hole to any desired frequency, so this is what I am trying. You can see that Fig. 2 shows the spectrum with a 'hole' punched out at 98kHz, and by using an AR7030 tuned to 98kHz there seems to be

keep this as my generator output level standard, because you must never start out a measuring session without first checking that your signal source is actually delivering the power indicated by the output attenuator. The 436A is an internationally accepted instrument for measuring low levels of r.f. and is good to at least 18GHz, so it will certainly suffice for my review activities. Expect to pay

articles. If there are any queries arising as to my methods I would be very happy to explain and listen to suggestions for other ways to achieve reliable, accurate and repeatable results. I've just been pleased to help someone who sent me an E-mail regarding the performance of a Marconi 2022 signal generator, and I'm told that my assistance solved the problem of 'dirty' sounding carrier from the

Reminder

Finally, it seems even more necessary to remind you receiver (and test equipment) enthusiasts out there to be careful what you buy and be sure that you understand how to assess its performance and repair anything that might go wrong with it. Some of you don't read what I have written in the past, and despite a long section in my review of the RA1792 regarding this subject, I did receive a virulent complaint from someone who bought a '1792 and then blamed me for it going faulty. My actual words may be worth quoting: "Assuming that you are fortunate enough to obtain a working sample of a receiver like the RA1792, you must seriously consider what you will do should it go faulty and require service or spare parts. If, like me, you are skilled and experienced enough to carry out repairs to a reasonable standard, fine; otherwise be careful. When you enter the world of professional service and spares you are stepping into a very expensive environment, and you must be prepared for some lip-licking prices. The silver lining to the cloud is that receivers in this category are designed to work without failure for a very long time, but they are coming up for 20 years old, so don't say I didn't warn you." *Short Wave Magazine*, September 1998, page 55. As always, *Caveat Emptor*.

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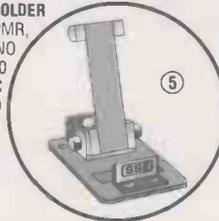
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4 MILES FROM BOURNEMOUTH INTERNATIONAL AIRPORT ON B3073
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Jerry Glenwright starts off his 'ShackWare Special' with a low-down on what to look for in a PC, along with what you can expect to get from three different budgets. Take it away Jerry...

abandoned computers - the home machines of a few years ago - that still have a useful life and can be bought for pounds rather than hundreds of pounds. In this special, and among other things, I'll talk about what to expect from those older computers and which are the best to look for.

It can't be denied though: the PC reigns supreme when it comes to a sensible choice for the shack. I'm assuming that you don't want to waste money on computer magazines for buying information and that's why I'm going to start here (as I usually do in the special), by giving you the lowdown on what to look for in a PC. I'll do this by imagining three likely budgets and describe what it's possible to buy for each of them.

A Buyers Market

I say it every year and every year it still holds true: the PC market is a buyers' market. Why is this? Because

or in the high street? At first glance, the high street would seem to be the best place. You can see and actually use the



Tandy's Mk4 computer sported twin drives and a built-in screen placing it firmly in the business market. There is a wealth of serious software and the machine runs CP/M.

machine you want to buy, there are salespeople to answer your questions and if there's a problem after you've bought it, taking the machine back is easy(ish). That, at least, is the theory. As we all know though, the reality can be something far removed.

Here's the likely scenario when you visit your out-of-town consumer electronics superstore. Seeing your machine is one thing, shouldering the kids who

'bamboozle') potential buyers. Make your choice and they'll try desperately to sell you extended warranties which

often are hardly worth the paper they're printed on - as so many BBC *Watchdog*-style researchers have uncovered. Taking the machine back means you have to bundle it into your car, carry it into the store then try to persuade someone to take it from you and repair it (back to that 'lack of real knowledge about the product' scenario). To top it all, the out-of-town boxshifter's charge more. They have large premises, stock, warehouses, salespeople and all the rest as overheads.

Mail Order

Now I realise that I've described a situation that's possibly far worse than any you've encountered previously, but in some cases, it isn't far from the truth. The alternative is to buy mail-order. Traditionally considered a poor second best - especially when you might be spending as much as £1000 - mail-order is arguably an excellent way to buy a computer.

The larger, long-established mail-order companies have been selling top brand names and their own high-quality systems for well over a decade (compare with the high street names which come and go such as one-time computer retailer Escmo). They have all the systems in place for overnight delivery and the easy return of problem machines. Their buying power is such that they can give truly great deals.

Warranties are generally along the lines of two years on-site (someone comes to your home to fix it) and one year return to base (you send the machine back) - i.e. a three-year warranty included in the price of the machine. If you do have to send it back, someone from one of the delivery services will

continued on page 38

ShackWare Special

Hello and a warm welcome to the annual 'ShackWare Special'. For the benefit of those who don't know, 'ShackWare' is a bi-monthly column devoted to using computers in the shack. Given that computing is likely to be a secondary concern for most s.w.l.s, I try to limit the amount of attention I focus on expensive new PCs running the latest Microsoft offering and look instead at older, otherwise

there are few people who want a computer who don't yet own one. That means the manufacturers and distributors must dream up incredible deals to get you to abandon your old machine in favour of a new one - 'market saturation' is the technical term!

A great concern of those acquiring a new PC is where to buy the machine: via mail-order

are monopolising it out of the way so that you can actually have a try is another altogether! You'll be hassled from the minute you pass through the doors by salespeople who also sell irons, microwave ovens and toasters and their knowledge of computers extends only to knowing the latest buzzwords with which they impress (read:

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- 100kHz - 1300MHz
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- Covers MW/LW/SW/FM
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- 'Fifties' styled 3 Band portable radio
- LW/MW/FM
- Battery/Mains
- Wooden cabinet
- Selection of colours

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YAESU FRG-100
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£400 ~~£399~~ ^{PPV} £70 3 CHEQUES OF **£136.33**
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ICOM IC-R8500
This receiver is everything we hoped it would be covering 100kHz - 2GHz and lots of features including computer control.
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PRICE MATCH
ICOM IC-R75 0.03 - 60MHz
Twin PBT built-in
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Synchronous AM detection
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£699 ~~£710~~ ^{PPV} £70 3 CHEQUES OF **£236.33**
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YAESU VR 5000
MOBILE WIDEBAND RECEIVER
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WORLDSPACE DIGITAL SATELLITE RADIO
A stylish satellite radio for home or portable use. Listen on the internal speaker or connect it to your hi-fi via phono line out or digital output connectors. Removable flip up satellite dish is supplied c/w 5 metres extension cable.
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• Mains or Battery (with optional mains adaptor)
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USED EQUIPMENT BUY WITH CONFIDENCE!

All safety tested & guaranteed for 3 months

ALINCO DXJX-2000	HANDHELD SCANNER	375
AOR AR3000	BASE SCANNER	349
AOR AR-8200	HANDHELD SCANNER	269
AOR AR8200 MK2	HANDHELD SCANNER	289
AOR AR-8600	BASE SCANNER	499
BLACK JAGUAR	HANDHELD SCANNER	75
REALISTIC PRO 2026	MOBILE SCANNING RX	125
YUPITERU MV7100	HANDHELD SCANNER	159
YUPITERU MV9000	HANDHELD SCANNER	275
KUD HF-35	HF RECEIVER	129
AOR AR-5000+3	WIDEBAND RECEIVER	999
LOWE HF 125	HF RECEIVER	139
LOWE HF 150	HF RECEIVER	149
LOWE HF 225	HF RX+CASE, KEYPAD, 0225	279
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PowerEx MH-C204F Plus Charger named "BEST CHARGE & BATTERIES" by PCPhoto Magazine 2001 EDITORS' CHOICE Photo

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MH-C204

3 HOUR INTELLIGENT CHARGER for 4 AA/AAA cells

- Rapid charge 2 or 4 AA/AAA NiCd/NiMH batteries safely
- 2 independent charging banks, ie you can charge 2 NiMH AA in one bank and 2 NiCd AAA in the other simultaneously!
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- Can be used on a 12V power supply and in a car with optional car kit (£5)
- Supplied with UK AC adaptor



£26.95 P&P £6.50

SPECIAL OFFER! MH-C204F Plus

WORTH £45!

- 1 MH-204 Intelligent Charger
- 4 x AA 1600mAh batteries
- UK AC adaptor
- Car kit

£39.95 P&P £6.50

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UNIVERSAL CHARGER AND ANALYSER

- Charge almost any Lithium Ion, NiMH, and NiCad battery packs for your ham radios, scanners, PMR 446, cellular phones, digital cameras, camcorders.
- Analyse & condition battery packs and display capacity
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£89.95 P&P £8.50

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High capacity Lithium Ion external battery pack for Digital Cameras

- The PowerEx PowerBank pack includes a handy belt pouch to carry the main battery, a UK mains charger, A Car cigar adaptor lead for re-charging in the car, and a selection of camera adaptor leads.
- Shoot up to 2 or 3 times more photo per recharge than with the internal battery
- Compatible with Nikon Coolpix 995, 880, 885, 775, Olympus E-10, E-100, HP Photosmart 618, 912, and Minolta Dimage 5, 7, and cameras using 7.2V DC



£69.95 P&P £6.50

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- A complete solution this Powerbank battery system includes, 6V 1,800 mAh Battery Pack, 4 hour Mains quick charger, Car cigar adaptor charger, Universal Camera cable and carrying case. Compatible with most leading brands of camera.



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continued from page 35

collect - there's no lumping heavy computers in and out of cars.

Do, please, buy where you feel most comfortable, but don't ignore mail-order - it can be a very good option. Now on to the machines...

Cheap & Cheerful

Let's start at the low-end of the market with a budget of say, £500-£600. Though this is by no means a small figure in the great scheme of things, it's not a great deal to spend on a new PC. What £500 buys now couldn't be bought with £5000 even a few years ago!

At this price and if you shop around, you should be able to find a computer that offers say, an Intel Celeron processor (Intel's cut-down CPU intended to compete with rival budget CPU manufacturers) running at somewhere between 900MHz and 1.1GHz, 256Mb RAM memory, 20-30GB hard drive, 17in colour monitor (though look at the small print - it'll probably have a viewable screen area of 15.5in), a fast CD drive, the latest *Windows XP* home edition and possibly some bundled OEM applications software such as *Microsoft Works*. There'll be a V90 modem as standard, Sound Blaster-compatible audio (important for those programs which make use of the soundcard's d.s.p. capabilities to decode the data modes) and possibly a DVD drive as well, two u.s.b. ports, two serial ports and a mini-tower case.

A quick scan through the ads in the computer press turned up the Evesham Micros (mail order with some high street outlets) Axis D900EL with a 900MHz AMD Duron CPU, 16x DVD drive, 20GB hard drive and 256MB RAM for £645 including VAT (Evesham also had the similar-spec'd Quest C800, but with a Via C3 800MHz processor for £499 including VAT). There were plenty of others too, but for sheer good value, Dell's post-festive season sale turned up the Dell Dimension 2100

with a Celeron 1.1GHz CPU and 40GB hard drive at £609 including VAT and delivery, breaking our budget by just £9!

Middle Market

Any of the machines outlined above will do all you ask of them and more and at those prices, they won't break the bank. However, with about £1000 to spend you're really getting into performance



Billed as 'China's only English-language website', at the China Radio International web pages, you can download archived programs or listen to CRI in real-time via 'webcasts'.

territory. At this point in the market, you'll be looking at a computer with an AMD Athlon or Intel P4 processor rated above 1.5GHz, a minimum 40GB hard drive (possibly spinning at 7200r.p.m. - twice the normal speed), DVD drive and fast CD rewriter as standard, up to 512Mb RAM, a fast 3D graphics processor with plenty of memory (such as the current 'standard' nVidia GeForce cards), Dolby Surround Sound audio and a 19in monitor.

As an alternative to CRT monitors, l.c.d. panels are gradually coming down in price. They're perfect in the shack where they require little space compared with the huge footprint of a traditional monitor and, as an added bonus, they give off very little electronic noise.

Back to the computer press and the Dell Dimension 8200 offers specs almost exactly like those just described. There's an Intel P4 CPU rated at 1.9GHz, only 256MB of RAM, but it's the faster 'dual channel' RDRAM type, a 60GB hard drive spinning at 7200r.p.m., 17in monitor, DVD drive, 64MB

GeForce card, *Windows XP* home edition and *Microsoft Worksuite*. The 8200 costs £996 including VAT and delivery.

The Mesh XP1800+ TI features a fast AMD Athlon 1.8GHz processor (Athlon outperforms P4 even when rated at the same speed), 512MB RAM, 60GB/7200r.p.m. hard drive, DVD drive and CD-RW and a 19in monitor. The Mesh costs £1150 including VAT. Of course there are a slew

of other machines around the £1000 mark with similar specs from companies such as Evesham, Dabs, Simply and Jungle.

Power Users

If for you, money is no object then the power and performance available in today's PC is truly remarkable - machines that would have been

supercomputers even 10 years ago are now readily available to home users. It took some time to break the 1GHz CPU clock speed barrier, but once broken, speeds have increased almost monthly since. Gargantuan hard drives, elephantine memories with a variety of go-faster schemes, breathtaking graphics and more are all available to tempt buyers.

Evesham's Evolution 2000DLX features an Intel P4 processor rated at an amazing 2GHz, 512MB of dual-channel RDRAM, a staggering 100GB hard drive spinning at 7200r.p.m. with a 2Mb buffer, 64MB GeForce 3 video card, Five-point Surround sound, DVD drive and fast CD rewriter. The Evolution costs £2231 including VAT. Not cheap, but leading-edge technology from a manufacturer which has been in the market since the very earliest days of microcomputers.

Mesh offers a similar machine, the Elite Ti2 at £1761 including VAT. An Intel P4 2GHz processor, combined with 512MB RAM, 60GB hard drive, 15in flat panel l.c.d. (or

optional 19in CRT monitor), 64MB GeForce 3 Ti5 graphics card, DVD, CD-RW, V90 modem, etc. Mesh also offers a three-year on-site warranty - the company will fix your machine at home or pay for it to be returned to a workshop should that prove necessary.

PC Planet

So those are the likely PCs you can expect in our three budget bands. Looking back to the 2001 'ShackWare Special', many specs have once again almost doubled (RAM, hard drive, etc.) while the prices have dropped another few hundred pounds. But what if you don't have even the smallest budget? After all, £500 is a lot of money.

Well, there's a very pleasant side effect of that urge to upgrade: a healthy market in old PCs which sell at well below their true 'value' in terms of performance. For example, £100 will easily buy you a machine equipped with a Pentium processor rated at say, 120MHz, 2GB hard drive, possible 32Mb of RAM, Sound Blaster-compatible sound card, serial and parallel ports and a CD drive. All, in fact, that you need to make use of some very potent radio-oriented software.

Even with just £25 to spend you can find a 486 PC with a 500Mb hard drive, sound card, serial and parallel ports - highly usable in the shack. Look for machines like this at the computer fairs held in schools, town halls and the like almost every weekend around the country (check your local paper for details). Happy hunting!

Caveat emptor

Bear in mind that I'm not recommending any of the machines or manufacturers/suppliers mentioned in this feature - they're simply a cross-section of what you can expect. Shop around is the best advice any potential buyer can have. Don't be afraid to haggle - buyers have never been in a stronger position. Also between my writing this feature and your checking the prices, specs will have increased and prices fallen even further, it's the way of the PC market! **SWM**

Antique Computers

Computers are undeniably helpful in the shack, but, as Jerry says, not everyone can afford the hundreds of pounds necessary to acquire one. Here are a few alternatives to the PC.

Last year, I passed over the antique computers in favour of telling you what I thought you needed to know: solid PC buying information. This time around, that still holds true, you're still better off buying a PC for the shack than any other type of computer because all the very best radio-oriented software is devoted to PCs. Trouble is,

what do you do if you're enjoying your hobby on a very tight budget as indeed many of us are? Computers are undeniably helpful in the shack, but not everyone can afford the hundreds of pounds necessary to acquire one (even in these days of incredible deals).

Well, as regular readers know, there are plenty of alternatives to the PC - you just have to open your eyes to the possibilities! I am, of course, talking about the machines of yesteryear: home micros dating from the 10-year period from the early 1980s to the early 1990s. Eight-bit systems such as the ubiquitous Sinclair Spectrum and Commodore 64, the everyman Amstrads of Alan Sugar, the superlative BBC Micro from Acorn, the Orics, the Tatung Einstein, the TI99/4a, and the majesty of the 16-bits such as the Commodore Amiga and Atari ST. There are so many of them in fact that to list them would fill an issue of *SWM*!



Toy manufacturer Mattel's foray into the home computer market, the Aquarius features built-in Microsoft basic, but just 4K of RAM.

Some machines were duds on the day they were released, others survive to this day, doing useful work in

obsure academic departments or else thrilling devoted bands of followers who contact one another via

to play in the shack.

I'd better say right now that there's nothing in the 8-bit and 16-bit world that will



The last incarnation of Atari's venerable 8-bit range was this machine with detachable keyboard.

the Internet and usenet.

What does it mean to us with not much money or who have an interest in getting the best from old technology (i.e. other people's junk!) can rummage for this

come even remotely close to the practicality and sheer force of performance that even a poorly-specified PC will provide, but the advantage is that you can get an excellent example of an Atari ST say, complete with memory upgrade, extra floppy drives, software and the like for around a tenner, and many of the 8-bit machines can be had under a £1 if you look hard enough (but not too hard - leave some for me!).

What To Look For

So what exactly should you look for? Well, arguable the best specified of the home micros is the Commodore Amiga, but it definitely isn't the best buy for the shack because radio-oriented software support is comparatively poor. Of the 16-bit machines, the best one to acquire is definitely the Atari ST if for no other reason than (and I've said it so many



UK Scanning Directory

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MiniMag Scanning Antenna available with BNC fitting**£32.95**
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Will also work on 2M & 70cms TX (50 W)

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Magnetic Long Wire Balun.....only **£19.95**
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FINANCE EXAMPLE

YAESU VR5000	0	9	599.00
Deposit			600.00
48 Payments of			£17.71
Total purchase price			£850.56

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 it is clean and in good working order, call the Sales Desk today! Usual APR: 19.9%. Payment protection is also available up to 48 months. All units are brand new and boxed and arrive with full manufacturers ATA warranty. All prices quoted for cash/cheque or Switch/Delta card. No additional charge for credit cards. Martin Lynch is a licensed credit broker. Full written details are available on request. Finance is subject to status. £10 p&p on all major items. 80

MAYCOM

FR100



Pocket scanner with 8.33kHz steps for the airband. AM/FM & WFM. Basic scanner at a basic price only **£99.00**.

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Pocket Mini Scanner 500kHz-1300MHz AM/FM and WFM

Ideal **Go Anywhere** pocket scanner

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AOR AR8200 MK II



The best Handheld Scanner available with AM/FM/CW/WFM USB/LSB frequency range 530kHz-2040MHz PC programmable and controllable (requires PC8200 £85). Complete with high capacity NiCads, Charger, Cigarette lighter lead, rubber helical wideband antenna, medium wave plug-in antenna. Add the **Super Searcher** and **RT8200** (£119.99) for reaction tuning to nearby transmitters

ML&S £439
ZERO DEPOSIT!
36 * £15.96

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YUPITERU MVT-7100



This scanner is very old in design and lacks a few features but offers good scanning facilities. Covering 100kHz-1300MHz AM/FM/WFM/USB/LSB. Complete with NiCads, Charger, Telescopic Antenna all for **£229.00**.

ML&S £199.95

ML&S martin lynch & sons

KENWOOD THF7E



The Scanner that transmits! Covering 100kHz - 1300MHz AM/FM/WFM plus SSB (100kHz - 470MHz) with Lithium Ion battery and Charger plus Transmit (6 Watts) on 2 metres and 70cms. An ideal scanner for radio amateurs! All this for only **£289.00**

PC Programmable
Requires PG-4P at **£31.95**

ML&S £289

ZERO DEPOSIT!
24 * £14.48

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YAESU VR500



100kHz-1300MHz AM/FM/WFM/LSB/USB/CW. This amazing little scanner is an ideal pocket communications receiver with keypad entry!

PC Programmable
Requires ADMS-3 at **£39.95**

ML&S £199.95

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BEARCAT UBC 780XLT



This is our fastest selling scanner for a long time - we just cannot get them in fast enough! Covering 25-510MHz and 800-1300MHz AM/FM - plus it is the only CE approved desktop to offer the **Trunk Tracker** facility. Complete with DC lead, **FREE PSU** and Whip Antenna - a steal at only -

ML&S £329
ZERO DEPOSIT!
36 * £11.60

ML&S martin lynch & sons

YAESU VR-5000



This amazing desktop scanner is the only scanner to offer true dual receive. Coverage is from kilohertz to gigahertz offering all modes and has optional DSP for enhanced shortwave reception. Complete with **FREE PSU** at only **£599.99**

PC Programmable
ML&S £599

ZERO DEPOSIT!
48 * £17.72

ML&S martin lynch & sons

MAYCOM AR108



This little airband scanner sells itself with coverage of the civil airband

ML&S £69.95

ML&S martin lynch & sons

ICOM ICR2E



This little handy scanner is very simple to operate and is very popular among our commercial customers

ML&S £159

ML&S martin lynch & sons

ICOM ICR8500



Icom's Flagship Communications receiver covering 100kHz-2000MHz AM/FM/WFM/SSB & CW. SW performance is as good as many short wave only receivers but the VHF/UHF performance is where this radio comes into its own. Complete with **Free PSU and Control software** (Not suitable for XP or Macs)

PC Controllable
ML&S £1349

ZERO DEPOSIT!
48 * £39.91

ML&S martin lynch & sons

ICOM PCR 1000



This black box gives all mode receive 100kHz to 1300MHz via your PC. Supplied with software for Windows 3.1/95 and 98. Featuring DTMF decoder, CTCSS decoder, Spectrum scope and much more. We can supply you with alternative demo software that will work with XP (Registration is under £30.00). Complete with Whip antenna, PSU, UT-106 DSP module and software.

PC Controllable
ML&S £385

ZERO DEPOSIT!
24 * £19.36

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GARMIN E MAP



Handheld version of the Street Pilot and comes with Data Lead, 16Mb Ram Card and UK Metro Guide on CD Rom

GPS V has announced a hand held GPS looking similar to the established GPS3 range again with built in route calculator and 24Mb of RAM. Price expected to be about **£500**

ML&S £329

ZERO DEPOSIT!

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GARMIN STREET PILOT 3

The first portable GPS to talk directions to you. This unit looks similar to the **Colour Street Pilot** but has the inbuilt ability to calculate your route for you. It will then speak directions to you in a clear female voice. The **Street Pilot 3** uses a faster processor than previous versions and is much faster at relocating. Supplied with all you need to mount the unit in the car, plus 32Mb memory module, plus European City Street Map CD ROM & you get a **FREE USB Memory Programmer**

ML&S £850

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GRUNDIG

SATELLIT 800 Millennium



Covers Shortwave, Airband and FM Broadcast

ML&S £549

ZERO DEPOSIT!

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MIRACLE WHIP

AVAILABLE NOW!

This Amazing Antenna at only 55 inches long is an ideal companion for any receiver covering 600kHz 460MHz



ML&S £129.99

ZERO DEPOSIT!

48 * £28.08

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ML&S

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Steve MOSBF

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MVT-9000EU MK II



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times before, but it's true) the superlative piece of software from Dave Miller known as *FaxCode*.

Dave has long since departed the ST scene and is probably more embarrassed than anything else when I continue to push his software, but it really has to be said: for the ST-owning s.w.l., there's no better program. *FaxCode* uses an interface that's almost exactly the same as the DOS-based *JVFax/Hamcomm* comparator interface (essentially a 25-way D-type plug, an op amp and a few rectifying diodes). It's

anyone who sends me an ST floppy disk.

In the 8-bit stakes, the best buys are the BBC Micro and the Sinclair Spectrum. Though the 'Beeb' is on another planet spec-wise, the



Tandy began a long line of microcomputers for home and small business with the Colour Computer (CoCo), here in Mk1 guise.

functionally similar to those popular old chestnuts too in that it's used to decode FAX, RTTY, c.w. and the like. *FaxCode* is shareware (registration is under a tenner) and I can supply it to

Spectrum equalled it in software support and so either computer is a good buy. What's more some of the best radio software ever graced their motherboards in the form of Technical Software's



Tandy's Mk4 computer sported twin drives and a built-in screen placing it firmly in the business market. There as a wealth of serious software and the machine runs CP/M.

"Computers are undeniably helpful in the shack, but not everyone can afford the hundreds of pounds necessary to acquire one"

excellent offerings.

Technical Software is also long gone, but their products are occasionally available at Bring & Buy sales at radio rallies. Generally, there'll be a BBC say, together with a Cub Microvitek monitor, disk drives, perhaps the well-known Morley Teletext Adapter (which still gives sterling service by the way - I know, I use one!), an early Timestep polar orbiter receiver and a box of software. If you see a selection like this, buy it!

Anyone who's followed my column over the years knows that I adore the Atari 8-bit computers. In an age when most home machines had rubber keys, domestic cassettes for backing storage and played endless games, the

There's at least one FAX decode program and the home-brew interface to go with it can be soldered up in 30 minutes on the kitchen table.

All The Others

And what of the rest? The Sord, the Aquarius, the Enterprise, the Spectravideo, the Jupiter Ace (one of these went for £200 on auction website Ebay before Christmas!), the numerous Tandy machines et al? Well you pay your money and take your choice. Few are any good at all beyond home experimenting. If you want them to do anything practical you'd better be handy with a soldering iron and have a yen to build your own interfaces.



Texas Instruments made many fine programmable calculators which are still sought after and used today. Its TI99/4a home computer remained largely unnoticed in the UK but enjoyed a healthy following in the US.

Ataris came with real operating systems, disk drives, printers and modems and a planet's worth of quality software (as well as the *de rigueur* mountain of games!). I use mine still and wrote a weather monitoring program a few years ago which I talked about in this column. The machines are accessible and available (though now increasingly rarely) at boot sales for a few pounds).

That's just what I like doing, but it doesn't suit everyone!

I'm always interested to hear of your boot sale finds and will help wherever I can (though do include an s.a.e., I don't like old computers *that* much!). Those who have Internet access will generally find like-minded enthusiasts on the web, whatever their choice of computer. Happy searching...

SWM

From calculating the cost to getting up and running, Jerry takes a tour around the Internet and lists some interesting sites.

The popular media would have us believe that there isn't a soul left on the planet who isn't connected to the Internet for umpteen hours a day. In fact, there are lots of people who are yet to try it and many who remain sceptical. After all,

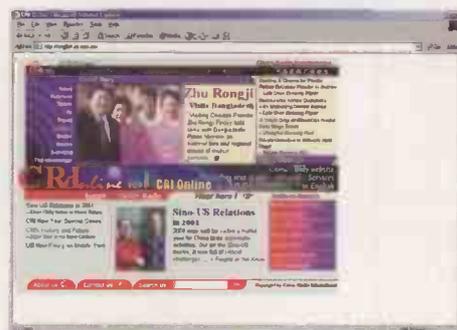
contact, find information on just about any topic under the sun and communicate with interesting people such as the authors of the software you're using in the shack!

There's a wealth of stuff to interest short wave listeners on the web. Many websites are devoted to providing information about our hobby, such as listening schedules, advice for DXing, plans for antennas, home-brew kit and more. Many radio clubs maintain a presence on the web and so do almost every broadcast station.

You can visit sites such as those provided by VoA, China Radio International and the like, download archived programs or listen to broadcasts ('webcasts') in real time (but that, of course, would be cheating!). Perhaps most amazing though is that you can make direct contact via E-mail with key figures in the hobby such as the authors of popular software and even - dare I say it - the columnists of your favourite magazine...

Calculating The Cost

Free ISP subscriptions continue unabated. Whereas previously you might have paid



Billed as 'China's only English-language website', at the China Radio International web pages you can download archived programs or listen to CRI in real-time via 'webcasts'.



One of the very best hobbyist websites, Marius Rensen's HFFAX is bursting with images, technical information, software downloads and links to other good stuff on the net.



Try connecting to the Internet with this monster! Just 300baud, manually switched between 'answer' and 'originate' and huge rubber cups for the telephone handset!

web site and several E-mail addresses.

Despite two years or more of the

time online could find that they save money, but do your sums first - that subscription can add up to an awful lot of local-rate minutes! Many third-party companies provide call charge-free services too - though horror stories about lines being continually engaged.

Indeed some services were withdrawn following complaints from subscribers.

And be wary of those 'try 100 hours' free offers. Given the

way these offers are worded, it's reasonable to suppose that you get to try out the Internet free of subscription and telephone charges for 100 hours, after which you can elect to sign up with the service if you choose.

In fact, what happens is that you must install the supplied software, connect to the ISP and provide all kinds of personal information such as your credit card details. You

around £10 a month for an Internet connection, they're now almost entirely free (though not the likes of AOL) other than the cost of local rate telephone charges. Details of these can be found in any computer magazine (have a free read in WH Smiths!). Most provide a local rate telephone number (0345/0845), 20MB or more of space for your own

concerted efforts of pressure groups to persuade the powers that be to provide free local calls to the Internet, it's yet to happen. BT offers several call-charge free services under the BT Surf banner. You pay a monthly subscription, but you're able to connect to the Internet 'free' during evenings and weekends.

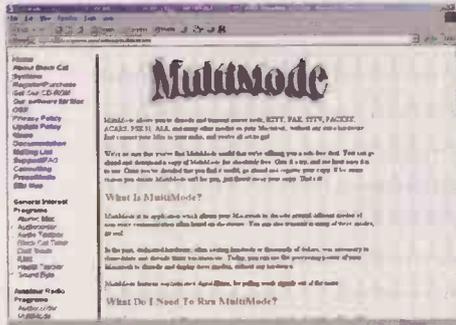
Those who spend a lot of

Surf, Save & Print

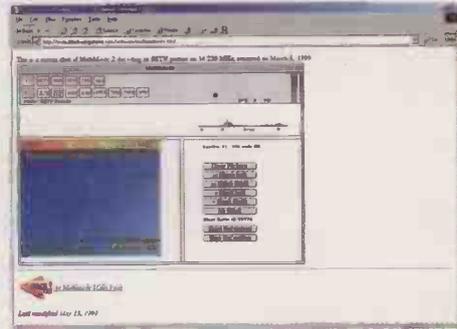
global communication has been available for decades in the form of a simple receiver and that peculiar characteristic of radio waves in the short wave bands to bounce off the ionosphere and back to earth thereby travelling beyond the horizon.

Well there's truth in both arguments, but the fact remains: the Internet is the cheapest, most reliable, most convenient (notice though, I didn't say 'most fun') method by which you can make

continued from page 44



One for Mac owners! The MultiMode site has lots of radio-oriented material and info geared to Mac owners, including...



...screen grabs of the latest release of MultiMode, the Macintosh data modes decode program.



NOAA's colourful website is packed with information on all aspects of weather, sensing and imaging as well as news, technical details and more.



NOAA makes many of its satellite images available for download including an 'image of the day'. Cheating, yes, but these pictures help in seeing what's available and make good comparisons for your own images.

subscribe to the service first and only then do you receive your free try-out hours following which, you can cancel your subscription if you don't like the service. All very well, but will you really undergo the rigmarole of telephoning the ISP, waiting to be connected to someone who can help and then actually cancel your subscription?

ISPs who make these offers rely on your not bothering to cancel. Certainly you receive free hours, but you're also signed up to an ISP and they have your credit card details and tacit permission to milk it when they choose! You know I'm exaggerating and so do I, but only a little, so beware!

Up & Running

With an account of some description, you'll need a computer and a modem to get online. Almost every new PC or Apple Mac of the past few years has a built-in modem. If yours hasn't, or you're making the most of an older, perhaps second-hand computer, modems are widely available and cheap.

Internal modems - those in the form of plug-in cards, can only be used in PCs, but they're incredibly cheap. A V90 56K (the current fastest standard) internal modem can be had for around £20. If you're using a computer other than a PC, all your computer's card slots are

occupied, or you simply don't want to open the machine and mess around with IRQ and DMA settings, an external modem can be had for about £35. These can be used with any machine that has a serial port (many older 8-bit and 16-bit computers too).

PCs and Macs come with the utility software required to get them online and for the most part, doing so is a semi-automated process. You click to make a connection and the computer steps you through entering the required details of your ISP. Once those details are entered, connecting is a simple matter of click and go. If you have an older computer (i.e. one not running *Windows*) expect a certain amount of manual setting up before you connect.

Online, you'll need a browser - the application which enables you to visit ('surf') web sites - and E-mail software to write and read E-mails. Fortunately, the two most popular browsers, Microsoft Explorer and Netscape Navigator (both of which include E-mail software) are given away free. Check the cover-mounted CDs of computer magazines for the latest versions.

Browser and E-mail software is available for those using older computers such as an Atari ST or Commodore Amiga too (there's even software for the venerable

Commodore 64), but you'll need to go online to find and download it - a catch 22 situation! One possibility is to ask a friend with an existing account or use a computer at a library or academic institution if you have access (though downloading files may not be permissible, check first).

Site Unseen

Once you're connected, the first step is to start finding sites devoted to your interests. The way to do that is to visit a search engine (a site which keeps an index of other sites on the web) and enter keywords to find what you want. Many search engines exist, but among the best are AltaVista (www.altavista.com), Google (www.google.com) and, especially for UK-specific sites, Lycos (www.lycos.co.uk).

Point your browser at one of these search engines (that is, type its address into the blank box set aside at the top of the browser window and press return). When the search engine's site appears, enter one or more keywords in this way: +radio+fax+software which means 'search for all those sites which feature the combination of keywords radio and FAX and software (the plus symbols means 'and'). If you also entered say, +apt+Atmos, you might find radio-oriented FAX software sites that had some

APT software for your Oric Atmos! It's extremely unlikely (I know, I've tried) but you never know...

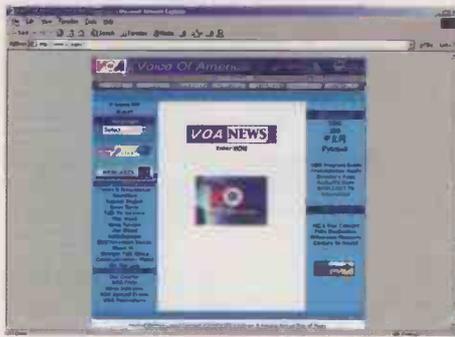
The search engine will respond with a list of sites from which you can select one or more by clicking on them. You'll then be transported to that site. And once there, look out for links to other, similar sites. Save those you like as 'bookmarks' (press Control-D in Netscape Navigator) so that you can visit them again another day without having to find or remember the addresses.

In The Archives

Almost all s.w.i.s create logs or save FAX and SSTV pictures that they've decoded. Over the years, an archive of these files can amount to hundreds of megabytes. Fortunately, there are plenty of backing storage options.

There's an unfortunate, but potent truth in the world of computing: however big, fast, colourful, high-resolution and audible your PC or Mac is, you'll want bigger, faster, more colourful, higher resolution and louder audio within weeks of making your purchase. Computer manufacturers rely on this factor to persuade existing owners to upgrade.

Often, upgrading to an entirely new machine just isn't necessary and a memory boost or some additional backing



Voice of America offers an excellent web site with lots of programming information.



A relative newcomer to the listening scene, the WorldSpace web site features details of service components, receivers, satellite footprints and more.

storage is all that's required to put your PC back into the fast-lane performance-wise. Memory is easy to upgrade and incredibly cheap at the moment and is probably the most straightforward way to gain some extra performance.

For s.w.l.s though, backing storage is probably more of an issue. Today's powerful processors have plenty of spare capacity for the demands of radio-oriented software, but some of the stuff we decode takes up megabytes of hard drive space. If you're like me, you probably store everything with sensible file names for later viewing.

I have FAXes, SSTV pictures, RTTY transmissions and the like going back years! All very well, but even with the larger drives (though not, perhaps, with the very latest 40 and 60GB behemoths) it's possible to run out of space - especially if your machine is shared with the family. The answer lies in one of the many backing storage options that have become available over the past few years.

The first great innovation was the introduction of CD writers which put monster 650MB disks at the fingertips of those with the required hardware. Today, you can buy a basic CD writer for about £30 (less if you shop around) and CD-ROMs themselves are cheap by any standards: about 80p, or cheaper if bought in bulk.

There are two types of CDs - writers (CD-R) and re-writers (CD-RW). The former use one-shot media which means they can record data on a CD-ROM, but not erase and re-record the same CD.

CD-RW on the other hand can use the one-shot CDs and they can also make use of re-recordable CDs. CD-RW disks are more expensive, but you can use them over and over again (not an issue if your purpose is to create an archive). CDs have a projected life of 100 years, they're cheap and easy to use and almost all PCs can read them. There really isn't space here to cover all the possibilities that you might encounter when installing a CD writer in a PC, but those without one who want to

upgrade can write to me with details of the machine and I'll happily help where I can.

Second only to CDs are Zip disks. Launched in the mid-1990s, Zips were a sensation. Floppy-sized yet able to store an amazing 100Mb of data almost at the speed of a hard drive (at least in SCSI guise). Rivals such as Syquest, with its clunky, slow 44MB and 88MB disks faded within months and Zip went on to spawn many lookalikes.

Today you can buy a Zip

drive that will connect via u.s.b., SCSI or the parallel port for about £70. Disks are cheap at a few pounds each and you can store a couple of dozen of them in an old shoe box easily, which means you have access to hundreds of megs of archive potential at little cost in space. There's also a 250MB version of Zip which is downwardly compatible (you can use 100MB disks too) for around £30 more.

Tape drives abound, but they're not nearly as convenient for making archives of individual files such as FAXes (though they're very cost effective for hard drive backups). DVD drives, similar to CD writers can record 1Gb of data in five minutes and you can entertain children and grandchildren with a DVD film of *Toy Story*! However, at around £400, I'm guessing there are a few items for your shack that you'd rather buy!

Hard & Fast

One other item of hardware that can play an important role in the shack is a printer. Time was when all that was available was the humble dot matrix, a low resolution device which printed on fan-fold perforated paper (though decode specialist Technical Software created a fantastic system with its excellent software, a Spectrum and an Epson-compatible printer - I use it still!).

At the end of the 1980s, when laser printers were becoming widespread, they offered remarkable resolution

The three principal types of printer are:

1) Inkjet. Inkjets (also known as 'bubblejets') are the workhorses of the printing world - all that the epithet cheap implies but without the stigma. An inkjet printer is easy to use and set up, the ink cartridges they use are affordable, widely available and occasionally refillable. Mid-range resolution is typically of the order of 1200x1200dpi which is more than adequate for quality home printing - especially if you use good paper. An inkjet requires only a small amount of space on your desktop too, produces little noise (useful when you're desperately trying to work out a c.w. ident from a maritime beacon at midnight!) and no fumes (unlike laser printers), so they're ideal where space is at a premium such as when sharing a computer system with the rest of the family. A quality colour inkjet printer should cost you well under £100.

2) Laser. Laser printers were once only for media professionals and the very rich. Though they largely replaced the dot matrix and daisywheel printer and became indispensable in professional publishing, the technology remained just out of the reach of the majority of home users. Laser printers continue to be relatively expensive, the toner cartridges they use are expensive, they belch out truly horrible fumes and the noise of the cooling fan alone is enough to deter listening to anything but Radio 1. Lasers

"There's a wealth of stuff to interest short wave listeners on the web"

of 300x300dpi (dots per inch) but had a price tag measured in the thousands. Today, all that has changed. Printer technology has advanced along with the computers which drive them while prices have fallen. You can buy a reasonable quality inkjet printer for about £50 that will reproduce decoded FAXes beautifully, print log pages for your loose-leaf folder and output letters to your bank manager explaining why you've spent money on yet another receiver!

however, offer very high quality. A basic laser printer will cost you around £200.

3) Sublimation. Sublimation printers (sometimes known as 'thermal printers') transfer coloured inks to special paper using heat. Others employ light for output and use dye-impregnated paper and ultra-violet beams. Quality is high, but so is cost. Sublimation printers are slow, but the future promises much for the technology.

SWM

ShackWare

The Column

First up this time is a repeat performance from **Lawrence Alexander** of Ludlow who featured last time with his newly-acquired Z88. This is a laptop computer from Cambridge - the company formed by Sir Clive Sinclair after he'd sold his business to Alan Sugar of Amstrad. Though Sinclair machines were exceedingly popular - the Spectrum especially so - they were often derided in the press because of their admittedly shoddy workmanship and poor record of reliability.

The Z88 however, was a supreme exception. Universally hailed as a truly portable laptop (it is the size of a sheet of A4 and about half an inch thick), it sports a unique 'windowed' operating system, lots of built-in real applications and runs for a reasonable time on four AA cells. In an age when laptop really meant 'luggable', the Z88 opened the floodgates for modern portable computers.

Lawrence writes "I've just got the January 2002 *SWM* and I was very pleased to see that my question about the ports and other Z88 information had been answered. The only problem is, the Z88 has now developed a slight fault. The left shift key does not function. This is annoying as it means that I cannot switch the Z88 on and off [the Z88 uses both shift keys pressed together as an on/off toggle - JG]. Of all the keys that could go wrong, this has to be the most annoying. But the rest works okay, so it seems a shame to dismiss it just for one silly fault. Is there anything that can be done about this? I have removed the rubber keypad at least five times, cleaned the rubber and the contacts (both on the keyboard and the PCB connections) very well with kitchen wipes, and even brushed around inside to remove any dirt that may be causing a fault. I've had the PCB out also. But none of this worked. This fault happened after I sent my original letter. Perhaps there is a mod that can be done to enable a hardware switch to be fitted? Any info. on this would be very welcome".

That is a shame indeed Lawrence, particularly as you say, a shift key is just about the worst one to go wrong. It's a common problem though and one which can be fixed

(usually!) by cleaning the inside of the keypad with a product specially made for the task of restoring operation to electronic contacts. I use Smart Electronic Contact Cleaner with Lubricant, which comes in a 75ml spray can for a few pounds (Maplin). It's safe for use with plastics and a quick spray and wipe with a lint-free cloth should restore the keyboard to health - worth a try!

Richard Spicer of Leicester has been given an old PC which once kept the records of patients at his local health centre. The machine's hard drive has been wiped clean before it was given to him, but therein lies the problem. Richard: "My machine which is a 486 with a 500Mb hard drive, has no software at all left on it. The clinic wiped everything off the hard drive. I can boot it into MSDOS, but nothing else. Can I run *Windows*? How do I install it and where do I buy a copy? Also, will this machine connect to the Internet? I have a Radio Shack short wave receiver which I'd like to connect to the computer if I can, is it possible? Sorry for all the questions!"

Well Richard, the latest versions of *Windows* such as *ME* or *XP* won't run on your computer, but acquiring and using an earlier version such as *Windows95* is perfectly feasible. Of course, you'll have to find a copy (which will probably be on CD - does your machine have a CD drive?), but that shouldn't be too difficult. Either buy a copy of *MicroMart*, the magazine devoted to surplus computer equipment, which has ads from lots of dealers selling old PC stuff including early versions of *Windows*, or check your local paper for details of a forthcoming computer fair. These are held in schools and such like around the country and usually feature lots of old and surplus equipment and software.

Installing *Windows* is a largely automated process. You put in the CD and the computer does the rest (though be on hand to enter serial numbers and the like). Similarly, setting up an Internet account is more or less automated, though you'll need a modem. See details of getting online elsewhere in the 'ShackWare Special'.

You don't say whether the machine has a sound card. If it does (look at the rear for three or four

phono-type sockets in a row on one of the cards), you might be able to use data modes and APT software that use the signal processing capabilities of such cards. If not (either because there's no sound card or your machine isn't fast enough) you can acquire copies of *JVFax* and *Hamcomm* (write to me again if you need these) and buy or make the comparator interface which these programs support (a circuit diagram appears in the *Hamcomm* docs. The interface is a simple yet surprisingly effective device which takes the audio output from your receiver and feeds it to either program via the computer's serial port. Good luck Richard.

Unusual Request

Here's an unusual request (the first one I think). **Keith Simpson** of Clevedon, North Somerset writes "I've finally got an Internet account! After years of avoiding going on to the Internet I had the opportunity to try it. While my wife shopped, I had an hour or two to pass so I went to the library in Bristol thinking I'd have a read. However, my eye caught a computer which was provided for public access to the Internet so I had a try and was instantly hooked! By the time my wife eventually found me I was a complete convert, in fact she had to drag me home!

"I bought some computer magazines and found an ISP. Now I have an account with Virgin and some space for my own web pages. And that's where my question lies. I have no idea how to go about creating a web page: can you suggest how I might get started? Also, if you could point me in the direction of a book for beginners I'd be very grateful Jerry."

I can say that is, quite honestly Keith, the first request of its kind in all the time I've been writing 'ShackWare'! Creating a simple web page is actually quite an easy process though the 'programming' language used can appear daunting to the uninitiated! Actually, basic HTML (hyper-text mark-up language) isn't a computer language but a system of 'tags' for specifying text formatting. It's written using any word processor which can output plain ASCII text files (i.e. those without proprietary

headers, styling information and the like) and looks much like this:

```
<HTML>
<HEAD>
<TITLE>Radio hobbyists' web
pages</TITLE>
</HEAD>

<BODY>
Text and pictures
specified here also using tags...
</BODY>
</HTML>
```

These tags are interpreted by a web browser and reproduced in the way specified. Though it certainly helps to understand this and while it's perfectly possible to create complex web pages by writing raw HTML, it wouldn't be a pleasant task! Instead, there are many programs which enable you to produce web pages in much the same way that publishers of magazines and newspapers produce their pages with desktop publishing software. You place text and pictures where you want them in a window on screen and the program produces the HTML for you. The next step is to 'upload it' (send it to the hard drive space provided by your ISP), after which it's said to be 'live'. The only remaining step is publicise your new page so that others can visit it.

There are many freeware HTML editors (try the cover-mounted CDs of computer mags) and any number of books to tell you what to do. One excellent guide is *How to Create Pages for the Web using HTML* by John Shelley, published by Babani (BP404) and priced at £5.99. Babani also publishes *Web Site Construction Simplified* (BP463) by the same author. Both will get you started on the road to a web presence. You'll find Babani books in most bookshops.

And Finally

That's it for another year's 'ShackWare Special'. I hope you enjoyed it and found some useful information that will save you spending good money on computer mags! As always, do write to me for help with any computer - especially your boot sale finds - but do enclose an s.a.e. for a reply. Good listening.

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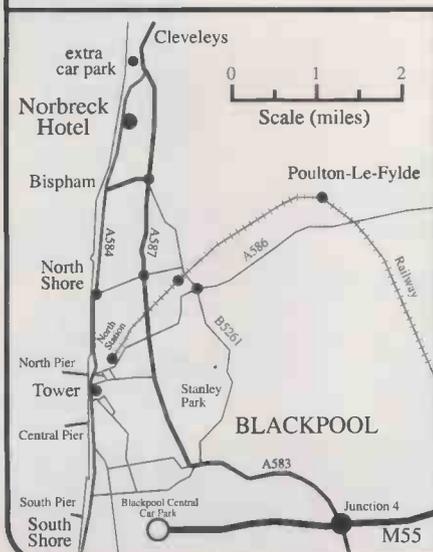
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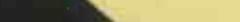
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ALINCO	DJ-567 27MHz WIDE BAND TRANSCEIVER	£200.00
ALINCO	DR-590 DUAL BAND MOBILE	£175.00
ALINCO	DR-605 DUAL BAND MOBILE TRANSCEIVER	£220.00
ALINCO	DX-707 100W MOBILE / HF	£399.00
ALINCO	DX-707H TRANSCEIVER	£475.00
ALPHA	87A FULLY AUTOMATIC AMP	£3,260.00
AMERTRON	OSK-5 2.5kw OSK SWITCH	£199.00
AOR	AR-2002 BASE SCANNER	£199.00
AOR	AR-3000A RECEIVER	£495.00
AOR	AR-5000 RECEIVER	£1,199.00
AOR	AR-703C REMOTE CONTROL RECEIVER	£359.00
AOR	AR-8000 HANDY RECEIVER	£199.00
AOR	AR-8200 MK11 HANDY RECEIVER	£260.00
DAIWA	PS-120MK11 13amp PSU	£50.00
DAIWA	PS-384M11 20amp POWER SUPPLY	£25.00
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DIAMOND	GSV-3000 PSU	£100.00
DIAWA	CNW-518 2KW CROSS METER ATU	£199.00
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DRAKE	DRAKE 2700 ATU 2.5KW (MINT CONDITION)	£295.00
DRAKE	DRAKE L7 LINEAR AMP (MINT CONDITION)	£899.00
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ICOM	IC-3U UHF MINI HANDY	£99.00
ICOM	IC-475E AC 25W MULTIMODE 70CM BASE	£325.00
ICOM	IC-706MK11 DSP TRANSCEIVER	£499.00
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ICOM	IC-725 HF MOBILE 100w	£400.00
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KENWOOD	TS-801E 70cm MULTI MODE TRANS	£400.00
KENWOOD	TS-850 SAT 100w HF BASE TRANS	£850.00
KENWOOD	TS-870 HF 6M BASE TRANSCEIVER	£399.00
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KENWOOD	TS-960 SD DIGITAL 15W TRANSCEIVER	£1,250.00
KENWOOD	TS-950S HF 150w BASE BUILT IN ATU	£999.00
KENWOOD	TS-960SDX HF 150w TRANS (FLAGSHIP)	£1,799.00
KENWOOD	VFO-180 VFO	£60.00
LINEAR AMP	EXPLORER AMP	£999.00
LOWE	HF-225 RECEIVER	£225.00
MAYCOM	AR-108 AIRBAND HANDY	£50.00
MFJ	T278 TNC incl SSTV	£225.00
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N1 MODS	Microwave mod's 144/100 100w 2m	£120.00
MIRAGE	03010 430-450MHz AMPLIFIER 100W	£200.00
NAG	144XL 2M BASE AMPLIFIER 400W	£225.00
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No Batteries Necessary

Gil McElroy VE3PKD looks at the life and times of fellow Canadian Ted Rogers and the invention of the a.c. valve.

Edward Samuel ('Ted') Rogers
(1900-1939) (Courtesy Rogers Communications)



The book *Radio Simplified* by Lewis Kendall and Robert Koehler was a typical, easily understood introduction to radio for American audiences back in 1925. In its chapter on 'Current Supply for Vacuum Tubes', it outlines the different batteries required for operating a typical radio receiver, one to heat valve filaments - the 'A' battery - and another to provide anode charge - 'B' battery. Later in the chapter it explains that, while it was possible to heat filaments with a.c. power, "unless special apparatus is installed, there will result such a humming sound in the receivers as to make reception of messages highly unsatisfactory".

Unsatisfactory, indeed. Radio valves were designed for use with d.c. supplies, and 'B' battery eliminators that allowed a receiver to be run from an a.c. supply were cumbersome contraptions that didn't always work very well. As for the batteries themselves, they weren't any better. The needs of recharging meant regularly removing them from the receiver and taking them to a recharger, often a nearby garage. Battery acid spills on living room carpets were common household accidents. In short, an early radio receiver was a pain to use, complex and technologically demanding. It would be a Canadian, a young man named Ted Rogers, who helped change all of that and ensure that wireless would have a place in every home.

First Receiver

Edward Samuel Rogers began his life just as the twentieth century began, born on the first day of the first summer 1900 into an affluent family in Toronto, Ontario, the son of an oil executive. His interest in radio was ignited in a school science class when he was eleven years old. With the aid of his brother, he constructed his very first



Ted Rogers in the shack at 3BP. (Courtesy Rogers Communications)

receiver, a copy of an electrolytic detector invented by fellow Canadian Reginald Fessenden which rectified a signal using a tiny platinum wire in contact with the surface of a small amount of acid held in a cup. By 1912, Rogers' radio skills had progressed to the point where he joined the Wireless Association of Toronto, and was issued his first unofficial callsign, XRD. The same year while on holiday with his family in northern Ontario, he

was able to pick up reports of the sinking of the *Titanic* transmitted from New York City, by a young Marconi operator named David Sarnoff (better known, later in life, for heading up the radio and television giant, RCA). His skills also enabled him to hear news of the outbreak of World War I before the local Toronto newspaper media were able to report it. By the time he was sixteen, Rogers had earned

Newmarket, just to the north of Toronto, consisted of a high power spark transmitter that would send out the first Canadian amateur signal officially heard in England.

Rogers was a member of the American Radio Relay League (ARRL), and became involved in the series of tests being sponsored by the ARRL to transmit amateur signals across the Atlantic Ocean. In February of 1921, the first test was undertaken, with North American amateurs transmitting for three successive nights in the hopes of being heard by their English counterparts. As reported in *The Wireless World* on September 3rd, "in no case did the signals heard by our receiving stations tally with those sent out from the other side". In December, a second effort was made. The ARRL sent Paul Godley to sit on a cold, windswept beach at Ardrossan, Scotland and listen on a specially constructed receiver for pre-arranged transmissions by select North American amateur stations. Rogers' station, 3BP in Newmarket, Ontario was one of them.

Atlantic Conquered

When the smoke finally cleared after three days of testing, the Atlantic had indeed been conquered. The January issue of *QST* magazine listed the callsigns of North American stations that had been heard by Godley in Scotland, twenty-six in all (though British amateurs had heard many more). Ted Rogers' 3BP was the

his commercial radiotelegrapher's licence, and for three years spent his summers working for the Canadian Marconi Wireless Telegraph Company as the radio operator aboard passenger ferries on the Great Lakes.

But Rogers was a passionate amateur radio operator, and when World War I ended and the ban on radio in Canada was lifted in 1919, he was licensed as 3BP. His station in the town of

only Canadian on the list (and one of the few spark stations in a field now dominated by c.w.). At a time when radio was still new and novel enough to rate media coverage, Rogers had become something of a Canadian media darling from an early age, when his involvement with this new technology drew the attention of a Toronto newspaper. His participation in the trans-Atlantic tests, and his later involvement relaying messages from British amateurs to an Arctic expedition in 1922 only served to increase his celebrity status.

But Rogers wasn't content with simply resting on his amateur laurels. In 1923, he applied for his first patent, for a variable coupling system, and during and just after completing his university studies he worked as an engineer for the Canadian Independent Telephone Company (CITCO). When CITCO declared bankruptcy in 1923, Rogers saw an opportunity to move into the business end of radio. With his father he formed the Rogers Radio Company, acquiring the holdings of CITCO in the process. In search of a product that he could bring to market, he took on one of the biggest technological challenges then preventing radio from becoming a common to every household: the development of an a.c. powered valve and a receiver that could be operated directly from household current.

The quest for a valve that could be operated on a.c. was not new. In their search for one that could be employed in repeaters for long-distance telephone service, Western Electric had set to work on the problem as far back as 1913, finally patenting an indirectly-heated valve in 1923. In 1921, Westinghouse patented a valve in which the heater did not simultaneously function as the emitter as well. Rogers learned of the work of a former Westinghouse engineer, Frederick S. McCullough, who had been working on an a.c. valve, and paid him a visit in Pittsburgh in April of 1924. McCullough's valve indeed functioned, but not very well. It was afflicted with hum, the problem that stymied every effort to make valves operate on a.c. Undeterred, Rogers bought the Canadian rights to McCullough's invention, and returned to Toronto determined to make it work properly. On August 1,

Advertisement for Roger's Batteryless Radios, circa 1927.

(Courtesy Rogers Communications)

1924, after months of experimentation, he succeeded with the Rogers Experimental Tube 15-S, a 127m high glass valve with bronze base and overhead heater leads. But success in building a working experimental a.c. valve was one thing, commercially producing it was quite another. In addition to developing a valve that could be mass-produced, Rogers also had to manufacture a receiver that could use it.

Production Began

Just over a year after the initial success of the 15-S valve, Rogers began production of the Type 32, a glass-enclosed valve with plastic base and an overhead t-bar heater connection. In the meantime, a corporate restructuring had transformed Rogers Radio into the Standard Radio Manufacturing Company to begin producing the new Type 32 valve as well as a variety of new radio receivers that employed them. His first receiver model, the 120, had appeared in April of 1925. Employing five Rogers a.c. valves and the B-Eliminator Power Unit which Rogers had begun manufacturing the year before, the Model 120 sold for the princely sum of \$260. Reflective of the fact that a.c. in homes was, at the time, intended solely for lighting purposes and that wall outlets for electrical appliances were unheard of, the Model 120 sported a screw-in plug for use directly in lighting fixtures. Standard Radio produced two lines of receivers: Rogers Batteryless Radio Receivers, which used the company's a.c. valves and which came in a range of console and table-top models; and, because many homes (especially in rural areas) were not yet electrified, Rogers Battery Sets.

In 1927, RCA released the Radiotron UY-227, the world's first valve with a five-pin base that dispensed with overhead connections. Perhaps more importantly for Rogers, it was an

a.c. valve, and the product of the biggest competitor around. The next year, Rogers merged his company with Grimsby-Grunow, an American firm, to form the Rogers-Majestic Corporation. It became the largest radio manufacturer in Canada, well-placed to compete in the marketplace with giants like RCA.

Though Rogers had been concentrating on the manufacturing side of things, he hadn't foregone his interest in on-air activities. In 1926, Standard Radio had obtained a license for VE9RB (Rogers Batteryless) and begun broadcasting from a studio in downtown Toronto using Rogers a.c. transmitting valves. By early 1927 the station had a new call sign: CFRB (Canada's First Rogers Batteryless). Advertisements of the period claimed it to be the "world's first Batteryless A/C Broadcasting Station". In 1929, it became part of the Columbia Broadcasting System (CBS) network founded by William Paley.

Still On The Air

Rogers interest in the cutting edge of technology meant that in 1930 he received a license to broadcast experimental television. VE9RM (Rogers Majestic) was one of the first four television stations licensed in Canada. Rogers was seeing well into the future and thinking of the long-term success of his business, but he could not have foreseen that by 1953 only one-

The Rogers Experimental Tube 15-S, the first AC valve.

(Courtesy Rogers Communications)

quarter of the Canadian population would have any access to television broadcasting.

In the end, though, it wouldn't matter. On May 3, 1939 Ted Rogers was stricken down by a haemorrhaging ulcer and died three days later. He was thirty-eight years old. Soon after, his corporate holdings were acquired

McLuen's Magazine

NOW - A Radio Set that operates from your Electric Light socket!

without X Batteries
without B Batteries
without A-c!

just plug in -
then tune in -
that's all!

ROGERS BATTERYLESS RADIO RECEIVING SETS

This introduction of Radio's first "one-pin" batteryless experimental tube, the 15-S, is a landmark in the history of radio. It is the first tube that can be used in an unmodified standard household electric light socket. This is a great advantage for the home radio set because it means that the tube can be used in any standard household electric light socket. The Rogers Batteryless set gives you the same quality of sound as the standard battery set, but with the added advantage of being able to be used in any standard household electric light socket. This is a great advantage for the home radio set because it means that the tube can be used in any standard household electric light socket. This is a great advantage for the home radio set because it means that the tube can be used in any standard household electric light socket.

Continuously a great many homes desired the convenience of a radio set that could be used in any standard household electric light socket. This is a great advantage for the home radio set because it means that the tube can be used in any standard household electric light socket. This is a great advantage for the home radio set because it means that the tube can be used in any standard household electric light socket.

Just plug in - then tune in!

by Rediffusion Canada (a company that, in 1951, would initiate the first Canadian pay-television service in the city of Montreal) and then in 1941 by Philips Electronics. His radio station CFRB survived as a separate entity, and is today still on the air.

In 1982, Ted Rogers was inducted into the Hall of Fame of the Canadian Association of Broadcasters, an organisation he helped found in back in 1926, for his contributions to Canadian broadcasting. His name is still prominent in Canadian telecommunications, for his son, Ted Jr., heads up Rogers Communications, Inc., a corporation with interests in everything from publishing to cable television to cellular communications (and owns the Toronto Blue Jays baseball team to boot).

Most Account

In most accounts of the development of radio technology in the early twentieth century, Ted Rogers is remembered (if at all) as a minor figure, worthy of perhaps a paragraph or two. Recently, however, corporate historian Ian Anthony published *Radio Wizard: Edward Samuel Rogers and the Revolution of Communication* a biography privately released in Canada by Rogers Communications. It's a beginning toward righting a wrong, and giving due to the Canadian who helped give the world a radio you could plug into the wall, no batteries necessary.

SWM

■ ROGER BUNNEY, 35 GRAYLING MEAD, FISHLAKE, ROMSEY, HANTS SO51 7RU

Satellite TV News

Computer enthusiasts would have been mightily impressed if they had been given access to the corporate presentation by Apple the evening of January 7 (UK time) featured on the Globecast digital bouquet @ 11.590-GHz-Vertical (SR 20145 + FEC 3/4 -channel 2) via the *NSS-K* satellite @ 21.5°W. For over an hour a presentation from the '2002 MACworld Conference and Expo' was featured with a very slick positive demo on their new iMAC, the centrepiece of Apple's 'Digital Hub'.

The hub is a compact white blob with all inputs and outputs to the rear, surmounted with a flat screen and the guests present plus corporate viewers worldwide were assured that the new iMAC flat screen, which boasts a brightness twice that of the conventional CRT, means "death to the CRT"! The 'digital hub' would take inputs from peripherals such as 'iPHOTO', 'iTUNES', etc. and more demos proved that a vast iMAC photo file library (several thousand pictures) could create photo folders in seconds and even an on-line bound book via external Kodak capacity was also available.

A well rehearsed, glitch free presentation - as always - by Apple. But folk that aren't 'turned on' by computers, like myself, could click up to Globecast channel 3 in the same digital bouquet and find another corporate presentation underway from 'General Motors', less slick, but more watchable and both video events were encryption free.

Unfortunately, fast cars and slick computers are far from my own financial remit and so my dish tracked away onto *Europe*Star-1* @ 45°E, the source of many Afghanistan conflict news feeds in recent weeks. With hostilities in that region largely over - other than eliminating remaining Taliban/terrorist resistance - the number of satellite feeds have declined considerably and those remaining need careful searching.

A few days earlier, I found the Sky News uplink terminal active, the crew now entrenched at the Kabul Intercontinental hotel, running colour bars with inlaid 'SKY NEWS DSNG UKI 685' and 'KABUL INTERCON AFGHANISTAN' - 12.522GHz-V, 5632+3/4.

The news flash, December 22, mentioned a bomb aboard a US 'American Airlines' jet and a quick-dish swing over to 43°W and to check breaking news on the Fox News bouquet - 11.579GHz-H (19875+3/4). They're fast with the Stateside news, perhaps due to many supporting affiliated TV stations - and indeed Fox were running updates on the 'passenger foot bomb', live inserts from Boston airport - where the threatened flight 63 landed on its interrupted flight from Paris de Gaulle to Miami.

As mentioned before concerning the Queens airplane crash November 12th (American Airlines A300 Airbus), Fox carried impacting news quickly and on the same digital frequency are several other channels. Checking December 22 and the 'Future-Channel 4' now carries sport and we have colour bars with 'FSN HOUSTN' (Fox Sports News, Houston, Texas).

December 27th and the NY Mayor Rudy Guiliani said his farewell after a truly eventful yet tragic mayoral session for New York City. A people's mayor that could relate to the common man, he handled the human loss of September 11, his non-tolerance of law breakers reduced crime across the city, clearly an exceptional man. His move from office was marked internationally. *PAS-3R* carried tributes and speeches on both the 'Fox News Edge' slot 12.576GHz-H (19850+3/4) and on a CBS feed @ 12.634GHz-H (19850+7/8*).

Over the past weeks, several OB (outside broadcast) satellite circuits originating across France appear to be carrying political meetings on the theme *la France qui change* and January 2nd proved similar

with a Strasbourg event, as before carried over *Intelsat 801*, 31.5°W and always on 11.024GHz-V (SR 5632 + FEC 3/4) early evening.

Having commented previously the 7°E W3 satellite and MPEG-4:2:2 signals, there is sometimes digital life as we know it on that bird. **Edmund Spicer** (West Sussex) comments on in Euronews with 'excellent pictures and teletext in all seven languages' at 11.554GHz-H (27500+3/4) with the same transponder also carrying Italian traffic with idents such as 'Ducato' and 'unamed' both with the black/white pulse and bar pattern, the former ex 'FUCINO E/S' (an Italian **Earth Station**). Apparently at 11.284GHz-V (27500+3/4) can be found up to 30 (!) mono radio channels with RFI - Radio France International - offering variations of their output for many far-flung parts of the France Regions colonialist past.

There's also the Swiss TV channel version of M6 'M6 Suisse' is available FTA (free to air) on this slot. **Roy Carman** (Surrey) also found Boxing Day activity on this bird - that of 'EBU KABUL PATH 1' @ 11.095GHz-H and 'EBU KABUL PATH 2' @ 11.100GHz-H, both in the clear using a rare indeed digital parameter SR 4342 and FEC 7/8. It's unusual to find Afghanistan feeds over 7°E (a lowish angle from Afghanistan) whereas 99.9% have been on *Europe*Star-1* 45°E and a very occasional feed via Eutelsat's *SESAT* 36°E.

Telecom 2D, the France Telecom bird at 8°W proved that not only the UK (in parts) had a white Christmas, an 'RTL NEWSFEED KOLN' @ 11.520GHz-V (6666+7/8) was skidding its way into the eastern part of the former Federal German Republic where over 1m of snow has fallen, the mayor (Burgomeister) of a snowed up town explained the problems of maintaining power supplies particularly to the elderly and sick, snowploughs are seen clearing roads, snow on parked cars is past the windows though the local 'Bash Street Kids' are having fun on their sledges.

This frequency slot is obviously at a well negotiated fee since 'RTL NEWSFEED BERLIN' also appeared later that same day - December 27th - with the same 6666+7/8. The 27th is the anniversary of Marlene Dietrich, the German born popular World War 2 singer and the video package discussed the impact that Ms. Dietrich had on both the German and world entertainment industry both within and post-WW2. A Roy Carman sighting.

The 13°E *Hot Bird* slot still provides an easy catch for small dish operatives checking for news feeds, important spots are 12.581GHz-H and 12.590GHz-H (both 5632+3/4) for APTN circuits across Europe and the Middle East. Signal levels can vary however, the 'APTN LONDON' uplink usually is excellent down to 650mm dishes, but other signals such as 'SATELLITE MILLENIUM' or 'APTN JERUSALEM' can be very marginal, requiring at least a 0.9m dish for good picture lock.

News is mainly - though not always - non encrypted and APTN may of course deviate from the above stated frequencies, just after Christmas 12.581 went dead! For the record, columns such as the *SWM* 'Satellite TV News' page and in *What Satellite TV* are read by broadcast folk, uplink operators and 'others'. I occasionally receive contact from such professional sources and our highlighting certain frequencies has lead to uplinks being moved in frequency, satellites changed and digital parameters changed - but we usually find them again! I ensure however, that reporters when photographed are seen on this page as respected professionals, never in unguarded moments when stress levels can be extreme.

*CBS often use 7/8 FEC on other news feeds as noted ex Afghanistan.



A remarkable image demonstrating modern communications technology, this was a live report for Japan from a remote mountainside in Afghanistan.



British soldiers prepare for the 'peace' signing in Kabul, via 45°E.



A rare Christmas greetings picture over *NSS-K*, 21.5°W.



A reporter checks her script, the IFB is the earpiece/loudspeaker reverse audio feed (Interrupted Fold Back).



PAS-3R and the Fox Sports News feed ex Texas.



'Vox-Pops' on the NY streets New Years Day, *NSS-K*.



French political speech, over *Intelsat 801*, 31.5°W.



Israeli Teleport via *Hot Bird*, 13°E.

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

■ E-MAIL: ssb UTILS@pwpublishing.ltd.uk

SSB Utilities

Concorde

In the January 2002 issue I covered the return of Concorde to the trans-Atlantic routes, and gave details of flight-numbers used by the British Airways and Air France flights. I also mentioned that on the same day as the first flights departed from London and Paris there was an additional Concorde flight taking Prime Minister Tony Blair to meet with President Bush in Washington.

When I wrote that item I asked if anybody could supply details of that flight. Several readers sent in details of this extra flight, so the first thanks this month go to **Rob Johns**, **Peter Cox** from Devon, **J. Fenton** from County Durham and two others who wish to remain anonymous.

With the aid of their logs and information I can now report that the extra flight used the callsign 'Speedbird 9093' and it operated on the track 'SM'. It was heard by several listeners working Shanwick and New York on **8.879MHz**.

One of the two 'anonymous' contributors wrote to say that the weekly British Airways Concorde flight to Barbados (Saturdays only, BAW272/BAW273) is more likely to be heard on **5.598**, then **6.628** and finally on **11.309MHz** before hand-off to v.h.f. The return flight later the same day usually uses the same h.f. frequencies, but in reverse order.

Staying with Concorde, **Peter Hillier**, wrote to mention a book devoted to monitoring Concorde by radio, which appeared as an advert in his local free-ads newspaper. Peter has been in contact with the author by 'phone and says that he sounds like a dedicated individual. Peter has ordered a copy of the book and should be getting his copy very soon. The only thing that Peter forgot to mention was the name of the book, however, more details are available from the author via his E-mail address:

speedbirdconcorde4@hotmail.com

I know there are a few enthusiasts like myself that would be interested, so I am passing this information on and you can contact the author directly. *Coincidentally, Huw Davis, the author of the book (Catch The Concorde), has sent a sample for review, see page 8 for fuller details - Ed.*

Shuttle Launch

It is always pleasing to be able to report on some kind of future event which will be suitable for readers of this column to listen to. Unfortunately, it does not occur too often, usually due to the time taken between this column being prepared and it appearing in print. Typical examples of this are Space Shuttle launches and some military exercises which occur at fixed periods each year (e.g. JMC).

As I was preparing this column during the middle of January, NASA announced the schedule for the launch of the next Shuttle flight, and this proved to be a very timely one as far as 'SSB Utility' listeners are concerned. The launch of flight STS-109 is currently scheduled for 28th February. I have not seen any confirmation of the launch time yet, but I have been given two alternatives - one in the late morning (UK time) and another in the late evening.

The exact launch time is not set until about two weeks before the launch time. For those of you with access to the Internet and are members of the 'SWM_Readers' list, I hope to be sending my usual

reminder E-mail a few days before the launch.

The launch of this Shuttle flight is quite soon after *Short Wave Magazine* appears on newsagents shelves (for those in the UK at least, apologies to those overseas), so I hope that by mentioning this event here it will be fresh in listeners minds, and hopefully will give a better chance for more listeners to monitor the flight. If you have never listened to a Shuttle launch before, the place to start is **10.780MHz** about three to four hours before the launch (remember to convert the NASA provided launch time from EST to UTC accordingly).

On this frequency you should hear Cape Radio contacting several of the support ships and aircraft, and advising them of which other h.f. frequencies are being used. Then it is simply a matter of listening carefully to the signals to work out who is doing what, and where. This flight is a Hubble Space Telescope servicing mission, so it will not pass over the UK, nor be visible, for the duration of the 11 day mission. I will be covering Shuttle launches in more detail later this year.

Letters

The first letter this month is from **C. Elwell** in the West Midlands. He is using a Yupiteru MVT-7100 as a h.f. receiver, and for an antenna he has a simple 5m length of wire. He would like to know if he could make the antenna longer by using a coaxial patch-lead with suitable BNC connectors.

Well, Mr Elwell, this will not actually make the antenna any longer, it will still be only 5m long, but it will then have an extra length between the antenna and the receiver. This may allow you to get the antenna higher or further from the house (and other electrical noise), but it will still only be a 5m antenna.

If you look at your existing antenna you will find that it is very simply constructed - a length of wire, usually plastic coated, and a BNC connector. If you want a longer antenna, why not get a longer piece of wire similar to the original one, and solder it to a new BNC connector. One word of warning though, v.h.f./u.h.f. scanners which cover h.f. frequencies usually do not work so well as expected when connected to very large antennas, because the massive increase in signal overloads the circuitry in the scanner. This leads to all sorts of odd sounds from your scanner as the signals you want are mixed with signals that you don't want.

Mr Elwell also asked whether he should invest in a h.f. antenna pre-selector or an antenna tuning unit (a.t.u.). I would say that either of these would be better than nothing at all, although I am not sure if either one is any better than the other. Personally I use an a.t.u. which I made from a kit (a CTU9 from CM Howes, but now available from G3TUX who advertises regularly in *SWM*), but I do know that other readers have had equal success with pre-selectors. In fact, I would also like to know what is the difference between the two items, so if anybody has any ideas or thoughts on the two items please get in touch.

A Christmas card from **Richard Patterson** in Oxfordshire mentions that he has been hearing EAMS and 'Skyking' messages from Cyprus Flightwatch on **11.175MHz**. This is a minor extension to the operational frequencies mentioned in the December 2001 column, where I included a NOTAM.

CATCH THE CONCORDE

RADIO ENTHUSIAST'S HANDBOOK



HUW DAVIS

More info on page 8.

Items on this page are available directly from AOR UK LTD, please place your order using any of the following methods:

- SSL credit card order facility from our web site https://aoruk-com.secureserve.co.uk/c_card.htm
- Phone, fax or post your credit card details
- Post a cheque or postal order (made payable to AOR UK LTD)

Items are usually available from stock for immediate despatch, however please allow up to 28 days for delivery dependant upon demand, all delays greater than one week will be notified. Prices include VAT @ 17.5%



The **NEW LA350** is a compact active loop aerial specifically designed to provide good reception when away from the main monitoring location or when large external aerials are not practical. Compact, but achieving high performance, featuring an internal high-gain amplifier (13.5dB) and excellent overall strong signal handling (high IP³ +30dBm).

The LA350 is very compact being constructed of metal loops and providing a quality finish, still the LA350 remains only half the diameter of other well known loop aerials. When independently tested, the gain of the LA350 was consistently greater on the higher bands than other loops placed alongside.

The LA350 comprises of a small control box with front panel power switch and LED. The top of the control box has a 6.3mm jack socket to accept any one of the four elements (two supplied as standard). The rear of the control box has a 1.3mm power socket (operation is from 12V DC) and a BNC socket for connection to a receiver. The LA350 is supplied with two loop elements (providing coverage from 3.0MHz to 30MHz), a BNC-BNC coax lead and AC power unit:

- 350S 30cm loop element: 3.0 - 9.0MHz
- 350H 30cm loop element: 9.0 - 30MHz

As the elements are mounted on a jack plug, they may be quickly & easily swapped and rotated to exploit the excellent directivity offered by the elements in peaking and nulling signals (ideal for minimising the effects of unwanted interfering local terrestrial signals and noise). The elements feature a High-Q poly-variable capacitor so that each element may be 'tuned' to peak the wanted frequency while achieving maximum rejection of unwanted out of band signals - valuable additional selectivity for your receiver's front-end stages.

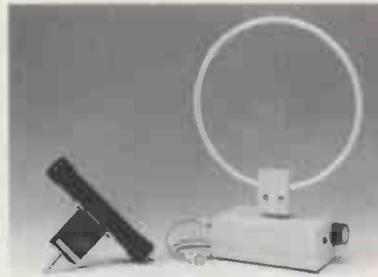
Optional bar elements are available for the MW and LF bands:

- 350L bar element: 0.2 - 0.54MHz
- 350M bar element: 0.54 - 1.6MHz



LA350
£199.00
carriage
£5.00

Optional bar
element
@ £49.00
each
carriage
£2.50 if
ordered
separately

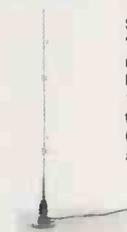


LA320 Short wave table-top active loop aerial 1.6 - 15 MHz fitted with coax lead and BNC plug **£99.00 carriage £5.00**

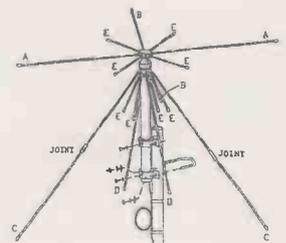
320L Element 0.2 - 0.54 MHz for LA320, not for LA350 **£25.00 carriage £2.50 if ordered separately**

320M Element 0.54 - 1.6 MHz for LA320, not for LA350 **£25.00 carriage £2.50 if ordered separately**

DA3000 16 element disccone aerial specifically designed to match the latest AOR wide band receivers, but is equally suited to other brands. Usable coverage is 25 MHz to 2,000 MHz (2 GHz). Supplied with 15m of coaxial cable and terminated in a BNC plug. **£69.00 carriage £5.00**



SA7000 Twin element 'passive' ultra wide band receive aerial 30 kHz to 2,000 MHz (2 GHz). Supplied with 15m of coaxial cable and terminated in a BNC plug (picture not shown here) **£99.00 carriage £5.00**



MA500 Mobile VHF-UHF aerial mounted on a magnetic base, centre and base loaded whip. Supplied with around 4m of coax cable terminated in a BNC plug **£49.00 carriage £5.00**

DDS-2A Microprocessor controlled external VFO with 100 memory channels for the Collins KWM-2(A), 75S-3B & 32S-3. Latest DDS technology to produce accurate and clean local oscillator injections replacing the original PTO and HFO of the radio, includes BFO shift compensation. Traditional styling and finish to match the Collins line-up. **£POA carriage £5.00**



ARD-2 ACARS airband data reception and NAVTEX marine data reception in a compact self-contained unit with built-in LCD display providing two lines of text with up to 32 characters of text per line and a scroll back buffer of 512 characters. A built-in speaker with volume control allows you to monitor activity and assess what is going on, this is particularly useful for fine tuning of NAVTEX and enables you to shut the sound off completely when not required. A LEVEL control provides threshold adjustment to achieve the best capture of weaker signals for improved differentiation between noise and data. Sockets are provided on the front and rear panels for external speaker and earphone connection etc. A 9-pin **RS232** socket is also provided to enable **connection to a computer** for

improved comfort when viewing for extended periods of time (free PC Windows software is available from the our UK web site). **£249.00 carriage £5.00.**

For further product information, please visit the AOR UK web site. Specifically for AOR DIRECT items, please have a look at www.aoruk.com/direct.htm

A monthly AOR DIRECT newsletter will also be posted to the web and will contain the latest information and promotional offers.

AOR - selection of accessories and options for various models:

Prices £ inc VAT @ 17.5%, carriage shown in right hand column.

455 kHz filters

MF300 Collins 300 Hz mechanical CW filter (displays around 600 Hz in AR7030)	74.00	2.00
MF500 Collins 500 Hz mechanical CW filter (displays around 700 Hz in AR7030)	74.00	2.00
CFJ455K8 Murata 1.0 kHz data filter (displays around 1.5 kHz Hz in AR7030)	39.99	2.00

XTAL2.4 Quality 2.4 kHz crystal filter for AR7030 (FL124 daughter board recommended for fitting). *No more stock from 13.06.01. not cost effective to continue production of the filter in small quantities. Suggest using an alternative from Kenwood, JRC etc.*

MF2.5 Collins 2.5 kHz mechanical SSB filter	74.00	2.00
CFK455J Murata 3.0 kHz metal cased filter (displays around 3.8 kHz in AR7030)	29.99	2.00
CFK455I Murata 4.0 kHz metal cased filter (displays around 4.7 kHz in AR7030)	29.99	2.00
MF4 Collins 4.0 kHz AM mechanical filter	74.00	2.00
MF6 Collins 6.0 kHz AM mechanical filter	74.00	2.00



AR7030 options

PLUS retro upgrades Performance upgrades to the AR7030, please phone for details	TEL	
FL124 Daughter board for fitting up to three crystal filters to the AR7030	24.99	2.00
BP123 Internal rechargeable battery and charge circuit for the AR7030	99.99	6.00
NB7030 Enhanced multi-option - audio notch filter, noise blanker and features CPU for alpha-tag memories, additional memories, enhanced timer	198.00	5.00
UPNB7030 Enhanced upgrade NB7030 for those who already have the features CPU fitted or are adding the NB7030 to the AR7030 PLUS	163.00	5.00
FPU7030 "Features CPU" for the AR7030 as supplied with the NB7030 option	69.00	2.00
SM7030 Service information comprising circuits, layout, block diagram, service alignment disk & lead	39.95	3.00
RS232-7030 Programmers information (10 pages in WORD format) disk & printout (File supplied on SM7030 disk as standard)	3.00	free!
IR7030 Spare infrared remote control unit	14.99	2.00



AR5000 options

AS5000 4 way external aerial switch	99.00	3.50
CT5000 Internal CTCSS unit	79.00	3.00
DS8000 Voice inverter unit (analogue)	69.00	3.00
CR5000 Tape recording lead for the AR5000	17.90	1.50
SM5000 Service manual for the AR5000	50.00	UK free
SM5500 Service manual for the SDU5500	20.00	UK free



AR3000A options

CR400 Tape recorder lead	16.95	1.50
SM3000A Service manual for the AR3000A	20.00	UK free



AR8600 options

CR5000 Tape recording lead for the AR8600	17.90	1.50
PSU8600 Optional 12V power supply for AR8600 (3-pin UK plug top)	18.50	3.50
PSU7030 Optional 15V power supply for AR8600, recommended when the BP8600 is to be used as it guarantees maximum capacity from the battery	24.95	5.00
BP8600 Optional internal NiCad battery pack for the AR8600, provides about two hours of operation. Workshop fitting recommended	49.00	2.50
DC8600 Optional DC lead with cigar plug	6.00	1.50
MM8600 Wrap around mobile mounting bracket for the AR8600, not intended for under dash mounting, use in caravan, boat etc	47.00	3.50

Refer to 455kHz filters for MF2.5 / MF6



AR8200

SC8200 Soft padded grey leatherette case for the AR8200	19.95	1.50
EM8200 External memory slot card	59.90	3.00
VI8200 Voice inverter slot card (analogue)	59.90	3.00
RU8200 Record / playback slot card	59.90	3.00
CT8200 CTCSS slot card	69.90	3.00
TE8200 Tone eliminator slot card	39.90	3.00
CR8200 Tape record lead	39.90	3.00
OS8200 AUX moulded connector with approx 1m of multi cable (for discriminator out etc)	14.90	1.50
RT8200 Reaction Tune lead for Scout	24.90	1.50
CO8200 Clone lead (made to order in the UK workshop using two OS8200 leads)	39.00	1.50
SM8200 Service manual for the AR8200	20.00	UK free
SM8200-2 Service manual for the AR8200 Series-2 receiver	20.00	UK free
4AA Set of four 1000mAh high capacity "AA" NiCads, very similar to those supplied with the AR8200-2, suitable for the AR8200-2/AR8200/AR8000 and most similar products	12.00	2.00

CC8200 discontinued, see 8200PC below

8200PC Computer control lead (with built-in level shift), replaces CC8200 but without the software and protocol listing on CD-ROM (as they are available as a free download from the AOR web site). If you still require the CD-ROM please refer to the AOR SAMPLER	74.90	3.00
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AOR SAMPLER CD-ROM PC software (full version) for the AR8200/AR8200-2 and other free AOR packages, also current demo software	5.00	UK free
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AR8000

SC8000 Soft case for the AR8000	17.95	1.50
CU8232 Remote data interface for clone and RS232 control of the AR8000 / AR2700	89.00	3.00

CR8000 Tape interface for AR8000	44.90	3.00
SAC8000 Lead and rear slotted battery cover for the AR8000 to enable operation with the OPTO SCOUT V3.1 without modification to the receiver	24.95	1.50
SLOT-8000 Slotted replacement battery cover for the AR8000 receiver, ideal for CU8232 or OPTO CX12A	4.95	1.50
DS8000 Voice inverter unit (analogue)	69.00	3.00
SM8000 Service manual for the AR8000	20.00	UK free

AR2700

SC2700 Soft case for the AR2700, special price for stock clearance	5.00	1.50
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AR1500

SC1500 Replacement soft case for the AR1500, also suitable for AR900	5.50	1.50
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NiCad packs for AR1500 series no longer available, call for details

PSU / chargers

PSU7030 Replacement mains power supply for AR7030, state UK230V, EURO230V or US110V (also for use with AR8600 when the optional BP8600 battery is in use)	24.95	5.00
AA2001 Replacement power supply for AR3000A (3-pin UK plug top)	18.50	3.50
CG1500 Replacement mains charger for the AR8000 etc (not for AR800 or AR900) 3-pin UK plug top	16.50	3.50
AA2001/8000 AOR Regulated 12V DC 500mA power supply for AR2000/1500/1000 and similar models such as Yupiteru	18.50	3.50
PSU8600 Optional power supply for AR8600 (3-pin UK plug top)	18.50	3.50
PSUARD2 Power supply for the ARD-2	20.00	3.50
PSU5000 Power supply for the AR5000, special order... serial number or receiver required as this is a spare part	39.90	5.00
PSU5500 Power supply for the SDU5500	39.90	5.00

Power leads

DC2000 Spare 12V DC lead for the AR8000 etc Fitted with cigar lighter plug	6.00	1.50
DC3000 12V DC lead for the AR5000, AR3030, AR3000A etc	6.00 *	1.50

* If you wish to have a cigar plug fitted, add £2.00 extra

DC8600 Optional DC lead for AR8600 with cigar plug	6.00	1.50
DC5500 Optional 12V DC lead with in-line fuse for the SDU5500 and ARD-2	6.20	1.50

Audio leads & connectors

CR400 Ready made tape recorder lead for the AR7030, AR3030, AR3000A	16.95	1.50
CR5000 Tape recording lead - AR5000/8600	17.90	1.50
CR8000 Tape interface for AR8000	44.90	3.00
CR8200 Tape record lead for AR8200	34.90	3.00
8DIN 8 way din plug for AR7030 AUX socket.	2.50	1.50
8MINI 8 pin ACC1 mini din plug for AR5000	2.80	1.50
8LMINI 8 pin ACC1 mini din plug with free end lead for AR5000	4.95	1.50

Aerials & accessories

AS5000 External aerial switching unit for the AR5000	99.00	3.50
TW500 Telescopic whip aerial 625mm in length, BNC plug. Ideal for the "edge" in VHF listening while hand portable. BNC plug	14.95	2.00
RA8600 Telescopic whip aerial 650mm in length, seven section on a swivel BNC plug. As supplied with AR8200 Series-2 and AR8600. May also be used with AR2001/2002 /3000/3000A etc	17.95	2.00
TW7030 Telescopic whip on right-angled PL259 (for short wave use), suitable for the AR7030 and other short wave receivers	12.95	2.00
ABF125 VHF Airband filter 108-136 MHz to improve strong signal handling especially of hand-held receivers. BNC male & female for straight forward connection	28.50	2.00

Computer software

Data-Master PC control AR7030/3030	69.00	3.00
Spectrum-Master PC control AR5000	69.00	3.00
Searchlight PC control AR3000/A	59.00	3.00
PC-Manager Win PC control AR8000/2700	49.00	3.00
Concerto PC control AR3030	39.00	3.00

Several free packages available from the AOR UK web site

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Extensive web site: software download, technical bulletins, manuals and SSL credit card ordering facility
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■ KEITH HAMER & GARRY SMITH, 17 COLLINGHAM GARDENS, DERBY DE22 4FS

■ E-MAIL: dxtv@pwpublishing.ltd.uk Web: www.test-cards.fsnet.co.uk

DX Television

For those DXers bored with the daily diet of F2 reception from the Middle East and beyond, there was welcome relief in the form of a good old-fashioned tropospheric opening. Spanning December 9th to the 12th, the event produced intense TV and f.m. signals with reception stretching from Scandinavia to Spain.

The Big Tropo Opening

On the 9th, **Stephen Michie** (Bristol) was confronted by a multitude of Dutch national and regional broadcasts. RTV Noord on Channel E36 was exceptionally strong, prompting him to ask whether the station has increased its e.r.p. Other Dutch regional stations identified included RTV Oost E22, TV Flevoland E25 and Omroep Frysan E28. Many German stations also emerged such as ZDF on E25 and E33, ARD on E32 and E50 with ski-jumping, WDR on E55 and E57 - the latter signal floating over BBC-1 Oxford!

Peter Barclay (Sunderland) experienced rare French and Belgian reception. By 1500 on the 9th colour pictures were established from RTBF-1 E8 and VRT TV1 E10, the latter showing a subtitled episode from the BBC comedy series *You Rang M'Lord*. Later, at 1900, *Allo Allo* was screened. Two other Belgian networks, RTBF-2 and Canal Plus Belgique, were two 'firsts' for Peter. Throughout the day, E30 was frequently jammed with NED-3 (Netherlands), ZDF (Germany), TV-2 (Denmark) and Channel Four (Crystal Palace), all battling for supremacy.

The following day was just as impressive with the 'catch of the day' being Canal Plus on L9 from Caen - another 'first'. Meanwhile, TV-2 was arriving from Norway on E37 and E44. On the 11th a mystery German-language news programme emerged from the south-east on E34 which did not match other German stations received at the time, i.e. ARD-1, ZDF, NDR, SAT-1 and RTL+.

Strangely, the news was then repeated. Programme previews were seen, featuring a figure '1' in a dark box located in the lower-left of the screen. No obvious logo was shown throughout the news programme, but a telephone number or website address was displayed at the bottom of the screen. Signals were much weaker on the 12th and by 1200, only NRK-1 was still present in Band III.

Ian Milton (Ryton) identified the following stations on the 10th. Denmark DR-TV E10 and TV-2 E25 and E35, Norway NRK-1 E5, E6, E7, E8, E9 and E10, TV Norge E34 and E51, TV-2 E44 and E47, Netherlands NED-1 E6 and E7 and Germany N3 E60.

On the 10th, **George Garden** (Edinburgh) captured Norwegian NRK-1 signals on E6 from Oslo using a vertical f.m. dipole and a Maxview amplifier fed into a JVC-CX610 colour receiver. Interestingly, signals were absent using a horizontal array. At u.h.f., TV Norge was showing *EastEnders* with Norwegian subtitles on Channels E34, E45, E51 and E55. NRK-2 on E41 was also visible in colour.

Band I Reception

"On the 13th between 1500 and 1630, the *Geminids* Meteor-Shower generated frequent bursts on E2 and E3", writes Peter Barclay. Sporadic-E activity produced Spain E2 and Portugal E3 for **Peter Barber** (Coventry)

during an hour-long opening on the 18th from 0912.

F2 reception has been possible most mornings, usually on Channel E2, but occasionally on R1. Peter Barber and Stephen Michie identified Syria E2 on the 6th and 7th with amazingly clear pictures. **Simon Hockenull** (Bristol) reports that F2 has been prominent most mornings over Christmas with spectacular E2 results from Dubai, Iran and Syria plus unidentified signals on R1. Despite the characteristic F2 smearing and multi-path distortion, it has been quite easy to secure watchable pictures by carefully setting the D-100 tuner r.f. and bandwidth controls.

Peter Chalkley (Luton) discovered R1 was alive with F2 on the 26th. Peter recalls an eventful morning on the 30th with stunning pictures and sound from Syria on E2 around 0845. Later, the sound channel did not match the picture. Peter feels that it could have been Iran with the higher frequency enjoying a longer skip.

Roger Bunney (Romsey) also heard a different sound channel with the Syrian picture, but on the 30th. The same day, from 1026 on E2 (48.235MHz), Peter Barber saw fighter aircraft in flight, Australian bush fire scenes and President Bush speaking. In the top-right there was a curly '9' shaped logo, the Thai TV9 network perhaps?

Here in Derby on the 31st, R1 became more active than E2, but despite strong signals, nothing was identified. From around 1500 during Sporadic-E activity, steady signals emerged on R1 from

Hungary (MTV-1) and on R2 from an unknown source.

Christmas Fayre

Stephen Michie mentions that over Christmas, BBC West decorated the Severn Bridge balloon sequence with a sprig of holly. To ring in the New Year, Channel Five decided to abandon its text service and pull the plug on its analogue satellite service.

FM Reports

Jim Parfitt (Radstock) has been experimenting with a discone antenna feeding an old RDS car radio. Despite living in a valley, a slow-fading Radio York was identified on 103.7MHz, between 1000 and 1200 on 3 Dec. The station later confirmed on-air that it had been heard in the east of the country and as far south as Bath.

During enhanced tropospherics, George Garden heard Norwegian signals from the P1 network on 88.0, 89.1, 93.3 and 93.5MHz, the P2 network on 91.1, 91.8 and 99.0MHz and the P4 network on 101.4MHz. Also noted were Radio 102 on 106.9MHz and SUNNHORD (RDS) on 107.9MHz.

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 the address at the head of the column. We can also use off-air pictures stored as JPG files on PC disks and good-quality video recordings.



Fig. 1: Norwegian NRK-1 clock, received on u.h.f. by George Garden.



Fig. 2: Test Card 'F' as radiated by NRK in 1971.



Fig. 3: A tuning caption affectionately known by some DXers as the 'Bag o' Fruit' Test Chart which was used by NRK in the early Seventies.



Fig. 4: One of the two special 2001 Christmas Identification Symbols radiated between programmes for 12 days on BBC-1.

■ CLIVE HARDY, PW PUBLISHING LTD. ARROWSMITH COURT, STATION APPROACH, BROADSTONE, DORSET BH18 8PW

■ E-MAIL: clive@pwpublishing.ltd.uk

Amateur Bands

It starts this month with details of some impending DXpeditions. A station to look for after the 12th March will be a VP6 operating from Ducie Island, north east of Pitcairn Island, central south pacific. It will be operated by the Pitcairn Island Amateur Radio Association.

Ducie island has only recently been granted separate DXCC status, so there will be a good deal of enthusiasm around the radio amateur fraternity to work this 'new' country. To give as many people as possible a chance to bag this prize, the station will be working 24hours-a-day on 21.295MHz s.s.b. and 21.020 c.w., give or take a few kHz! Other frequencies to spin the dial to will be 28.495 and 14.195MHz, both for s.s.b. I think that the nine amateurs in the DXpedition are going to very busy and, at the end, very tired!

Chile's San Felix Island off the western coast of South America will be visited by 13 amateurs for 18 days in March.

The anticipated arrival date is the 12th, and the team will have north and south American members, as well as a few Europeans.

Unlike some pacific islands, this 3km wide lump of rock doesn't look too hospitable. It boasts an airstrip and military base and that's about it! The

callsign to listen for will be XR0X. Visit web site <http://www.cordell.org/SFX> for more details.

Another site to look at is www.7x0.sp5xcc.waw.pl which has details of Mirek's amateur radio activity in Algeria. He's been granted a licence and hopes to be active for two to four months from the new year. The call he requested was 7X0DX.

A little further into the future now, but still in Algeria. A Scout group led by Afif 7X2RO is hoping to put the Mediterranean island of Habibas, north of the country's Oran region, on the air in May. Afif should also be helped by Ivan, Mike and Steve (who can be contacted at om3jw@konektel.sk from Slovakia).

A couple of UK amateurs are helping too, with some international IOTA (Islands On The Air) activity in March. Together with three local amateurs they plan to visit several islands around Mexico's Baja California during March. Operation is expected to be on all bands between 7 and 28MHz.

What's Been Heard?

There was a review in January's *SWM* by John Wilson of the Racal RA1772 receiver. Beloved in its hey day by HMG, one graces the shack of **Philip Davies** in Shropshire. He certainly puts it to good use and found some interesting DX recently. At 0500, when most of us were asleep, he listened on 3.5MHz and was rewarded with HI3K in the Dominican Republic, and across the Caribbean Sea, HR1BY in Honduras. Still in that part of the world, FJ5DX on the island of St. Barthelmy was heard on 24MHz, and not too far from there, PZ5RA in Surinam on 28MHz.

Conditions towards the east were clearly favourable on 21MHz. On this band Phillip heard EP3PTT in Iran, YA5T in Afghanistan and 7Z1AC in Saudi Arabia. Plus to the north east, HL4SF on Cheju Island, south of South Korea, and WH4DX on Guam in the Pacific.

Beware - Pirates!

Shortly after Philip heard YA5T in Afghanistan, the station was temporarily closed down as its Belgian operator **Peter ON6TT** left Kabul for a while in early December. Unfortunately, during his absence, the call was used by a pirate operator. Listeners beware! Fortunately, you can confirm that the right man is behind the microphone at YA5T by visiting www.qsl.net/ya5t

Need More Antenna Space?

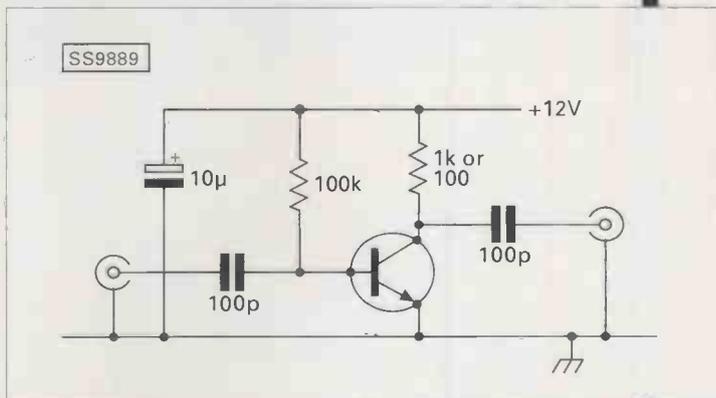
You may recall my mentioning the AKD HF3 radio a few months ago. **Ted Seward** from Surrey sent me details of a simple pre-amp that he fitted to his AKD HF3 radio. He's owned the radio since soon after the model was available and has been very impressed. But he could only put up a short wire antenna, which as well as picking up very little signal, didn't match the 50Ω input impedance of the radio either.

The pre-amp adds amplification to the signals that the antenna picks up as well as providing an improved impedance match between the antenna and the radio. With any antenna amplifier there's always a trade off between the increase in gain and the noise added to the signal from the amplifier. Provided there's enough signal to start with, a pre-amp can be useful if antenna space is restricted. Active Antenna is the posh name for a short bit of antenna wire with a pre-

amp attached.

The circuit of the pre-amp shown, is which Ted built on strip board. He's forgotten the precise component values so those shown are 'ball park'. Better results might be obtained with different values, but they look pretty sound to me. If you want to build it, live dangerously - experiment a little!

Ted built his into the radio and fitted an extra socket for the 'pre-amped' antenna input. I expect it will work just as well



Ted Seward's antenna pre-amp.

outboard from the radio with a 9V supply from a PP3. Battery power also eliminates any mains borne interference getting into the circuit.

Thanks for the correspondence and logs of your listening activities. Please address your letters to **Clive Hardy G4SLU, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW** or to clive@pwpublishing.ltd.uk. If you write, a daytime 'phone number is very helpful.

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■ DAVE ROBERTS c/o SWM EDITORIAL OFFICES, BROADSTONE

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

Scanning Scene

From the correspondence that I have been receiving, it seems that quite a few people have been listening to the low frequency v.h.f. stations that have been audible from the USA. **Mike Jones** kindly drew my attention to a web page that was put together by Larry Van Horn of *Monitoring Times*. It contains full details of the California Highway Patrol's radio channels, some of which I have now heard over here in the UK.

Like most of the low v.h.f. police stuff in the USA, it's mostly based between 39 and 43MHz. There's no point in my listing all the frequencies here as you may listen for months and not hear a peep and in any case, some of them are shared with other police agencies over there. So have a search around.

The CHP are almost a part of American folklore and due to the vast size of the state, radio has always played a major part in their operations. The Californian law enforcers have more aircraft at their disposal than most countries! Accordingly, many officers in CHP and other police agencies have an interest in communications and plenty of them have amateur licences. Listen out for **Rob Faulkner W6RF** on the amateur bands. He has just retired as a flight officer with the CHP's Golden Gate Division Helicopter Unit.

Another listener to the American police stuff is **David** from Doncaster who has been having great success monitoring with a simple antenna in the loft. He finds the occasional references to county jails and correctional facilities interesting as he is an ex prison officer and understands a bit more of the routines than most of us (well, more than those of us who haven't been inside that is...).

Another mail, this time from **Andrew** in Yorkshire, who was trolling around 446/447MHz with the trusty Yupiteru 7100 (these scanners are still so good) when he found the frequency being used as a talkback channel by the *Calendar News* team in Leeds, North Yorkshire. The frequency in use was 447.430MHz and a reporter was stationed outside Leeds Crown Court covering the

court proceedings following the Selby train disaster.

Andrew tells me that the amount of two-way traffic between the studio and the man on the ground was amazing. He wonders just how any presenter manages to concentrate with the amount of noise going on in an earphone. He was impressed just how much hard work went into the broadcast and he was surprised that despite the pressure, all the staff seemed to really be enjoying their jobs. Other broadcast links can be found between 446.425 and 447.550 and I think another frequency in use in Yorkshire may be 447.4375.

It just shows that the Yupiteru and an old discone in the loft are still a potent combination.

Licence Free

More low power licence free equipment is hitting the market all the time. More popular than ever are the cordless headphones that retail for around fifty pounds. These are simple devices consisting of a small low power (1mW) w.b.f.m. stereo transmitter and a suitable receiver built into a pair of headphones and powered by a couple of small batteries. These units transmit on frequencies between 863.700 and 864.0MHz.

Due to their low output, the range is pretty much restricted to within a couple of rooms of where the transmitter is located. The fact is that monitoring these frequencies won't provide much reward unless you live in a block of flats in which case you can probably hear your neighbours music through the walls and are thoroughly brassed off with listening to non-stop Elvis, Oasis or Metallica.

Hang on though, these little gadgets could be useful to some of us. Imagine hooking up your large immobile h.f. receiver to the transmitter unit via the earphone plug. You can then allocate one channel of your v.h.f./u.h.f. scanner's memories to a favourite h.f. frequency, say for instance 5.680 or one of the US Global h.f. channels.

Set the squelch on the h.f. (not easy I know) and when the h.f. fires up so does the memory channel. It would

enable the use of a portable scanner with an h.f. channel option provided you are not too many yards from the h.f. set. It's just an idea and it may suit some. If you get really bored you can always listen to your girlfriend's music on the scanner while she's hooked up to the 'phones without letting on that you like her choice of music.

New Scanners

There's a whole new pair of scanners out and about. In January's annual Consumer Electronics Show in Las Vegas (a quiet genteel little village in Nevada, USA), Uniden announced that they are to be flogging two new scanner models later this year. They are the UBC 250D hand-held and the UBC 785D (D for digital, geddit!) base/mobile unit. These sets will monitor conventional, trunked and APCO25 conventional and trunked systems.

APCO25 is the digital standard that many public safety users, police and the like, are migrating to in the USA. To monitor APCO25, the users will have to buy an extra plug-in card. Although a digital system, the standard is open and monitors will be able to receive and recover audio signals from the radios. APCO25 also supports end-to-end encryption and should this be in operation, obviously the transmissions will remain secure from eavesdropping.

I realise that this is an American system, but like all technology it will spread. Many services who were going to use the BT Airwave TETRA equipment have decided against it mainly on grounds of cost. The Fire Service College at Moreton-in-the-Marsh have recently purchased a TETRAPOL system and it's quite often the case that what the College buy today the rest of the Fire Service gets tomorrow.

Her Majesty's Customs & Excise also have gone against the BT grain. It seems that they have decided against TETRA and have placed an order with Motorola for an APCO25 radio scheme that will operate outside the TETRA allocated frequencies. But don't hare off to Fort Worth and hand over the credit card for the latest Uniden just yet. Like I said, the

APCO25 allows end-to-end encryption and C & E, not surprisingly, have deemed that facility to be necessary for their operations. No point in renting the tranny van for yet another booze cruise to Calais after all is there.

Criminal Activity

Apparently criminal low life in the Bristol and west area have been using scanners to monitor public utility traffic such as calls for service from the water board and then have been going to the addresses that they have overheard and claiming to be from the water authority. They gain entry and then steal from elderly and other vulnerable people. Similarly, they have monitored police calls and attended the address mentioned and committed the same sort of offences. Does anyone have an idea as to the identity of these people?

More to come...some nutter in Inverness has been transmitting to aircraft on an illegal airband set-up. He made himself quite unpopular, especially with the CAA and Radiocommunications Agency. The latter sent a crew to DF him and being professionals at the job their task was completed with lightning rapidity. The idiot had his radio gear confiscated and appeared in court and was fined heavily.

Also, some convict in the Salford area of Manchester obtained a transmitter that would operate on police frequencies and spent a fair bit of time swearing at officers and playing music and obscenities on air at them. This went on for quite a time and he was caught last May and had some equipment seized, but the police couldn't prove that he had been transmitting on their system.

Clearly, being of superior intellect, he just carried right on cussing 'em out. Anyway, this went on for quite a time and he was caught last May and had some equipment seized, but the police couldn't prove that he had been transmitting on their system.

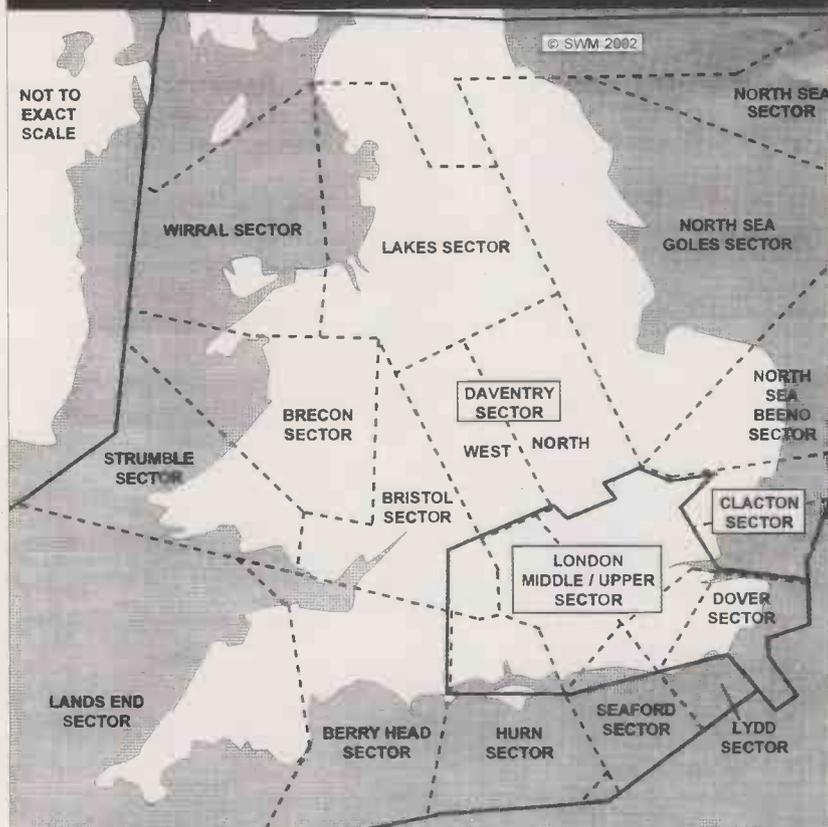
Sleep tight 'Einstein'!

■ PETER BOND, c/o EDITORIAL OFFICES, BROADSTONE

■ E-MAIL: skyhigh@pwpublishing.ltd.uk

Sky High

LONDON (SWANWICK) AREA CONTROL SECTORS



Sector allocations for the new London Centre at Swanwick.

LACC SWANWICK

A long, long time ago, in a Galaxy far far away, a decision was made to build a new London Air Traffic Control Centre, at 0300 on 27 January 2002, that dream eventually became a reality. On that date, after many delays, (the original implementation date being in 1996), the new **London Area Control Centre (LACC)**, at Swanwick, Hampshire, commenced live Air Traffic Operations.

In the mid-late 1980s it was identified that a new London ATC Centre was going to be needed to replace West Drayton and to allow for the expansion of air traffic into the next century. A site was found at the former Bursledon Brick works, near Swanwick in Hampshire and in 1990 planning permission was sought and granted. Building work started in 1991 and was completed in 1994, with the plan being to have the centre fully operational by 1996. (It's a good job they called it Swanwick, the Bursledon Brick Works Centre wouldn't have had quite the same ring to it!). It is now generally accepted that in hindsight, the time-scale set for such an ambitious project was always going to be difficult to maintain and with increasing software and hardware problems the implementation date continued to slip throughout the next four years.

After the technical hand-over in December 2000 the live date was set for 27 January 2002, almost

six years late. To date there have been no frequency changes and the frequency listing I included in the November 2001 *SWM* remains current. The introduction of any 8.33kHz spacing remains on hold and the callsign is still LONDON CONTROL. To supplement this column, I have included a map showing the current Air Traffic Sector allocations for the new Centre.

In addition to the Civil ATC, London Military has also moved the London Joint Area Organisation, (LJAO), element of Military Air Traffic Control. The unit is now called Swanwick Military, although the callsign remains 'London Military'. The current LJAO frequencies are show in **Table 1**, it should be noted that the last four frequencies are not monitored at all times.

HF Antennas

Following on from my look last month at basic long-wire h.f. antennas, I realised that I should have pointed out one other relevant factor.

Having stated that the long-wire should be run to high point such as tree, post or another building, if no such anchor point is available, there is no reason why you should not bring the antenna down at an angle of say 45° and anchor it to the ground, once again using an isolator and a length of cord. This in fact forms one of the more popular h.f. wire antennas, simply because of the ease with which it can be terminated anywhere, even in a relatively small garden.

The world of h.f. antennas is in fact much more complex than the newcomer to airband h.f. listening may imagine with many other types available, such as the Sloping V and the Rhombic array! These types are well beyond the scope of this column, but anyone interested in experimentation can find a large number of books on the subject of antennas in the *Short Wave Magazine* Book Store. These books describe all forms of antennas simple and complex, and should suit all interests and budgets.

Active Alternative

I have personally only used two active h.f. antennas, so I can hardly call myself an expert, but I will pass on what experiences I have had.

The first I used for about four months in the late eighties, it was almost new and was borrowed from a friend who was working in the USA for three months. This was an Active Fibre Glass Vertical Whip, made I recall by a UK firm and if I remember rightly it cost about £120, back then. The performance was what I can only describe as disappointing and on many occasions it was only as good as a average long-wire, which in comparison would cost only a fifth of the amount. Consequently, for the time being I decided to stick with my long-wire.

Since a house move in 1996, my current property is situated halfway up a hill and is fairly exposed to the elements and in particular to the Autumn south-westerly gales, which seem to be a

regular weather feature these days. Despite varying efforts such as sprung weights, bungees and the like to protect my antennas, it was all in vain, and for the first three Winters the gales brought down the long-wire antennas on at least two occasions each year. This may sound a bit extreme, but when you are subject to Storm Force 10 winds, three times in a Winter, it is no joke. Consequently, my thoughts turned once more to an active antenna, but nothing on the market seemed to fit the bill.

Then in late 2000, *SWM* ran a review of the Wellbrook ALA 1530 active loop. The outcome was very favourable and several people I spoke to thought highly of this antenna. Much has already been written about the ALA 1530, so I will keep it brief, on personal recommendation I shelled-out £120 of my hard earned beer vouchers and since then I have not looked back. It was easily installed on a two metre wooden post about eight metres from the house, in fact the most difficult problem was feeding the coaxial cable into the house - if lack of space is your problem then this is an excellent answer. The performance is very good on all of the h.f. airbands, background interference is greatly reduced over a long-wire and this means that weaker signals can be coaxied from the background noise. Almost two Winters have passed and the gales have failed to dislodge my new antenna, it is still working well and I am still impressed. The days of clambering up a ladder to repair the long-wire in a 30 knot crosswind are over, although I have to admit that I do have a small long-wire acting as a backup. This is one of those items where it is not easy to, 'try before you buy', but if you are serious about h.f. listening and you want a convenient antenna that gives good performance, I personally think it is worth the £120 price tag.

Airbands Future

Two worried E-mails from **Dave S** and **Ian** both pose a similar question, in that is the hobby of airband listening going to be here in five years after the dramatic downturn in the industry since September 11th. Well the simple answer is of course, **yes!** The last few months have seen a lot of changes in the industry, with many aircraft stored, routes withdrawn and staff reduced in the airline and manufacturing industry. But it is a personal opinion, (and that of many others), that the civil aviation industry was already on the verge of a minor recession even before the Terrorist Attacks and it is most likely that some of the cuts would have taken place anyway, but most likely on a smaller scale. Even taking into account the events of last year, a report in January 2002 forecast that the airline industry would still double in size in the next twenty years. So I don't think that there is much to worry about in the long term future.

From a Military point of view, the almost indecent haste to cut back military resources in the post cold war era, seems as though it could be about to rebound. The potential threat and the need for resources now comes from a different

direction and NATO air-arms are now being stretched as they not only fight a different enemy but are also providing substantial support and humanitarian missions.

The cut-backs in aircraft, bases and personnel of the 1990s are now being felt as NATO supports a variety of missions in the Gulf, the Balkan States, Afghanistan and to a lesser extent many other places on the globe. Many nations are now realising that the cut-backs will have to stop to be replaced with a limited re-armament, the 21st century has brought a different sort of war with new mission scenarios. The modern NATO will adapt to face these new problems, and so the bottom line is that the airband listener has much to look forward to in the future.

Correspondence

Both **Steve F** and **Bob** in the USA have responded to my query about the location of 'Chindip Ops'. Steve has noted this as Hurlburt Field in Florida, but Bob comments that 'Seminole Ops', is the normal callsign for Hurlburt. As 'Seminole Ops' is probably the Base Operations callsign, which squadron is using 'Chindip' - any offers anyone? I can confirm 344.9 as a Marham PAR frequency, my thanks go to **John G** for his E-mail. Questions from **Andy, Roy W, Reg W** and **Gavin** regarding ACARS and the US GHFS system have all been answered in the last couple of months.

Thanks to Len for his several E-mails including one which lists the official web site for Operation Enduring Freedom, lots of info and pictures on this site which can be found at:

www.af.mil/photos/enduringfreedom.shtml

Len also adds to my own thoughts and we agree that the propagation during the high pressure in December and early January had produced some excellent listening. The weather broadcasts from SYDNEY on 11.387MHz have been booming through the mornings, (I don't like that awful computer generated voice that sounds like a 'Speak and Spell' machine, I wish we could go back to good old human beings). Aircraft calling 'Brisbane' have been heard clearly on 8.867, some of the callsigns noted were: New Zealand (ANZ) 101, 121, 151, etc., Air Canada (ACA) 3127 and 'Freedom' (FOM) 313 and 421, (Freedom Air), operating Boeing 737 flights between New Zealand and Australia.

I've held over the supplementary part of the ACARS article until next month.

Table 1

Sector	MHz	Comments
Central	275.35	u.h.f. i.c.f. south
Northwest	254.275	u.h.f. i.c.f. north
Northwest	127.45	v.h.f. i.c.f. north
Clacton	233.8	
Dover/Lydd	299.8	
London Upper	291.075	FL300 and above
Seaford/Hurn	251.225	

i.c.f. - Initial Contact Frequency.

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SANYO

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- R881 Multiband digital world band radio ...£70
- R9914 MB Dig WB Rad with SSB.....£85
- R876 Multiband digital world band radio ..£115
- R861 MB Dig WB radio with RDS.....£170
- RC828 MB Dig WB radio with cassette & time-recording.....£170

SANGEAN

- ATS818 MB Dig WB radio with BFO....£100
- R876 MB Dig WB radio.....£115

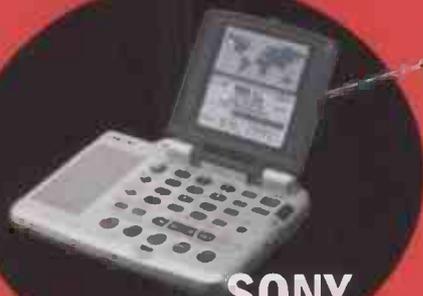
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Decode

Augidy

Having just upgraded the soundcard in my PC, I thought it might be useful to carry out a few tests to see if some of the popular utility software can cope with the latest generation of PC soundcards. My upgrade was to the latest SoundBlaster Audigy Platinum. As well as featuring Creative's new Audigy processor, the particular attraction for me was the inclusion of the Audigy Drive Bay. As you can see from the photograph, this is a handy panel that fits in a standard drive slot and brings the connections to the front of the PC. This is a real boon for me as it makes connecting audio signals to the computer a real doddle. Rather than just duplicating the rear panel connections, the Audigy drive provides a stack of new connections.

On the audio front, there's an Aux 2 stereo input using phono jacks. This is supplemented by a standard 6.3mm stereo jack for the Line 2/Mic 2 input. Switching between Line and Mic is done using the gain control knob on the front panel. The only point to watch here is that, in its default state, the Audigy drive is set to deliver a power feed for a condenser mic. on the ring of the jack. You need to either avoid



Neat Audigy drive for soundcard connections.

Apparently, if you select the A: drive via 'My Computer' and choose format disk you are given the option to make a MS-DOS start-up disk. If you do this, *RadioRaft* will run fine on a *Windows XP* machine. If you want to automate the process, you just add the following lines to the autoexec.bat file on the A: drive and the PC will start in MS-DOS mode and run *RadioRaft*.

```
c:
cd radioraf
rr
```

Another possible solution offered by **Alan Jarvis** is to try using *Windows XP* compatibility mode to run any troublesome programs. To do this you just right-click on the program icon and you should be presented with a list of previous *Windows* version to use.

Whilst this may work with some programs, I don't think it will restore the fundamental problem with some decoding programs that is due to com port vxds being absent from *Windows XP*. Anyway, if you do discover any fixes to this problem, please drop me a line and I'll pass-on the information through this column.

Filter Fun

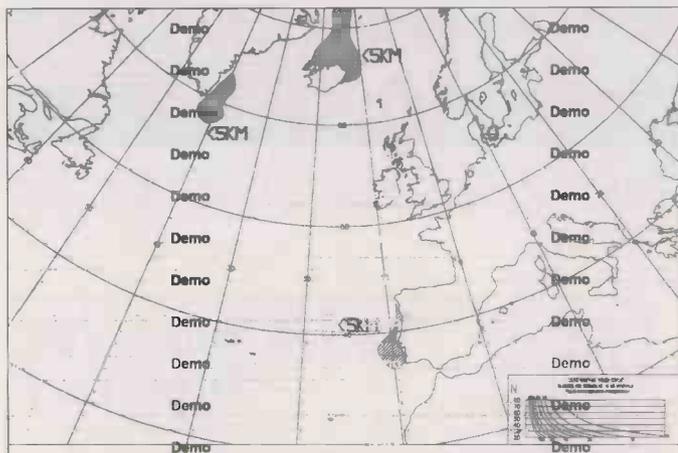
Whilst looking around the usual decoding software sites, I spotted a link to real-time d.s.p. filter and spectrum display that can be found at www.ar5.com. The program, *SR5*, has been produced by **John Reeve G8ROD** and is ideal for utility listeners. Like all the best sites, there is a fully functional demo available from their download section (it just times-out every 10 minutes).

What attracted me to the program was the fact that it was mentioned on the *RadioRaft* site as being able to multi-task with *Windows* and *RadioRaft*. That means you can run the filter/display and *RadioRaft* at the same time. It's dead easy to set the filter program *SR5* to take its input from one of the standard input lines and then provide a filtered output on the line-out. All you then have to do is connect the audio lead from your interface to the soundcard line-out and connect your receiver to the Line or Mic-In.

By doing this you have all the benefits of a modern d.s.p. filter and display system coupled with Franois Guillet's excellent automated *RadioRaft* decoding package. If you want to know more about this, take a look at the *RadioRaft* site at: <http://perso.wanadoo.fr/radioraf/> Or visit their UK agents, Pervisell at www.pervisell.com. As an added bonus, you get a built-in Morse decoder. An excellent piece of software at a very reasonable price - give it a try.

Coming Soon - DA2002

I know many of you have a keen interest in processing weather data, so I'm sure you'll be interested to note that the latest version of *Digital Atmosphere* is nearing completion. The current, 2000, version is pretty impressive and is probably the best weather display program



HF FAX image received with the preview *JVComm*.

using this pin or move a jumper on the p.c.b. to disable the power feed. With the new card installed and working, I took the opportunity to try-out a few of the popular software packages to make sure there were no problems.

First up was the latest *Skysweeper* (v2.6). This worked first time with the signal connected to the front panel AUX-In 2 inputs. *Skysweeper* also recognised all the Audigy inputs and pressing the microphone icon on the menu pulled-up the list of available inputs that you could choose from.

Next up was the very latest *JVComm* that is now available as a preview of version 1.10e pre. As well as tidying-up a few features, this version includes *Windows XP* support and, not surprisingly, was completely at home with the Audigy card.

My favourite RTTY programme, *MMTTY*, was set-up next and this program didn't want to recognise the AUX-In 2 signal. However, it was fine on all the other inputs, so I just swapped to the Line 2-In. Final test for this session was *Digipan*, which does a really excellent job of decoding PSK31 signals. This worked fine with the Audigy and recognised the input from the AUX 2 In without problems.

Windows XP Tips

Last month's mention of problems with *XP* and decoding software has prompted a few helpful readers tips. The first comes from **Franois Guillet** via **Pervisell**, but originated in the UK - phew!



MMTTY - favourite RTTY program running happily with the Audigy card.

available to the likes of you and I. It contains a host of features to plot and display standard RTTY weather data and it looks as though the new 2002 version will boast even more impressive graphics and some pretty sophisticated data processing tools. If you want a taster of the 2000 version, a 30 day demo version is available for download from the site at:

www.weathergraphics.com

The only point to note is that its a 10MB download so, unless you have an ADSL line, you might like to pick a quiet time to get a decent download rate. If you want to keep really up-to-date in this field, check out this site: <http://www.yahogroups.com/wx-software>

HF 'ACARS'

I've had one or two queries from listeners asking why they can't resolve this mode with their standard ACARS decoders. The answer is simple - the h.f. system uses a different encoding system and data rate correctly known as HF DL. As a result, decoders designed for the v.h.f. system won't work. At the moment I believe you'll only find the facility to decode h.f. ACARS in the top-end decoding systems.

However, if you know different, please drop me a line as I'm sure there are lots of readers who would like to be able to decode these signals at a more modest cost. If you do have a suitable decoder, here are a few of the currently active h.f. ACARS frequencies - thanks to **Day Watson**.

HF DL Frequencies

MHz	Station
8.834	ARINC Johannesburg
8.912	ARINC New York
8.942	ARINC Shannon
8.977	ARINC Reykjavick
10.087	ARINC Krasnoyarsk
11.184	ARINC Reykjavik
11.384	ARINC Shannon
13.276	ARINC New York
13.315	ARINC Santa Cruz
15.025	ARINC Reykjavick
17.928	ARINC Hat Yai
17.934	ARINC Hawaii
21.931	ARINC New York
21.949	ARINC Johannesburg

JVComm 32 Upgrade

You will note I mentioned this new version of *JVComm* in my section on the Audigy card - I thought you might like a bit more information. This pre-view release is currently available to try from the Pervisell site at:

<http://www.pervisell.com/download/jvc32/index.html>

One of the main attractions of the new version is its *Windows XP* compatibility combined with improved mixer routines. This means the program should be able to deal successfully with a wide range of soundcards. I can certainly confirm that it behaved impeccably with the new Audigy card from Creative.

In addition to the compatibility improvements, there are a host of changes designed to improve the reception of NOAA satellite pictures. There are also some really useful extras to help FAX reception such as a

de-noiser to clean-up images and a zoom lens for viewing FAX pictures. You also have a free choice over the names for FAX pictures unlike earlier versions. The SSTV section includes a number of changes primarily aimed at the transmitting radio amateur.

An added bonus is the inclusion of RTTY decoding, though this is not available in the pre-view version. Overall this looks to be a very useful set of improvements to an already well established soundcard based decoding package.

HF Press Frequencies

I'm always getting requests for frequencies where listeners can still find press transmissions. Sadly, these have been fading away over recent years so there's now very few left. If you have details of any active stations, I'd be grateful if you could send them to me along with details of when the stations are active.



The excellent SR5 d.s.p. filter in action.



JVComm in SSTV mode.

Long Wave Maritime Beacons

Searching at night for the sky waves from distant maritime radiobeacons proved to be difficult during October, November and December owing to the streams of data being radiated by DGPS stations. Nevertheless, some interesting beacons were heard by the DXers who persevered.

Some of the beacons along the coast of Spain were heard by **Fred Wilmshurst** in Northampton, but most were very elusive. He nearly missed the one at Cabo Mayor Lt. N.Spain (MY) on the new frequency of **283.5** because the callsign was given only twice followed by a plain carrier lasting 55 seconds. He heard the beacon at Cabo Machicharo (MA), NE.Spain, which was still on **284.5**; also Estaca de Bares, (BA) NW.Spain on the new frequency of **292.5**.

Three beacons on the Faeroe Is at Myggenaes (MY) **337.0**; Akraberg (AB) **381.0** & Nolso (NL) **404.0** were also heard by Fred, but the most distant entry in his log was Prins Christian Sund, S.Greenland (OZN) on **372.0**.

The sky waves from the beacon at Cabo Finisterre (FI) on the new frequency of **296.5** were picked up at night by **Fred Pallant** in Storrington. Those from Cabo Machicharo (MA) on **284.5kHz** and Punta Estaca Bares (BA) on **202.5** were also received. In his log there were five other entries, but they proved to be aero beacons, which are outside the scope of this article.

Over in Co.Down, **Robert Connolly** (Kilkeel) found that most of the problems were due to the re-organisation of the European DGPS

frequencies - see page 70, *SWM* December 2001. For example, he could receive the Mys Taren beacon (BT) on **312.5** in Baltic Russia amongst the DGPS transmissions, but the Baltijsk beacon (BK) in Latvia on **312.5** could no longer be heard owing to the level of interference. Recently, he obtained confirmation from a friend in Finland that (BK) is still transmitting on **312.5**.

Despite the difficulties, Robert logged seventeen beacons - see chart. During recent searches he was unable to detect the beacon at

Long Wave Maritime Radiobeacon Chart

Freq (kHz)	C/S	Station Name	Location	DXer
283.5	MY	Cabo Mayor Lt	N.Spain	A*,C*
284.5	MA	Cabo Machicharo	NE.Spain	A*,B*,C*
285.5	AS	Castellon	Spain	A*
285.5	L	Torre de Hercules	N.Spain	A*
287.0	IA	Llanes Lt	N.Spain	A*
292.5	BA	Punta Estaca Bares	N.Spain	A*,B*,C*
293.5	MH	Mahon, Minorca	Balearic Is	A*
294.0	FI	Cala Figuera	Majorca	A*
296.5	FI	Cabo Finisterre Lt	N.W.Spain	A*,B*
312.5	BT	Mys Taran Lt	Russia	A*
314.0	SN	Cabo San Sebastian	S.Spain	A*
314.5	TL	Punta D.Penna	Italy	A*
337.0	MY	Myggenaes	Faeroe Is	A*,C*
372.0	OZN	Prins Chris's Sund	Greenland	A*,C*
381.0	AB	Akraberg	Faeroe Is	A*,C*
404.0	NL	Nolso	Faeroe Is	A*,C*

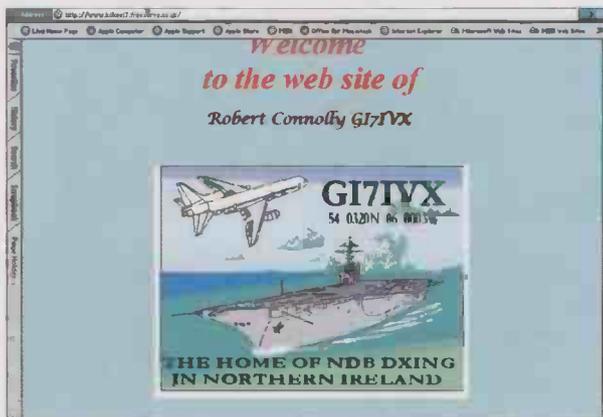
Note: Entries marked * were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

Ristna, Estonia (RS) on **307.5**, which was still transmitting in September although officially listed as 'closed down', so presumably it has now been switched off. He noticed that the beacon at Cabo Salou (UD) in S.Spain, which was moved from **288.5** to **290.5** in September as planned, was for some unknown reason changed back to **288.5** in early December, so there may now be mutual interference between (UD) and the beacon at Punta de

Llobregat (OR) on **288.0**, since they are only 80km apart and both have a range of 160km.

DXers:-

- (A) Robert Connolly, Kilkeel.
- (B) Fred Pallant, Storrington.
- (C) Fred Wilmshurst, Northampton.



APPENDIX - List of equipment used:-

Robert Connolly, Kilkeel: JRC NRD-525 + Timewave DSP9+ filter + Datong AD-370 active antenna.

Fred Pallant, Storrington: Trio R-2000 + Howes CTU-9 a.t.u. + random wire antenna.

Fred Wilmshurst, Northampton: Icom IC-R70 + Global AT-1000 a.t.u. + random wire antenna in loft.

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Info in Orbit



Fig. 1: *METEOR 3-5* 1437 8 January 2002.

I have spent several days changing the operations of my weather satellite (WXSAT) a.p.t. receiving system in order to try some of the recently released software by David Taylor. David unexpectedly found himself unemployed from his position as a software writer, and being interested in WXSAT monitoring, decided to use some time to write a suite of satellite-related programs that I believe are indispensable - particularly to the beginner looking for entry-level, low cost software; David's programs are free, though some enhancements can be obtained through low-cost registering. This edition includes a look at some parts of the suite and its facilities.

Operational WXSATs

I caught just a few seconds telemetry from *METEOR 3-5* when it was apparently re-activated at about 1253UTC on 8 January. It was only a few degrees above my eastern horizon, but the sounds of *METEOR* a.p.t. are quite distinctive. The next pass (at 1437UTC) produced several minutes of a.p.t., allowing a fair image to be decoded. As we know, image quality from this ageing WXSAT is not very good, but cloud systems are clearly seen and in the absence of an early replacement, this is likely to be the only *METEOR* a.p.t. available for a long time.

The image shows a number of features. The satellite is north-bound, running from North Africa to northern Europe. Coverage of the lower part is limited by the positioning of my a.p.t. antenna - currently mounted on a 2m mast in the garden - but destined to be re-positioned on the roof. From most UK locations, you should find that a roof-top antenna can get near noise-free images when *METEOR 3-5* crosses North Africa. Its signal seems stronger than the NOAA WXSATs, so the image remains clearer at lower elevations.

During winter days, high northern latitudes are in darkness. This has no effect on the operation of the NOAA WXSATs (because they transmit

continuously), but *METEOR 3-5* works differently. When the illumination of the ground below *METEOR 3-5* drops sufficiently, the WXSAT stops transmitting. We see the approach of this indicated by the columns (the white bars) on the right-hand-side of the image. These can be converted to a binary number - as mentioned in some previous editions of 'Info In Orbit'.

Near the end of the transmission, the numbers can be translated as a countdown to zero - the last portion where there are no bars. With a little experience, we can estimate the cut-off time to within a few seconds. At this point, the WXSAT is still at a fair elevation, so signal strength remains high - as shown by the noise-free image at cut-off. The image suffers from various defects, as can be expected from an old satellite - streaking and line jitter - but cloud features are clear, and after all, obtaining these was the reason for its launch!

METEOR 3-5 has a non-sun-synchronous orbit; as the days progress, passes occur earlier. By 20 February, it will cross Britain at high elevations around 1100UTC, with *NOAA-16* following an hour or so later. Cut-off will be nearer the pole. Finally, beginners should be aware that this image has been contrast enhanced to bring out the detail.

NOAA WXSATs

The operational NOAA WXSATs continue working to a greater or lesser extent. During January, *NOAA-12* and *NOAA-15* continued to provide a.p.t. (low resolution) and h.r.p.t. (high resolution) images of high quality. *NOAA-14* has been suffering from a scanner fault that results in partly unsynchronised data - see Fig. 3.

A series of *NOAA-14* images received during December and January show variable synchronisation. Some are completely unusable, but some - like Fig. 3 - show large areas of synchronised image. *NOAA-16* no longer transmits a.p.t., though the h.r.p.t. remains excellent - see Fig. 5.

This picture, which shows the high quality imagery transmitted in h.r.p.t. format from *NOAA-16*. Being the only early afternoon WXSAT, until *METEOR 3-5*'s orbit precesses to that time of day, it provides unique daytime imagery.

As mentioned a month or two back, the new FENGYUN module from Timestep has been under test for some weeks, and following my fixing of a tracking problem, is producing very good imagery - see Fig. 6.

Rather than receive both a.p.t. and h.r.p.t. simultaneously on the same computer - which is undesirable if you are recording a high speed sampled sound file while writing high-speed data to disk - I configured my back-up computer to receive

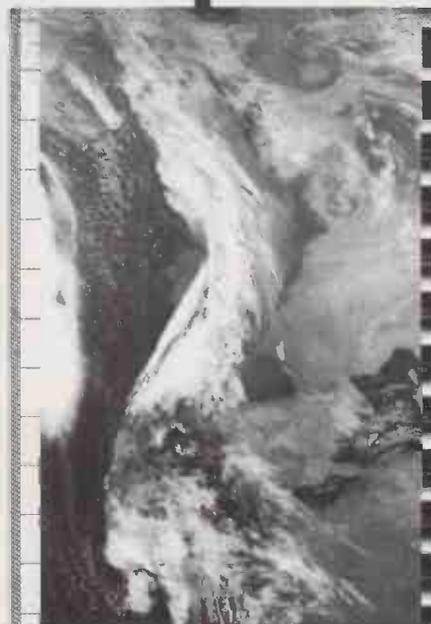


Fig. 2: *NOAA-12* 0546 5 January 2002.

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a.p.t. and continued to use the main computer for h.r.p.t.

Sounds Reasonable

Failure of the decoding board that I normally use to process a.p.t. forced me to re-think my operations. I decided to switch over to sound-card recording and decoding, having previously used this facility a couple of years back. Many WXSAT enthusiasts already use one or other of the recording and decoding programs, so I am including a reference to those currently available.

Whatever method you choose to receive WXSAT images, you require a good WXSAT receiver fed by a good antenna. Most hobbyists use either a crossed-dipole or quadrifilar-helix antenna. You may find a pre-amplifier helps, but be aware that your local environment may have a significant effect - possibly adding interfering signals to your system. Try reception without one first.

The next stage of your WXSAT system is signal processing - and you can use either hardware real-time decoding or recording followed by software decoding. An out-of-the-box hardware system such as Timestep's requires very little adjustment to get pristine images. The other method is to use a soundcard to convert the signal from analogue to binary. The signal is sampled at a high rate, and we either record and save the file, or decode it in real-time. There are currently two freeware programs that will detect and record a.p.t. signals: *WXSAT* and *WXTOIMG*.

WXSAT & WXTOIMG

The first of these - *WXSAT* - was issued many years ago and has been updated, currently version 2.5 revision 2. It can both record a.p.t. and decode it - either in real-time or after the pass. It has the very useful recording option - 'Start at sub-carrier' so that the program can be left running and will automatically start recording a sound file when the next 2.4kHz (sub-carrier) signal triggers it.

Signal processing (sampling at about 11kHz) to record a file requires heavy processor usage, so it is important to ensure that unnecessary programs such as screen-savers are not activated. Under the 'recording' option there is a test facility that, like 'windows recorder', includes a simulated oscilloscope that dramatically portrays the waveform of the incoming WXSAT signal. This really takes me back to my days in the laboratory at Slough where circuits were tuned and oscilloscopes were everywhere.

The second is a recent program that can also both record and process. My only concerns about *WXTOIMG* are the caveats that the author has issued to potential users - actually stating that the program has bugs that might virtually destroy your computer! Despite these dire warnings, I have been using the program in 'record-only' mode to record a.p.t. during



Fig. 5: NOAA-16 1212 13 January 2002.

long hours of absence.

The program includes settings to adjust the level that triggers recording, and there is a good help index. If you choose to have decoding enabled, the program can optionally add land outlines, lakes, rivers, country borders, latitude and longitude lines and cities. Some of these features add considerable processing time, and my 450MHz Pentium 3 now seems long in the tooth! I have continued to use the recording facility in *WXTOIMG* for several days without problems.

Visit http://www.hffax.de/WX_Satellite/WXSat/wxsat.html and <http://www.weather.net.nz/wxtoimg/>

However produced, the sound files resulting from the above programs can be processed in the same program, or in David Taylor's *SatSignal*, currently version 3.8, issued on 29 December 2001. This is a decode-only program, so the files must be produced by other software. David has a self-help mailing list for users of his software suite to discuss issues. Visit [SatSignal-subscribe @yahoogroups.com](mailto:SatSignal-subscribe@yahoo.com)

SatSignal & Friends

Frankly, it is difficult to know where to start to describe all the facilities offered by *SatSignal*. For the beginner who already uses the sound-card approach, it's my program of choice. It will analyse the selected (wav) file and then recommend the

analysis procedure if this differs from the default settings. In most cases it will process the file and produce an image - or set of images - without intervention. It can decode both a.p.t. and WEFAX, and David has produced a separate program to process h.r.p.t. files.

Under the 'Options' menu, we can select optimised settings for tape recorders, adjust the sensitivity, reduce the perceived noise level, and do other clever things! 'View' offers a diagnostic tool for

analysing the incoming a.p.t. signal, and the 'Help' file is extensive. For a freebie, it is a remarkable program that only hints at David's other programming skills. Each optional re-run of the analysis takes just a few seconds.

Visit <http://www.david-taylor.pwp.blueyonder.co.uk/software/wxsat.htm>

GeoSatSignal is a specialised image processing tool for geostationary weather satellites, and can join



Fig. 3: NOAA-14 1612 4 January 2002.



Fig. 4: NOAA-15 0644 5 January 2002 produced by WXTOIMG.

the sections, make false colour images and remap them to other projections.

David's satellite tracking program - *WXTRACK* - has been available for a year or two and is simply stunning. It reads standard two-line Kepler elements, and, when necessary, advises you of their age. A colourful world map displays satellite footprints - see **Fig. 8** - and details about the selected satellite are displayed in boxes near the bottom of the window.

With so many useful features, I cannot do this program justice in a few sentences, but I will mention its ability to produce a ground track that matches the actual image received by your WXSAT receiving system. These can be placed adjacent for identification purposes. Very impressive - and totally free! Well done David.

Get Online Free

Letters have recently come from readers mentioning that they are not yet on the Internet. Some may not have a computer at home, or perhaps have chosen not to access the 'net for a number of reasons. My current employment involves helping with the setting-up of a UK-online centre in Southampton's Oaklands Community school, and I can pass on the information that literally thousands of other UK-online centres around the country are being funded by the government in an attempt to make Internet access available to virtually everyone.

If you would like a free introduction to the 'net, pop into your local library and ask for the location of your nearest UK-online centre; you might find that it is within a few minutes walk of your home! Here at Oaklands, we are planning to launch our cybercafe within a few weeks, and - in common with most UK-online centres - will be providing free (or almost free) access to the Internet for everyone.

The sessions are 'drop-in' and require no advance bookings. I plan to provide some 'teach-in' sessions on weather satellites and space information gathering, as part of an overall introduction to monitoring the environment. If you live in this region, do come along! Your local cybercafe should provide access to all of the sites referred to in this column.

Letters are still received requesting Kepler elements, and I usually despatch these on the day they are received. I started this option ten years ago as a result of my own need for Kepler elements for some satellites that my general purpose utility receiver - a Tandy Realistic PRO-2004 - fed by a wide-band Yagi antenna was receiving. In the late 1980s I had found it difficult to locate Kepler elements, and some official UK sources were surprisingly reluctant to provide them. When I found the exact department to contact, NASA readily provided them - and then the availability of the Internet ended the problem.

The Orbital Information Group at <http://oig1.gsfc.nasa.gov> provides access to unclassified satellite orbital data that has been received from United State Space Command (USSPACECOM). This data consists of two-line element (TLE) sets, Satellite Catalogue Messages, Project Tip Messages, Satellite Decay information, Predicted Decay Forecasts and Satellite Reports.

This site is invaluable to those wishing to monitor satellites and to know in advance when those in very low earth orbit are predicted to re-enter. Users have to register first, but can then set-up their own preferences amongst the large number of options, and - as long as they contact the site at least once every three months - can collect Kepler elements from their preferred groups.

The most useful set for WXSAT enthusiasts is the groupfile.zip file that is updated daily. I would suggest that collecting this every two weeks is sufficient! This zipped file includes sets of elements for several types of satellite, including amateur radio, weather and the various communication satellite series. Another option is to join David Cottle's mailing list that E-mails Kepler elements for the *ISS*, WXSATs and amateur radio satellites every three days. This requires subscribing: send an E-mail to: tlemorelist-help@idb.com.au

Shuttle Flights

Shuttle managers decided to reschedule the launch of the STS-109 mission to Thursday, 28 February to allow more preparation time for a replacement Reaction Wheel Assembly that will be installed on the *Hubble Space Telescope*. Launch vehicle *Columbia* will enter a 28° inclination orbit (therefore not passing over Britain).

STS-110 *Atlantis* is currently scheduled for flight to the *International Space Station* no earlier than 4 April. The payload is the Integrated Truss Structure and Mobile Transporter.

Kepler Elements

If you want a computer disk file containing recent elements for the WXSATs, AMSATS and others of general interest, together with a large file holding elements for thousands of satellites please enclose 50p with a PC-formatted disk and stamped envelope to me at the address at the head of the column. A print-out is included that identifies NASA catalogue numbers for the WXSATs. The disk file is ideal for automatic updating of tracking software.

Frequencies

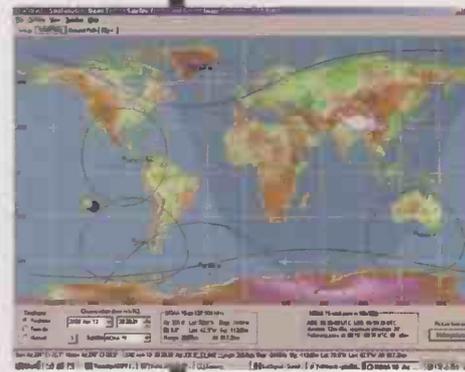
NOAA-12 and *NOAA-15* transmit a.p.t. on 137.50MHz.
NOAA-14 transmits partly unsynchronised a.p.t. on 137.62MHz.
 NOAAs transmit beacon data on 137.77 or 136.77MHz.
METEOR 3-5 transmits on 137.30MHz when above sunlit ground.
OKEAN-4 and *SICH-1* use 137.40MHz for brief transmissions.
METEOSAT-7 (geostationary) uses 1691 and 1694.5MHz for WEFAX.
GOES-8 (western horizon) uses 1691MHz for WEFAX.



**Fig. 6: FENGYUN-1C 1848
5 January 2002 h.r.p.t.
channel 4 infra-red.**



**Fig. 7: NOAA-15 0810
10 January 2002 sound file
processed in SatSignal
with artificial colour
option.**

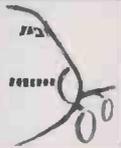


**Fig. 8: One of the screen
displays from David
Taylor's WXTRACK.**

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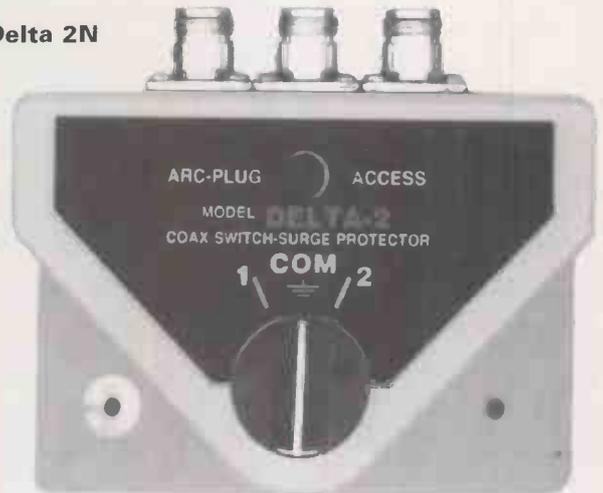
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The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

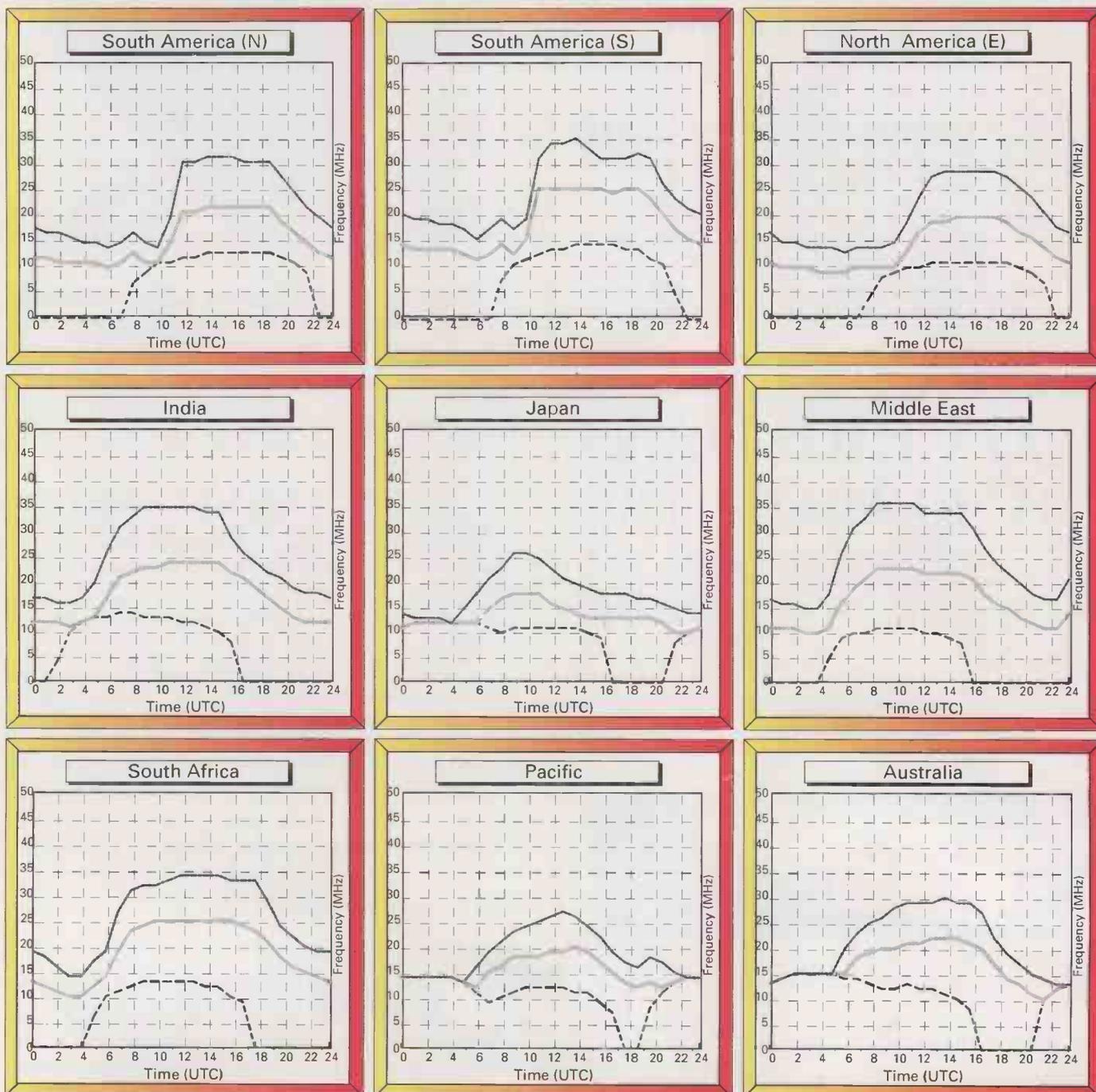
Lastly, the upper dashed line represents the maximum usable frequency (MUF), a 50%

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.

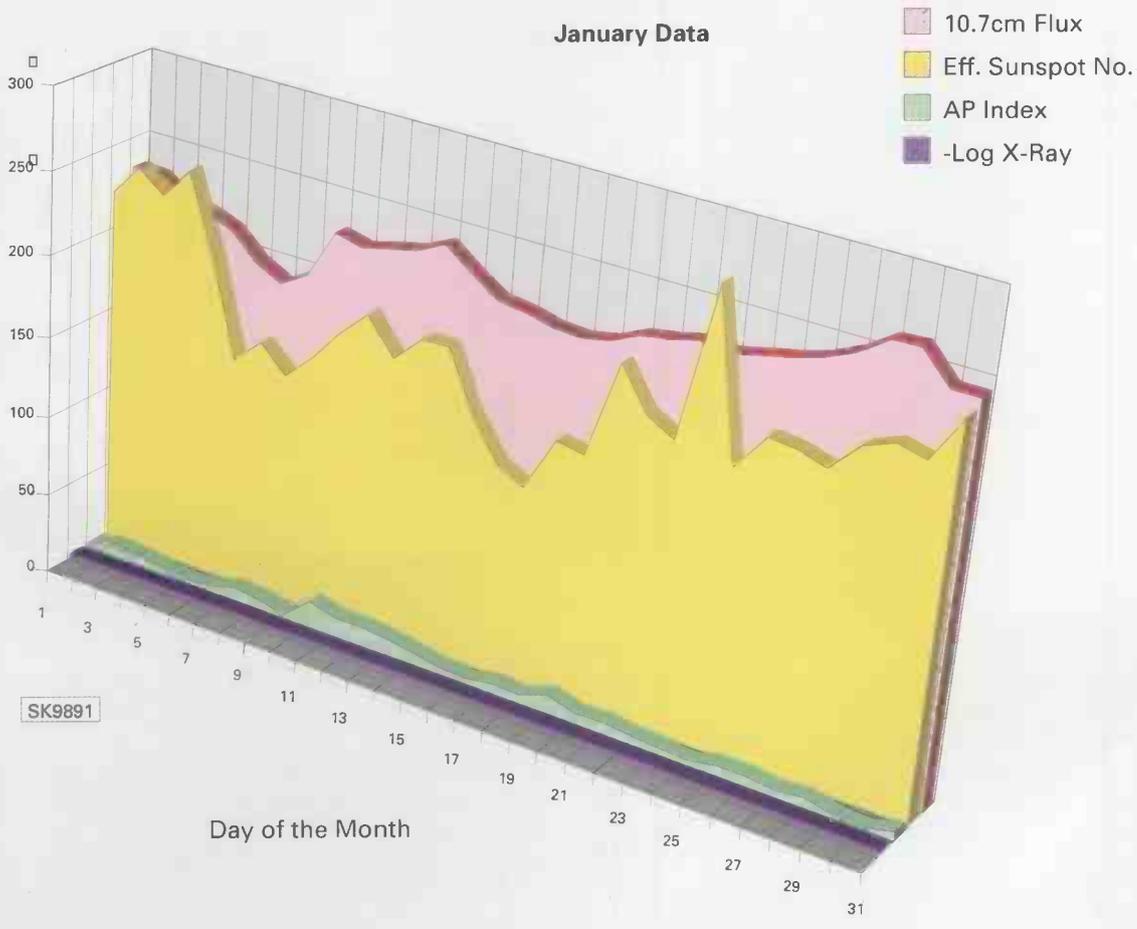
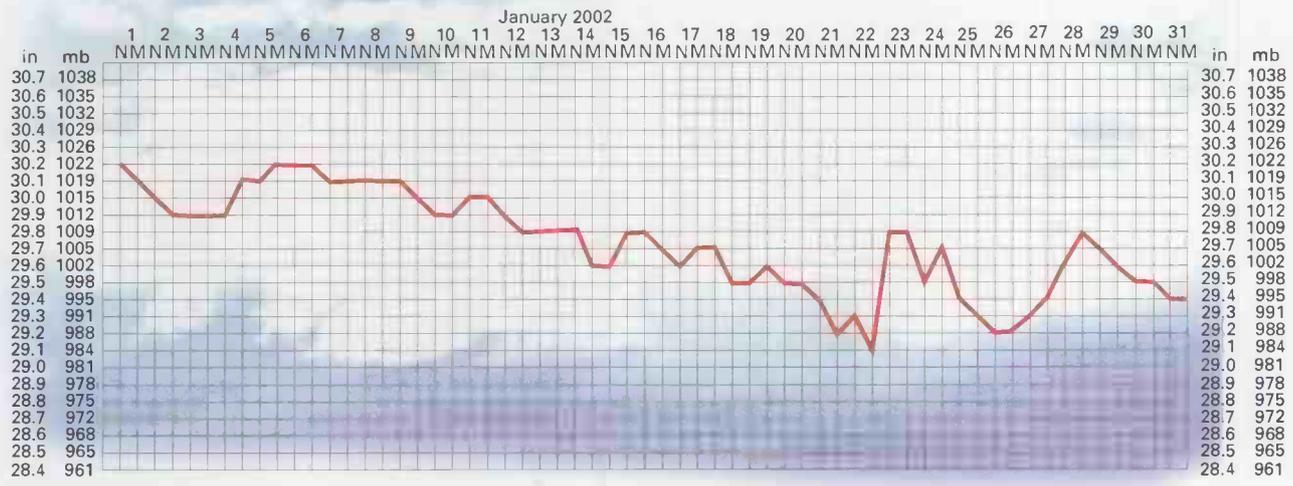
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Propagation Extra

Ron Ham's barometric pressure chart, taken at Storrington, W. Sussex, January 2002.



guide to the chart

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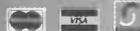
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