

Satellite TV SPECIAL

Competitions

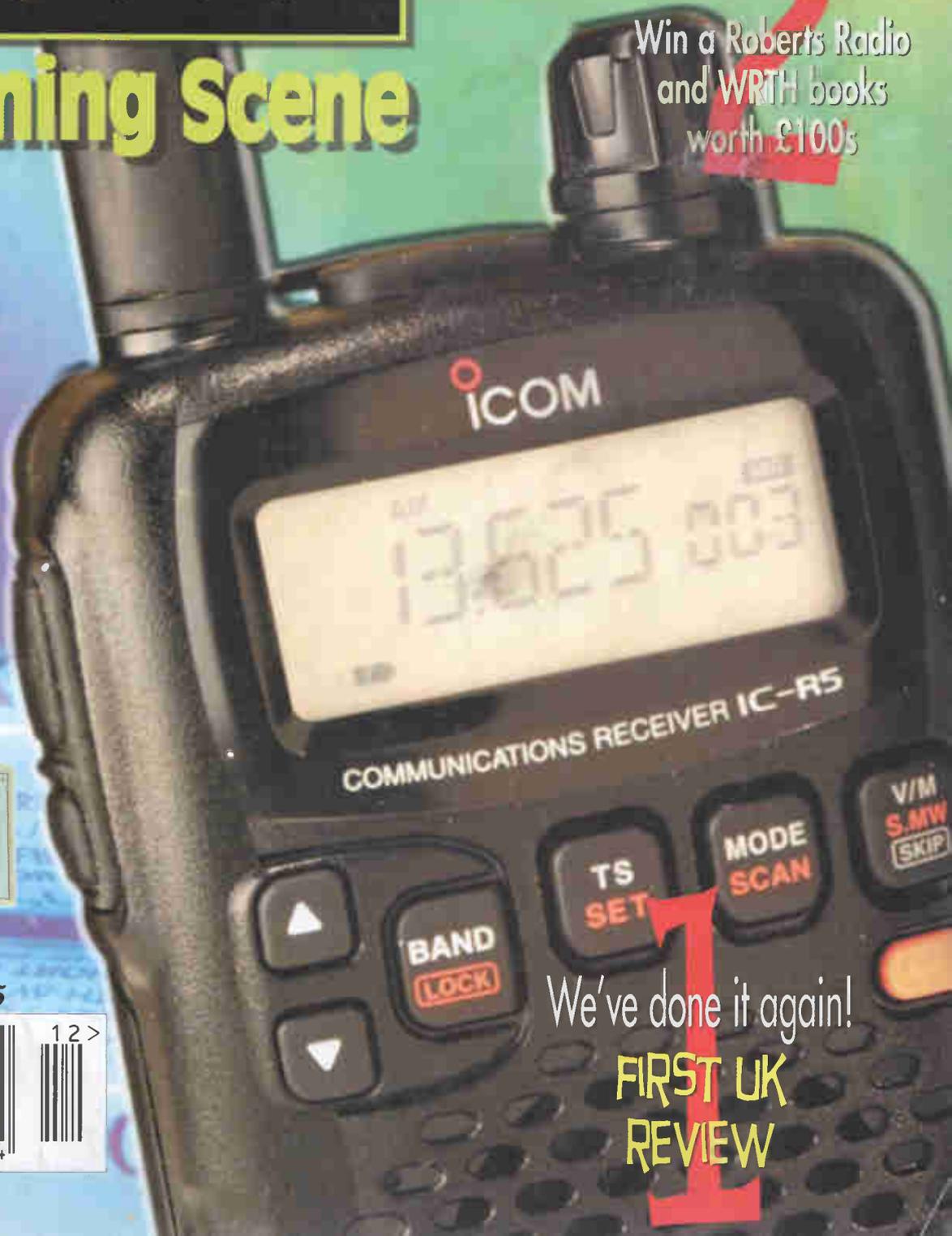
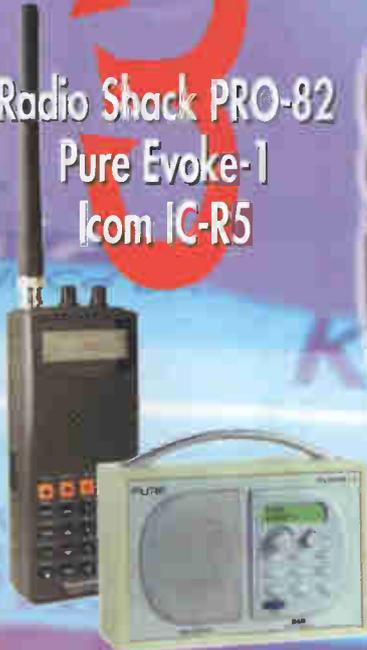
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The SHORT WAVE Magazine SWW

& Scanning Scene

Reviews

Radio Shack PRO-82
Pure Evoke-1
Icom IC-R5



December 2002 £3.25



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REVIEW**

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- Belt clip
- Carrying strap
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The

65th year of publication

SHORT WAVE Magazine

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December 2002

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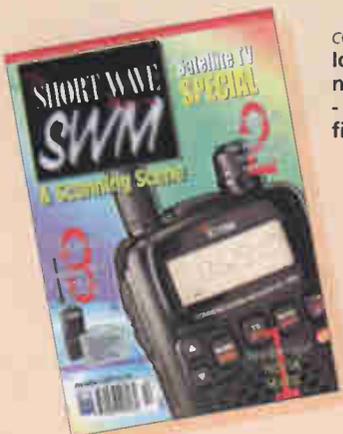
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He's at it again! Dave Roberts just couldn't resist getting acquainted with the latest scanner in town - the PRO-82.
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Satellite TV News Special

We hand the reigns over to Roger Bunney this month for his Satellite TV News Special. Listed below are Roger's range of topics.

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- **Win a copy of the brand new 2003 World Radio TV Handbook - page 45.**

Amateur Bands

Clive Hardy G4SLU,
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To provide you with a ready reference book for the contacts details of all our regular authors.

QSL

Is there something you want to get off your chest? Do you have a problem fellow readers can solve? If so then drop a line to the Editor at QSL, Short Wave Magazine, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.

THE BEST LETTER WILL RECEIVE A £20 VOUCHER TO SPEND ON ANY SWM SERVICE.

Dear Sir

As a holder of a 5MHz NoV for both my own call sign and for the ATC squadron with which I am associated, I was interested to read Clive Hardy's 'Amateur Bands' column in the November *SWM*. It is nice to know that *SWM* readers and listeners generally are being kept up-to-date with what we are trying to do on these frequencies.

I was concerned however to read that lots of amateurs who have converted, (or have had converted) their radios to work on 5MHz may be in contravention of the 1992 Electromagnetic Compatibility Regulations. I have not read that document, or sought to look it up on the website, but it does cause me some concern, especially as the RSGB/RA in the documentation which they send out with the NoV seem to contemplate the modification by amateurs of their existing equipment.

Hoping to act in a responsible manner I drafted an E-mail to the RSGB and copied it to the *PW*, *SWM*, GQRP and 5MHz E-mail readers groups. I sought clarification from the RSGB, preferring that to a knock on the door from an unfriendly representative of the 'Secretary of State' as referred to in the BR68.

As a result, there has been a deal of correspondence on the E-mail groups, and to my great surprise most of it has been on the lines of "Don't ask questions if you will not like the answer", "Let sleeping dogs lie", "Why look for trouble" and the like.

Now I always thought that in the main the British amateur radio fraternity were a respectable, responsible and law abiding group of enthusiasts. We are responsible in dealing with the world at large, we go to huge lengths to avoid interference with other users of the radio spectrum, we abide by band plans as if they were gospel, and we search out intruders wherever possible. So why do so many people bury their head in the sand over this important matter? I am at a loss to explain it.

Clive brought up a very valid point, which should be of interest and concern to all those who own and operate amateur radio equipment. My request has been passed on to Gordon G3LEQ who did a lot of the work in setting up the 5MHz experiment. As soon as he reaches a decision, I have no doubt that it will be passed onto us.

At the end of the day I have no doubt that we will be told to "carry on chaps", we are after all on part of the military allocation, and hopefully doing something useful at the same time as having a bit of interest.

**Roy GOTAK - 2E1RAF
Cumbria**

Roy, perhaps you should consider home construction...and avoid the bureaucracy of EMC issues altogether - Ed.

Dear Sir

This letter is partially triggered by John Wilson's review of the AOR loop antenna in the November issue of *SWM*. Probably like many of your readers, I own and use a portable receiver, fitted with a telescopic whip. Most of the better makes also supply a 3.5mm type coaxial socket for use with a 'fishing reel' random wire. However, I cannot work out how one can use any of the more advanced antennas on the market, without having to move to a mains powered, tabletop receiver. As part of my interest in using a better antenna comes from wishing to take my radio travelling, I should like to stick with a battery powered receiver.

One of your other regular contributors has referred in a recent article to using a simple crocodile clip, attached to the core of a short length of 50Ω coaxial cable, but I am at a loss as to how this forms a circuit with the balun winding. Surely, if I read my copy of Joe Carr's *Receiving Antenna Handbook* correctly, it is necessary to match the impedance of the antenna device to that of the input of the receiver, else the extra performance of the antenna system is effectively wasted.

Joe Carr makes a fleeting reference to using a close fitting ferrite cored coil, slid over the whip antenna, but I do not know if such a device is commercially available. Would it be possible for one of your contributors or a kind hearted, and more technically competent reader than myself, to point me in the right direction?

Incidentally, I have been taking *SWM* for over ten years now, and thoroughly enjoy it. A few more articles and reviews of affordable equipment would be appreciated though. They seem to have become thinner on the ground than they were when I first discovered the magazine. Keep up the good work.

**Neil Mander
Devon**

Neil, the use of external antennas with portable sets should be treated with caution. This type of set is optimised for use with the antenna provided. The only benefit of using an external antenna is to escape the noise present within the confines of buildings. I recommend that you don't use antennas of any great length - say more than 5m. Simply clipping an extension to the telescopic whip is fine. If you wish to use a torodial transformer (magnetic balun) or unun, then I suggest that you utilise a 3 to 5 turn insulated loop slipped over the in-built whip, this is then connected to the coaxial feed. - Ed.

topqsl

Dear Sir

I am new to the hobby and have lots of questions, though I'll limit myself for now. I recently discovered *Short Wave Magazine* which is currently answering lots of my queries, unfortunately it's also raising many new ones too. I guess this is a pretty normal situation when you take on a new interest.

My main question is what receiver should I buy? There seems to be a bewildering choice of possibilities. I currently have an old battery National Panasonic set an RF-500, which seems fine for listening to broadcast stations, but don't I need something better for amateurs and the likes of aircraft? I don't want to commit large amounts of money at this stage so I guess something second-hand is what I'm looking for.

I really enjoy reading the regular columns in *SWM*, I'm particularly intrigued by the Satellite news feed mention in Roger Bunney's page.

**Bob Knight
Sussex**

*Hello Bob, welcome to the hobby, you couldn't have done better than to have discovered *SWM*. Your query is a typical dilemma experienced by many of our readers at one time or another. As you say there is a huge selection of short wave (h.f.) receivers to choose from. I certainly recommend that you look for a suitable used receiver. Our very own 'Trading Post' section is a very good starting point to your quest. You will probably find that in time as you discover more you will need more than one set both to be able to monitor more than one station at a time, but also to obtain coverage of the radio spectrum. I'm sure that as time progresses you'll want to explore v.h.f. and u.h.f.*

*The difficulty as this stage is your lack of knowledge of the radios on offer. A possible solution to your problem is to get a copy of *Buying a Used Shortwave Receiver* by Fred Osterman. Our Book Store stocks this useful and reasonably priced guide. For more details on specific sets, you may want to get hold of an *SWM* review, these are also available from the *SWM* Book Store, call Clive on (01202) 659930. I wish you a long and enjoyable experience with the hobby - Ed.*



Win the Roberts C9950 voice activated 6-event quarter speed cassette recorder

Worth £80!

"At last a cassette recorder with a VCR style timer - Just what we need for recording around the shack", says Kevin Nice.

You can see what Kevin thought of the superb Roberts quarter speed stereo cassette recorder with VOX and multi-event timer in next month's *SWM*. Now though, you have the chance of winning this terrific shack accessory.

Using the recommended C90 cassette you can record up to six hours of material (three hours per side). A normal speed mode is also included.

The C9950 can be powered from four internal C-cells or via the supplied mains adapter. Its 6-event timer allows unattended recording of programmes broadcast at inconvenient times. Each of the six events can be set to record on a particular day, every day or Saturday/Sunday - very flexible indeed. The variable sensitivity 'voice activated recording mode' allows for unattended recording of intermittent radio signals too.

This Roberts C9950 cassette recorder also provides Microphone, headphone, monitor, 'Line In', 'Line Out' and 'remote activation' sockets, plus an internal microphone.

This handy, portable multi-function cassette recorder could be yours. Just enter our competition to win the reviewed recorder which Roberts Radio have donated as a prize, simply complete the entry form below answering the three questions and post your entry now.

Good luck!

Entry Form

To enter this prize draw, please fill in your details on the entry form, (photocopies can be accepted with the original corner flash attached), answer the three questions and post your entry to: **SWM Roberts C9950 Competition, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.**

Name.....

Address

Tel:.....

E-mail:

Do you receive *SWM* every month?.....Where do you buy *SWM*?.....

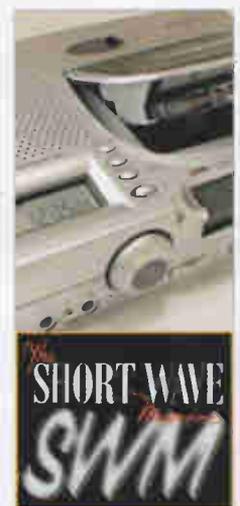
Q1: How many events can be programmed into the C9950?

Q2: How many record speeds does the C9950 feature?

Q3: How many audio input sockets does the C9950 have?

The closing date for this competition is 24 December 2002, the winner will be drawn on 4 January 2003 - the first four correct answers drawn will be winners. The winners will be announced in the February 2003 *SWM*. The Editor's decision is final.

If you wish not to be contacted by PW Publishing Ltd. or associated companies please tick here.



SWM Dec 02 Roberts C9950 Comp



A Week in Miscou

Jacques d'Avignon reports from his recent one-week Miscou s.w.I. DXpedition. Even though the A and K indices were very high, not much different from last year's numbers, the reception conditions were superb.

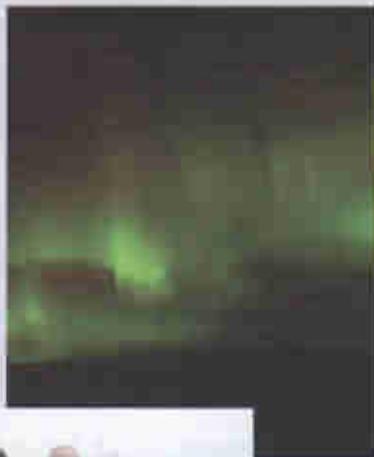
In addition our little party had the chance of witnessing three night of intense northern lights (aurora borealis). One night in particular was spectacular with pulsing light from the horizon up to the zenith until 0400. Yes, we stayed awake to watch! The appearance of the northern lights did not appear to cause any propagation problems on I.w. where Kevin Carey and I logged 31 countries. Almost all broadcasters from Europe and North Africa were logged, but most of our loggings were NDBs. As last year, Ascension Island was one of our targets, but this time it was audible every day. One night we could hear Ascension and Narsasuaq in Greenland battling IDs on 359kHz, they are only one kHz apart.

France Inter on 162kHz and Iceland on 189kHz were heard all day at levels that varied between S7 and S9+40.

We did not hear any NDBs from the UK nor from Iceland, but heard one in Spain

and one in Portugal. Something that remains a mystery was our inability to hear any NDBs from Iceland. This left us very perplexed with no valid explanation. We monitored every night a series of NDB frequencies from that country but heard absolutely nothing.

Our record distance was to an NDB in Brazil that was lurking near the noise floor and that we were finally able to hear. In addition we heard the following countries or islands: Trinidad, Puerto Rico, Columbia, Venezuela, Jamaica, Azores, Madeira, St Pierre-Miquelon, Bahamas, Antigua, Barbados, Dominican Republic, Cape Verde, Mexico, Columbia, Cuba, Caymans Is., and finally Turks and Caicos.



The antenna farm was as follows: three 300m terminated Beverage simply laid on the ground, (there are no trees or shrubs around) and one 18m diameter Wellbrook Large Aperture Loop. Each antenna was feeding a Wellbrook antenna splitter for distribution to the various receivers; three AOR AR7030+s and a Drake R8B.

This year the local police force did not appear on our doorstep, the visit was replaced by the visit of an irate landowner on whose land we had laid down one antenna wire by mistake, that small problem was ironed out peacefully.

Currently we are considering a small DXpedition possibly in northern Newfoundland in the Spring of 2003 with plans being made for Miscou 2003. Stay tuned!

Winners' Day

TDC (Telecom Design Communications) Ltd., specialist electronics components distributor and winners of Basingstoke Business In The Community Award, were delighted to host the four winners of the TDC Young Innovator of the Year Competition at the Basingstoke offices back on Monday 4th November.

The Young Innovator of the Year competition winners were announced in July at TDC's tenth anniversary. The aim of the Siemens and Natwest Bank sponsored competition was to "Make Machines Talk", with students invited to suggest innovative ways of using GSM technology.



Adam Cousin showing a car tracking device to Michael Hancey.

Each of the winners was given a choice of four out of five areas in the company to visit: Accounts, Marketing, Sales, Stores and Technical. Once chosen, each student spent an hour with each department, gaining hands-on work experience. Visitors to the Technical department helped to present a vehicle tracking demonstration. Equally, visitors to TDC's Marketing department were each able to produce their own web page on the company's live website - see

www.tdc.co.uk/younginnovator.htm

The winners were also treated to lunch with members of the TDC team. At the end of the day all of the students were presented with a certificate in recognition of their work experience. Managing Director, Jerry Sandys comments, "We are delighted to have our winners back with us to spend a day in business. We hope that through the Competition and Winners' Day, we have encouraged the students to consider the electronics industry as an inspired vocation".

TDC can be contacted at **Stroudley Road, Basingstoke, Hampshire RG24 8FN, Tel: (01256) 332800, FAX: (01256) 332810.**

Record & Go

Nevada are pleased to announce the release of the new Roberts Programmable Cassette Recorder - the C9950 - which will be of special interest to radio enthusiasts. The recorder features, dual record speed, six separate timed recordings, voice activated recording, timed voice activated recording and remote switching of other equipment.

The recorder can be left hooked up to a radio and make either timed or voice activated recording whilst your away from the set. It can also switch the

radio on via it's internal timer switch. The C9950 will sell for £80.

Further details available from Roberts distributors Nevada on **(02392) 313090** or visit www.nevada.co.uk

You could be in with a chance to win the Roberts C9950 - see page 7 for our easy to enter competition!



GOLD rallies

Science Discovery Day

The **Chelmsford Amateur Radio Society** ran h.f. and v.h.f. demonstration stations at the recent Science Discovery Day held at Sandford Mill Museum. An exhibit which was popular with the younger visitors was a demonstration of water powered rockets by CARS member Dr. Geoff Bowles Keeper of Science and Industry along with Education Officer Caroline Hammer. Perhaps this could be the way to launch the next OSCAR satellite!



Science Discovery Day - launching a water powered rocket.

The club meet on the 1st Tuesday in each month at 1915 in the **Marconi Social Club,**

Beehive Lane, Great Baddow, Chelmsford.

Forthcoming meetings are: 7th January - constructors evening; 4th February - v.h.f./u.h.f. propagation by Les Barclay G3HTF and 4th March - Talk by *Practical Wireless* Editor Rob Mannion G3XFD. The next club Foundation course will be starting on Thursday 9th January.

For further information on the club contact **David Bradley M0BQC** on (01245) 602838, E-mail: cars@g0mwt.org.uk or visit <http://www.g0mwt.org.uk/>

Now In Stock

Aerial Techniques have recently informed the *SWM* Newsdesk that they now have in stock the new Grundig Davio 12V d.c. and mains 14in multi-system colour TV for travellers and TVDXers, price of which is £299 inc. VAT and overnight delivery anywhere in the UK is just £12.

More information from Aerial Techniques Ltd. at **59 Watcombe Road, Southbourne, Bournemouth, Dorset BH6 3LX, Tel: (01202) 423555, FAX: (01202) 425055, E-mail: atech@dircon.co.uk or visit www.aerial-techniques.com**

New WR-G303i PC Receiver

The Australian receiver company, **WINRADIO**, have introduced a PC short wave receiver, the WR-G303i, covering the frequency range 9kHz to 30MHz. This new low-cost receiver, continues in the fine tradition established by WINRADIO's successful range of wide-band PC-based receivers. The WR-G303i is the first of the G3 Series of software defined receivers.

The receiver fits simply into most desk top PCs, and occupies a single PCI expansion slot. A Software Defined Receiver. (SDR) is one where demodulation and last i.f. (intermediate frequency) processing are done entirely in software. Usually this means using dedicated d.s.p., but in the case of the G303i, this processing is done on a personal computer using a sound

December 1: The Bishop Auckland Radio Amateurs Club (BARAC) Rally will take place at Spennymoor Leisure Centre. Please note that this is a venue suited for both trader and disabled as it boasts good parking and access to a large ground floor hall. There will be the usual radio, computer, electronics, as well as a Bring & Buy, catering and bar facilities. Morse tests will be available on demand. As you can imagine, there is a lot to do for all the family within the confines of the Leisure Centre. Doors open 1100 (1030 for disabled visitors) and admission is £1,

under 14s free of charge if accompanied by an adult. Talk-in on S22. **Mark G0GFG** on (01388) 745353 or **Brian G7OCK** on (01388) 762678.

December 8: The Red Rose Radio Rally will be held at Lowton Civic Hall, Lowton, near Leigh. Doors open 1100, (1045 for disabled visitors). There will be car parking for approx. 200 cars and it is easy to find from J23 of the M6 motorway. There will be catering, disabled access, computer stalls, licensed bar, car parking and also a visit by Santa Claus. More information

from **Stephen Daniels** on (01942) 888900 or write to Stephen Daniels at **Astley House, Johnson Street, Tyldesley, Manchester M29 8AB.**

December 8: The Worcester Radio Rally is being held at the Worcester Rugby Club, M5 J6, Worcester. Doors open 1000, admission is £2, car parking free. There will be trade stands, Special Interest Groups, a licensed bar, catering and free raffle. For more details contact **John G8MGK** on (01527) 545823/(07762) 203355 or visit www.qsl.net/gb2tcr

DX Buster

Trident - the newest UK antenna manufacturer is pleased to announce the release of their 'DX Buster' series of 6m Yagi antennas. These antennas are designed for the serious 6m DXer. They are computer optimised for both performance and survival in the worst of the UK's weather.

Using a riveted construction, the antennas are extremely light yet strong. The Yagis are pre-assembled so that they can be put together quickly without the need for measurement on site.

The top of the range 7-element 9m long boom Yagi boasts gain of 13.3dBi with an impressive radiation pattern. It's ideal for stacking applications (weighing only 11kg) yet with wind survival of over 118m.p.h.



Full details are available from Distributors **Nevada** on (02392) 313090 or at the Trident website www.tridentantennas.co.uk

bhi NES10-2 Winner

Congratulations to **Ron Blackburn** of Wilshire in Blackburn, who is the lucky winner drawn from the bhi NES10-2 competition, which featured in the October 2002 *SWM*. The NES10-2 is on its way to you Ron.



card (most modern PCs are now faster and more powerful than many d.s.p.s were only a few years ago).

So, if you own a PC, the chances are that you already own an important part of a Software Defined Receiver! The receiver was recently involved in receiving experiments in Australia using the digital short wave service, known as DRM. See *SWM* July 2002. DRM offers f.m. quality within a small bandwidth, and is likely to revolutionise s.w. broadcasting in years to come.

Further information on the product is available via the link www.winradio.co.uk or by calling the UK distributor, **Falcon Equipment and Systems** on (01684) 295807. See the first UK review in a forthcoming *SWM*!

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

LM&S



During the year, many listeners have sent detailed reports on reception in the official broadcast bands to me for inclusion in 'LM&S'. They made interesting reading and I am sure the readers of this column will want to join me in thanking them. Since this is the December edition of *SWM* may I take this opportunity to wish them and all listeners a Happy Christmas and good reception in the New Year!

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 September.

Whilst tuning around the band at night **Jim Edwards** (Wigan) kept hearing two very weak transmissions on **270** and **279kHz** - both were broadcasting in Russian, but he was unable to obtain their idents. He also heard an unidentified station on **162kHz** - it could have been Agri, Turkey (1000kW) which is co-channel with Allouis. At 2055 he picked up a broadcast from Gavar, Armenia (500kW) on **234kHz**. Later, he logged the Rikisutvarpid (RUV) outlets at Gufuskalar, W.Iceland (300kW) on **189kHz** and Eidar, E.Iceland (100kW) on **207kHz** at 0020.

The RUV outlet at Eidar on **207kHz** was heard for the first time ever by **Ernie Strong** (Ramsey, Cambs) during the early hours of the 27th. He found the best reception could be obtained by setting his receiver to the l.s.b. mode. He rated the transmission SINPO 13343 at 0150.

Enhanced conditions were observed during the evening of the 30th by **Fred Pallant** in Storrington. He noticed that the sky waves from Nardor, Morocco (2000kW) on **171** and Azilal, Morocco (800kW) on **207** were causing co-channel interference to the other occupants of those frequencies at 2020.

Medium Wave Reports

The sky waves from some of the many m.w. stations in the Middle East, N.Africa, Europe and Scandinavia

reached the UK after dark. During daylight, the ground waves from some of the UK local radio outlets travelled considerable distances - see charts.

During a holiday in Austria, **Peter Pollard** (Rugby) stayed in Gossau, a village about 1000 metres a.s.l. up in the Dachstein Range. The valley ran roughly south-east to north-west, with mountains and glaciers blocking the northern aspects. Long and medium wave reception there proved to be good and Peter compiled some interesting logs - see charts. Much to his surprise, he picked up the sky waves from two local radio stations in London - Sunrise Radio on **1458** (125kW), which rated SINPO 55445 at 1932; also Capital Gold on **1548** (97.5kW), noted as 34233 at **1940**. Both gave a clear station ident. The BBC World Service via Orfordness on **648** was just audible, but on **1296** it rated 45555.

Whilst staying in Taunton **Bob Norman** (Chard) spent some time searching the band after dark with his new Grundig Yacht Boy 400 portable. He compiled some interesting logs which include some of the low power outlets in Spain - see chart. Quite a few of the Spanish outlets were also logged by **David Stevenson** in Swansea. The SER stations located at Sant. de Compostela (10kW) & Zaragoza

(25kW), which share **873kHz** were mentioned in a report from **Harry Richards** (Barton-on-Humber). He says "At 0400 on the morning 4th of October they were dominating the frequency. Not a good choice of frequency for BBC R.Norfolk I would have thought!" Harry is wondering if the transmitting antennas at the Spanish outlets are designed for sky wave rather than ground wave coverage.

During daylight on the 14th, while listening for ILR Swansea Sound on **1170kHz**, **Simon Hockenhuil** (E.Bristol) was suprised to hear a sports commentary covering a game in the Solent area. It came from Capital Gold, Portsmouth on **1170** and peaked 22332 at 1457. Later the same day he was tuning around the band after dusk and came across Manx Radio via Foxdale (20kW) on **1368**, which rated 44544 and swamped BBC Wiltshire Sound via Swindon on **1368**. Sometimes Manx Radio confirm reception reports with a most attractive QSL and they may well be interested in this one - their address is **Manx Radio, PO Box 1368, Douglas, Isle of Man**.

At 0615 on the 27th the sky waves from the SER 50kW outlet in Barcelona, Spain on **666** were quite potent and they made it impossible for **Sheila Hughes** (Morden) to hear Classic Gold via Exeter on **666**. However, by careful adjustment to the direction of her home-built loop and the tuning of her receiver she did manage to receive faintly BBC R.York under SER. Several other distant local radio stations were noted in her report - see chart.

Short Wave Reports

The ionosphere was disturbed by the effects of solar flares during some days in September and propagation in the higher frequency bands then became very unreliable. During those periods the daily broadcasts in the **25MHz (11m)** band from Radio France International (RFI) to E/C.Africa on **25.820** (Fr, Eng 0830-1300) may not have reached their target, but that is purely supposition as no reports arrived here from that area.

Reception of the RFI transmissions in the UK varied from day to day - sometimes they were clearly audible, but more often they were weak or buried in noise. The SINPO ratings quoted in the reports were 35232 at 0909 by **Eddie McKeown** in Newry; 25232 at 0923 in Storrington; 22212 at 0940 by **Vic Prier** in Seaton; 35522 at 1005 in E.Bristol; 44444 at 1200 in Morden; 35444 at 1200 by **Fred Wilmshurst** in Northampton; 55434 at 1215 by **Bernard Curtis** in Stalbridge; 34322 at 1233 by **Thomas Williams** in Truro.

The effects of solar activity were also evident in the **21MHz (13m)** band. Sometimes R.Australia's early morning transmission to Pacific areas from Shepparton on **21.725** (Eng 0200-0900) reached the UK. It was rated 24422 at 0730 in Seaton. Their transmission to Asia on **21.820** (Eng 0900-1400) could be received here surprisingly well during some mornings, but more often it was weak or buried in noise. During favourable conditions it was rated 55445 at 0900 in Stalbridge. On another occasion it was noted as 22222 at 0942 in Truro.

Quite a few broadcasters use this band to reach listeners in selected target areas. They include R.Pakistan, Islamabad **21.465** (Ur, Eng to Eur 0700-1010), rated 25433 at 0700 in Northampton; Swiss R.Int via Sottens **21.770** (Eng, It, Ger, Fr to Near East, Africa 0830-1030) 44333 at 0835 by **Stan Evans** in Herstmonceux; R.Prague, Czech Rep **21.745** (Eng to E.Africa, S.Asia 0900-0930) 55344 at 0900 in Newry; R.Japan via Yamata, Japan **21.755** (Jap, Eng to Australia 0900-1100) 34433 at 0939 by **Rhoderick Illman** in Oxted; BSKSA Riyadh, Saudi Arabia **21.705** (Ar to W.Eur 0600-1500) 44344 at 1040 by **David Hall** in Morpeth; VOIRI Tehran **21.470** (Eng to Asia 1100-1228) 44433 at 1140 in E.Bristol; Channel Africa via Meyerton, S.Africa **21.725** (Eng to W.Africa 1300-1455, Sat/Sun) 44444 at 1302 by **Vera Brindley** in Woodhall Spa; BBC via Cyprus **21.660** (Eng to S.Africa 1400-1700) 44444 at

Long Wave Chart

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

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

Listeners:-

- (A) Jim Edwards, Wigan
- (B) Simon Hockenhuil, E.Bristol.
- (C) Sheila Hughes, Morden.
- (D) Eddie McKeown, Newry.
- (E) Bob Norman, while in Taunton.
- (F) Fred Pallant, Storrington.
- (G) Peter Pollard, while in Gossau, Austria.
- (H) David Stevenson, Swansea.
- (I) Ernie Strong, Ramsey, Cambs.
- (J) Thomas Williams, Truro.
- (K) Fred Wilmshurst, Northampton.

Tropical Bands Chart

MHz	Station	Country	UTC	DXer
2.310	ABC Alice Springs	Australia	1850 C	
2.325	ABC Tennant Creek	Australia	1855 C	
3.205	R.Ribeirao	Brazil	0025 C	
3.240	TWR Manzini	Swaziland	2115 C	
3.255	BBC via Meyerton	S.Africa	0425 C	
3.270	Namibian BC,Windhoek	Namibia	0445 C	
3.279	La Voz del Napo	Ecuador	0430 C	
3.300	R.Cultural	Guatemala	0415 C	
3.310	R.Mosoj Chaski	Bolivia	0230 C	
3.315	AIR Bhopal	India	0130 C	
3.320	SABC (RSG) Meyerton	S.Africa	1820 A,C,H	
3.356	R.Botswana	Gaborone	1822 H	
3.365	GBC R-2	Ghana	2205 A,C	
3.365	AIR Delhi	India	1835 C	
3.915	BBC via Kranji	Singapore	2100 A,C,G,H,L,M	
3.955	R.Korea via Skelton	England	2100 D,J	
3.955	R.Taipei via Skelton	England	1832 B,D,E,G,H,I,J	
3.955	R.Budapest	Hungary	1850 B	
3.965	R.Taipei via Skelton	England	2205 M	
3.975	R.Budapest	Hungary	2120 G,L	
3.975	R.Korea via Skelton	England	2100 H	
3.985	China R.Int via SRI	Switzerland	2305 A,C	
3.995	DW via Julich?	Germany	2204 A,H,K,M	
4.005	Vatican R.	Italy	1928 G,H,L	
4.190	CPBS Minority Sce	China	2250 C	
4.750	Hulun Buir-Mo	China	2345 C	
4.750	Kizang BS, Lhasa	China	2228 A	
4.760	AIR Port Blair	India	0045 C	
4.765	R.Rural, Santarem	Brazil	2345 A,C	
4.770	FRCN Kaduna	Nigeria	2206 A,C,H,L	
4.775	R.Liberal, Belem	Brazil	0050 C	
4.775	AIR Imphal	India	0140 C	
4.790	AIR Chennai	India	0001 F	
4.790	AIR Itanagar	India	0135 C	
4.790	Azad Kashmir R	Pakistan	1659 C,I	
4.800	CPBS 2 Beijing	China	2100 A,C,H,L	
4.800	R.Buenas Nuevas	Guatemala	0135 C	
4.800	AIR Hyderabad	India	1655 C,I	
4.805	R.Nac. Amazonas	Brazil	2345 C	
4.815	R.Difusora, Londrina	Brazil	0005 C,F	
4.815	R.diff TV Burkina	Guagadougou	2329 A	
4.820	R.Botswana, Gaborone	Botswana	1824 C,H	
4.820	Xizang, Lhasa	China	2105 A,C,L	
4.820	AIR Calcutta	India	1657 C,I	
4.825	R.Cancao Nova	Brazil	0000 C,F	
4.830	R.Tachira	Venezuela	0035 C	
4.832	R.Litoral, La Ceiba	Honduras	0130 C	
4.835	RTM Bamako	Mali	2018 A,C,H,I,L	
4.840	AIR Bombay	India	1653 C,F,I	
4.845	R.Cultura Ondas,Trop	Brazil	0215 C	
4.845	RTM Kuala Lumpur	Malaysia	1845 I	
4.845	ORTM Nouakchott	Mauritania	2016 A,C,F,H,I,L	
4.850	CNR 1	China	2255 C	
4.850	AIR Kohima	India	1825 H,L	
4.856	R.La Hora, Cusco	Peru	0040 C	
4.860	AIR Delhi	India	1904 C,I	
4.865	R.Alvorada, Londrina	Brazil	0135 C	
4.875	R.Roraima, Boa Vista	Brazil	0030 C	
4.880	AIR Lucknow	India	0140 C	
4.885	R.Clube do Para	Brazil	0410 C	
4.885	R. Difusora Acreana	Brazil	0130 C	
4.885	KBC East Sce Nairobi	Kenya	1835 H,I	
4.890	RFI Paris	via Gabon	0400 H	
4.890	R.Port Moresby	Pap.N. Guinea	1836 I	
4.895	AIR Kurseong	India	1645 C,I	
4.895	Pakistan BC	Pakistan	1836 I	
4.905	CPBS 1, Beijing	China	2308 A,C	
4.905	R. La Oroya	Peru	0245 C	
4.910	AIR Jaipur	India	0150 C,I	
4.915	R.Anhangera	Brazil	0425 C	
4.915	R.Difusora, Macapa	Brazil	0205 C	
4.915	GBC-1, Accra	Ghana	2015 A,C,H,L	
4.915	KBC Cent.Sce Nairobi	Kenya	1838 I	
4.920	R.Quito, Quito	Ecuador	0355 C	
4.920	AIR Chennai	India	1649 C,I	
4.925	R.S.Miguel,Riberalta	Bolivia	0210 C	
4.925	R.Difusora, Taubate	Brazil	2326 A,C	
4.930	R.Costena Ebenezer	Honduras	0220 C	
4.935	R.Capixaba, Vitoria	Brazil	0405 C	
4.935	KBC Gen Sce Nairobi	Kenya	1651 I	
4.940	AIR Guwahati	India	0145 C	
4.950	AIR Srinagar	India	0130 C	
4.950	VOA via Sao Tome	Sao Tome	2018 C,H,I,J,L	
4.955	R.Cultura, Campos	Brazil	0030 C	
4.960	R.Cima	Dominion Rep.	0155 C	
4.960	VOA via Sao Tome	Sao Tome	0432 K	
4.965	Christian Voice	Zambia	1925 C	
4.975	R.Uganda, Kampala	Uganda	1840 C,H,I,J,L	
4.980	Ecos del Torbes	Venezuela	0015 C,F	
4.985	R.Brazil Central	Brazil	2314 A,C,F	
4.990	Hunan 1, Changsha	China	2310 C	
4.995	R.Andina, Huancayo	Peru	0015 C	
5.005	R.Nepal, Kathmandu	Nepal	0010 A,C,I	
5.006	R.Jaen	Peru	0015 C	
5.009	R.Cristal Int	Dominican Rep	0320 C	
5.009	R.TV Malagasy	Madagascar	1945 C	
5.010	R.Garoua	Cameroon	2250 A	
5.010	Guangxi 2, Nanning	China	2245 C	
5.010	R.Misiones Int.	Honduras	0140 C	
5.010	AIR Thirupuram	India	0023 C,F	
5.025	R.Parakou	Benin	1842 A,I	
5.025	R.Rebelde, Bauta	Cuba	0245 C	
5.025	R.Pakistan, Quetta	Pakistan	0105 C	
5.025	R.Uganda, Kampala	Uganda	1919 C,I	
5.030	R.Burkina	Burkina Faso	1935 C,H	
5.030	AWR Latin America	Costa Rica	0515 A,C,F	
5.030	RTM Kuching	Sarawak	2120 C	
5.033	R.Bangui	C.Africa	1814 A,I	
5.035	R.Aparecida	Brazil	0005 A,C	
5.035	Hanoi Hmong Sce	Vietnam	2355 C	
5.040	Jeyapore	India	0116 C	
5.050	AIR Aizawl	India	1805 C	
5.050	R.Tanzania	Tanzania	1936 C,H	
5.100	R.Liberia, Totota	Liberia	0030 C	

DXers:-

- (A) Robert Connolly, Killeel.
 (B) Bernard Curtis, Stalbridge.
 (C) Jim Edwards, Wigan.
 (D) Stan Evans, Herstonconceux.
 (E) Bill Griffith, while in Tarragona, Spain.
 (F) David Hall, Morpeth.
 (G) Simon Hockenull, E.Bristol.
 (H) Eddie McKeown, Newry.
 (I) Fred Pallant, Storrington.
 (J) Clare Pinder, Appleby.
 (K) Peter Pollard, while in Gossau, Austria.
 (L) Vic Prier, Seaton.
 (M) Thomas Williams, Truro.

1430 in Morden; Family Radio (WYFR) Okeechobee, USA **21.455** (Eng to Eur) 44334 at 1645 in Stalbridge; BBC via Ascension Is **21.470** (Eng to S.Africa 1300-1900) 34333 at 1650 in Seaton; R.Portugal Int, S.Gabriel **21.655** (Port to W.Africa, S.America 1800?-1930) 15322 at 1808 by **Ian Evans** in Ebbw Vale.

A few broadcasters are taking advantage of

the conditions in the **18MHz (15m)** band to reach listeners in selected areas. They include R.Sweden **18.960** (Eng to N.America 1130-1200, 1230-1300, 1330-1400, 1430-1500), rated 25422 at 1135 in E.Bristol, 44333 at 1245 in Morden & 44333 at 1340 in Herstonconceux; Christian Science Herald via WSHB Cypress Creek **18.910** (Fr, Eng to E/S.Africa 1600-2200?) 44434 at 1620 in

Listeners:-

- (A) Robert Connolly, Killeel.
 (B) Simon Hockenull, E.Bristol.
 (C) Sheila Hughes, Morden.
 (D) Bob Norman, while in Taunton.
 (E) Peter Pollard, while in Gossau, Austria.
 (F) David Stevenson, Swansea.
 (G) Ernie Strong, Ramsey, Cambs.
 (H) Fred Wilmshurst, Northampton.

Local Radio Chart

kHz	Station	ILR BBC	e.m.r.p (kW)	Listener	kHz	Station	ILR BBC	e.m.r.p (kW)	Listener
558	Spectrum, London	I	0.80	B,C,G,H	1323	SomersetSnd,Bristol	B	0.63	A,D*,F
585	R.Solway	B	2.00	A	1332	Cl.Gold 1332,Pt'bo	I	0.60	G,H
603	C.G.Litt'brne	I	0.10	G,H	1359	Breeze, Chelmsford	I	0.28	G
630	R.Bedfordshire(3CR)	B	0.20	B,G,H	1359	Cl.Gold 1359, C'try	I	0.27	D,G,H
630	R.Cornwall	B	2.00	A,F	1368	R.Lincolnshire	B	2.00	G,H
657	R.Clwyd	B	2.00	A,F*	1368	Southern Counties R	B	0.50	C*
657	R.Cornwall	B	0.50	A,F	1413	R.Gloucester via ?	B	?	G,H
666	Cl.Gold 666, Exeter	I	0.34	A,B,D*,F,H	1413	Premier via ?	I	0.50	G
666	R.York	B	0.80	A,C,G	1413	Fresh AM, Skipton	I	0.10	A,G
729	BBC Essex	B	0.20	G,H	1431	Breeze, Southend	I	0.35	G
738	Hereford/Worcester	B	0.037	A,B,C,F*,G,H	1431	Cl.Gold, Reading	I	0.14	H
756	R.Cumbria	B	1.00	A	1449	Asian Net Peterbro	B	0.15	A,G,H
756	The Magic 756,Powys	I	0.63	A,B,G,H	1458	R.Cumbria	B	0.50	A
765	BBC Essex	B	0.50	C*,G,H	1458	R.Devon	B	2.00	A,D,F*
774	R.Kent	B	0.70	G,H	1458	Sunrise, London	I	50.00	E*,G,H
774	R.Leeds	B	0.50	A	1458	Asian Net Langley	B	5.00	G,H
792	Cl.Gold 792,Bedford	I	0.27	B,G,H	1485	Cl.Gold, Newbury	I	1.00	B,H
792	R.Fayle	B	1.00	A	1485	R.Humberside (Hull)	B	1.00	G
801	R.Devon	B	2.00	A,B,F,G	1485	R.Merseyside	B	1.20	A,G
828	Cl.Gold 828, Luton	I	0.20	H	1485	Southern Counties R	B	1.00	C*
828	Magic 828, Leeds	I	0.12	A	1503	R.Stoke-on-Trent	B	1.00	A,C*,G
828	Cl.G 828 Bournem'th	I	0.27	G	1521	Cl.Gold, Reigate	I	0.64	G,H
837	R.Cumbria/Furness	B	1.50	A	1530	R.Essex, Southend	B	0.15	G
837	Asian Net Leicester	B	0.45	A,G,H	1530	Cl.Gold via ?	I	?	G
855	R.Devon	B	1.00	F	1530	Big AM, W.Yorks	I	0.74	A
855	R.Lancashire	B	1.50	A	1530	Cl.Gold, Worcester	I	0.52	B,H
855	R.Norfolk, Postwick	B	1.50	G	1548	R.Bristol	B	5.00	D,F
855	Sunshine 855,Ludlow	I	0.15	B,F*,H	1548	Capital G, London	I	97.50	E*,G
873	R.Norfolk, W.Lynn	B	0.30	G,H	1548	Magic88,Liverpool	I	4.40	A
936	Brunel CG, W.Wilts	I	0.18	G,H	1557	R.Lancashire	B	0.25	A
936	Fresh AM, Hawes	I	1.00	A	1557	Cl.Gold 1557,N hant	I	0.76	G,H
945	Cl.Gold GEM, Derby	I	0.20	G,H	1566	CountySnd,Guildford	I	0.50	D*,F,G
945	Capital G, Bexhill	I	0.75	A	1584	R.Nottingham	B	1.00	A,C*,H
954	Cl.Gold 954 via ?	I	?	A,G	1584	R.Shropshire	B	0.50	A,G
954	Cl.Gold 954, Torquay	I	0.32	F	1602	R.Kent	B	0.25	G
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	B,G,H					
972	Liberty R, Southall	I	1.00	A,B,G,H					
990	R.Devon, E.Devon	B	1.00	A,B,D,F*					
990	Magic AM,Doncaster	I	0.25	G					
990	Cl.G, Wolverhampton	I	0.09	G,H					
999	C.Gold GEM Not'ham	I	0.25	G,H					
999	Magic 9-99 P'stn	I	0.80	A					
999	Valley R, Aberdeen	I	0.300	F					
1017	Cl.G,WABC,Shr'shire	I	0.70	A,B,F*,G,H					
1026	R.Cambridgeshire	B	0.50	C*,G,H					
1026	Downtown R, Belfast	I	1.70	A					
1026	R.Jersey	B	1.00	B					
1035	RTL C'try(Ritz)1035	I	1.00	F,G,H					
1035	R.Sheffield	B	1.00	A					
1035	N.Sound 2, Aberdeen	I	0.78	A					
1116	R.Derby	B	1.20	A,G,H					
1116	Valley R, Ebbw Vale	I	0.50	B					
1152	Cl.G Amber, Norwich	I	0.83	G					
1152	LBC 1152 AM	I	23.50	F,G,H					
1152	Pic'ly 1152,Manch'r	I	1.50	A					
1161	R.Bedfordshire(3CR)	B	0.10	G,H					
1161	Brunel Cl.G, Swindon	I	0.16	B					
1161	Magic 1161, Goxhill	I	0.35	A					
1161	Southern Counties R	B	1.00	C*					
1170	Cl.G Amber, Ipswich	I	0.28	G					
1170	Magic 1170,Stockton	I	0.32	A					
1170	Capital G,Portsm'th	I	0.50	A,B					
1170	Swansea Snd,Swansea	I	0.58	D*,F					
1170	1170AM,High Wycombe	I	0.25	H					
1251	C.G Amber,Bury StEd	I	0.76	G					
1260	Brunel CG, Bristol	I	1.60	F					
1260	Marcher G, Wrexham	I	0.64	A					
1260	SabrasSnd,Leicester	I	0.29	G,H					
1278	Cl.Gold 1278 W.York	I	0.43	G*					
1296	Radio XL, Birmingham	I	5.00	A,B,F*,G,H					
1305	Magic AM,Barnsley	I	0.15	A					
1305	Premier via ?	I	0.50	G,H					
1305	Touch AM, Newport	I	0.20	D,F					



Woodhall Spa, 44334 at 1730 in Stalbridge & 34343 at 2015 in Northampton; Family R, WYFR via Okeechobee FL, USA **18.980** (Eng to Eur, Africa 1600-2200) 34233 at 1645 in Seaton; WYFR via Okeechobee FL, USA **18.930** (Fr, Eng, Sp to Eur 1800-2200?) 33333 at 1920 in Truro.

Reception in the **17MHz (16m)** band was also affected by the solar activity. During some mornings R.Australia's transmission to SE.Asia from Shepparton on **17.750** (Eng 0030-0400, 0530-0800, 0830-0900, 0930-1100) could be received quite well in the UK. It was rated 34444 at 0603 in Northampton & 35433 at 0835 in E.Bristol.

Also mentioned in the reports were R.Japan via Ascension Is **17.650** (Jap to Africa 0900-1000), rated 43333 at 0937 in Oxted; R.Bulgaria, Sofia **17.500** (Eng to Eur 1100-1200) 55544 at 1105 in Herstmonceux; R.Sweden **17.505** (Eng to SE.Asia, Oceania 1330-1400) 33333 at 1330 in Truro; World Harvest R. (WHRI) via Maine, USA **17.650** (Eng to Eur, M.East, Africa 1600-2300?) 33333 at 1633 in Woodhall Spa & 33333 at 2215 in Morpeth; R.Romania Int **17.805** (Eng to Eur 1700-1800) 55445 at 1715 in Stalbridge; R.France Int via Issoudun? **17.605** (Eng to Africa? 1600-1730) 34444 at 1724 in Northampton; R.Portugal Int, S.Gabriel **17.680** (Port to E/S.Africa 1700?-2030?) 45433 at 1850 in Ebbw Vale; DW via ? **17.860** (Ger to Africa) 25343 at 1858 in Storrington; Israel R, Jerusalem **17.545** (Eng to Eur, N.America 1900-1930) 43343 at 1900 by **Gerald Guest** in Dudley; Swiss R.Int (SRI) via Monsinery, Fr.Guiana **17.735** (It, Ar, Eng, Ger, Fr to Nr East, Africa 1830-2130)

33233 at 1930 by **Clare Pinder** in Appleby; HCJB Quito, Ecuador **17.660** (Eng to Eur 2000-2200 [DX prog 2000 Sat]) 32232 at 2035 in Gossau, Austria & 24333 at 2130 in Seaton; R.Canada Int (RCI) via Sackville **17.870** (Eng to Eur 2000-2130) 44444 at 2105 in Newry.

During periods of favourable conditions R.New Zealand's early morning broadcast to Pacific areas in the **15MHz (19m)** band reached the UK. Their 100kW transmission from Rangitai on **15.340** (Eng 0500-0700) was rated 44333 at 0655 in Herstmonceux. Later, their broadcast to NZ peacekeepers in Bougainville, the Solomon Is and E.Timor on **15.175** (Eng 1100-1300) was rated 32222 at 1105 in Dudley & 22222 at 1259 in Truro. Much later, their transmission to Pacific areas on **15.160** (Eng 1850-2050) was noted as 33233 at 1930 in Appleby.

R.Australia's broadcasts have been received in the UK on three frequencies from Shepparton: **15.415** (Eng to E/SE.Asia 0600-0900), rated 33433 at 0530 in Morpeth; **15.515** (Eng to Pacific, N.America 0200-0700) 34444 at 0620 in Northampton; **15.240** (Eng to Asia 0000-0800 [via Darwin 0800-1200]) 34433 at 0755 in Seaton.

Other broadcasters using this busy band include KTWR Guam, Pacific **15.215** (Eng to Asia 0715-0900), rated 33323 at 0730 in Morden; Voice of Greece, Athens **15.630** (Gr, Eng to Eur? 0900-1000) 35433 at 0932 in Newry; WEWUN Vandiver, USA **15.745** (Eng to Eur, Africa 1000-2100?) 44444 at 1100 in Dudley; BBC via Skelton, UK **15.485** (Eng to W/SW.Eur 0600-1700?) 44444 at 1326 by **Bill**

Listeners:-

- (A) Bernard Curtis, Stalbridge.
- (B) Simon Hockenhill, E.Bristol.
- (C) Sheila Hughes, Morden.
- (D) Eddie McKeown, Newry.
- (E) Bob Norman, while in Taunton.
- (F) Peter Pollard, while in Gossau, Austria.
- (G) Harry Richards, Barton under Humber.
- (H) David Stevenson, Swansea.
- (I) Ernie Strong, Ramsey, Cambs.
- (J) Thomas Williams, Truro.
- (K) Fred Wilmshurst, Northampton.

Medium Wave Chart

kHz	Station	Country	Power (kW)	Listener	kHz	Station	Country	Power (kW)	Listener
531	Ain Beida	Algeria	600/300	I*	792	Londonderry(BBC)	UK	1	D
531	Berg	Germany	20	D*,H	801	Munchen-Ismaning	Germany	300	D*,I*
531	RNE5 via ?	Spain	?	H*,I*	801	RNE1 via ?	Spain	?	H*,I*
531	Beromunster	Switzerland	500	D*,F*,J,K*	810	Westerglen(BBCScot)	UK	100	B*,D*,E*,J,K*
540	Wavre-Overijse(VRT)	Belgium	150/50	B,D*,H,I,J*,K	819	Batra	Egypt	450	I*
540	Sidi Bennour	Morocco	600	D*,F*,I*	819	S.Sebastian(EI)	Spain	5	B*,D*
549	Les Trembles	Algeria	600	I	828	Heineccord(CI.Rock)	Holland	20	D*,J*
549	Sasnovy	Belarus	1000	I*	837	Nancy	France	200	D*,F*,H*
549	Nordkirchen (DLF)	Germany	100	I	837	Amchit	Lebanon	100	I*
549	Thumau (DLF)	Germany	200	H*,K*	837	CDPE via ?	Spain	?	D*
558	Espoo	Finland	50	D*,I*	846	Rome	Italy	1200	D*,H*,J*
558	RNE5 via ?	Spain	?	H*,I*	855	RNE1 via ?	Spain	?	D*,E*,F*,H*,I*,K*
567	Tullamore(RTE1)	Eire	500	B,D*,E*,H,I,J*,K*	864	Santah	Egypt	500	I*
567	RNE5 via ?	Spain	?	B*	864	Paris	France	300	B,C,D*,H*,J,K*
576	Muhlacker(SDR)	Germany	500	D*,F*,I*,K*	873	Frankfurt(AFN)	Germany	150	B*,C*,D*,F*,G*
576	Barcelona(RNE5)	Spain	50	D*,H*,I*	873	Zaragoza(SER)	Spain	1	D*,G*
585	Paris(FIP)	France	8	B,D*,J	873	Enniskillen(R.U.I)	UK	100	D*,E*,H,I,K
585	Madrid(RNE1)	Spain	200	B*,D*,E*,F*,I*,K*	882	Washford(BBCWales)	UK	100	D*,E*,H,I,K
585	Dumfries(BBCScot)	UK	?	D	891	Hulsberg	Netherlands	20	D*,I*
584	Frankfurt(HR)	Germany	1000/400	D*,H*,I*,K*	900	Bmo(CRo2)	Czech Rep	25	D*,I*
594	Dujda-1	Morocco	100	I*	900	Milan	Italy	600	D*,F*,H*,I*
603	Lyon	France	300	B,D*,F*,H*,I*	909	B'mans Pk(BBC5)	UK	140	E,H,I,K
603	Sevilla(RNE5)	Spain	50	D*,I*	918	Domzale	Slovenia	600/100	D*,F*,J*,K*
603	Newcastle(BBC)	UK	2	D,I	918	Madrid(R.Int)	Spain	20	I*
612	Athlone(RTE2)	Eire	100	B,D,H,I,K*	927	Wolvertem	Belgium	300	D*,F*,J,K
621	Wavre (RTBF)	Belgium	80	C,D*,J,K*	936	Bremen	Germany	100	D*,H*
621	Batra	Egypt	2000	I*	945	Toulouse	France	300	B*,D*,E*,H*,I,K*
621	RNE1 via ?	Spain	10	H*,I*	954	Bmo (CRo2)	Czech Rep.	200	D*,I*
621	Barcelona(DCR)	Spain	50	I*	954	Madrid(CI)	Spain	20	B*,D*,J*,K*
630	Vigra	Norway	100	D*,J*	963	Pori	Finland	600	B*,D*,H*,I*
639	Praha(Liblice)	Czech	1500	D*,K*	963	Tunis-Djedaida	Tunisia	200	I*
639	RNE1 via ?	Spain	?	B*,D*,E*,H*,I*,K*	972	Hamburg(NDR)	Germany	100	D*,I*
648	RNE1 via ?	Spain	10	D*,H*	981	Alger	Algeria	600/300	B
648	Drifordness(BBC)	UK	50	B,D*,F*,J,K	990	Berlin	Germany	100	D*,F*,I*
657	Madrid(RNE5)	Spain	20	D*,E*,I*,K*	990	R.Bilbao(SER)	Spain	10	I*
657	Wrexham(BBCWales)	UK	2	B,D*,H,I,K	990	Redmoos(BBC)	UK	1	D*
666	Messkirch(Rohrd(SWF)	Germany	150	D*,I*,K*	999	Schwerin(RIAS)	Germany	20	D*
666	Stkuna(R.Vilnius)	Lithuania	500	D*,I*,K*	999	Madrid(CDPE)	Spain	50	B*,E*,F*,H*,I*,K*
666	Lisboa	Portugal	135	D*	1008	Flevo(NOS-5)	Holland	400	B,D*,F*,J,K
675	R10 FM	Holland	120	B,C	1017	Rheinsender(SWF)	Germany	600	B*,D*,F*,J*,K*
684	Sevilla(RNE1)	Spain	500	B*,D*,E*,F*,I*	1017	RNE5 via ?	Spain	?	D*,H*
684	Awala(Beograd-1)	Yugoslavia	2000	D*	1026	SER via ?	Spain	?	B*,C*
693	Tortosa(RNE1)	Spain	2	D*	1035	Milan	Italy	50	H*
693	Droitwich(BBC)	UK	150	E*,H,I	1035	Lisbon	Portugal	120	D*,F*
702	Flensburg(NDR)	Germany	5	D*	1044	Dresden(MDR)	Germany	20	D*,F*
702	TWR via Monte Carlo	Monaco	300	D*,J	1044	SER via ?	Spain	?	B*,E*,F*,J*
711	Rennes (R.Bleu)	France	300	C,D*,E*,H*,J,K	1053	Talk Sport via ?	UK	?	D,E*,F*,G*,H,I,K
720	Langenberg	Germany	200	F*	1062	Kalundborg	Denmark	250	B*,D*,I*,K*
720	Crystal Palace BBC4	UK	0.75	B,I,K	1062	R.Uno via ?	Italy	?	D*
729	Cork(RTE1)	Eire	10	D*,J	1071	Bilbao(EI)	Spain	5	B*,E*,H*,I*,K*
729	RNE1 via ?	Spain	?	D*,E*,H*,K*	1071	Talk Sport via ?	UK	?	D*,I,K
738	Paris	France	4	D*,I*	1080	SER via ?	Spain	?	D*,F*,I*
738	Barcelona(RNE1)	Spain	500	D*,F*,J*,K*	1089	Talk Sport via ?	UK	?	D*,E*,G*,H,I,K
747	Flevo(NDS-1)	Holland	400	B,D*,E*,F*,J,K*	1098	Nitra(Jarok)	Slovakia	1500	B,D*,F*,K*
756	Braunschweig(DLF)	Germany	800/200	I*,H*,K*	1098	RNE5 via ?	Spain	?	I*
756	Bilbao(EI)	Spain	5	I*	1107	AFN via ?	Germany	10	D*,H*
765	Sottens	Switzerland	500	C*,D*,E*,F*,I*	1107	RNE5 via ?	Spain	?	I*
774	Enniskillen(BBC)	N.Ireland	1	D	1107	Talk Sport via ?	UK	?	D,I,K
774	RNE1 via ?	Spain	?	D*,E*,H*,I*,K*	1125	La Louviere	Belgium	20	C*,F*,J
783	Leipzig(MDR)	Germany	100	B*,D*,F*,I*	1125	Deanovce	Croatia	100	K*
792	Limoges	France	300	B*,D*,E*,F*,H*	1125	RNE5 via ?	Spain	?	H*,J*
792	Lingen(NDR)	Germany	5	D*	1125	Llandrindod Wells	UK	1	B,H,I
792	Sevilla(SER)	Spain	20	H*	1134	Zadar(Croatian R)	Croatia	600/1200	D*,F*,K*
					1134	CDPE via ?	Spain	2	B
					1143	AFN via ?	Germany	1	D*,F*
1143	CDPE via ?	Spain	?	D*,H*,I*	1143	AFN via ?	Germany	1	D*,F*
1170	Tbilisskoye	Russia	1200	F*	1170	Tbilisskoye	Russia	1200	F*
1179	SER via ?	Spain	?	H*,I*	1179	SER via ?	Spain	?	H*,I*
1179	Solvasborg	Sweden	600	A*,B*,D*,F*,G*,J,K*	1179	Solvasborg	Sweden	600	A*,B*,D*,F*,G*,J,K*
1188	Kuume	Belgium	5	D*,F*	1188	Kuume	Belgium	5	D*,F*
1188	Reichenbach(MDR)	Germany	5	I	1188	Reichenbach(MDR)	Germany	5	I
1188	Marcali(VDA/RFE)	Hungary	500	D*,G*,K*	1188	Marcali(VDA/RFE)	Hungary	500	D*,G*,K*
1188	San Remo	Italy	6	I*	1188	San Remo	Italy	6	I*
1197	Munich(VDA)	Germany	300	A*,B*,D*,F*,G*,K	1197	Munich(VDA)	Germany	300	A*,B*,D*,F*,G*,K
1197	Virgin via ?	UK	?	D,H,I,K	1197	Virgin via ?	UK	?	D,H,I,K
1206	Bordeaux	France	100	B*,D*,G*,I*,K*	1206	Bordeaux	France	100	B*,D*,G*,I*,K*
1215	Virgin via ?	UK	?	D*,E*,H*,I*,K*	1215	Virgin via ?	UK	?	D*,E*,H*,I*,K*
1214	Lelystad(The beat)	Holland	50	D*	1214	Lelystad(The beat)	Holland	50	D*
1214	CDPE via ?	Spain	?	H*	1214	CDPE via ?	Spain	?	H*
1233	Nitra	Slovakia	40	D*	1233	Nitra	Slovakia	40	D*
1233	Virgin via ?	UK	?	D*,I,K	1233	Virgin via ?	UK	?	D*,I,K
1242	Marseille	France	150	D*,F*	1242	Marseille	France	150	D*,F*
1242	Virgin via ?	UK	?	D*,H,I	1242	Virgin via ?	UK	?	D*,H,I
1251	Huisberg	Netherlands	10	D,I	1251	Huisberg	Netherlands	10	D,I
1260	SER via ?	Spain	?	D*,H*,I*	1260	SER via ?	Spain	?	D*,H*,I*
1260	Guildford (V)	UK	0.5	D*	1260	Guildford (V)	UK	0.5	D*
1269	Neumunster(DLF)	Germany	600	D*,F*,J*,K*	1269	Neumunster(DLF)	Germany	600	D*,F*,J*,K*
1278	Dublin/Cork(RTE2)	Eire	10	D*,H,I,K	1278	Dublin/Cork(RTE2)	Eire	10	D*,H,I,K
1287	RFE via ?	Czech Rep.	?	D*	1287	RFE via ?	Czech Rep.	?	D*
1287	Lerida(SER)	Spain	10	H*,I*,K*	1287	Lerida(SER)	Spain	10	H*,I*,K*
1296	Valencia(CDPE)	Spain	10	I*,K*	1296	Valencia(CDPE)	Spain	10	I*,K*
1296	Drfordness(BBC)	UK	500	F*,J	1296	Drfordness(BBC)	UK	500	F*,J
1305	RNE5 via ?	Spain	?	D*	1305	RNE5 via ?	Spain	?	D*
1314	Kvitsoy	Norway	1200	B*,D*,F*,H*,I,K*	1314	Kvitsoy	Norway	1200	B*,D*,F*,H*,I,K*
1323	W'brunn (VDR)	Germany	800/150	D*,I,K	1323	W'brunn (VDR)	Germany	800/150	D*,I,K
1323	St.Petersburg	Russia	10	F*,J,K	1323	St.Petersburg	Russia	10	F*,J,K
1332	Rome	Italy	300	D*,F*,J*	1332	Rome	Italy	300	D*,F*,J*
1341	Lisnagavey(BBC)	N.Ireland	100	B,H,I*,K	1341	Lisnagavey(BBC)	N.Ireland	100	B,H,I*,K
1359	Madrid(RNE-FS)	Spain	600	D*,F*,J*,K*	1359	Madrid(RNE-FS)	Spain	600	D*,F*,J*,K*
1368	Foxdale(Marx R)	Is of Man	20	B*,C*,D*,K*	1368	Foxdale(Marx R)	Is of Man	20	B*,C*,D*,K*
1377	Lille	France	300	D*,F*,H*,I,K	1377	Lille	France	300	D*,F*,H*,I,K
1386	Bolshakovo	Russia	1200	A*,B*,C*,D*,F*,I,K	1386	Bolshakovo	Russia	1200	A*,B*,C*,D*,F*,I,K
1395	Flake	Albania	500	D*,F*,I*	1395	Flake	Albania	500	D*,F*,I*
1395	Lopic (Biz Nieuws)	Netherlands	120/40	B,H,I	1395	Lopic (Biz Nieuws)	Netherlands	120/40	B,H,I
1404	Brest	France	20	D*,H*,I,K	1404	Brest	France	20	D*,H*,I,K
1413	RNE5 via ?	Spain	?	D*,F*,I*	1413	RNE5 via ?	Spain	?	D*,F*,I*
1422	Heusweiler(DLF)	Germany	1200/600	B,D*,F*,J,K	1422	Heusweiler(DLF)	Germany	1200/600	B,D*,F*,J,K
1440	Mamach(RTL)	Luxembourg	1200	A*,D*,F*,G*,H*,I,K	1440	Mamach(RTL)	Luxembourg	1200	A*,D*,F*,G*,H*,I,K
1449	Redmoos(BBC)	UK	2	D*	1449	Redmoos(BBC)	UK	2	D*
1458	Flake	Albania	500	E*,H*	1458	Flake	Albania	500	E*,H*
1467	Monte Carlo(TWR)	Monaco	1000/400	D*,F*,J,K	1467	Monte Carlo(TWR)	Monaco	1000/400	D*,F*,J,K
1476	Wien-Bismberg	Austria	600	A*,B*,F*,J,K*	1476	Wien-Bismberg	Austria	600	A*,B*,F*,J,K*
1494	Clermont-Ferrand	France	20	D*,H*,I,K*	1494	Clermont-Ferrand	France	20	D*,H*,I,K*
1494	Krasnyy Bor	Russia	1200	D*	1494	Krasnyy Bor	Russia	1200	D*
1503	RNE5 via ?	Spain	?	H*	1503	RNE5 via ?	Spain	?	H*
1512	Wolvertem	Belgium	300	A*,B,C,D*,F*,G*,H*,K	1512	Wolvertem	Belgium	300	A*,B,C,D*,F*,G*,H*,K
1521	Kosicea(Citazette)	Slovakia	600	D*,F*,K*	1521	Kosicea(Citazette)	Slovakia	600	D*,F*,K*
1530	Vatican R	Italy	150/450	D*,F*,K*	1530	Vatican R	Italy	150/450	D*,F*,K*
1539	Mainflingen(ERF)	Germany	350/700	D*,F*,J,K	1539	Mainflingen(ERF)			

Griffith while in Tarragona, Spain & 34333 at 1529 in Oxted; WWCN Nashville, USA **15.825** (Eng to N.America, Eur 1000?-2200) 33333 at 1626 in Woodhall Spa & 45333 at 1919 in Ebbw Vale; VOA via Morocco **15.410** (Eng to Africa 1800?-?) 55445 at 1950 in Stalbridge; China R.Int via ? **15.110** (Eng to Eur 2000-2100) 44444 at 2000 in Dudley; BBC via Ascension Is **15.400** (Eng to Africa 1700?-2300) 42333 at 2013 in Ebbw Vale; RCI via Sackville **15.325** (Eng, Fr to Eur, M.East, Africa 2000-2200) 45434 at 2122 in E.Bristol; R.Taipei Int via WYFR **15.600** (Eng to Eur 2200-2300) 44444 at 2220 in Northampton.

The occupants of the **13MHz (22m)** band include R.Ext.Espana (REE) **13.720** (Sp to Eur 0800?-1600) rated 44434 at 0823 in Oxted; R.Austria Int via Moosbrunn **13.730** (Eng to Eur, M.East, Africa 1130-1200) 44444 at 1140 in Morden; R.Prague, Czech Rep. **13.580** (Eng to Eur, Asia 1300-1329) 55544 at 1315 in Herstonmouceux; R.Austria Int via Moosbrunn **13.730** (Eng to Eur, M.East, Africa 1330-1400) 44444 at 1330 in Dudley; UAER, Dubai **13.675** (Eng to Eur 1600-1640) 44333 at 1615 in Seaton; Voice of Vietnam, Hanoi **13.740** (Eng to Eur 1600-1630) 44444 at 1618 in Woodhall Spa; China R.Int via ? **13.790** (Eng to N.Africa, W.Asia 1900-2000) 44444 at 1900 in Appleby; BBC via Rampisham, UK **13.745** (Russ to Russia) 55555 at 1945 in Stalbridge; WWGR Nashville, USA **13.845** (Eng to Africa 1300-0100) 32232 at 2039 in Gossau, Austria; R.Havana Cuba **13.750** (Eng to Eur 2030-2130) 24122 at 2109 in Newry; R.Australia via Darwin **13.620** (Eng to SE.Asia 2200-0000) 22222 at 2235 in Truro; RCI via Sackville **13.670** (Eng to N/C.America) 45333 at 2252 in E.Bristol.

Some of the transmissions in the **11MHz (25m)** band travel long distances to reach the UK. R.New Zealand's broadcast to Pacific areas on **11.675** (Eng 0700-1100) was rated 32332 at 0715 in Morden, 35321 at 0915 in E.Bristol & 22222 at 0945 in Truro. Radio Australia's transmission to Asia from Shepparton on **11.660** (Eng 1430-1700) was rated 44444 at 1540 in Morpeth.

Also mentioned in the reports were HCJB Quito via ? **11.680** (Eng to Eur 0600-0800), rated 54444 at 0750 in Stalbridge; R.Japan via Woofferton, UK **11.710** (Jap to Eur 0800-1000) 34433 at 0936 in Oxted; Polish R [R.Polonia], Warsaw **11.820** (Eng to Eur 1200-1300) 54433 at 1205 in Herstonmouceux; AWR via Agat, Guam **11.980** (Eng to Far East 1330-1400) 34444 at 1355 in Northampton; R.France Int via ? **11.615** (Eng to Africa 1600-1730) 43444 at 1626 in Woodhall Spa; R.Kuwait via Kabd **11.990** (Eng to Eur, N.America 1800-2100) 45544 at 1800 in Seaton; BBC via Woofferton, UK **12.095** (Eng to Eur 0600-1900) 54554 at 1324 in Tarragona, Spain & 44444 at 1855 in Gossau, Austria; Israel R, Jerusalem **11.605** (Eng to Eur, N.America 1900-1930) 33233 at 1900 in Appleby; Voice of Mediterranean, Malta via Russia? **12.060** (Eng to Eur, N.Africa 1900-2000) 44333 at 1950 in Truro; China R.Int via ? **11.790** (Eng to Eur 2000-2200) 32232 at 2110 in Newry; R.Bulgaria, Sofia **11.900** (Eng to Eur 2100-2200) SIO 333 at 2158 by Francis Hearne in N.Bristol; All India R. (AIR) via Bangalore **11.620** (Eng to Eur 2045-2230) 33333 at 2204 in Tarragona, Spain.

In the **9MHz (31m)** band R.Australia has been reaching the UK on three frequencies from Shepparton: **9.710** (Eng to New Guinea, Pacific areas 0800-0900), rated 33333 at 0810 in Stalbridge; **9.475** (Eng to Asia 1330-1858) 32333 at 1621 in Woodhall Spa; **9.500** (Eng to Asia 1900-2130) 43433 at 1934 in E.Bristol & 34444 at 2100 in Northampton.

There is a high level of activity in this band throughout the day. Mentioned in the reports were WTJC Newport NC, USA **9.370** (Eng to N.America 24hrs), rated 44444 at 0320 in Morpeth; R.Norway Int, Oslo **9.590** (Norw to Africa 0700-0730) 45544 at 0715 in Seaton; R.Netherlands via Bonaire, Ned.Antilles **9.790** (Eng to Asia, Far East, Pacific 0930-1130) 44444 at 0930 in Newry; R.Vilnius, Lithuania **9.710** (Eng to Eur 0930-1000) 55544 at 0935 in Herstonmouceux; R.Mediterranean Int, Morocco **9.575** (Ar, Fr to N.Africa, S.Eur 0500-0100) 44444 at 1400 in Tarragona, Spain; Voice of Turkey **9.460** (Tur to Eur 0730?-2100?) 55444 at 1530 in Oxted; BBC via Cyprus **9.410** (Eng to W/SW.Eur, N.Africa 1600-2200) 34444 at 1845 in Gossau, Austria & 55434 at 2125 in E.Bristol; R.Bulgaria, Sofia **9.400** (Eng to Eur 1900-2000) 55444 at

1915 in Northampton; Voice of Armenia, Yerevan **9.960** (Eng to Eur 1940-2000) 44444 at 1940 in Newry; All India R. (AIR) via Bangalore **9.950** (Eng to Eur 2045-2230) 44444 at 2105 in Morden & 54554 at 2202 in Tarragona, Spain; R.Ext.Espana **9.840** (Eng to Eur, Africa 2100?-2200, Sat/Sun) 33233 at 2130 in Appleby; R.Bulgaria, Sofia **9.400** (Eng to Eur 2100-2200) SIO 444 at 2141 in E.Bristol; R.Cairo, Egypt **9.990** (Ger to Eur 1900-2000, Eng 2115-2245) 33333 at 2145 in Truro.

Some of the broadcasts in the **7MHz (41m)** band are intended for listeners in Europe. Those noted originated from R.Japan via Woofferton, UK **7.230** (Eng 0500-0700), rated 55544 at 0630 in Herstonmouceux; R.Norway Int, Oslo **7.180** (Norw 0700-0730, also to N.Africa) 45544 at 0715 in Seaton; R.Slovakia Int **7.345** (Eng 1630-1700) 44444 at 1636 in Woodhall Spa; R.Thailand, Udonthani **7.155** (Eng 1900-2000) 34444 at 1919 in Gossau, Austria; R.Polonia (Polish R), Warsaw **7.165** (Eng 1930-2030) 43333 at 2000 in Morden; AIR via Bangalore **7.410** (Hind, Eng 1745-2230) 43334 at 1805 in Stalbridge, 45544 at 2137 in Northampton & 54554 at 2200 in Tarragona, Spain; RCI via Skelton, UK **7.235** (Eng 2100-2130) 45444 at 2105 in Newry; China R.Int via Russia **7.175** (Eng 2200-2330) 22222 at 2205 in Truro.

Quite a few to other areas may also be received here. Among them are World Harvest Radio (WHRI) via Maine, USA **7.580** (Eng to N.America), rated 44444 at 0001 in Morpeth; R.Prague, Cz.Rep **7.345** (Cz, Eng to N.America) 45434 at 0003 in E.Bristol; WBCQ Monticello, USA **7.415** (Eng to N.America 2100-1100) 44344 at 0355 in Morpeth.

The **6MHz (49m)** band carries many broadcasts for listeners in Europe. Some come from R.Japan via Skelton, UK **5.975** (Eng 0500-0600), rated 44344 at 0500 in Appleby; R.Vlaanderen Int, Belgium via Julich, Germany **5.985** (Eng 0700-0730) 55544 at 0715 in Herstonmouceux; R.Netherlands via Julich, Germany **6.045** (Eng 1030-1225) 45544 at 1130 in Northampton; Deutsch Welle (DW) via Sines? **6.075** (Ger) 55544 at 1550 in Oxted; R.Polonia [Polish R] Warsaw **5.995** (Eng 1700-1800) 44333 at 1730 in Morden; RAI Rome **5.970** (Eng 1935-1955) 44434 at 1936 in E.Bristol; R.Sweden **6.065** (Eng 1930-2000) 54445 at 1955 in Stalbridge; BBC via Rampisham, UK **6.195** (Eng 1700-0000) 34343 at 2015 in Gossau, Austria; R.Yugoslavia, Belgrade **6.100** (Eng) 45444 at 2100 in Northampton; R.Canada Int via Horby, Sweden **5.850** (Eng 2000-2130, Fr 2130-2200) 55545 at 2115 in Seaton; Vatican R, Italy **5.890** (It) 33333 at 2130 in Truro; R.Austria Int, Moosbrunn **5.945** (Eng) SIO 333 at 2131 in N.Bristol; R.Austria Int, Moosbrunn **6.155** (Various) SIO 444 at 2134 in N.Bristol; R.Japan via Skelton, UK **6.055** (Eng 2100-2200) 44343 at 2134 in Newry.

Late at night and during the early morning some of the broadcasts to other areas may also be received here. Mentioned in the reports were the Voice of America (VOA) via Sao Tome **6.035** (Eng to W.Africa 2000-2300) 32343 at 2110 in Seaton & 32333 at 2222 in Truro; BBC via Antigua, W.Indies **5.975** (Eng to Caribbean, C/S.America 2200-0600?) 44523 at 2345 in E.Bristol; R.Havana, Cuba **6.000** (Eng to N.America 0100-0500) 44444 at 0455 in Gossau, Austria; WEWN Birmingham, USA **5.825** (Eng to N.America 0000-1000?) 44333 at 0800 in Morden; WHRI South Bend, USA **5.745** (Eng to N.America 2000?-1000?) 33333 at 0830 in Stalbridge.



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

Equipment Used

LM&S for \$August, #September, *October 2002.

- \$* Vera Brindley, Woodhall Spa: Roberts RB67 or Sangean ATS-803A + r.w.
- \$ Michael Casey, Manchester Roberts RC828 + table-top loop
- \$ Tim Cooke, Bath: Yaesu VR-120 scanner + r.w.
- \$* Bernard Curtis, Stalbridge: Realistic DX-400 + rod or r.w. in loft
- \$ Bernard Curtis, while near Newquay, Cornwall: Realistic DX-400 + rod
- \$* Jim Edwards, Wigan: JRC NRD-535 or Drake RBE + 60m N/S wire attached to guttering on a block of flats
- \$* Stan Evans, Herstonmouceux: Kenwood R-2000 + Balun + 11m wire in loft
- \$* Bill Griffith, W.London: JRC NRD-535 + 25m wire
- \$ Bill Griffith, while in Prague, Czech Rep.: Sony ICF-SW55 + 5m wire
- \$* Gerald Guest, Dudley: Roberts RC818 + r.w.
- \$* David Hall, Morpeth: ADR AR7030 + Global AT-2000 + 13m wire
- \$* Francis Heame, N.Bristol: Sharp WOT370 + r.w.
- \$* Simon Hackenhull, E.Bristol: Battery powered Roberts RB76 or Bush TR130 + built-in antennas or AKD HF-3 + 10m wire
- \$* Sheila Hughes, Morden: Sony ICF-7600DS + home-built loop or Panasonic DR48 + 16m inverted L.
- \$* Rhoderick Illman, Oxted: Kenwood R-5000 + r.w. or AN-1, Sony ICF-7600DS.
- \$* Eddie McKeown, Newry: Grundig Yacht Boy 400 or Sangean ATS-818
- \$ George Millmore, Wootton, IoW: Racal RA17L + v.l.f. converter + loop or Sangean ATS-803A + loop.
- * Bob Norman, Chard: Kenwood R-5000 + inverted V dipole.
- \$* Fred Pallant, Storrington: Trio R-2000 + Howes CTUB a.t.u. + r.w.
- \$ John Parry, Lamaca, Cyprus: Realistic DX-394 or Yaesu FT-767 or Realistic DX-400 + r.w.
- \$* Clair Pinder, Appleby: JRC NRD-525 + a.t.u. + r.w.
- \$* Peter Pollard, Rugby: Sony ICF-2001D + r.w.
- \$ Harry Richards, Barton-upon-Humber: Grundig Satellit 700 + AD270 or r.w. or Grundig Yacht Boy 400 or Matsui MRA099
- * David Stevenson, Swansea: Steeplestone MBR-7
- \$ Michael Wasley, Scunthorpe: Grundig Yacht Boy 400
- * Michael Wasley, while at The Brae d, IoM: Grundig Yacht Boy 400
- * Michael Wasley, while on Ferry, Irish Sea: Grundig Yacht Boy 400
- \$* Thomas Williams, Truro: Grundig Yacht Boy 400 or Grundig Yacht Boy 206 or Sharp 5454 + r.w.
- \$* Fred Wilmshurst, Northampton: Icom IC-R70 + Global AT-1000 + r.w. in loft.

AR8200 Mark3 RECEIVER

EVOLUTION PRODUCES THE VERY BEST

Evolution had led to the **NEW AR8200 MK3** and provides excellent full coverage all mode receive including USB, LSB, AM, NFM, WFM with multiple IF bandwidths. Frequency coverage is **530kHz - 3GHz** with minimum acceptable input of 100kHz. Supplied with NiMH rechargeable batteries, charger, car lead, whip aerial, MW aerial and comprehensive illustrated operating manual.



The MK3 changes are in the following areas:

1. As the RF components have been changed, there is a positive performance advantage with sensitivity and strong signal handling increasing on some frequencies.
2. The frequency coverage has been extended to 3GHz.
3. The AR8200 MK3 is supplied with 1500mAh NiMH batteries (in place of NiCads) for extended operation.
4. The LCD illumination may be switched to AUTO so that the illumination will automatically switch-on (for just a few seconds) when the squelch opens, ideal for noting the active frequencies at night time. Many options are available including SLOT CARDS for CTCSS, analogue voice inverting, external memory, recording / playback, tone eliminator, computer interface lead, reaction tune lead, soft case, free PC software from the AOR web site.

£439.00 inc VAT



AR8600 Mark2 RECEIVER

PORTABLE RADIO - GO ANYWHERE

The **AR8600 Mark2** is an amazingly versatile receiver which can be used mobile, base or trans-portable... powered from an external 12V d.c. power supply, 12V vehicle or from an optional internally fitted NiCad battery pack.



The upper **frequency range has been extended to 3000MHz (3.0GHz)**, lower band sensitivity has been increased (now officially covering to 100kHz) with an **enhancement to short wave performance** by the addition of further bandpass filters and revision to I.F. filters. **Mini-Circuits RMS1 / RMS2 mixers** have been employed with **active SPM aerial switching devices** (not diode-switching) abundantly employed throughout the signal path.

The AR8600 Mark2 provides remarkable short wave performance, making other similar wide band competitors mediocre by comparison. When the AR8600 Mark2 arrived in the UK, **short wave listeners were amazed at how the AR8600 Mark2 sounds so much like a dedicated short wave receiver** with pleasant audio on SSB and good CW tone with Radio Japan rolling in on a simple telescopic whip, much less like the usual expectations of a scanning receiver!

A strong twin metal case with die cast front panel characterises the multi-purpose role. All mode receive capability is provided including Single Side Band with programmable tuning steps down to a resolution of 50Hz with the frequency established by a highly accurate **Temperature Compensated Crystal Oscillator (TCXO)**. An RS232 port further extends the capabilities with free supporting control software available from the AOR web sites. **The all important 8.33 kHz airband channel step is correctly implemented.**

Computer control is available via a standard 9-pin RS232 D-type connector on the rear chassis, just a standard RS232 cable is required for connection to a PC, the extensive RS232 command list is printed in the operating manual. A **FREE software package** is available as a download from the AOR web sites.

In addition, **'optional internal SLOT CARDS'** (which fit into the rear chassis of the AR8600 Mark2) extend the capabilities even further.

Portable operation is a reality, when the optional BP8600 battery is fitted, **several hours operation** is provided away from the base or vehicle power supplies. **£719.00 inc VAT**



AOR DIRECT

Items in this column 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 (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%. E&OE.

The **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. **SEE THE DETAILED REVIEW IN THE NOVEMBER 2002 SWM.**

Compact, but achieving high performance, featuring an internal high-gain amplifier (13.5dB) and excellent overall strong signal handling (high IP³ +30dBm).

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.

Supplied with two loops, 3.0 - 9.0 & 9.0 - 30MHz **£199.00 carriage £5.00**

- 350L Optional element 0.2 - 0.54 MHz for LA350, **£49.00**
- 350M Optional element 0.54 - 1.6 MHz for LA350, **£49.00**

Carriage on optional elements £2.50 if ordered separately

DA3000 16 element discone aerial. Usable coverage is 25 MHz to 2,000 MHz (2GHz). 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. **£99.00 carriage £5.00**



LA320 loop aerial - owners please note

The LA320 has been discontinued in the wake of the LA350 success. The optional MW & LW bar aerials will continue to be available for a few months subject to demand and the availability of raw materials. Please regard NOW as your last chance to purchase the optional elements:

- 320M MW optional bar £25.00 + £2.50 carriage inc VAT
- 320L LW optional bar £25.00 + £2.50 carriage inc VAT

ARD-2 END OF LINE SPECIAL OFFER

The ARD-2 provides 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.

Subject to stock availability, the ARD-2 is being offered at a **special price of £199.00 inc VAT** to clear stock. The equipment is brand new and has a 12 month warranty. Once UK stock is exhausted, further limited quantities will be available but delivery will be around 28 days - until the stocks are finally depleted. This is a **ONCE ONLY OFFER**. **UK carriage is an additional £5.00**

A leaflet is available to request, full details may also be viewed on the AOR UK web site (look under the DIRECT promotional offers pages).



AOR (UK) LTD 4E East Mill, Bridgefoot, Belper, Derbyshire, DE56 2UA England



Tel: 01773 880788 Fax: 01773 880780
info@aoruk.com www.aoruk.com E&OE

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

■ E-MAIL: greg@pcug.org.au

Bandscan Australia

Since I last wrote, I have changed my local telecommunications carrier from the giant national company Telstra to a local, Australian Capital Territory, carrier called TransACT. This has given me access to telephone, fast Internet connection without a modem and cable access to more than 20 television channels including BBC World. This time I have a grab bag of news about radio, television and telecommunications in this part of the world. I have again included the Radio Australia schedule for new readers.

Weather Radio

The Australian Bureau of Meteorology broadcasts marine weather reports for the high seas and Australian coastal areas by voice and by FAX from transmitters at Charleville in Queensland and Wiluna in Western Australia. Callsigns are VMC and VMW respectively. Voice broadcasts from VMC are from 0700 to 1800 Queensland time on 4.426 and 16.546MHz; from 0600 to 0700 on 2.201 and 6.507MHz and anytime on 8.176 and 12.365MHz.

Voice broadcasts from VMW are from 0700 to 1800 Western Australian time on 4.149 and 16.528MHz; from 1800 to 0700 on 2.056 and 6.230MHz and anytime on 8.113 and 12.353MHz. FAX broadcasts from VMC are from 0500 to 1900 Queensland time on 20.469MHz; from 1900 to 0500 on 2.628MHz and anytime on 5.100, 11.030 and 13.920MHz.

FAX broadcasts from VMW are from 0500 to 1900 western Australian time on 18.060MHz; from 1900 to 0500 on 5.755MHz and anytime on 7.535, 10.555 and 15.615MHz. Full details and weather broadcast schedules are at http://www.bom.gov.au/marine/voice_services.shtml Queensland is at UTC+10 hours and does not observe daylight saving time; Western Australia is at UTC+8 hours and does observe daylight saving time from late October.

Bali

As *SWM* readers are no doubt aware, nearly two hundred people died recently in the bombings in Bali. These included people from the UK and many from Australia. In the wake of these events, Australia's telecommunications carriers are waiving telephone charges for those killed and rebating bills for victims and families.

Optus will waive all call charges for calls to Bali from mobiles or fixed line services for the week following the incident and will waive mobile call charges for people who were in Bali at the time. National carrier Telstra will waive all charges for a month for calls in connection with the disaster.

British company Vodafone is putting arrangements in place to rebate charges when calls are made in connection people injured by the bombing. They will also waive charges on calls made by victims and their families until the victim returns home to Australia. Other carriers are considering their response.

Whilst discussing Indonesia, there are reports here indicating that Indonesia is clamping down on what appears to have been an explosion in new television and radio stations since President Soeharto left office. The proposals are to ban the relay of overseas sourced news, music and sports programs.

Since the fall of Soeharto, the number of radio stations has increased to around 1100 and the number of national commercial television stations has gone from five to ten. The Australian Broadcasting Corporation (ABC) and the BBC have been providers of international news material to these media outlets. The second largest Indonesian national television station is at <http://www.sctv.co.id/> for those whose Indonesian is up to scratch.

Regulation

The Australian government has released a working paper canvassing the possible futures for the Australian Broadcasting Authority (ABA) and the Australian Communications Authority (ACA). The former regulates radio and television; the latter regulates the telecommunications sector. The paper puts the future of

these organisations in the context of convergence of media and telecommunications and suggests that a merger between the two regulators might be in order.

The organisations closely parallel one another in spectrum management and in planning and licensing. The ABA is at <http://www.aba.gov.au/> and the ACA is at <http://www.aca.gov.au/> The discussion paper is at http://www.dcita.gov.au/Article/0,,0_4-2_4008-4_110423,00.html

Reports

Martyn Gardner has been listening to RA again this time getting good reception on 9.500MHz at around 2100. Martyn was using an Icom receiver and a long wire antenna from his QTH in Portsmouth.

Gerald Guest from the West Midlands has written saying that only 9.500MHz comes through in the evenings. He reports SINPO 43344. He has better luck in the mornings though, in the period 0600-0900 on 15.240 and 15.415MHz. The former frequency gave SINPO 33233. Also he has pulled in RA at 1000-1100 on 21.820 at SINPO 43334.

Other News

The Special Broadcasting Service (SBS) has been enjoying a resurgence in popularity and in advertising revenue. Its weekly audience is 7.6 million people which is up 23% on last year. British Sky Broadcasting is reported here to be about to take on Australian Jac Nasser as a non-executive director.

New ABC managing director Russell Balding is making noises for more funding from government. After years of being squeezed, Balding thinks that the ABC needs more funds to remain relevant in the next few years. If history is any guide, Mr Balding will be whistling in the wind.

RA has celebrated 60 years of broadcasting to Indonesia. RA has figures suggesting an annual audience reach in Indonesia of 8 million people; this makes it second to the BBC in Indonesian audience.

The government has delayed the introduction of quotas for the amount of HDTV to be shown in Australia by free to air broadcasters. The requirement for a minimum of 20 hours per week has been moved six months from 1 January 2003 to 1 July 2003.

Australia's commercial television network Channel 10 had a ratings bonanza on the night of 11 September here. All other channels including the ABC and SBS ran blanket coverage of the anniversary of the 11 September incidents in the USA. It seems that many people had already had their fill of television images of these events.

The ABA has recommended that regional television broadcasters should provide viewers with at least six local news bulletins a week. This news follows the closure of some local newsrooms by large regional broadcasters and the subsequent outcry from the viewing audience. More information is at http://www.aba.gov.au/abanews/news_releases/2002/83nr02.htm TransACT is at <http://www.transact.com.au/> for those interested to see what is available in Canberra.

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



Radio Australia

The current Radio Australia (RA) schedule is:

Time	MHz
0000-0130	17.775
0000-0800	15.240 & 17.580
0000-0900	15.415 & 21.725
0030-0400	17.750
0200-0700	15.515
0430-0500	17.750
0530-0800	17.750
0700-0900	15.240
0800-0900	5.995 & 9.710
0800-1100	9.580
0800-1130	15.240 & 11.880
0830-0900	17.750
0900-1330	11.880
0900-1400	21.820
0930-1100	17.750
1100-1200	12.080
1100-1400	6.020 & 9.475
1100-1400	5.995
1100-1700	11.650
1100-2130	9.580
1330-1700	11.660
1400-1800	5.995
1530-1900	9.475
1700-2100	9.815
1700-2200	11.880
1800-2000	6.080
1800-2000	7.240
1900-2130	9.500
2000-2200	12.080
2100-0000	17.715
2100-0000	21.740
2100-2200	7.240 & 9.660
2100-2200	7.240
2200-0000	13.620 & 15.230
2200-0200	17.795
2300-0800	9.660
2300-0900	12.080
2330-0000	11.695 & 15.415

RA says that the best bets in Europe are:

0530-0800	17.750
0900-1400	21.820
1330-1700	11.660
1530-1900	9.475
1900-2130	9.500

QSLs to RA at **Radio Australia, GPO Box 428G, Melbourne, Victoria 3001, Australia**. For the

Internet connected, RA schedules and other information are at

<http://www.abc.net.au/ra> As regular readers to this column will remember, I've commented before that the RA Internet site was not a pretty thing. Well, now that the site has been revamped it is a pretty thing. But, again proving I suppose, that I'm never happy, the new site is not particularly easy to use to find technical information about RA.

MLP32 Log Periodic

★ 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
The ultimate receiving antenna - a must for the dedicated listener

ROTATOR

Suitable for MLP Log Periodic or any UHF/VHF beams.
£49.95 + £6.00 P&P

BRACKETS

6" Stand off£6.00
9" Stand off£9.00
12" T&K (pair)£11.95
18" T&K (pair)£17.95
24" T&K (pair)£19.95
36" T&K (pair)£29.95

MD37 SKY WIRE (LONG WIRE BALUN KIT)

25 METRES OF ENAMELLED WIRE INCLUDES 10M PATCH LEAD & INSULATOR For use on with receiver 0-40MHz. All mode no ATU required 2 "S" points greater signal than other baluns. Matches any long wire to 50Ω improved reception.
£39.95

MWA HF Wire Antenna Mk 11

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.
NEW LOW PRICE £49.95

SUPER SCAN STICK

Freq. Range 0-2000MHz
Length 1000mm.
It will receive all frequencies at all levels unlike a mono band antenna. It has 4 capacitor loaded coils inside the vertical element to give maximum sensitivity to even the weakest of signals. (Ideal for the New Beginner and the Experienced Listener alike).
£29.95

SUPER SCAN STICK II

Freq. Range: 0-2000 MHz. Length 1500mm.
This is designed for external use. It will receive all frequencies, at all levels unlike a mono band antenna. It has 8 capacitor loaded coils inside the vertical element to give maximum sensitivity to even the weakest of signals plus there is an extra 3db gain over the standard super scan stick. (For the expert who wants that extra sensitivity).
£39.95

5' SWAGED POLES

Heavy Duty Ali (1.2mm wall)
SINGLE 1 1/4"£7.00
SET OF FOUR 1 1/4"£24.95
SINGLE 1 1/2"£10.00
SET OF FOUR 1 1/2"£34.95
SINGLE 2"£15.00
SET OF FOUR 2"£49.95

CONNECTORS

PL259/9£0.75 each
PL259/6£0.75 each
PL259/7 for mini 8£1.00 each
BNC (Screw Type)£1.00 each
BNC (Solder Type)£1.50 each
N TYPE for RG58£2.50 each
N TYPE for RG213£2.50 each
S0239 to BNC£1.50 each
PL259 to BNC£2.00 each
N TYPE to S0239£3.00 each

Hi-Spec coax cable

RG58 6mm standard£0.35 per mtr
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
RH200 9mm mil spec£1.10 per mtr
(Phone for 100 mtr discount price)

X1 HF Vertical

★ Freq.: 1.0-50MHz
★ Type: Loaded
★ Height: 2.05mtrs
★ Conn: S0239
£49.95

UK SCANNING DIRECTORY

8th edition
£19.50

Wideband 25-1800MHz SuperGainer Rubber Duck Antennas

MRW-100 40cm long BNC£19.95
MRW-250 14-41cm long telescopic BNC£19.95
MRW-210 37cm long SMA£24.95 (ideal for Icom IC-R2)

Increase the performance of your hand-held, without an external antenna.

EXWM-1 Window clip mount

★ BNC socket ★ 2.5mtrs mini coax with BNC plug ★ Black finish Suitable for any BNC hand-held antennas!
£13.95
(ADAPTERS FOR OTHER FITTINGS AVAILABLE)

MRP-2000

(Preamplifier) Freq Range 25-2000 Mhz 9-15v input (Battery not included) 14 db Gain. Complete with lead and BNC connectors.
£49.95

SUPER DISCONE

Freq. Range 25-2000MHz Length 1380mm
Internal or External use (A Tri-Plane Antenna). The angle of the ground planes are specially designed to give maximum receiving performance within the discone design. The Super Discone gives up to 3Db Gain over a standard conventional discone. Comes complete with mounting hardware and brackets. (Ideal for the Experienced Enthusiast).
£39.95



MTS42 MOBILE MICRO MAG

Freq. Range 25-2.1 GHz
Length 225 mm
£24.95

TRI SCAN III

Freq. Range 25-2000MHz Length 720mm
Desk Top Antenna for indoor use with triple vertical loaded coils. The tri-pod legs are helically wound so as to give it its own unique ground plane. Complete with 5mtrs of low loss coax and BNC plug. (Ideal for Desk Top Use).
£39.95

WEATHER SATELLITE ANTENNA

TURNSTILE 137
Freq. 137.5 MHz
Length 1000mm
This Antenna is designed for external use to receive weather satellite signals. Complete with mounting hardware.
£39.95

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

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



ROYAL DISCONE 2000

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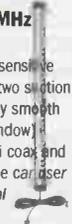


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Off The Record

As previously reported in *SWM*, the former offshore pirate station Radio Caroline is now broadcasting via the WorldSpace *Afristar* satellite. Test broadcasts of continuous music started on 18 July, with some live programmes commencing on 10 September. Principle presenters on these tests seem to be Tony Christian, Ryan Woodman, Rob Leighton and Johnny Lewis, all of which have been very well received among supporters.

The station will shortly become encrypted and only available as a subscription service. The annual fee is £59.88 payable in advance. To enable reception of the service, WorldSpace issue a password to enter into your WorldSpace satellite receiver that also has a unique serial number installed in its memory.

Potential listeners can subscribe using a credit card and telephoning the London offices of WorldSpace on (02392) 313093 or can write to them at **4-6 Soho Square, London W1V 5DE**. An important point is that they will need to know the serial number of your radio, it's on the outside of the box when you buy it, or you can also follow the instructions with the receiver and get it to cleverly display its own serial number.

For those that don't have a WorldSpace receiver, I will just say that they are very easy to use with the names of stations being displayed, there are various methods of selecting stations including simple up/down buttons. The audio is very clear through the internal speaker, however if you are interested in stereo quality, you can connect the set to an audio system, but you will not experience anything close to f.m. radio quality. However, compared with s.w. international broadcasting, it offers a huge coverage area with no fading, interference or distortion, which for a broadcaster must be good news.

From the listeners point of view, well it's not DX, but it does offer a very compact method of receiving distant radio signals without the need of a large antenna. Reception of say, the BBC World Service, is just as clear in Johannesburg as it is in London.

Hospital Radio

You don't hear much about hospital radio much these days, at one time it was something of a breeding ground for people hoping to gain experience in radio broadcasting. Many of the larger hospitals have low powered radio stations operating under a Radio Authority licence, several of which operate on 1350kHz a.m. or 87.7MHz f.m. There is now a tendency for professional stations to employ people with specific specialist qualifications like media or business studies rather than seek people with any talent in the field of entertainment.

My local hospital station is called Radio Victoria and operates a headphone and loudspeaker speaker service to patients who are recovering from long-term illnesses. This year was the 30th anniversary of its opening in 1972 and a special programme was organised to commemorate the occasion. BBC local radio and several ILR stations publicised the event, inviting old Radio Victoria voluntary staff to take part in a special live broadcast.

On the day over 25 guests arrived to talk about the station's history and the part they played in it, the evening turned out to be an outstanding success. For more information about hospital radio, you can visit the Hospital Broadcasting Association website at www.hbauk.co.uk or write to **146 High Street, Billericay, Essex CM12 9DF**.

Folkestone Hospital Broadcasting Service, Radio Victoria's 30th Birthday. Andy Cadier being 'supervised' by three station managers and the town's Mayor. L-R Audrey Wind, (Chairman Folkestone Operatic Society) Dominic King (now with BBC Radio Kent), Dick Dickinson (Mayor of Folkestone) and Matt Curtis (present Station Manager).



Reclaim The Media

This is the name of an American media democracy movement concerned with the private takeover of public broadcasting resources. They say that the corporate consolidation and homogenisation of media systems coupled with the deregulatory rollback of public accountability is inhibiting smaller groups being involved in the industry. Their Clear Channel group is one of America's largest broadcasters who already have in excess 1,200 radio licences, further information is available on the website www.reclaimthedia.org

There is certainly a similarity in the way the media is being consolidated here in Britain, which has done little to stem the tide in the ever-increasing numbers of pirate stations, who find the legal path into radio broadcasting financially out of reach. It should be towards the middle of next year before we find out the results of the government's *Access Radio* experiment, which could allow low budget non-commercial local broadcasting.

The present trial involves about 15 stations - some on a.m. and others on f.m. that have been granted an initial one year's free licence. A slightly similar scheme in the USA for similar low powered stations never came to fruition following objections from their National Association of Broadcasters, who represent most of their existing major radio and TV organisations.

European Pirates

The last few months of autumn weather has included some periods of excellent propagation. Radio Border Hunter operating on 15.795MHz has been received with good signals in Queensland, Australia. Also making the trip down-under is Radio Alpha Lima on 15.070MHz.

Peter Verbruggen has news of another continental station FRS (Free Radio Service) Holland is about to return to the air after a significant absence and should be audible at weekends on 7.450MHz. There are two transmitters carrying Radio Caroline programmes - one is on the m.w. frequency of 1593kHz and is probably an Irish pirate and the other in on 7.140MHz in the 41m band, the location of this transmitter is at present unknown.

Caroline's station manager Peter Moore is keen to disassociate himself from these illegal and unauthorised relays. He says that anyone in the UK re-broadcasting his station without a licence will ultimately be closed down.

The Christmas and New Year periods are traditionally a very active time for short wave radio pirates. For new readers to this page, I will just say that many unlicensed stations are active at weekends and

bank holidays between 6.200 and 6.400MHz. There is also some activity around 3.900, 7.415, 9.315 and 15.070MHz.

Regulators include Laser Hot Hits, Reflections Europe, Ozone, Alpha Lima, Farmers from Holland and Weekend Music Radio. Programmes mainly contain music with presentation mostly in English, though Dutch and German is widely used.

Don't Chuck The Tranny!

The Radio Authority has published their findings following a period of consultation with the radio industry on the future of a.m. analogue radio. There had been widely expressed suggestions that in a relative short time, similar to television; analogue radio would simply be switched off. This is certainly untrue for the foreseeable future, though it is likely there will be changes in the way any future a.m. stations are licensed.

Present arrangements are both complicated and expensive which deters small broadcasters applying for licences. The Authority is seeking to provide a third tier group of station possibly based on the present *Access Radio* experiment that involves both f.m. and a.m. stations. There is also a suggestion for another national a.m. station if sufficient frequencies become available (they anticipate some a.m. stations moving to DAB and relinquishing their m.w. frequencies). Even the use of the l.w. frequency of 225kHz, which has been in the possession of both the BBC and the Radio Authority for many years and remained unused, could form a part of this new tier of British radio broadcasting.

The RA also seem aware of the problems of extensive networking by some of the bigger stations who could be seen to be getting national coverage without actually applying for a national licence. Both long and short-term RSL operations will still be granted a.m. licences as required. The new strata of a.m. only stations are unlikely to appear until after the Radio Authority pass on their responsibilities to the new government regulator the Office Of Communications (Ofcom) towards the end of 2003. Any decision about the effects and benefits of Digital Radio Mondiale (DRM) on long or medium wave which could take several years to develop will also become the responsibility of Ofcom.

A Better Reception

The American radio and electronics company Motorola have launched a series of microchips that can be included in a.m./f.m. receivers to substantially improve reception. The makers claim their Motorola Symphony Digital Radio will reduce static, crackles and hisses and extend the listening range from existing signals giving improved clarity and volume. This system costs the broadcasters nothing and listeners have no subscriptions or anything to pay as it utilises existing a.m. and f.m. signals.

All that is required to enjoy this new enhanced reception quality is an upgradeable Symphony Digital Radio. I don't know the price, but they should be available in the USA towards the end of 2003. The possibilities of improved reception from distant signals could be an attractive selling point, I wonder if they will make one for short wave?

Christmas

Best wishes for the festive season and special thanks to all those that regularly write to me on the various varied topics raised in 'Off The Record'. May I wish you all a very happy Christmas and a wonderful New Year. If you can escape the family for a few moments remember Yule-Tide (pirate reception) logs are very welcome.

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Comments from John Griffiths

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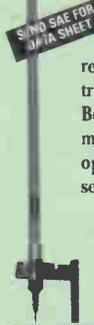
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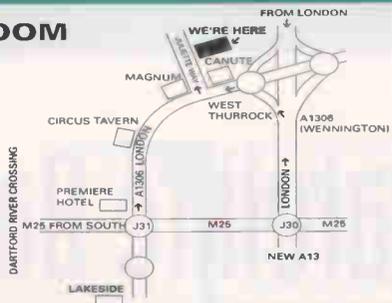
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ALINCO DJ-X3

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

SALE PRICE £99.95

Optional battery pack and drop in charger £39.99

Soft case£15.99
PC interface£42.95

FAIRHAVEN RD-500VX+

Superb wideband receiver (all mode) with over 50,000 memories capable of holding text.

20kHz-1750MHz.

★ ★ IN-HOUSE TESTS MAKE THIS OUR NO1 SELLER ★ ★

SSP: £899.00 **OUR PRICE £745.00**

BEARCAT UBC-9000XLT

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

Selectable tuning steps + alpha-numeric tagging.

"Our best selling desk-top scanner" **OUR PRICE £235.00**

NEW UBC-278CLT

New base scanner with built-in clock radio. 25-956MHz (with gaps) 88-108MHz (WFM) 500kHz-1720kHz (AM). Fully programmable. Ideal for the bedroom.

OUR PRICE £139.95 Delivery £10.00

COMMTel 225

500 channel. 25-1300MHz. AM/FM/WFM.

OUR PRICE £199.99

LIMITED STOCK AVAILABLE

ETREX CAMO

This version is the same as Etrex Standard but includes:

- Camouflage
- Fishing
- Hunting
- Calculator.

SRP £170.00. **SALE PRICE £119.00**

GARMIN GPSIII+

Powered by AA cells or 13.8V, this compact navigational system gives detailed maps of the UK & Europe.

SAVE £5

SALE PRICE £279.00

Street Pilot Mono£399.00
Street Pilot Colour£499.00

STREET PILOT III DELUXE

Now with "voice prompts" as well as direction indication. Incl's: Map CD, 128 meg card & data card, power lead & mount. The ultimate in talking GPS's.

OUR PRICE £1099.00

Includes 128 meg card

hand-held scanners

base/mobile

bargains

This annual 'event' once more brings several satellite orientated articles, content of which - due to space considerations - cannot be included during the other months of the year. I have deliberately avoided the 'How to Satellite DX' type of article, back copies (Dec 1998 and Dec 2000) - which contain most of the basics - can still be obtained from the *SWM* Book Store.

Perhaps the main difference is that mention of analogue with digital TV a couple of years ago will now concentrate on digital only - though analogue (entertainment) TV still

A Satellite Band Spectrum Monitoring Unit

Scanning the satellite downlink band with a receiver that stops on a signal, that signal frequency is then investigated is the 'normal' means of checking for satellite TV signals. This is laborious, since anything transmitted will

instantly provide a screen display of all (or none) signal activity downlinking from a satellite that your dish is receiving. The Swedish company 'Emitor' make the 'Spectralook' unit, a small package about two thirds the size and the same thickness as

with a few pounds to spare this proved a useful and time saving tool.

The 'Spectralook' isn't a spectrum analyser, it's merely a spectrum display device requiring a 12-14V a.c. input (yes, a.c.) via the supplied plugtop p.s.u., a video output

Satellite TV News

We hand the reigns over to Roger Bunney this month for his Satellite TV Special.

continues on many satellites and will continue thus for some years. But the more elusive OB and news feeds are now 99.9% digital.

One piece of unusual equipment has been reviewed. I've also included a couple of tales written by Edmund Spicer and Alan Richards, telling how they started out in the hobby spending minimal cash, very basic equipment, but gaining incredible results. Hopefully this will encourage others...



General view of the 'Spectralook'.

phono socket connects into your monitor or TV SCART input - or a u.h.f. modulator connecting to a u.h.f. TV and an LNB feed into the F-type socket input. The LNB signal is best obtained using a satellite signal splitter - the d.c. pass spur connecting to the satellite receiver for LNB power continuity, the d.c. blocked spur to the 'Spec/look'.

cause the scanning to stop, the main difficulty is knowing if there is anything present before you commence your scan!

Take for example Europe*Star-1 @ 45°E - all signals are vertical polarisation into Europe and as yet no horizontal signals have been monitored. It takes time for a complete speculative scan in say horizontal and then checking vertical requires more time to sift out the data signals from a digital TV signal.

I reviewed an interesting piece of kit (for another magazine recently) that can

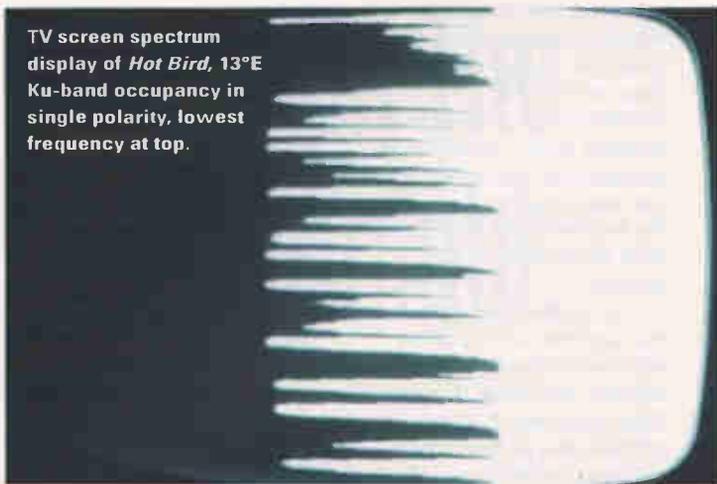


Internal PCB view of the unit, tuner head is top right hand corner.

a VHS tape library case. Emitor kindly provided a sample which proved highly efficient, easy to use and the output simple to interpret, for the sat-zapper

It's easy to hook up, but what appears on the TV screen? When you move your dish onto an active satellite, a signal display is generated

TV screen spectrum display of *Hot Bird*, 13°E Ku-band occupancy in single polarity, lowest frequency at top.



from the 'Spec/look'. The unit is in effect a satellite tuning head, the output of which feeds into video circuitry and

then outputs on the phono socket. The 'Spec/look' also generates a ramp (sawtooth) tuning voltage which is applied to the varicap tune pin of the tuner head, the ramping voltage produces a sweep tune of the satellite downlink band of the LNB i.f. input (L-Band) which will produce a spectrum display of 10.6-11.7GHz (low

and 11.6-12.8GHz (high) in the two Ku-bands, depending on which band is selected (with a Universal LNB the 22kHz tone will switch to high band). The sweep tune frequency is high, so a steady display is shown on the TV screen.

As will be seen in the photograph, signal spikes project horizontally from the white signal base band on the right hand side. Each spike is a signal, the stronger the signal the longer the spike, the lowest frequencies are at screen top.

Digital signals have rounded heads rather than points and with less movement. Within the signal base line is a further tuning aid that's not too clear on the photo - due to auto photo print processing - this is a vertical bar that extends downwards, the more (or stronger) signals present, the lower it extends.

Switching to the other polarisation will instantly reveal any and all signals present in that polarity. It follows that such a spectrum display device is ideal for accurate LNB mount setting, for confirming a tracking dish positioner settings on the

various satellites - and for the 'sat-zapper' looking for signals.

Though I am reluctant to spend money, this is one item that I found invaluable and can be recommended. Drawbacks - the unit runs warm in one corner from several p.c.b. mounted voltage regulators and nearby power diodes. Emitter were consulted and advise that in four years production, none has proved faulty - and most go to cable head ends and are left on permanently.

The 'Spectralook' costs £89.88 inc - next day delivery - from **Mardale Technology, Kingfisher Way, Sowton Ind. Est., Exeter EX2 7LE, Tel: (01392) 445454, E-mail marc.legall@mardale.co.uk** Sadly, those readers in Scotland and Northern Ireland pay more for carriage, so the prices there are £92.83 and £95.76 respectively. Australasian SWM readers contact **Av-Comm Pty, Tel: 61-2-9939-4377** or check **www.avcomm.com.au** in that region the Emitter unit is badged as the 'SpecMon'.

NEWS

Special

The Way We Are

When the 'Satellite TV News' column first appeared within *Short Wave Magazine* back into the mists of time - nearly 11 years ago - life was fairly simple! Most of the satellite action was in analogue - both main stream programming and news/outside broadcast feeds. 'Digital' was then a problem for the future - but time flies!

Over a decade later with the Gulf and Balkans conflicts past, we are now almost exclusively into the digital era. Certainly programming continues using

analogue, but many broadcasters now transmit in both analogue and digital, gradually the analogue favourites fade out as digital takes over - a replication perhaps of v.h.f.-TV as networks move to u.h.f. and ponder terrestrial digital transmissions, TVDX in the summer months now is decidedly less active unfortunately. Readers' reports of analogue reception are now infrequent as most folk have moved into digital mode - a few - as with all hobbies - have moved into other fields

The oft question "how do I receive digital signals?" arises. I will try to answer, though it's a difficult subject to approach and answer briefly. My assumption is that you have an installed dish of say 0.8-1.2m that tracks accurately across the Clarke Belt, a universal Ku-band LNB with switching polarity (i.e. vertical or

Information on signal frequencies can be found in magazines, though with copy deadlines perhaps five weeks ahead of publishing dates, details are often historical - though the regular main programmers - other than a few wandering Arabic stations - rarely move or at least give

notice of transmission changes. If you have access to the Internet, then several groups provide updated information such as Feedhunters, Lyngsat, the *Stefan Hagedorn Newsletter* or *SatcoDX* to name but four. The latter site will also give details of all satellites and their orbital positions, coverage, footprints, etc.

I will quote from a printout that **Roy Carman** sent to me...this provides the essential



Promo slide for the Senegal TV news programme.

horizontal) and 22kHz tone low/high band switching - or an LNB that can accommodate these requirements.



It's been a rough ride on the world's shares this past year.



A patriot 'workers' caption over Congo TV.



Live helo pictures when the Chicago-Washington express fell off the rails.

data for a digital downlink reception..."14 August 2002. NSS-K 11471H 6111 3/4 'Service 1' - The Linz, Austria Fire Brigade take to the boats as the rising waters begin to engulf their city".

This tells me that on August 14th on the NSS-K satellite @ 21.5°W downlink at 11.471GHz-horizontal, using an SR (symbol rate) of 6111 and FEC (forward error correction) of 3/4, Roy received a news feed with a service ident 'Service 1' (the uplink satellite truck can include an optional identification within the data which details the origin of the signal, serial number of the truck - often other idents such as UKI-613 or RTL D5NG D219, etc. can appear. A brief

synopsis of received pictures are included.

Occasionally, it may be necessary to insert PIDS for audio, video, etc. though most receivers will automatically search them out.

We need to establish the very basics - which satellite and its orbital slot, then the frequency, polarisation, symbol rate and forward error correction. Many current receivers include auto FEC which removes another difficulty. Satellite reception Internet listings above will include the necessary parameters, the *What Satellite TV* magazine from your friendly local WH Smith (or even Asda) contains useful broadcaster tables, programmes and technical data.

The all important question now arises, what receiver to buy. Again *What Satellite TV* will contain masses of advertisements for digital receivers and choice is confusing. The experiences

of two satellite enthusiasts are summarised later in this special, which may help.

Clearly if we're interested in established TV programming only, i.e. entertainment, then we can check the listings for technical parameters and enter the data into the receiver for the channels you're interested in viewing. Long standing readers of *Short Wave Magazine* will know that this column tends to concentrate on the more unusual such as news feeds, outside broadcast to studio feeds, etc. and checking a few articles will reveal parameters that vary widely.

Many OB circuits use the familiar SR5632 + FEC 3/4 -

others use variants which are totally impossible to calculate or guess! For nearly five years I have used the RSD manufacturer's products as their receivers feature both auto SR and auto FEC, that means you just enter into the search panel the frequency and then 'auto' in both the symbol rate and FEC sections.

The receiver then hunts out the parameters, locks up the signal and commits all data into memory. The earlier Nokia 9200, 9500 fitted with Dr. Overload software also performs these functions, but this is an old receiver and no longer supported by Nokia, certainly with new software fitted! RSD, Stirling ceased manufacture as a badged receiver, but the good news is that RSD (UK) designs are born again within the Korean sourced 'NEWWAVE' manufacturer. This company can be found at:- **New Wave UK Ltd., 22 Stirling Business Centre, Well Green Place, Stirling, Scotland FK8 2DZ.** SWM advertiser **Aerial Techniques** may be distributing the receivers' shortly.

I have been testing their NW-9000VICI digital receiver, it has two Common Interface slots (for use with scrambled programming) though the machine works very well with FULL and FAST auto SR, FEC, etc. for both programming and news/OB feeds.

It is not expensive and I - rarely that I do this - recommend the unit to any enthusiast considering buying an auto searching digital

looks daunting at first, since the Korean/Chinese translation into English often can be confusing, patience will overcome problems - as perhaps with life in general.

If the reader is interested only in checking out TV programmes to known digital parameters, the bottom range Manhattan receivers are good value. I have a (just discontinued) FTA (free-to-air) DigiPlaza, it has auto FEC, but you need to insert a known SR - I reckon it's the fastest gun in the West for locking up a weak digital signal. A replacement son of DigiPlaza has just hit the high street, check out Manhattan with supplier Eurosat. Well known satellite enthusiast **Edmund Spicer** (Littlehampton) uses only a DigiPlaza for both broadcast and news feeds with great success.

Finally I still use my old method of finding digital signals, using an old scanning analogue satellite receiver and checking out each 'stop frequency' with an auto search. Most receivers will allow network or transponder searches, OK but it will commit to memory anything it finds for later viewing so you could be deleting already found signals in memory later - the Manhattan will not save



An unusual view of Cowes Week, the sound recordist awaits rehearsal whilst the cameraman leaves his camera on the pontoon.



Outside broadcast location advise studio to roll tape and record a voice over commentary.

'already saved' memory data a second time, but the RSD can duplicate memories.

Re-reading the above article several times in conjunction with the receiver instruction manual light will eventually dawn...time and experience will decide your own method of hunting the DX!

receiver. It is easy to set up once you've cracked the method of setting up. I'm old, yet found it easy to set up and I grew old with 405-line TV and valves! Setting up a digital receiver

What's On The Menu Tonight, Waiter?

Gone are the days of the large 'tuning knob'! We're now into a menu driven society and the infrared remote control (IR) is king, lose the IR and the TV, video, Sky TV - even the hi-fi ceases to be user friendly - it's not just using

receiving station initially looks daunting and the manual must be read carefully at least twice, complications arise due with the many parameters to be set and often the translation into 'English' from the original Chinese, Malaysian or Korean loses something on the way!

or Aberystwyth and the operating and setup manual will be reprinted to suit these language areas - I've not seen a Welsh translation lately.

Though digital satellite receivers differ in operation, the nearby off-screen photographs clearly show how the RSD ODM 300-Cl receiver's menu chain works. The MAIN MENU (1) several options, ORGANISE CHANNELS means to edit the memories into your selected preference; CA INFORMATION (conditional access) relates to encrypted transmissions, there's a COMMON INTERFACE SLOT fitted to the rear of this receiver into which you'd slide your CAM (conditional access module) or decoding board. The important one here is INSTALLATION which I select with the remote and this takes me into a sub menu (2), most options are self explanatory, but we now select CHANNEL SETUP (3). This provides us with the means to

such as *Eutelsat 2F3, Hot Bird, Astra*, etc. this you ignore...

FREQUENCY - enter the frequency though the inbuilt a.f.c. system will usually tune ± 2 MHz of the nominated frequency.

POLARITY - the receiver can send a switching polarity voltage (+13 or 18V) to the LNB which will enter into memory...

SYMBOL RATE & FEC - these can be preset if known or if unknown both parameters can be reset to 'AUTO' and the receiver will hunt out, find and enter into memory. This process can take several seconds if both parameters are set to 'AUTO'...

AUTO TRANSPONDER SCAN - this isn't fitted in certain chassis and not the RSD!

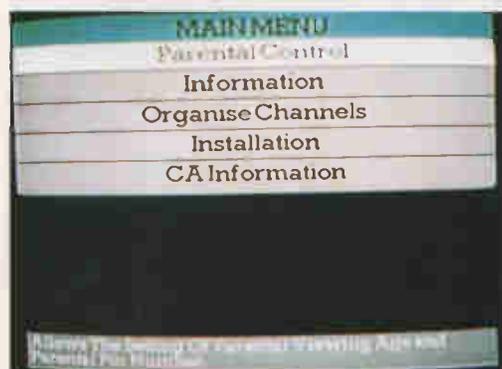
START SCAN - this commences the tuning operation.

MANUALLY INPUT PIDs - the receiver will automatically search and find the audio, video and programme PIDs (programme identification numbers). If you are entering known signal parameters from say an Internet listing, the PIDs may be given in that listing, these must be entered into the PID menu by selecting this option which opens yet a further sub menu into the PID environment.

Once 'START SCAN' has been actioned and the signal has been found and locked, a screen indication tells you the service ident and memory number, the menu stream can now be exited - i.e. you go backwards out of the menus' - there will be a final 'SAVING' flash which confirms all the data has been locked into memory.

At this point the RSD will resume picture reception on the memory/frequency being received at the time when you went into receiver tune mode. The Manhattan receivers however once exiting the menu stream will stay tuned onto the last new memory discovered - that is the new channel or picture that you have just found.

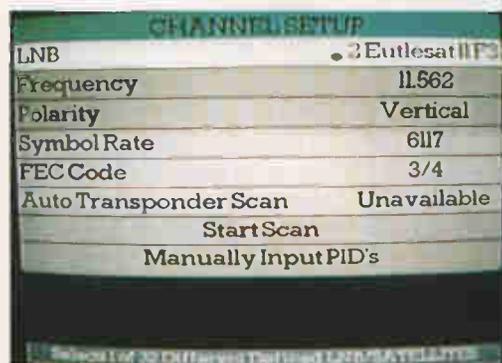
All receivers have a menu routine, the easiest I have used is the Manhattan DigiPlaza and the Nokia 9500 with Dr. Overflow software. The RSD is at least one sub menu longer - such is the price of auto searching receivers. It sounds laborious, but in practice, tuning does become quick. Perhaps this is the origin of the term 'sat-zapper'!



The RSD Main Menu Sequence, scroll down to 'Installation'.



'Installation' gives access to 'Channel Setup'.



'Channel Setup' allows the parameters to be inputted to the receiver search tuning. Both Symbol rate and FEC can be set to the known figures or either/both set to 'Auto' and then the frequency is searched using 'Start Scan'.

the IR to change channel, the IR is essential to set up the system in the first place.

Setting up a digital satellite receiver to suit your own unique

Remember your Korean manufactured receiver will be in use throughout the whole digital world - be it in Argentina, Afghanistan, Albania, Amersham

tune the receiver to a specific frequency and set up digital parameters.

LNB - contains preprogrammed satellite names



In the 'Start Scan' mode the Symbol Rate is progressively searched down in segments, signal acquisition and 'lock' appears in both FEC and QPSK segments, the service ident and allocated memory(ies) appear across the lower half of the screen. Thereafter the search mode can be exited and the new TV channel can be examined.



Edmund acquired his first dented Amstrad dish and fitted a new Universal LNB.

cost - the main ingredient was effort and ingenuity, plus searching out information, to achieve the excellent results now experienced every day.

Edmund Spicer

I started speaking French from an extremely young age, visiting France regularly during the summer holidays. Viewing the French TV services over those periods felt that I'd like to view their channels at my home on the South Coast at Littlehampton. Aware that the terrestrial u.h.f. services were available, day by day reception quality left much to be desired and totally dependent on cross-channel weather conditions -



This brand new 800mm dish and stand was bought for £40 having seen the ad. on the Safeways customer noticeboard.

not really feasible.

In 1992 a French friend demonstrated the excellent picture quality of their analogue TV service from the Telecom satellite and I persuaded my parents - purely for educational learning - to buy me a

Cambridge receiver, 800mm fixed dish and Telecom band LNB (12.500-12.750GHz) plus the all important SECAM to PAL transcoder to ensure coloured pictures on my domestic PAL TV.

Two years on (1994) and I arrive at Worthing 6th form College and they've using a dish tracking between 28°E and 30°W, I'm soon the chief satellite engineer checking up on all the foreign language transmissions and learning the Clarke Belt.

My education partially complete and when back at the homestead my former fixed dish seems regressive and in 1997 a 600mm

tying knots too tightly and avoid collapse of the system - plus more dents! But for a money-conscious Uni student this sufficed.

The year 2001 produced wealth, a car tax refund and a small inheritance - and I now entered the digital age - purchasing a new Universal LNB, lower loss CT100 coaxial cable and the Manhattan Digiplaza receiver - this the cheapest receiver around the time, ideal for the French radio stations from Astra-1 plus using an 'anti-surge spike mains plug' - just in case!

Still with my trusted Amstrad dish, I received countless digital downlinks from Europe*Star @ 45°E to Hispasat 30° in the West. But the Amstrad dish was soon retired when a local Safeways customer notice board offered a mint condition 800mm dish and ground level stand for £40 - at home the cable and LNB were transferred and I'm now receiving the 'weaker' satellites such as Telstar 11, 37.5°W and those close to powerhouse sats such as W2, 16°E next to the mega Astra 19.2°E - thanks in part to the much sharper forward receive lobe on the 800mm dish. That brings me to the present time but...

Finally the five satellite 'commandments' according to Edmund:-

- 1) Analogue is still around, but the future is digital, it won't stay that way, i.e. look to the future.
- 2) You don't need huge sums to create your own satellite receiving system.
- 3) Use the largest dish you can afford or 'acquire', but certainly 800mm as a minimum.
- 4) Never assume that anything is unreceivable in the Ku-band, your system can be improved, e.g. better cable.
- 5) If you buy second-hand at what you consider is a reasonable price, you may receive additional 'things' thrown in rather than barter the seller down. Buyer beware...and enjoy satellite reception!

UK FIRST REVIEW

Icom's Brand New IC-R5

A SWM exclusive this month, a radio that's not yet 'hit the streets'. Dave Roberts gets his hands on the very latest hand-held from Icom, the R5.



When I was a lad there was this prodigiously clever kid that lived nearby and attended the same school that I did. Adults hung on his every word seeking some small gem of wisdom. He was a small child but was never picked on. You see he was so much cleverer than the rest of us. He was called Gerald.

I've been spending time with his radio equivalent. Very small, weighing in at only six and a half ounces (185g) and only 86mm tall by 58mm wide and 27mm deep (excluding the belt clip). With an antenna of 82mm in height terminating in an SMA screw fitting, this lightweight scanning set is called the IC-R5. Made by the prestigious Icom company it is very clever indeed! With a smaller antenna on the top it would fit quite happily in a shirt pocket. That's how small it is.

The Icom people were kind enough to let us yobs and gitties at SWM take a peek at an early example of the brand

new R5. The set that I got my mitts on was accompanied by a pre-release manual that may be subject to alteration before the receiver hits the radio stores. The instructions afforded me enough information to get to grips with the scanner and believe me, I needed all the help I could get. This is one complex radio set.

Power is supplied to the R5 by two AA cells that inhabit a small compartment near the rear base, the lid of which is, secured by a hinged clip. The clear advantage of powering a portable unit of this type with removable batteries is that they can be replaced very swiftly when in the field. The user can either run the Icom R5 on normal AA cells or can choose to use rechargeable Nickel Cadmium or Nickel Metal Hydride batteries. Should you decide to go down the rechargeable route, the R5 has a plug top charger supplied. A big help is an indication on the R5's front panel that will let you know when the batteries are charged. That's clever.

Few Controls

You'll see from the photographs that the IC-R5 possesses precious few controls. Yep, you've guessed it. It's menu driven. With such a small unit this can make sense for if we had to rely on a conventional keypad to enter frequencies/channel numbers, etc., the buttons would of necessity be really tiny and accordingly most people would need smaller fingers to drive the thing. I'd need much better eyesight as well!

It follows that frequency entry is by a combination of button pushing and dial turning. This in itself is pretty straightforward and I soon found myself able to tune the radio efficiently. Frequency coverage is

factory set and is dependant on the target market area. For example the USA and Canadian customers get the full 0.150-1309.995MHz spectrum with the cell 'phone frequencies inbetween 800 and 900MHz not available (yes they are still using analogue there). They also get their NOAA weather channels as well.

It doesn't seem that the French are allowed to monitor much at all by their government, as the R5's sold in France will only cover 0.150 - 29.995MHz, the f.m. broadcast band and the amateur 6 and 2

metre bands plus 70cm. That's the lot. Now I'm sure that Icom would like to flog them sets with better coverage, but it seems that they are restricted in what they can monitor over there. OK Monsieur you don't pay so much for smokes and booze as we do but I'd rather be allowed to listen to the radio if you see what I mean.

Here in the UK the scanner is full coverage. This means 0.150 - 13909.995MHz...no

gaps at all! Modes available are a.m., n.b.f.m. and w.b.f.m. Any mode may be used anywhere within the frequency range. This is



The portable power source snuggles in here.

a most important feature for UK scanning. Likewise this radio has user selectable tuning steps of 5, 6, 10, 12.5, 15, 20, 25, 30, 50 and 100kHz throughout it's range. This includes 8.33kHz when the set is operating within the civil airband allocation. These two features help make this unit ideal for portable scanning use in the UK. Additionally resetting the radio and dumping the memories is an extremely simple matter. A most useful function from the security point of view if you see what I mean.

Variable Banks

Entering frequencies into the 1000 main memories takes a bit of getting used to but it's not rocket science and I soon found myself with a few banks of full frequencies. The memory banks differ from other scanners in that you can assign up to 100 frequencies in any one of the eighteen banks. For instance you could bung 100 of your favourite marine/emergency service frequencies in one bank and just 40 CB channels in another while a third could contain the eight PMR446 frequencies. In addition to this, CTCSS and DTCSS values can be entered to each channel if required. Memory management is phenomenal. You can move memories around and assign them alpha numeric tags. You can assign tags to memory banks and perform a whole load of other memory functions as well. There is, however, no indication or warning if you enter a duplicate channel. The scan rate is around 10 channels per second.

Some radio scanners make an annoying 'beep' sound that lets you know when you have completed a function successfully or made a hash of it. Usually, I find these warnings just a nuisance just like those digital watches that all go 'beep' on the hour. In this case I couldn't manage to get the beep function to work initially. On performing a reset it started working and it really was of assistance in programming the set. Being menu driven the R5 assigns several differing functions to most of its ten controls and an audible confirmation tone is certainly of use under these circumstances.

For instance having entered frequencies you may want to start scanning.

To start a scan you must hold the mode/scan button for around one second. If you depress it for less than this time the radio will change mode on the frequency displayed. You could have 133.675 a.m. in a channel and wishing to start a scan, you press the MODE/SCAN button to get the scanner rolling but on looking you find that the mode has changed from a.m. to f.m. and the scan has not begun. This is where reading the manual and remembering to abide by it is

pretty important. An audible indication also comes in handy.

Searching Limits

In addition to the 1000 memories there are twenty five search ranges that can be entered. Really you are only limited by your imagination here but I find that marine band, 2 metre band, an emergency service band or two and civil air band are usually to be found in the search banks of most folks sets, if the radio's memory allows. Well, that leaves around twenty more search ranges for you to enter. Quite a lot isn't it. Accessing them to make a search is easily accomplished. Here's another clever thing. Should you decide to lock-out or 'skip' a frequency entered into a memory when scanning you can choose to skip it as well during a programmed search.

The Icom R5 will also allow you to automatically enter frequencies found during a search up to a maximum of 200 channels. Then, using the powerful memory

management system they can be shuffled around to other memory channels as required. Trust me, this set has been put together by some very clever

people indeed. I could go on about the

Uncluttered - functional!



functions for ages, but the R5 also performs very well on air.

There is a built-in bar antenna for use with medium wave broadcast stations but this can be switched out as can the main antenna on f.m. broadcast when you may choose to use an earpiece bunged into the speaker socket as an external antenna.

Performance

Using the supplied rubber coated helical I could monitor a.m. broadcast stations in 11 and 7.1MHz bands easily. Having entered a host of frequencies to scan while I was cooking lunch I received a 'phone call from a friend to tell me of some military air activity in progress many miles away.

Yep, before the sausages burned I could hear the action.

It was an impressive performance. I decided to compare the IC-R5 with my UBC 9000 base receiver hooked up to a discone. I attached the antenna to the Icom using a BNC to SMA adapter and I found that there was no discernible difference in received signal strength between the two on every frequency that I entered. I was receiving low band v.h.f. communications from the USA and distant u.h.f. traffic at the same levels that they were audible on the main set. There was no need to use the built-in attenuator on any frequency other than short wave broadcast frequencies when using the discone. I went back to the kitchen and listened to the *One O'clock News* on the R5 on Band II f.m.

This radio receives well. That's the bottom line.

I have never come across an auto squelch before. The R5 has nine squelch levels, an open position and a setting labelled 'AUTO'. When I first looked at the radio the level was set at '1' which represents a loose squelch threshold. I put it on the 'AUTO' position and never bothered with the squelch level again. I'm sure that the set didn't miss a call. I don't know how this is accomplished but it certainly works.

Very Clever Indeed.

Good Companion

This scanner is a very sophisticated hand-held receiver. The performance is quite remarkable and the plethora of functions and memory options will undoubtedly result in it becoming a best seller to hobbyists and radio professionals alike. The complexity of this unit is reflected in its control systems which are not for the faint hearted, (I never managed to store a dual frequency channel in memory in the short time I had with the set), but once you master the Icom R5 I am convinced that it will be as much of a companion to you as your wristwatch.

The R5 is cleverer than other tiny receivers. Plus it's better company than that clever kid Gerald ever was.

SPECIFICATIONS

Receiver Architecture:	Triple conversion superheterodyne
Frequency coverage:	0.150 - 1309.995MHz
Modes:	a.m., n.b.f.m. and w.b.f.m.
Memory channels:	1250 (1000 regular, 50 scan edges and 200 auto memory write)
Tuning steps:	5, 6.25, 8.33*, 9*, 10, 12.5, 15, 20, 25, 30, 50 and 100kHz (* Selectable depending on operating bands)
Battery requirement:	2 x AA NiCd or alkaline cells
External power supply:	6.0V d.c. ±5%
Current drain:	Rated audio, 170mA Standby, 100mA Power save, 41mA (3.0V d.c. typical)
Antenna impedance:	50Ω (SMA)
Dimensions:	58 x 86 x 27mm (W x H x D)
Weight:	185g (approx.)
Intermediate frequencies:	1st - 266.7MHz, 2nd - 19.65MHz, 3rd - 450kHz
AF output power:	100mW typ. at 10% distortion with an 8Ω load at 3.0V d.c.

Our sincere thanks to Ian Lockyer at **Icom (UK) Ltd.** for organising the loan of the review radio.

For more information on the IC-R5 and its range of accessories **Icom (UK) Ltd.** can be contacted at **Sea St., Herne Bay, Kent CT6 8LD**, Tel: **(01227) 741741** Fax : **(01227) 741742** or web: **www.icomuk.co.uk**

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How do we squeeze so much in? Pay a visit to your local authorized Icom dealer and try one out... you'll end up taking the IC-R5 everywhere with you!

GETTING TO GRIPS With Trunked Radio

As the radio spectrum becomes an increasingly scarce and therefore valuable resource, professional users are constantly looking to improve the efficiency of their use. Ian Wraith examines one of the cost effective measures employed to save corporate cash.

If you have done any v.h.f. or u.h.f. monitoring at all in recent years you will no doubt have come across trunked radio signals. These are those mysterious frequencies with nothing but computer sounding noises on them or frequencies with voices on but with brief bursts of data at the start and end of the over. Often one minute a courier company can be heard on one of these frequencies then a minute later it may be being used by a security company. This can be confusing if you are trying to identify the owner of the frequency! Perhaps because of this trunking has become thought of as something complicated, but this isn't the case at all and in this feature I hope to explain why.

The Problem

Before I explain what trunking is, I think I ought to explain why it is needed and the best way to do that is with an example. Lets take a council in the imaginary town of Scotborough - their radio system consists of the following repeaters each used by a council department.

MHz	Use
453.0500	Highways department
453.7500	Parks department
456.1000	Housing repairs
456.9000	Cleansing Department

With this scheme, each department has its own frequency and everything appears fine. But lets say something unusual happens like a sudden snowfall one winter's night. Now the gritters from the highways department will be very busy, but their radio channel can only cope with one conversation at a time. Yet at the same time the other departments radio channels will be quiet, but they can't be used by the highways department radios which is a real waste. On the following morning the housing repairs department staff will be busy fixing frozen pipes and their

radio channel will often be overloaded but as the gritting is done the highways department channel will be quiet.

The Solution

One solution to this problem is trunked radio. Using trunking instead of each department having its own channel all the departments share a pool of channels that they are allocated to users as they need them. As with everything else in the 21st century, this is done with computers. The entire trunked system is controlled by a master computer known as the controller and each trunked mobile radio contains a computer (actually a small silicon chip about the size of your thumbnail). The master controller constantly transmits instructions and information as computer data on a radio frequency known as the control channel. The computer in each mobile radio listens to and decodes this control channel whenever it is turned on and is doing

nothing else. To illustrate what I am about to explain, lets now imagine Scotborough has a trunked radio system with the following channels ..

MHz	Use
453.0500	Control channel
453.7500	Voice channel
456.1000	Voice channel
456.9000	Voice channel

Once again it's a winters night and the snow is falling so the gritters are busy. Gritter truck 1 needs to call base to tell them his truck has a problem so he uses his truck's new trunked radio. The driver can now select who he wants to talk to on this radio and types in his bases identity number (just like a 'phone number). At this point his radio sends computer data over the control channel to say that Gritter 1 wants to talk with base. The controller computer receives this and first checks if the base is already talking with someone else which he isn't so next the controller checks which voice channels are free and they all are. Now the controller sends computer data over the control channel telling Gritter 1 to tune to 453.7500MHz and then sends data telling base to tune to 453.7500MHz. At this point both the base and Gritter 1's radios tune automatically to 453.7500MHz. The computers in the radios turn on the audio to the sets speakers (so the users don't hear the constant computer data on the control channel) and both radios can talk to each other as if they were using the old radio system. Now truck Gritter 2 finds a road blocked by a car in a snowdrift so can't pass. He knows that truck Gritter 3 will be passing this way soon and needs to warn him to use another route. With the old radio system this would have been impossible since the single channel would already



Two popular MPT1327 trunked radios. The radio on the left is a Kenwood TK-255 while the one on the right is a Tait T3000. The Tait's large display lets its users receive text messages just like a mobile phone.

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GRUNDIG Product sheet 2002



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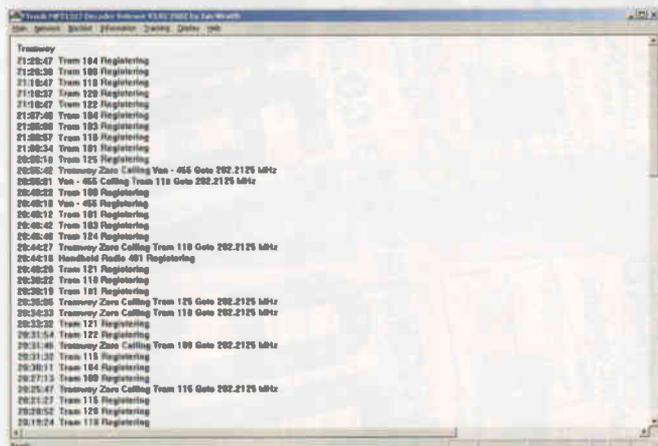
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Trunking decoder *FTrunk* showing activity on a MPT1327 control channel.

be in use by Gritter 1 talking to base. But with a trunked radio Gritter 2 enters Gritter 3's identity number into his radio which signals to the master controller on the control channel that he wishes to talk with Gritter 3. The master controller receives this information and checks if Gritter 3 is already using the radio which he isn't, so it looks for a free voice channel. It knows 453.7500MHz is already busy so instead the controller uses the control channel to tell both Gritter 2 and Gritter 3 to tune to 456.1000MHz. Even now the system has a spare voice channel so Gritter 4 could talk to Gritter 5 on 456.9000MHz. If things got really busy and truck Gritter 6 needed to talk with Gritter 7 there would no longer be any spare voice channels. Then controller would automatically signal that the system was busy and then set up the call on the first voice channel that became vacant when a call ends.

Two Types

So you see how by assuming that not all groups of users want to use the radio system at the same time a trunked radio system makes an efficient use of a limited number of radio channels. Now having read so far I hope you are thinking that trunking isn't as complicated as you first thought and you can't see what all the fuss is about. Well I am afraid things are made slightly more complicated by the fact that

there are different types of trunking in use. The principles are the same, it's just that the format that the computer data is sent over the control channel is different. There are two main different types of trunking in use around the world. These are...

Motorola trunking (often called Smartzone) this was invented by Motorola and only they make the radios for it. Here in the UK Motorola is used by the Metropolitan Police in London, the emergency services in Staffordshire and at a few American airbases in East Anglia.

MPT1327 was invented by a group of radio manufacturers working in a committee formed by the British government. MPT1327 radios can be made by anyone, but you will most commonly see the ones made by Tait, Kenwood, Motorola, Simoco and Nokia. Outside of the USA

MPT1327 is the most common trunking system. Here in the UK it is used by bus companies, rail companies, councils, large companies, hospitals, universities, theme parks and others.

Difference

One slight difference between Motorola and MPT1327 trunking is that in a Motorola trunked system, a conversation changes frequency every time a user presses a radio's push to talk button. So if Scotborough council had a Motorola trunked system, a conversation between Base and Gritter 1 could use many frequencies like this...

(starts on 453.7500MHz)

"Base it's Gritter 1 are you there?"

(both radios now tune to 456.1000MHz)

"Yes I'm here go ahead"

(both radios now tune to 456.9000MHz)

"I have broken down can you help me?"

(both radios now tune to 453.7500MHz)

and so on...

If however, the council had a MPT1327 trunked system instead, the conversation would have remained on 453.7500MHz.

Extra Features

Trunked radio allows the users do other things they couldn't do on a normal radio system. As there is a control channel transmitting constantly and each radio has a computer in

it, the control channel can be used to send any kind of data. Some trunked radios can display short text messages which are sent as data over the control channel. One theatre in the UK has its own trunked system and uses the short text messages to alert staff to problems during performances when using voice would cause a disturbance. Another popular application is AVL or Automatic Vehicle Location where vehicles are fitted with small global positioning satellite (GPS) receiver which connects to the trunked radio. When the radio isn't being used for voice calls then every few minutes it can send the vehicles position as data on the control channel. Usually the base has a computer running a program which displays all the vehicles locations on a street map. Another advantage is that trunked radio systems allow certain calls to have emergency priority. If a Scotborough council worker is attacked at work and needs help then he or she can press the emergency button on their radio. The radio will then signal to the trunked controller that an emergency call needs to be made. If all the voice channels are in use then knowing the call is an emergency the controller will end one of the conversations to clear a voice channel so the worker in distress can call for help without delay.

Monitoring

To properly monitor a trunked system you need something that decodes the data on the control channel and tunes into the voice frequencies in use as needed so you can listen to them. The product you need to do this depends on what kind of trunked system you want to monitor. If it's a Motorola system then you have plenty of choice. You could use free software which can tune a computer controlled scanner or if you just want a single radio that does all this look at the Uniden BC-780XLT which is



A typical trunked user.

imported into the UK by Nevada and distributed by the all usual suspects - see Mike Burgess' review of this radio in *SWM* February 2002 for more details - and look at the many advertisements in this magazine. But remember the trunk tracking features of this radio will only be any use in you live in London, Staffordshire or parts of East Anglia.

If it's an MPT1327 system that you want to monitor, there are fewer choices. If you have a WinRADIO scanner you could try the trunk tracking software produced by that company. For more details look at

www.winradio.co.uk/home/trunking.htm

If you don't have a WinRadio another option is *FTrunk* which is manufactured by an Australian company called Talkback. For more details look at

www.tbsa.com.au/trunk.html

Once you have a trunk tracking tool, then monitoring a trunk system becomes a lot more interesting. For instance

if you find that one user on a system is boring, you can lock out their identity number (known as a 'talkgroup' in a Motorola system and a 'ident' in a MPT1327 one). Then your scanner will ignore any calls from that user and you can concentrate on listening to the interesting ones.

Where's The Action?

Having read this so far, I'm sure that you'll have become interested in trunking. Perhaps you'll want to listen to what a trunked radio system sounds like even though you can't decode the control channel. So where do you tune your scanner to hear a trunked system? Well it depends on who operates the system, but bands worth searching are listed in **Table 1**.

Remember that not every signal you hear in these bands will be trunked as there are many non-trunked systems in use. Trunked voice channels are easy to recognise though due to the data bursts at the beginning and end of each

transmission. Trunked control channels usually sound like continuous fast data but there is a type of MPT1327 control channel which is what is called 'time shared' where a number of base stations use the same frequency for their control channel. This is done by allowing each base station to transmit only a couple of seconds of data with each base station transmitting their data at certain times each minute so they don't interfere with each other. These time shared control channels are used by the gas, electricity and water companies trunked systems as well as by the National Rail Network. Something else to look out for is that the control channel may not always stay on the same frequency but may move to one of the frequencies previously used as a voice channel. While the old control channel frequency will become a voice channel. How often this happens depends on how the trunking controller has been programmed. Some systems will use one frequency as the control channel for many years

while others will change the frequency every hour.

Increasingly Prevalent

In the past trunked base stations and their controllers were expensive pieces of equipment and only large companies could afford to buy them. However in the last couple of years companies such as Fylde in the UK and Tait in New Zealand have taken advantage of new powerful low cost electronics and released new trunking controllers suitable for small users at much lower cost. As a result companies with only 20 or so radios are now buying their own trunked radio systems. I am sure that over the next few years the prices of trunked radios will continue to fall and you will hear more and more trunked signals on your scanner. But remember these systems are nothing to be scared of and can easily be monitored if you know what to do and learn a little about them. I hope this article has been a good introduction to these fascinating radio signals.

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Table 1:

85 - 87MHz	Some water companies operate MPT1327 trunked systems in this band.
139.5 - 140.5MHz	Many gas and electricity companies operate their own trunked systems here.
154 - 156MHz	This band is used by Staffordshire Police and Fire service for their Motorola trunked system.
162 - 166MHz	In most parts of the country if you search this band you will hear several small two or three channel MPT1327 systems. These are operated by radio communication companies who then charge other companies to use them.
166 - 167MHz	If you live in Scotland you should hear the Scottish ambulance services MPT1327 network which uses this band.
177 - 185MHz	This is now the main UK band for MPT1327 trunked systems. A company called Fleetcomm operate a nation-wide MPT1327 trunked network in this here. Fleetcomm charge other companies to use the network. In a way Fleetcomm are just like a mobile phone company but using MPT1327 rather than GSM. Most customers are transport or courier companies but many security firms use the system also. Fleetcomm are the only trunked system in this band though depending on where you live you may also hear your local council or universities MPT1327 trunked system.
201 - 207.5MHz	In this band you will hear some regional multi-user trunked systems (like Fleetcomm but offering regional rather than nation-wide coverage to their users). Many bus and tram companies also operate their own MPT1327 trunked systems in this band. There is also one national MPT1327 network called the NRN or National Rail Network here. If you hear a voice channel with the sounds of phones ringing or engaged tones then you are most likely listening to an NRN channel. The NRN is fitted to most trains in the UK and is used by them to call signal boxes and train stations.
440 - 442.5MHz	This band is used by many companies or users with their own trunked systems. Heathrow and Gatwick airports MPT1327 systems use this band as do many hospitals and large companies. During the recent Commonwealth games in Manchester the organisers and security used a MPT1327 trunked system in this band.
450 - 453 MHz	In London the Metropolitan Police operate their Motorola trunked system in this band.
453 - 454MHz and 456 - 457MHz	Both of these bands are used by small companies trunked systems. These bands are also used by temporary trunked systems (called Short Term Hire systems) which operate for just a few days a year at special events like the Glastonbury music festival.

Pure EVOKE-1

AFFORDABLE DAB

It's official! The future of radio has arrived. Whilst digital radio for the long, medium and short wave listener - in the guise of Digital Radio Mondiale - may be some time off for the average punter, Digital Audio Broadcasting (DAB), the alternative to f.m. (Band II) radio, has landed and is living among us now.

Those of you wishing to acquaint yourselves with the nitty-gritty of DAB are invited to read Jon Trowsdale's excellent article in June 2002 *SWM*. In a nutshell, for the end-user - that's you - DAB equals noise-free reception of a vast number of stations. Not to mention the excitement of informational displays.

Digital Spectrum

Terrestrial DAB broadcasts in the UK lie between 217.5 and 230MHz. If you ever trawled through this chunk of spectrum with a scanner you may have stumbled upon the so-called multiplexes - each of them 1.5MHz wide - noticeable only by a jump of the signal strength meter and possibly a slight variation in the tone of the white noise from the loudspeaker.

Each multiplex can accommodate a varying number of stations, dependent on the quality - or bitrate - that each station is broadcast at. A high quality stereo transmission requires a bitrate of at least 128 kilobits per second (Kb/s). The majority of multiplexes support around ten stations with bitrates ranging between 160 and 48Kb/s. With its ever-increasing number of channels, the BBC has been under fire for lowering the bit rate of some of its services in order to accommodate the new stations.

So far, DAB has endured a bumpy ride to the point where some countries had all but abandoned plans to roll the system out. One DAB-only station in Sweden also broadcast on the Internet in a bid to attract some listeners. A traffic news station in Holland

closed down after a few months as "no one was listening". In a classic chicken-and-egg scenario, broadcasters felt unwilling to provide digital-only programmes for a mere handful of listeners. Meanwhile, potential purchasers of DAB were not inclined to spend their hard-earned cash on a system that offered very little in the way of

multiplex in your area embracing an additional clutch of commercial stations from your region. Three, if you live near London. More multiplexes are due on air over the next couple of years. To discover which digital stations broadcast in your area please go to a web page of DAB-related links I have set up at <http://tinyurl.com/23zi>



Martin Peters recently got his hands on the hot sub £100 desktop DAB receiver that everyone's talking about.

extra channels. Eventually, the broadcasters bit the bullet, with the BBC pioneering UK digital transmissions in the mid-nineties. Digital One, the national commercial radio supplier, launched in late 1999. Both operators have networks that will cover 80-85 per cent of the UK population by next year.

What you pick up on DAB depends primarily on where you live. If you reside within a DAB service area then, at the very least, you'll be able to receive a raft of BBC and national commercial stations, many of which are not broadcast over the analogue system. As well as these, there'll be at least one

The PURE EVOKE-1

For years, Kings Langley-based Videologic have been manufacturing a variety of consumer electronics and now find themselves the UK market leader for DAB receivers, in particular, their award-winning DRX-701ES Hi-Fi tuner. But at around £250, it is still out of the reach of many.

In July, Videologic announced the launch of the PURE EVOKE-1, the first DAB receiver selling for under £100. To herald this new 'product era' the company subsequently renamed itself PURE Digital.

So what do you get for your £99? From within the polystyrene innards of the high-

lustre presentation box emerges one digital radio, a plug-in-the-wall, 12V, 1.2A power supply, a telescopic whip antenna and the instruction manual.

Solid

The radio itself - made in China - measures 210 x 175 x 110mm (WxHxD) and weighs in at around 1.4kg. As for looks, the uncharitable amongst us might describe the EVOKE-1 as a scaled-down, upturned MFI kitchen drawer, with in-built radio facade. In reality, with its simplistic design, maple-effect surround, and front panel finished in dull silver, this radio will comfortably fit in almost anywhere in people's homes.

Construction is solid - it has a nice heavy feel - with no worrying rattles when given a shake. I'll leave the drop test for another day. The integrated, full-range 75mm loudspeaker is complemented by a reflex port (big hole) to enhance bass response. An optional matching loudspeaker is available for listening in stereo.

Underneath the back-lit two-line I.c.d., the front panel sports two rotary controls. One is the volume control and the other, marked 'tune', is the station selector. Beneath these lie nine more push-buttons - six to pre-set your favourite stations into, and three with a longer story to tell, of which more, later. Finally, the blue button at the bottom is the power switch.

The rear apron accommodates the F-Type antenna socket similar to that found on satellite receivers. Into this plugs the supplied telescopic whip or an external antenna of your choice. There's also a row of four smaller connectors. Three are of the 3.5mm jack variety - for stereo headphones, the auxiliary loudspeaker and a line out socket for connection to a separate amplifier. The fourth connector is for connecting the power supply.

How Far?

One thing I always like to do when a new piece of equipment comes my way is to see how far I can get without using the instruction manual. After plugging the power supply in, connecting and extending the antenna to its full 700mm, guess how many buttons you have to push for this machine to kick into life, autotune the UK DAB band and store all received stations into

its memory. The answer is...one! That's right. Just turn on the power button and, under a minute later, you're ready to rock 'n' roll. Not bad for a kitchen drawer.

You should only have to run the autotune procedure again if the radio is used in a different region, or in the event of a new multiplex coming on-stream. If additional stations are launched within a already stored multiplex, then the radio automatically adds them to its memory. Once stored, all the stations can be selected with the rotary 'tune' control. Each click of the knob advances the displayed station by one. Just press to confirm. It takes around a second for the selected channel to issue forth.

The memories are stored in alphabetical order - numbers first - so 1Xtra is the first station on the list. If that's not to your liking you can rearrange the order so that your top ten most listened to channels are all bunched together at the top.

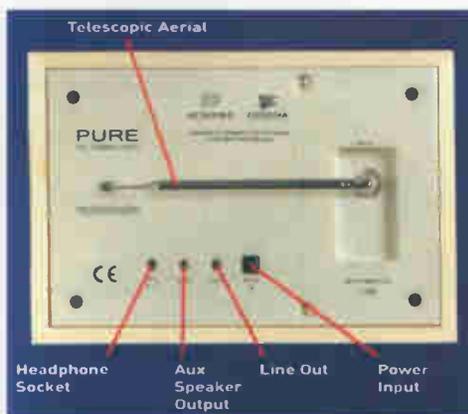
At any time, an extra push of the 'tune' button calls up the signal strength bar-graph display which allows you to orientate the antenna for optimum reception. Being digital, there is little in the way of marginal reception. Either the station is there in full quality - or there is silence. However, with careful adjustment of the antenna I was able to mimic fringe reception. As the whip was telescoped down, the audio started to burble, becoming ever more distorted and broken until the radio eventually fell silent.

There are six display modes from which to choose. The l.c.d.'s top line always displays the received station's name. It's the bottom line that changes according to the mode selected. The default condition is for scrolling text. DAB stations send out textual information with their transmissions. Some just repeat the station catch phrase whilst others give details of who's on air, the music being played and more. Exploiting this medium to the full is BBC Radio 5 who's text includes news and sports headlines along with programme information.

Press the 'Display' button to advance through the options, ranging from programme type and the owner of the multiplex to time and date, frequency

readout and more.

There's a couple of advanced options. One allows you to manually search each of the multiplexes and another enables the Dynamic Range Control. This can help when



listening in a noisy environment as quiet passages are ramped up in volume to compensate. A useful feature.

Storing your favourite stations into the six pre-set one-touch memories is a breeze. Simply press and hold one of the pre-sets for two seconds whilst listening to the desired stations for it to be stored at that location. Press again at any time for instant recall.

If you're wondering, I managed around 80 per cent of this before referring to the manual, which, I suspect, was not penned in China. It's well written, clear and concise.

In Use

So what could I hear on this radio with its telescopic whip? Well, I live on a hill just outside Reading - about 64km west of the centre of London. On powering-up, the receiver ran its autotune procedure and locked onto two multiplexes - the national BBC and commercial offerings. A little disappointed that nothing of the London scene had been found, I moved the radio from next to the PC downstairs to an upstairs window sill and ran the search once more. Result! A minute later the three London-based multiplexes (and a test multiplex from ntl) had been locked in - a total of 60 stations in all.

How does it sound? Impressive. Especially from a radio of this size. There is absolutely no background hiss or fizz, and the fidelity remains intact, even at full volume. There are no bass or treble controls and I would have liked to have edged up the treble

response just a tad.

Listening on a pair of quality Sennheiser headphones confirmed a complete absence of background noise. Music sounded a little flat and I could have made good use of some tonal control.

Connecting the 'line-out' up to the hi-fi, I flicked on Radio 2 and was surprised at how awful everything sounded. The music had no warmth and Steve Wright's voice was uncomfortable to listen to. Nothing personal, Steve. Very little bass. Sibilants had me wincing and reaching for the ear defenders. On moving up through the channels it became apparent that these characteristics were peculiar only to Radio 2. All the other stations sounded just great. Added to which I finally got to configure the audio to taste, courtesy of the hi-fi amplifier's controls.

Mobile

The DAB system architecture - Eureka 147 - was conceived with the difficulties of radio reception on the move in mind. DAB enjoys RDS-like qualities in as much as the national multiplexes broadcast on the same frequency. When moving from one region to the next, the radio should seamlessly jump between them.

A trip in the car beckoned. Resting on the passenger seat with telescopic whip extended, and powered off the cigar lighter socket, I set off for a journey around town. I tuned to Radio 4 and set off. Apart from a 10 second interlude as I drove through a local well-known radio dead-spot the radio remained locked on and crystal clear for the duration of the 13km trip.

On the way home I switched to Capital FM - part of the commercial multiplex intended for London. Reception was far more patchy with several kilometres of the journey spent in silence. Don't forget that this was using an antenna inside the car. Connection to the car's external antenna would have resulted in improved performance.

Interestingly, there's a time delay of between one and four seconds with respect to the normal f.m. broadcast. Will the time pips become an irrelevance?

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Conclusion

I used the EVOKE-1 on and off for several days and had been hoping to come up with a list of disappointments to bring to your attention. It's been no easy task.

Two minor niggles concern the sockets on the rear panel. Firstly, the headphone socket. This is the one connector which requires easy access and, as such, would be far more convenient if brought out to the front panel.

Secondly, the 'line out' socket. Aside from miniature, Walkman-type appliances, where space saving is paramount, every other audio device employs phono sockets for the purposes of 'line out'. Most of us has a spare set of phono leads about the house. The use of a stereo jack on the EVOKE-1 requires either a special lead or an adapter.

The carrying handle is very shallow, which means that walking this radio around the house isn't particularly comfortable.

As not all local f.m. radio stations are yet broadcast in digital, the facility to receive conventional f.m. would be an advantage - although I realise this would necessarily push up the price.

The only disappointment of substance is that this innovative portable radio isn't truly portable. Yes, it can be taken from room to room in your house but you have to remain tethered to the mains at all times so listening in the garden is out. The radio draws between 400 and 600mA, depending on the volume setting. This would limit the life of a sensibly-sized set of batteries to a couple or three hours.

That aside, the EVOKE-1 is easy to use, does its job well and looks good to boot. It delivers access to a wealth of radio stations, some of which are not available elsewhere. With its well thought out range of useful features and ground-breaking price, this radio is sure to attract many to this new era in broadcasting.

Several of the high-street chains and SWM advertisers are able to supply the EVOKE-1 but be warned, demand is outstripping supply so you may have to 'phone around.

Thanks go to PURE Digital for the loan of the EVOKE-1. You can contact their sales department on (01923) 260511.

Radio Shack PRO-82

"Anyone first handling a Radio Shack scanner will find it's use totally instinctive"



Dave's at it again, he just can't resist getting acquainted with the latest scanner in town. So much so, here's the second of this month's hand-held reviews from our radio addicted 'Scanner Man'.

Like many other radio and electronics/gadget players, I descended into gloomy depression when the Tandy stores became yet another outlet for mobile telephones. Find yourself in any town in the UK and there are platoons of pedestrians patrolling the pavements with one arm glued to an ear. Eventually, there'll be a medical ailment attributed to mobiles so Nokia had better watch out for claims for 'stuck up arm' and 'mobile pink ear'. It's going to cost you - just mark my words.

As a result of the Tandy demise, we were starved of radio products in maroon and white boxes labelled 'Radio Shack'. Thankfully those dark days appear to be behind us and stocks are now again back in Britain. The nice Radio Shack retailers arranged for me to have a look at their latest offering - the PRO-82 scanner.

Comforting Handful

The '82 is a chunky beast presenting a comforting handful and measuring around 150 by 6.50 x 40mm. A belt clip is supplied as is a 150mm helical rubber antenna that locates on the left hand of the top panel via a BNC connector. This easily allows an external or replacement antenna to be hooked up. There are two battery trays supplied in the box. One tray is for 1.5V AA size cells and the other, a yellow tray, takes rechargeable cells. Optional adapters can be purchased to charge the batteries in the set or to power the unit from a mains supply.

There are two controls on the top panel. One is for on/off/volume and the other handles the squelch threshold. A headphone socket completes the line up on the roof of the radio. The display, speaker and all other controls, bar one, are presented on the front panel.

Up & Running

Anyone first handling a Radio Shack scanner will find it's use totally instinctive. I mean, who on earth reads the book before turning on a set? This is a bit of a pity as the instruction manuals supplied with Radio Shack scanners are always well written in correct English and actually have been put together by someone who knows what he or she is on about.

If you remember the rather scary translations from the original Japanese in manuals supplied with scanners in the eighties, you will appreciate what a blessing this is. This one also contains a handy list of 'birdie' frequencies generated within the set.

Anyhow without referring to the book of words you can usually get a PRO receiver running. The display is clear, follows the established Radio Shack pattern and has a backlight for low light conditions.

It has to be said that a number of the PRO series receivers share components and many identical segments of frequency range. In many cases the major difference between various models is the way that the firmware has been arranged to control the radio's features with particular reference to scan type.

The PRO-82 appears to be designed to get you scanning, searching and storing frequencies in double quick time. This is the main feature of the unit that was, undoubtedly, designed primarily for the North American market. There are five prominent push buttons on the front of the set. Prominent because they are larger than the other panel controls and also because they are a splendid orange colour. No you won't miss these fellers!

Each is pre-programmed to search a range of frequencies. They are designated Marine, Fire/Police, Air, Ham

and Weather (WX) and cannot be altered or re-programmed. Starting with the marine search range, it seems that 49 channels are fixed in the '82s memory, eleven of these being two frequency, or duplex channels. This means that the set will scan two frequencies while still displaying the same channel number.

I am sure that these channels have some relevance to American harbour operations, but here the selection of channels for the programmed Marine search left me wondering why these particular frequencies had been chosen. The marine coverage starts at Channel 1 and then jumps to Channel 5, missing out the intervening three channels. Elsewhere in the marine coverage other channels are omitted, there must be some sort of logic in this but it beats me! Coastguard channel zero is not there at all.

This isn't a major problem as the unit has 200 channel storage arranged in ten banks of twenty, but if Marine band is going to be programmed, why not programme all of it?

The next orange button is marked FD/PD and this initiates a search in three banks within the pre-programmed search range. Up to two of these three banks can be locked out. The banks possess an eclectic range of frequencies ranging from 33 up to 465.6375MHz, all f.m., with many gaps in coverage and with a startling range of frequency steps of between 12.5 and 60kHz. Four spot frequencies are thrown in for luck.

All this may make sense if you live in the US or Canada, but as a Home Counties boy residing in the UK, I'm rather lost. After all this confusion, the air band button brings a touch of sanity covering 108.000 to 136.9875MHz in 12.5kHz steps. No 8.33 spacing is available.

The 'Ham' radio search range is divided into three groups. Group 1 searches from 29.000 to 29.700MHz in 5kHz steps. This is ideal for monitoring the US f.m. repeaters when conditions allow (using an external antenna of course). Group 2 runs from 50.000 to 54MHz, again f.m., in 5kHz steps. Two metre coverage is handled by Group 3, again f.m., running from 144 to 148MHz. 5kHz steps are still the norm for this section which could really benefit from 12.5kHz spacing so as to interface with the European band plan. Finally, in the amateur section Group 4 deals with 420.000 to 450MHz f.m., this time with 12.5kHz spacing.

Last of all hitting the 'WX'



button, that has a jolly picture of a cloud on it, will search the seven spot frequencies in the US/Canadian weather warning band. No use here of course. These are the only programmed searches that the firmware on this radio allows.

The only other way of tuning is by selecting a channel from one of the main banks and running a search from there, travelling either higher or lower from that frequency by pushing the up or down arrow, the scanner will then stop on an active frequency.

The base line on of this is that if you rely on the pre-programmed search, you will miss out on active

have long mastered allowing total control of 'locked out' memories including the ability to review them. Notification of duplicate frequency entry is also handled by this unit as it informs the user should you attempt to enter a frequency already in a memory. You can still enter it, but you're made aware that you are doing so.

The one control that is not on any of the main panels is the most discrete little hole in the left side. Inserting a needle or similar and simultaneously operating two other controls on the radio will 'initialise' the scanner. For folks like us this means that the scanner will dump all the memories and revert

"The PRO-82 appears to be designed to get you scanning, searching and storing frequencies in double quick time"

channels, apart from the civil airband section.

The main amenity of the PRO-82 is the main 200 channel memory divided into the ten banks. Storing frequencies is a simple process and can be accomplished very quickly indeed after you've stored a couple and got used to the process. The obvious disadvantages of pre entered frequency steps per band is a drawback, as is the lack of coverage in what we call v.h.f. low band. That is a section of frequencies in the 70 and 80MHz range. You won't be listening to the Council gritters or most fire brigades on this set.

Useful Features

The PRO-82 has useful features in that adding a delay to live channels is simple. The channel lockout is another feature that Radio Shack

to it's factory supplied state. Always a useful feature and one that is missing from some other scanning receivers. The handbook briefly mentions programming the '82 from a PC, but is delightfully non specific regarding how this is accomplished.

Sensitivity appears to be the norm for this type of radio. I hooked it up to an external discone antenna and performance increased accordingly. I don't live near any source of pager interference, but should you decide to use this set with an external antenna near a pager transmitter, I have no doubt that the front-end would not cope and that you would hear that horrid noise darn near everywhere. These sets are designed to be hand-held with a small antenna and that's how they work best.

SWM

To Sum Up

The PRO-82 positively hated my computer. The set's cabinet is plastic and allows most of the hash from the processor and VDU to dive straight in. Moving a metre or so away from the dratted computer soon cleared that up, but initially it was a bore with hissing on many of the frequencies that I had entered. The PRO-82 does what it says on the box. It is a basic scanning receiver that will find it's niche monitoring civil airband, f.m. v.h.f. channels that are spaced in multiples of 5kHz and u.h.f. f.m. frequencies. It's drawbacks are entirely due to the marketing profile that quite correctly views North America as the prime commercial target.

It is really good to see Radio Shack products back on sale in the UK, but I already said that didn't I?

The PRO-82 costs **£109.99** and is available from **RuSK Ltd.** whom we thank for the loan of the radio for the review. We also thank them for kindly donating one as a prize for our competition next month. **RuSK** can be contacted at **29 The Hollies, The Hollies Industrial Estate, Cannock, Staffs WS1 1DB.** Tel: **(01543) 468855.**

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Kevin takes a trip over to Bedfordshire for a tour of Dennis Easterling's luxurious garden shed based radio room.

The home of Dennis Easterling's radio passion is a 3.6 x 2.4m wooden shed in the back garden in the shadow of the house. The typical problem with this kind of accommodation is extremes of temperature, but Dennis says he's overcome that problem due to the shack being mostly out of the sun so does not get too warm, except late on hot summer days. Walls and ceiling are lined, with carpet on the floor, so with a small heater, it is cosy, even in the winter. A 150W heater mounted under the equipment bench, is on continuously during the winter and, besides taking the chill off, keeps the equipment dry. A bench runs down a long wall to the left of the 1m deep

necessary for FAX.

Behind the globe hangs an old portable radio which has been turned into a computer speaker. The four units beside the TV comprises a home-built signal generator with digital readout. These units can be used independently and are a frequency meter, v.f.o., crystal clock and power supply unit.

Below the 'scope sits a computer interface box offering a parallel I/O port, ADC unit, and switched COM1 port which connects to the radio equipment. Next is a general purpose power unit followed by a low frequency function generator. Between the picture scanner and VCR sits the home-built weather satellite receiver built from a RIG kit - Dennis is a member. If you look carefully, you can see a recently captured satellite picture showing the British Isle early summer with some cloud over the Lake District.



well as using it for WX satellites before the RIG RX2 was built. "The only thing missing from the Realistic is a tuning knob", says Dennis, "something which I find useful on the recently acquired Yaesu VR-500 which sits in the bedroom when not out on expeditions". On the wall

behind the receivers is a Timestep Meteorat converter, used in conjunction with its Active Feed which is fixed to an old Sat TV dish outside the shack. This apparently works very well and complements the polar WXSATS picked up on the roof mounted discone. Antenna control is handled by three antenna switches, one selecting either satellite TV feeds, the others switching v.h.f. antennas and Meteorat channels and v.h.f. receivers.

Forces programmes as well as BBC Overseas (which broadcast special messages to the French Resistance). "Lord Haw Haw was a laugh, and later the American Forces Network broadcasting 'Midnight in Munich' served my teenage musical needs", recalls Dennis.

A couple of Dennis' home-built receivers became billet radios during his national service days. He also made a TV set from an ex-government Gee receiver (Gee operated on the old TV band 1). Before National Service, Dennis worked for the GEC Radio

Servicing Depot in Westminster who, he says, "prior to the victory parade, called in many pre-war TVs for overhaul to ensure they were ready for use. Despite the blitz and war damage, a surprising number turned up".

Dennis and his colleagues watched the parade, the first post war external broadcast, using sets which could not be returned to



The Other Man's Shack

equipment bench shown. Opposite are shelves for books and components, with a part covered by a hinged world map.

Dennis has managed to pack the gear in to this relatively small space. The top shelf holds a pair of Denton speakers, printer, tape deck and analogue TV satellite receiver. There are plans to add a 'Free to air' digital receiver later.

Next shelf down supports an ex govt. Telequipment double beam oscilloscope. This handy item of test gear was bought for £15 at a local amateur rally with a burnt out mains transformer. Dennis then repaired it by replacing the faulty transformer with three others from valved receivers, the 'scope continues

to give useful service. Next along is the VGA colour monitor, a picture scanner and, below the TV, an old video recorder which can also record sound from the short wave receivers including FAX. Dennis says the trick is to still record TV pictures, as this maintains a constant speed



Lower Down

At bench level is a home-built analogue multi-range meter, a second user Dell '486 computer, with umpteen mods and extras, a filter box, which selects the input from the various receivers and recorders besides providing a degree of analogue filtering via a modified Howes filter kit. Below is

the power unit for the auxiliary equipment already mentioned. To the right of this is a stereo amplifier used with the Denton speakers, the filter switch box, recorders and receivers as well as a LP record deck.

Tucked in the right hand corner is a Lowe HF-225 receiver which Dennis reckons is great for all modes including utilities, amateurs, FAX and RTTY as well as

receiving international short wave broadcasts.

On top of the Lowe stands a Realistic PRO-2006, another of Dennis' favourites which covers the v.h.f. and u.h.f. from 25 to 520MHz and 760 to 1300MHz. This set gets used for the amateur 2 metre bands, Civ and mil-air as

The antenna pictures are self explanatory except that the top satellite dish is hand steerable. Dennis receives 16 satellites from 60°E to 45°W. To aid dish setting, Dennis has programmed a station for each bird. Then with the help of a hidden loudspeaker mounted near the dish, the dish direction and elevation is adjusted for maximum sound - clever. Two additional loft mounted antennas, a second long wire and home-built Meteorat quadrifilar helix plus two on the shack roof make a total of ten in all.

A Little History

Dennis comments that if you've read this far then you may have gathered by now that he's not a transmitting amateur. He dabbles in most forms of short wave monitoring and home construction projects. Aged 74, Dennis has been a radio enthusiast since the age of six and had his own radio complete with headphones when he was eight, a present from his granddad.

"Favourites were *Children's Hour with Uncle Mac*, *Toy Town* with David Davis, Jack Payne, Arthur Askey and *Band Wagon*, *Monday Night at Seven*, *Later at Eight*". During WW2, Dennis constructed various one valve and three valve t.r.f. receivers. These proved to be ideal for listening to the Home and

their owners in time. He recalls that, "although the 'Beeb' had little in the way of standby equipment, the broadcast went off without a hitch. In those days, screens were not so bright and we had to watch in the dark".

Lastly Dennis tells me, "nowadays, age is catching up and, though I have plenty of spare time, my eyes are not good enough for fine work and tiny components. Even so, I try to keep up with the technology and maintain my interest in radio, thanks to the fine articles appearing each month in *Short Wave Magazine*.

Keep up the good work".

Many thanks Dennis, long may you continue to enjoy the hobby!



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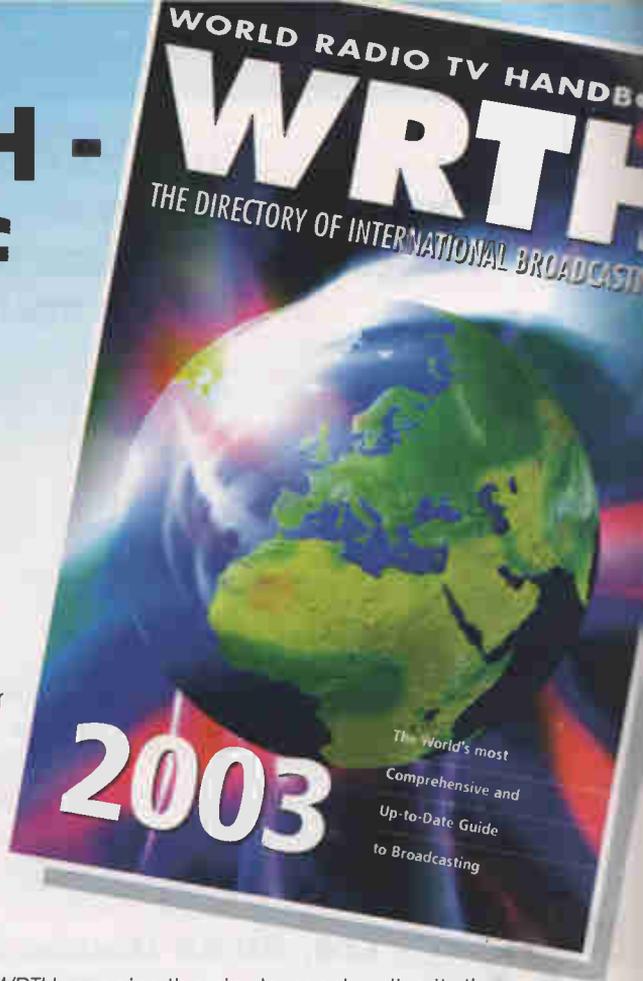
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The closing date for this competition is 24 December 2002, the winner will be drawn on 4 January 2003 - the first four correct answers drawn will be winners. The winners will be announced in the February 2003 *SWM*. The Editor's decision is final.

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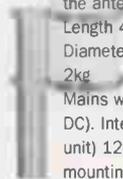


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Output impedance	50-75 ohms coaxial
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Power supply	12V DC at 160mA DC. Power supply for 230V AC is delivered comes with the antenna
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Attention-123!

Control List - Active English Language Stations

Having completed the round-up of commonly active Morse stations, we'll now start on voice stations, beginning with the commoner English ones.

X	E3 - f, 'Lincolnshire Poacher' MI6, ends three pairs of gongs & repeat of LP tune
X	E3a - f, 'Cherry Ripe' MI6, ends three pairs of gongs and rpt of CR tune
II	E5 - f, 'ten dashes', CIA, ends 'end'
la	E6 - m, Russian, 3-fig. DK, ends 'zero zero zero zero zero'
	E6a - m, Russian, two-group commencing with stutter group
lb	E7 - m, Russian, 3 or 4-fig. DK, ends 'zero zero zero' twice
XII	E9 - f, 'Jean Michel Jarre', Egypt, ends with same music
O	E10 - f, three letter ID, NATO phonetics, Mossad, ends 'end of transmission'
III	E11 - f, 'Oblique', ends 'out'
O	E15 - f or m, three letter ID in pre-NATO phonetics, Middle Eastern, ends 'Robert Adam' twice
la	E17 - f, as E6, different voice and habits, Russian, one of these E17y transmits from Cuba, the other E17z always uses the ID 274 and transmits from Russia/Ukraine?
XV	E18 - f, ends 'zero zero zero'
XI	E23 - f, replaced G2, same voice as E5, CIA? Europe, no ending

Of the English language stations, much reduced in number in recent times, only the following have Morse equivalent formats still operational, generally far more so:

E6: M14, **E7:** M12 & XP (polytone), **E11:** M3, **E17y:** M14, **E18:** M13.

Of all these stations, the British MI6 and Mossad operate the most active English-language stations, the only language they ever use. E10 uses by far the largest number of simultaneous transmissions than any other numbers station. For such a small country, its intelligence agency Mossad is greatly disproportionate in size and this is reflected by its absurdly high E10 activity, whose level never seems to reduce.

MI6's E3 operates an extensive schedule from transmitters in Cyprus on many frequencies, always three in parallel for most of the day. Its far-eastern counterpart E3a operates a similar but reduced schedule. These too have operated for many years now without change.

Compared to these, the CIA's output, although high in itself, can be seen as quite modest. They too are averse to other languages and modes. They only ever use English and avoid Morse and polytone entirely.

The Russians very much seem to adapt their transmissions to the specific needs of their agents, using several languages and changing schedules, etc. whenever the need arises. They are also heavy users of Morse. Polytone is reserved for a few particular regular schedules. This mode is intended for unattended receivers and messages can be stored until the recipient finds a convenient time to extract them.

More On Swedish Rhapsody

In the last column, the G2/E23/M4 enigma was discussed. We have heard

that this family (XI) was operated by an 'international organisation based in Switzerland'. The Red Cross and perhaps the UN and ITU spring to mind. However, its activity pattern suggests that its operations were only confined to Europe.

Using German for decades, it wasn't until some years after the ending of the Cold War that the CIA appeared to take over its frequencies and much of its habits, and possibly moved its transmitting site further East, perhaps into Poland. Its role seems to have changed, yet its peculiar 100/100/50 group message structure has remained the same. Any ideas anyone?

M43 - A Mystery Of The Past

Speaking of international organisations, more news has appeared which could throw light on the mysterious M43. This now defunct operation consisted of two stations running an h.f. link in Morse (and RTTY) between Israel and Germany, using the 'bogus' call signs **6XM8** and **C37A**. It was always rumoured to have some connection with the Nazi-hunting Simon Wiesenthal Centre (which has its HQ in the USA) and allegedly linked Bonn with Jerusalem. There is no Simon Wiesenthal Centre listed in Bonn, however, the Israeli embassy was situated there.

I have now heard a more likely rumour, that M43 actually linked the US-run **Berlin Documentation Centre** with the **Yad Washem** archive centre in Jerusalem. The former site is (or was) located at Grunewald in what was once West Berlin - a 'low ugly windowless

building and one of the most heavily guarded buildings on earth'. Possibly still today, but at least in the 1980s it was continually protected by armed US guards - heavy steel doors, barbed wire fences and electronic alarms. Inside it are held the personal files of the SS, Gestapo and Nazi party members - files saved by the Americans at the end of the war.

The US government has sole jurisdiction over them (at least they did in 1982) and, as many of these war criminals were given shelter in the USA after the war, their identities were protected - many were recruited for spying against the communists. For reasons 'of national defence or foreign policy' any records held there needed a presidential order to release. However, an agreement was made for details of 'unprotected' war criminals to be made available to Israel on request. Maybe this secure h.f. communication link was passing urgent requests from the Israelis for information on such individuals, and sending back the details. Possibly, a secure Internet link has superseded M43.

It was only a few years ago that Interpol abandoned its h.f. (Morse and teletype) transmissions. The mysterious M28 which operated on four h.f. frequencies for decades, sending nothing by 'VVV de HEP' allegedly run by Swiss border guards, could well have been part of an emergency Interpol which died a death through disuse. The British also had an h.f. Interpol site at West Wickham, call sign GMP.

Lastly, thanks go to Ian (N. Yorks) for his letter about Radio Northsea International and espionage. Look out for more on this in the future.

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

Maritime Beacons

The listeners who searched the band at night during July, August and September were surprised and disappointed to find that several beacons which they had heard previously were no longer audible. Although equipment faults accounted for some being non-operational, it seems that a number of others have been officially closed down.

During early July **Fred Wilmshurst** (Northampton) received after dark the sky waves from three beacons on the Faeroe Is - Myggenaes (MY) on **337.0**, Akraberg (AB) **381.0** and Nolso (NL) **404.0**. However, the beacon at Prins Christian Sund, S.Greenland (OZN) on **372.0**, which previously he had often heard, proved to be elusive. From a southerly direction he received the idents from two beacons located along the north coast of Spain - Cabo Mayor Lt (MY) on **283.5kHz** and Cabo Machicharo (MA) on **284.5**. Two along the west coast were also heard - Estaca de Bares (BA) on **292.5** and Cabo Finisterre Lt (FI) **296.5**.

Three beacons located much further south were heard at night by **Jim Edwards** in Wigan - Carla Figuera, Majorca (FI) on **294.0**, logged at 2315; Cabo San Sebastian, S.Spain (SN) on **314.0** at 2325; also Mahon, Minorca (MA) **293.5** at 0005. In addition he heard three others (MY **283.5** at 2340, MA **284.5** at **2355** & FI **296.5** at 0010) along the north and west coasts of Spain. From an easterly direction he picked up the sky waves from Klaipeda Rear, Lithuania (KA) on **305.0** at 2345. Later, he logged Prins Christian Sund, Greenland (OZN) on **372.0** at 0230; also three others (MY **337** at 0235, AB **381** at 0525 & NL at 0515) on the Faero Isles.

Over in Belfast **Victor Robb** searched the band during daylight and after dark. He found the conditions really difficult but managed to log ten beacons along the coast of Spain, Minorca, Majorca, Faeroe Is and Iceland - see chart. He was very disappointed not to hear Cabo Salou (UD) on **290.5** and Prins Christian Sund (OZN) on 372, which he had heard previously on a number of occasions.

In early August **Robert Connolly** (Kilkeel) noticed that Estaca de Bares (BA) on **292.5** was no longer audible. In early September the beacon (MY) on **283.5** disappeared, so Robert decided to get in touch with some of his contacts who live further south in Spain. It transpired that one of them spent a holiday near Cabo Trafalga, which radiates the ident (B) on **283.5**. While there, this beacon was not receivable even though he was staying a few hundred metres away,

so he visited the unmanned lighthouse and noticed that the antenna cable had been cut giving the impression that this beacon had been closed down, or at least something had happened that was not regular maintenance. He also found that Ceuta (CE) on **288.0**; Tarifa (O) **303.0** and Rota (D) **304.0** were not receivable there.

Since then, Robert has noticed that Cabo Salou (UD) on **290.5**, which he can usually receive when Mahon (MH) on **293.5** and Cala Figuera (FI) on **294** are audible, has not been heard. He says "Out of ten receivable Spanish NDBs I am currently receiving only four. Even my contact in the French Alps is only receiving seven out of twenty-five listed beacons". Robert has found it difficult to obtain accurate information about the status of the Spanish beacons because they do not publish their 'Notice to Mariners' on the Internet, in fact they do not seem to have a web site.

Much to his surprise Robert noticed that the beacon at Estaca de Bares (BA) was returned to normal service on **292.5** towards the end of September - since then he has sometimes been able to receive it during daylight! He found no trace of the Ukrainian beacons during this quarter. The remaining Baltic chain beacons on **312.5** at Mys Taran (BT) and Baltijsk (BK) were operational but very weak. He could not hear Nida (ND) on **315.5** from Lithuania, but says it is usually difficult to receive in Kilkeel due to an aero beacon at Dublin on **316.0**. However, he has been reliably informed that it is still operational and transmits its callign twice in four seconds followed by a fifty second carrier every six minutes. He has also been informed that all Italian marine radiobeacons will be closed by the end of the year.

Several listeners sent detailed reports on their reception in this band to me during the year and I am sure that others who enjoy this aspect of our hobby will want to join me in thanking them. This is the December edition of *SWM* so I am taking this opportunity to wish them and all listeners a Happy Christmas and hope that we will still be able to enjoy maritime radiobeacon DXing during 2003.

Long Wave Maritime Radiobeacon Chart

kHz	C/S	Station Name	Location	DXer
283.5	MY	Cabo Mayor Lt	N.Spain	A*,B*,C,D*
284.5	MA	Cabo Machicharo	NE.Spain	A*,B*,C,D*
287.0	IA	Llanes Lt	N.Spain	A*
288.0	OR	Punta de Llobregat	S.Spain	A*
290.5	UD	Cabo Salou	S.Spain	A*
292.5	BA	Punta Estaca Bares	N.Spain	A,C*,D*
293.5	MH	Mahon, Minorca	Balearic Is	A*,B*,C*
294.0	FI	Cala Figuera	Majorca	A*,B*,C*
296.5	FI	Cabo Finisterre Lt	NW.Spain	A*,B*,C*,D*
305.0	KA	Klaipeda Rear Lt	Lithuania	A*,B*
305.7	DA	Dalatangi Lt	Iceland	A*,C*
312.5	BK	Baltijsk	Balt.Russia	A*
312.5	BT	Mys Taran Lt	Balt.Russia	A*
314.0	SN	Cabo San Sebastian	S.Spain	A*,B*
337.0	MY	Myggenaes	Faeroe Is	A*,B*,C,D*
372.0	OZN	Prins Chris's Sund	Greenland	A*,B*
381.0	AB	Akraberg	Faeroe Is	A*,B*,C,D*
404.0	NL	Nolso	Faeroe Is	A*,B*,C,D*

Note:

Entries marked * were logged during darkness.

All other entries were logged during daylight or at dawn/dusk.

DXers:-

- (A) Robert Connolly, Kilkeel.
- (B) Jim Edwards, Wigan.
- (C) Victor Robb, Belfast.
- (D) Fred Wilmshurst, Northampton.

Equipment used:-

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

Jim Edwards, Wigan: JRC NRD-535 or Drake R8E + 60m wire or indoor active antennas.

Victor Robb, Belfast: Lowe HF-150 + home-built loop - for guidance he referred to the loop article in *SWM* April '89 and modified it using the ideas in the October '93 issue.

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

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

Satellite TV News

The 'phone rings and it's **Dave Dyson** way up North in Accrington suggesting I check out the 'Nations' digital bouquet on *NSS-7*, 21.5°W, "there's a new TV channel"! Quickly I move the dish back to the *NSS-7* slot and dial up the 11.858GHz-H memory and carry out another search. We still have the RTNC Congo and RTS Senegalise TV channels and then up pops 'ORTM'.

This is of course 'Office de Radiodiffusion Television Du Mali', a land locked state in the South Sahara with studios at Bamako. Why these three TV channels appeared remains a mystery - my E-mail to Bamako was returned unopened! Towards the end of September, the 'Nations' bouquet disappeared, RTS reappeared for a couple of days on the old 11.003GHz-H slot and that too faded away.

Meanwhile, across the other side of the sky, *Europe*Star-1* @ 45°E slumbers, still carrying the NTSC (525-lines) news feeder ex Kabul - 11.551GHz-Vert; SR 5470 + FEC 3/4 - an occasional news report is carried onwards to the 'States' - these appear random depending on any 'news' from Afghanistan. As the uneasy 'peace' continues in that mountainous country, Fox News have established another downlink operating from the Eutelsat SESAT bird @ 36°E slot, 10.960GHz-V, SR6111 + 3/4, it's thought in readiness for any outbreak of hostilities in the Iraq/Gulf region.

This slot has already carried news reports from Israel. **Roy Carman** (Dorking) watched the Israeli army laying siege to Arafat's HQ in Rakallah September 22, gradually demolishing the buildings with artillery shells, tank fire and even a road drill making rubble from the larger debris.

One late September evening I scanned the *Europe*Star 45°E* output to see if life existed other than Fox News. At 12.636GHz-V I found a lone signal, this identifying at 'NON-CAT THAILAND' @ SR 6116 + 3/4. The signal carried the Pakistan TV news from Karachi in its entirety, followed by the Phillips PM5544 'Pakistan TV' test card and downlink cut off. Apparently this frequency regularly carries the PTV news and possible times to check are 0800, 1100 and 1700 UK, my sighting was at 1900.

Perhaps the main event for sat-zappers has been the switch-on of the new *Atlantic Bird-1* @ 12.5°W. They'd been testing with downlink carriers from mid September and a few days later pictures were seen. Following the untidy transfer of business from the outgoing *NSS-K* to the new *NSS-7* - which resulted in former clients losing their established frequencies/polarisations as *NSS-7* adopted horizontal polarisation only into Europe - at least one important customer migrated to the new bird on the block - *Atlantic Bird 1*.

Globecast NY has re-appeared with higher level signals than previously - 11.014GHz-H running their familiar SR 20145 + FEC 3/4 and as before with Channels 1, 2 and 3. But a bonus that doesn't seem to lock up on all receivers...there are three more discrete channels 'GP ENG/ITALIAN'; 'GP/ENG SPANISH' and 'GP ENG/ENG'. These differ in the PIDS department from Channels 1-3 though in recent days have carried the familiar 'Globecast NY' test card.

There's yet a further bonus in Telecom band on this satellite as 'GLOBECAST NE ch.1' offers another downlink - 12.740GHz-H, SR 5700 + 3/4 - again this has carried the similar test card as above, but no programming or PGA golf has been seen as of October 6th. Satellite capacity hire charges should drop with excess Atlantic capacity and with fibre optic nibbling away - the latter offering complete security to signal passage. The occasional news feed has also been reported at 11.178GHz-V and 12.732GHz-H both 5632+3/4 on this bird.

Another new satellite is operational - 'STELLAT-5' - now downlinks from 5°W though the arrival and taking over from the *Telecom 2C* bird thought around the 8-10th September was seamless. **Edmund Spicer** (Littlehampton) comments that the wider coverage area of the new satellite may encourage TF-1 to encrypt certain of

its transmissions over 5°W. This slot carries satellite feeders to at least 30 TF-1 transmission sites around France whilst offering backup for all the six national TV networks - should any terrestrial microwave link go down - and the main network feed to the France 5/ARTE and M6 France wide transmitters.

Interestingly, this also provides the main domestic TV source for nearly 750,000 French households where satisfactory terrestrial reception can't be obtained and perhaps several thousand exiled French viewers. Many schools/colleges use the French language services for educational purposes, though this obviously doesn't feature in the French TV scheme of things. French TV will remain from 5°W for some years to come.

NSS-7 is still alive and well - it's worth looking in at the 'CNN NEWSOURCE' lease - 11.562GHz-H, SR 6117 + 3/4. Apart from the usual edited news packages from around the world, breaking news can rapidly take over transmission with live video from any syndicated 'Turner' station across the 'States'. The first weekend in October on two successive nights carried live press meetings over the serial murders being carried out, there being a random shooter killing people across several states. The Reuters WNS (World News Service) continues on *NSS-7* in the clear with captions or news transmissions throughout the 24 hours, this is found at 11.605GHz-H with an unusual SR4000 + 3/4.

Intelsat 801 - 31.5°W - is an extremely active slot, apart from the regional broadcasters, Sky Sports often can be found on this sat, sometimes encrypted, with MPEG 4:2:2 or in the clear. September 27th and the *Ryder Cup* at the UK Belfry course is in 'full swing' and Sky have established 'BT TES-34 SKY SPORTS' at 10.963GHz-V, 5632+3/4 running live interviews with players around 1800 feeding into the live Sky News programme.

Another old favourite has returned to the *Intelsat 801* screen recently, that of '8Mbts PAL BT PARIS' on 10.965GHz-V (5632+3/4) after quite a long break, noted on October 7th with a Paris fashion show. Just up the *801* band at 11.487GHz-V, 5632+3/4 is a German TV transmission that appears around 1800 hours, this is the 'WETTER' channel, providing a weather forecast for Germany and central Europe, I assume this is for local network use since it transmits a detailed weather situation, outlook and then closes down.

Roy Carman received three outside broadcast (OB) feeds on September 21st via *Telstar-12* @ 15°W - these all SR5632 + 3/4 at 11.583; 12.731 and 12.741GHz-V with service idents of 'G-LINK 5632'. The occasion was coverage of the 'Redbull Flugtag' and I am informed that 'Flugtag' means 'flight day' - can any reader advise what this event actually relates to? Though it's no great loss, Stefan Hagedorn's Internet newsletter advises that the Iranian 'NITV' channel on *Telstar-12* has hit the Irdeto encryption button at 12.595GHz-H parameters unknown.

A final story and it's back to *Eutelsat 2F3* @ 21.5°E. This inclined orbit craft can be difficult to locate, unfortunate as many broadcasters use it for cheap link capacity. September 16th and the BBC are taking content from the *Southampton Boat Show* to slot into their mid morning news programming. The presenter prepares for her live broadcast and hits the airwaves on cue.

Also on cue there appears in the back of shot a bright orange sweeping truck that turns and heads directly for said BBC presenter, an abrupt cut back to the studio. All this seen over 2F3, 12.576GHz-H (5632+3/4) with the service ident 'NEON.PAL.2au'. Now BBC South have a sat-uplink truck that also carries a direct terrestrial linking microwave link on top an air operated mast.

The BBC South studio centre - with full terrestrial network switching - is next to the Civic Centre in the town centre perhaps a kilometre from the boat show site. But the newly constructed West Quay's shopping centre - blocks the direct line of site and so the sat-truck 'NEON.PAL' links up into the Clarke Belt and the return path takes it to the BBC, a round trip path length of perhaps 80,000km for just a kilometre terrestrial gap.



Alan Richards (Nottingham) receives this excellent picture from 58°W.



*NSS-7*USA sports feed East bound via Europe to Hong Kong.



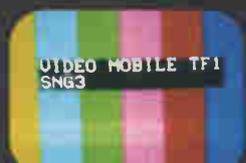
The New York glass sentinals look down on Ground Zero, one year on in silent witness to the earlier tragedy (*NSS-K*).



President and Mrs. Bush meet with relatives of those that were lost, the September 11th memorial service inside Ground Zero.



Live 'CNN NEWSOURCE' transmission - the Montgomery Police Dept updating the press over recent serial shootings in that area and another victim that day, October 4th (*NSS-7*).



French satellite truck testing over *Intelsat 801*.



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AOR	AR-3000A WIDE RECEIVER	£475
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Sky High

A UK Air Pilot supplement became effective on the 17th October which confirmed the compulsory carriage of 8.33kHz channel spaced radio equipment for flights above Flight Level 245 in United Kingdom airspace, (as per the ICAO European supplementary directives). This supplement also reinforced the policy of no exceptions for the carriage of 8.33kHz equipment except for state, (military) aircraft.

State aircraft within the UK will be permanently exempt from the carriage of 8.33kHz radio equipment provided that they are equipped for u.h.f. communications, (which is effectively all of our military aircraft). UK military aircraft travelling in controlled airspace above FL245 outside of the UK FIR/UIR will have to be 8.33kHz equipped, (mainly transport types). Non equipped aircraft such as fighters on deployment will be able to travel on a tactical basis through the provision of an alternative u.h.f. frequency.

During September, it was documented that a NOTAM would be issued on the 3rd October regarding any 8.33kHz changes, (including frequencies), effective from the 31st October. This initial notification was removed and the 3rd October NOTAM was not forthcoming. In its place a new instruction was published indicating that a delay to operational implementation of 8.33kHz spacing was necessary, (why am I not surprised). The current situation is as follows.

The new 8.33kHz Radio Interface and Control Equipment has not yet been fully installed and tested and this is not now expected to be completed until after Easter 2003. Easter Sunday next year is April 20th, so unless there is a change to the schedule, the implementation will probably be somewhere between late April and June? The first sector to get a new 8.33kHz Channel will be the

London Upper Sector West, (Sector S1), which is currently using frequency 134.425. For reference, a further 21 East and Western European countries also implemented 8.33kHz spacing on the 31st October - further information when it becomes available.

Company Freqs

Robby writes to me from York with an extensive listing of Airline and Handling agent frequencies from the past few years, both current and obsolete - he also has a number of questions. He states, "I am trying to compile a comprehensive list of current Airline and Handling agent operations frequencies, I would not expect you to publish the full listing, but I would appreciate it if through your readers you could help answer some questions". So, can any of our readers confirm if any of the following frequencies have been noted in the past year? Robby states that he has had no reports of them since 1999/2000.

Blackpool	122.375	Bond Helicopters
Coventry	130.625	Air Atlantique
East Midlands	122.35	Hunting Air
	131.625	Donington Aviation
Liverpool	129.775	Bond Helicopters
London City	?	Servisair
Manchester	131.925	Lufthansa
Stansted	?	Inflite ?
	130.175	UPS

Also, Robby asks if anyone has any information on current company frequencies for Edinburgh, Glasgow or Southend, except for Execair at Glasgow which is confirmed as 122.35 and Southend Handling who are on 131.4. If *SWM* readers wish to send in their confirmed lists of Company/Handling frequencies I will pass them on. Robby intends to compile them and make a full listing, publicly available next year.

Airline Callsigns

Tim L. writes to me regarding my comments about a lack of recent information from v.h.f. listeners. He includes some recent-ish changes to UK airlines plus some other information. Airtours which has become MYTRAVEL AIRWAYS is still using the callsign 'Kestrel', but has changed its 3-letter identifier from AIH to MYT. Plus, Le Cocq's Airline, also known as AIR X, are using the 3-letter code XAX and the callsign BLUE ISLAND.

Tim also sends me a list of airlines/callsigns that have supposedly been withdrawn recently, but in the current volatile aviation climate, I have decided not to include them. The past year has seen many airlines cease trading, (especially in the USA), only to re-structure and reappear in a new guise using the old callsign and 3-letter code.

For example, Midway airlines in the USA, (MDW - callsign Midway), to my knowledge have ceased trading and reappeared twice since September 11th 2001, they are now to become part of US Airways Express from October 2002. Consequently, I decided that including a list of obsolete callsigns in this column is a risky business and so I have opted for the more prudent option. If any of our *SWM* readers keep a close track of changes to airline callsigns/codes, etc., please send them in to me for inclusion in this column.

Lastly, Tim asks does anyone know of any up-to-date sites on the Internet that cater for enthusiasts with an interest in airline and corporate callsigns. He has searched the 'net, (as have I this morning), with moderate success.

There are some sites that are loosely related plus some official sites and others that are very out-of-date. Why do people go to the effort of putting extensive listings on the web only to leave them untouched for three years? I found a big list of callsigns from 1999, which had never been updated!



The colourful BN-2A-3 Trislander of Le Cocqs airlines.

Even a New Zealand government site I found was over a year out-of-date, i.e. September 2001!

Now this ties in neatly with an E-mail from **Peter L.** He asks, "Who issues the airline callsigns and three letter codes, is it done by individual countries such as the CAA in the UK?". These callsigns and 3-letter codes are issued on an International basis by ICAO, the International Civil Aviation Organisation. These books are published from their headquarters in Montreal as document *Doc. 8585*, now here-in lies the problem!

Even as an official document, it is out-of-date as soon as it is printed and from my past experience of working in aviation, it usually arrives at its destination three or four months later. A September 2003 issue may arrive in the Tower at Heathrow in December 2003, or later - so it is already four months out-of-date.

Consequently, as ICAO appear to have no intention of putting this information on the Internet, (for financial reasons I'm sure), there is at present no really up-to-date source of current callsign information. This may explain why government sites such as the New Zealand site that I found are very out-of-date! So does anyone know of an enthusiast site that caters for this information and that is kept up-to-date? Thanks Tim and Peter.

Incidentally, if you wish to buy a copy of ICAO *Doc. 8585* they are £50 - £55 each plus postage. I think I'll stick with my copy of *Callsign 2002!*

WACARS

Ken W. from County Durham has kindly sent me the following WACARS message which he received

on the 2nd October 2002. Any comments anyone, I don't remember a mention of an attempted hi-jack in the news?

G-EUPF. 18-30-43.
BRITISH AIRWAYS BA 1336. MESSAGE No.S.44A.
USING GROUND STATION (E) AMSTERDAM (AMS)
MESSAGE TYPE OO. EMERGENCY SITUATION REPORT.
AIRCRAFT***HIJACK***(DOWNLINK)
FIRST CONTACTED 18-29.
LAST CONTACTED 18-30.
G-EUPF OPERATING AS BA -1336.

Airband Special - Update

Firstly, my thanks go to **Steve F.** who made the following comments regarding this year's 'Airband Special'. "I very much enjoyed your articles in August *SWM*, I can offer the following few notes:

AAR (Air Refuelling) - 340.7 is in regular use, the last time I actually logged it was on the 19th July when French AF C-135F c/s 'Marcotte 20' was refuelling Nomad traffic from Waddington. Not mentioned in your list is 356.45 used by F-15s from Lakenheath on the 'Spider' AAR track. OPS (Operations) - 388.975 was used by 9 Squadron when they first arrived at Marham, but I've not heard it used for many months, likewise 379.175 used by 31 Squadron. I believe 260.925 is used by 14 Squadron as a TAC frequency along with 242.25". (I agree Steve, my records show no reports of 388.975 or 379.175 in use since 1st Jan 2002 and I have concluded that they have been withdrawn).

Steve goes on to say - 'I've recently purchased an AR8600 as a replacement for my AR3000A and apart from a few niggles, I would

agree that it is an excellent airband receiver and a worthy successor to the AR3000. I would also make a case for the Bearcat 9000XLT, it has some drawbacks, but for purely u.h.f. I find it excellent with a very fast scan and search rate and a large display with alpha tags, mine is in constant use and is especially useful for finding new freqs" - thanks Steve.

Again on the subject of the 'Airband Special', **Mac** writes to me with the following thoughts, (he was the reader who was surprised I had not used a Bearcat radio). He uses a PRO-2045 with a discone and a Trio RL-WIRE antenna and says that whilst it has frequency gaps it works well. He has just purchased an AOR AR8600 - 2 and "whilst it was a bit of a handful to drive at first, especially the way the PUSH and PRESS symbols work", he is now getting used to it. (In the Great British tradition followed by most of us he opened the box, plugged it in and started pressing buttons - reading the manual was of course the last resort). Don't worry Mac, we've all done it! It is a good point though, the use of the PUSH and PRESS symbols in conjunction with others does take some getting use to, the AR8600 is one radio where reading the manual first is almost a necessity.

Mac closes by saying, "I paid a lot of money for the R8500, but it is a lot of radio also, worth every penny, it does everything you could ever want except make the tea in the morning". Thanks for that Mac, I'm glad you agree with my sentiments.

As they were mentioned in the text, our photo this month thanks to **Nick G.** is of the colourful BN-2A-3 Trislander of Le Cocqs airlines - see you next month.

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DX Television

After September 3rd, Sporadic-E activity rapidly declined, signalling the end of the current season. With TEP (Trans-Equatorial Propagation) imminent, scanner users were busy monitoring Channel E2 for signs of activity. Luck was in, when, during the afternoon of the 18th, **Paul Farley** (Newhaven) successfully identified signals from TVGE (Equatorial Guinea) from the 1kW transmitter at Malabo. The reception was possibly Sporadic-E assisted as TVE-1 was around at the time. Earlier in the day, **Simon Hockenull** heard 'weakish' Arabic-sounding p.m.r. on the 34-35MHz band at 0835. On September 28th around mid-morning, there was an F2 path established on six-metres between the UK and Australia.

Reception Reports

September 3rd was the last significant opening of the Sporadic-E season with activity spanning most of the day. The opening was already established by 0640 when **Vincent Richardson** (Dolgarrog) received the Czech Republic (TV Nova) on R1 showing *Teletubbies*. **Peter Barber** (Coventry) logged a film on R1 from the Hungarian state service (MTV-1) on R1; simultaneously, private station RTL KLUB occupied R2.

Stephen Michie (Bristol) captured Croatia (HRT) on E4 with a subtitled programme at 0801; Slovenian (SLO-1) signals were co-channelling with an unidentified E3 station shortly after. By mid-morning, **Peter Barclay** (Sunderland) noted strong Spanish signals from the Aitana transmitter on E3 airing a very old black and white movie.

By early afternoon Italian signals dominated with RAI UNO on Channel B and private stations TVA (Ch. A) and TELE A+, the latter appearing on its unique frequency just below E2. Between 1857 and 2000 **Simon Hockenull** (Bristol) identified Switzerland E2 (SF-1 DRS), Germany E2 (ARD, i.e. Bayerischer Rundfunk from the Grunten transmitter), Slovenia E3, Italy A and B (RAI UNO), Croatia E4 (HRT) and Lithuanian R2 (LRT). **Tom Crane** (Hawkwell) and **Stephen Michie** both encountered Spanish signals on E2 well after 2145.

Curtailed activity also occurred on the 15th, 17th, 18th and 28th, typically around midday, producing Spanish and Italian pictures.

Tropospheric Reception

"Settled weather conditions on the 12th and 13th created ideal tropospheric reception conditions", writes **Peter Barclay** (Sunderland). During the evening of the 13th, a host of German and Danish stations were present in Band III and at u.h.f. These included DR-TV (Denmark's 1st Network) on E5, E7, E8 and E10 and TV-2 on E26, E27, E28, E33, E35, E37 and E40.

German stations included ARD (1st network) on E9, E10 and E22, ZDF (Zweites Detsches Fernsehen, 2nd network) on E24, E26, E30, E31, E32, E34 and E39, NDR (Norddeutscher Rundfunk 3rd network) on E28, E56 and E57, and the private broadcaster SAT-1 on E49. Dutch stations seen on the 12th included NED-1 E4 and E6, NED-2 E27 and E47, NED-3 E30 and E44, TV Oost E22, TV Drenthe E25 and TV Friesland E28. The Swedish second network SVT-2 was also visible on E26 and E29.

At 1816 the Danish TV-2 network were airing an episode from the classic comedy series *Fawty Towers* in English with Danish subtitles. Éire (RTE One) was also received on Band III Channel E, but pictures were mostly poor quality and prone to scatter effects. There were also several other days when RTE One was just detectable with noise-level signals appearing via tropospheric scatter.

Conditions improved again on the 30th with Norway (NRK-1 E6

and E9, NRK-2 E41 and TV2 E37), Sweden (SVT-2 E24 and E30, TV-4 E45 and E46) and Denmark (DR-TV E10 and E31 plus TV2 E22, E26, E27, E28, E33, E35, E37, E40, E53 and E56).

Late on the 13th, **George Garden** (Edinburgh) discovered NDR on E56 (Hamburg 500kW) in colour with little fading during the NDR weather forecast. By 0100 NDR had emerged on E45. Over on E49 *Die Nacht News* from the private German broadcaster SAT-1 was present, co-channelling with ITV pictures from Chatton.

Tom Crane (Hawkwell) noticed a selective opening late on the 28th with high-level signals from Lille and Dover, the latter creating severe overload via a Triax-92 multi-element array and amplifier.

Italian Mystery

Earlier in the season, **Tom Crane** noticed RAI UNO (Italy) displaying an additional '2' logo, probably relating to the programme *Aspettando il 2 giugno* which was being broadcast. **Tom** has discovered that this relates to some Italian festivity on June 2nd, but cannot find out exactly what is actually being celebrated.

Asian Signals

Lt. Col. Rana Roy (India) encountered TEP (Trans-Equatorial Propagation) towards the end of August through to mid September. Typical reception consisted of fluttery pictures on E2 from the south-east with distorted sound received between 1500 and 1700, local time. Thailand is the possible origin of the reception.

There were sightings of a mystery 525-line R1 broadcast on several days, mostly between 1400 and 1700, local time. The signals were also from the south-east, possibly Vietnam. The picture field frequency was 60Hz and the receiver needed adjustment before the rolling picture synchronised.

Spanish Update

The only Band I transmitters operating throughout summer were Aitana E3, Izaña E3 (Tenerife) and Guadalcanal E4. Regional TV channels operating around the country include ETB-1 and ETB-2 (Basque), Canal 9 Valencia (Valencia), TeleMadrid (Madrid), Canal Sur, Canal Sur 2 (Andalucia) and TVG (Galicia).

FM Reports

George Garden (Edinburgh) identified several German stations during the tropospheric lift on the 13th. These included transmissions on 91.1MHz (NDR1 NDS), 107.1MHz (DLF -Deutschlandfunk), 87.6, 87.7, 89.3, 89.6, 90.2 and 107.4MHz (all Hamburg outlets). A solitary Danish station on 89.7MHz (DRP5) was also heard.

Keep On Writing!

Please send your DXTV, slow-scan TV and f.m. reception reports, news, off-screen photographs and information to arrive by the first of the month to: **Garry Smith, 17 Collingham Gardens, Derby DE22 4FS**. We can also use off-air pictures stored as JPG files on PC discs and good-quality video recordings. Our DXTV and Archive TV website can be found at:

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Figs. 1 & 2: Examples of slow-scan TV (SSTV) received by **George Newport** (Canterbury).



Fig. 3: Slovakian TV received on R2 by **Steve Reed** (Nantwich).



Fig. 4: One of the current series of eight totally meaningless and baffling BBC Identification Symbols. This one is called 'Hip-Hop'.

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Info in Orbit

The importance of weather satellites (WXSATs) to the well-being of nations seems to have been emphasised with the launch of India's first dedicated WXSAT in September. Within India's Department of Space, the Indian Space Research Organisation has published a 'Decade Plan' showing 'Major Indian Space Missions' for the years 1994 through 2004. This shows a succession of INSAT (Indian National Satellite System) communications satellites ranging from *INSAT-2C* to *INSAT-3D*. *METSAT* - India's first dedicated WXSAT mission - was launched by India's Polar Satellite Launch Vehicle, PSLV-C4, from Satish Dhawan Space Centre, Shriharipuram on 12 September - as reported in last month's column.

Following a successful launch, orbit raising manoeuvres were conducted and the spacecraft was placed in near geo-synchronous orbit (GSO). It was then drifted towards its intended orbital slot at 74°E longitude, as per the schedule. The spacecraft had 560kg of propellant at the time of its injection into geo-synchronous transfer orbit, and still has about 100kg of propellant left - this should be sufficient for station keeping operations during its design mission life of seven years.

Current WXSATs

It occurred to me that compiling a collection of images from each WXSAT mode could be interesting, and then I realised that the total number of images would be in excess of 15 - allowing for each of the satellites in geostationary orbit! Here instead are two current images from my own station.

NOAA-15 is in a morning southbound orbit, and by 0830, passes well after local sunrise. The upper left part of **Fig. 1** shows the dark terminator speckled with bright shower clouds. This specific picture shows a weather front passing north across London, where daughter Catherine (who this morning received the news that she has passed the final written papers of her medical degree, leaving her just six months from qualifying as a doctor) had rung up to ask when the rain would stop! **Figure 2** was received from *FENGYUN-1D* less than an hour later.

NOAA-14 has remained active on h.r.p.t. (1707MHz), with no a.p.t. transmissions, but images are essentially unusable due to being unsynchronised.

MSG-1 Commissioning On Schedule

After the successful launch of *MSG-1*, EUMETSAT took control of the new WXSAT following the successful handover from ESOC (European Space Operations Centre) on 25 September. The spacecraft is now in geostationary orbit at 10.5°W. EUMETSAT is continuing the commissioning phase and all aspects of the MSG on-board systems and their interactions with the ground segment are being rigorously tested.

The ground segment comprises central facilities located at EUMETSAT's headquarters in Darmstadt, Germany (MSG's Mission Control Centre - MCC), two ground stations, and the Applications Ground Segment.

The Primary Ground Station (PGS), and also the Back-up Satellite Control Centre (BSCC), is located in Usingen, Germany. This provides the

main interface between the satellite and the MCC, including all ranging functions and communications lines. Ranging is the process of measuring and adjusting the exact position and distance of *MSG-1* in order to maintain its geostationary location. There is a Back-up and Ranging Ground Station (BRGS), located in Maspalomas, Gran Canaria Island, Spain. As at mid-October, telecommand and telemetry links have been tested with the PGS and BRGS.

The Applications Ground Segment extracts meteorological and geophysical products from the calibrated image data generated by the Mission Control Centre. The MSG ground segment also supports the Global Earth Radiation Budget (GERB) mission, with a GERB ground segment of several facilities in Europe, the central one being at the Rutherford Appleton Laboratory in UK. The first test image from *MSG-1* is expected at the end of October. The interaction between the ground stations, satellites and users is illustrated in **Fig. 3**.

GOES-8 To Be Replaced In March 2003

Europe's *METEOSAT-7* provides us with a virtually continuous supply of images across two channels. Primary Data (high resolution) images are transmitted on 1691.0MHz (channel 1) and WEFAX (low resolution) images are transmitted on both 1691.0 and 1694.5MHz (channel A2). The latter provides a mix of *METEOSAT-7* and 'foreign' WXSAT images, the latter including the *GOES-E* (8) formats (LY, LR and LZ) comprising infra-red images of continental north and south America, and a visible-light image that includes north America.

NOAA (America's National Oceanographic and Atmospheric Administration) has decided to transfer operations from *GOES-8* to *GOES-12*, a WXSAT already in orbit, standing by for this very purpose. *GOES-8* was launched on 13 April 1994, and has occupied the position known as the *GOES-E* (east) slot, providing weather data for an extended period of time. Because of future fuel limitations that would be required to keep *GOES-8* within north/south inclination specifications, the decision was taken to bring *GOES-12* out of storage to replace *GOES-8* in the *GOES-East* position as the operational spacecraft, on 31 March 2003.

The process of exchange starts when *GOES-12* is taken out of storage on 9 January 2003, and allowed to drift slowly eastwards from 110°W



Fig. 1: NOAA-15 0827 12 October high resolution image.

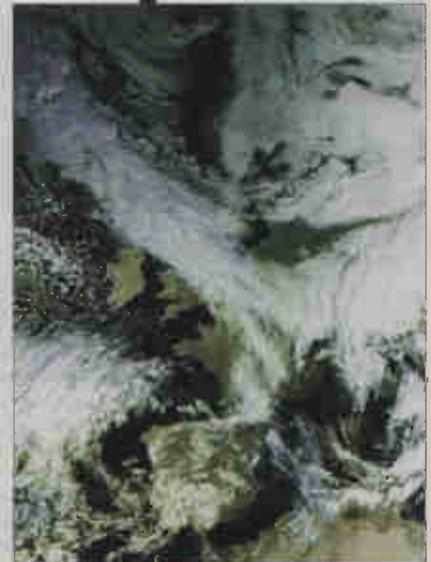


Fig. 2: FENGYUN-1D 0921 12 October high resolution.



Fig. 3: MSG-1 satellite system - picture courtesy EUMETSAT.

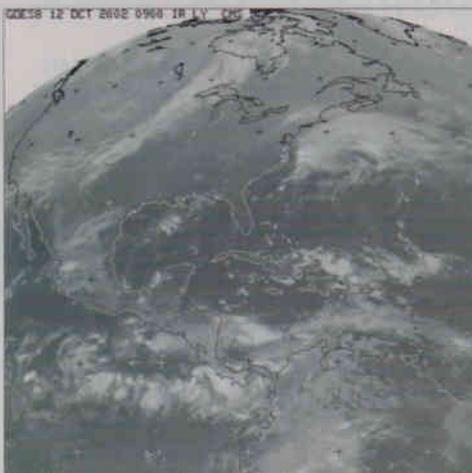


Fig. 4: GOES-8 LY (north America infra-red) image 0900 12 October.

towards 75°W. Imagery will be available to advanced users for validation, from 24 January through 31 March. The transition from GOES-8 to GOES-12 telemetry should be almost transparent, with GOES-12 imagery being routed through GOES-8 during the final stages and then GOES-8 being finally switched off.

There are significant differences in GOES-12 resolution, compared with GOES-8 (through GOES-11): the 6.7µm water vapour channel resolution improves from 8 to 4km, though the 12.0µm band at 4km is replaced with 13.3µm band at 8km.

METEOR-3M Images From ScanEx

I have mentioned ScanEx in previous editions, it is a private Russian company, a Research and Development Centre providing complete systems for satellite remote sensing applications. Since its foundation in 1989, ScanEx has developed and produced high technology products for applications in education, meteorology and environmental monitoring. ScanEx systems include the reception of satellite images, processing and the creation of thematic maps.

They supply equipment ranging from a.p.t.

antennas to impressive systems designed for the reception of the TERRA satellite and METEOR-3M. At one time, METEOR-3M was expected to carry an a.p.t. system, but for various reasons, this was abandoned, though future satellites in the series are expected to carry it.

Mike Kenny of Satellite Engineering, Bureau of Meteorology, Melbourne, Australia, confirmed that the published frequency of transmissions from METEOR-3M is 1704.3384MHz. The high resolution images transmitted from METEOR-3M cannot be decoded by standard h.r.p.t. reception systems, so I contacted ScanEx to request some of their high resolution images.

Natalia Shumilina of ScanEx kindly responded, and sent three images (scale - 1:1, RGB-synthesis - 3:2:1, resolution 50m per pixel, projection type - Gauss-Kruger) she quoted. I am showing all three without any attempt to explain their interpretation!

My thanks to Natalia and ScanEx for providing these very high resolution images. For anyone seeking further information about METEOR-3M, check the following sites (courtesy Mike):

<http://www.sage3.larc.nasa.gov/meteor-3m/>
<http://www.wff.nasa.gov/~sage/pdf/dmnotes.pdf>
<http://www.wff.nasa.gov/~sage/pdf/sageicd.pdf>

The pdf extension shown above means that the files are in portable data format and therefore require the Adobe Acrobat reader. This is a free download and allows publications on the Internet to be read without the requirement of commercial word processors.

Internet Sites Update

Almost everyone has easy access to the Internet, right across the country. Government policy and funding is aimed at encouraging Internet-literacy, so a number of access points have been set up. I work in one such access point at Oaklands in Southampton, and there are literally thousands of on-line sites elsewhere in many public buildings and institutions, such as libraries.

Many provide free access, so if you do not have domestic access, you can therefore feel free to visit one of these centres and check out these sites. Policies on taking away data - such as on a floppy disk or CD-RW vary - so check first if you plan to walk away with Kepler elements!

Talking of which,

<http://www.celestrak.com/NORAD/elements/> is one of my regular sites where a complete range of Kepler elements for WXSATs and other satellite groups, such as ISS and amateur satellites are available.

For many years before the Internet became locally accessible, the only way to get current Kepler elements was via NASA's mailing list. I could not find a source in Britain that would provide such data, even though I personally knew a number of 'space' related government organisations associated with the Science and Engineering Research Council. I therefore painstakingly typed in such elements received weekly from NASA, and made these available for readers of this column.

Finally, the Internet arrived here, and Keplers became available at nominal cost.

After a decade, the last of my Kepler mailing list subscribers went 'Internet-live' about 18 months ago! On the site above, save the file labelled 'weather.txt' under the title 'weather and earth resources satellites'.

Another excellent site, but this time for data not necessarily included elsewhere, is Alan Pickup's SatEvo page:

<http://www.wingar.demon.co.uk/satevo/index.htm#CurrentElements>

This specialist site deals with satellite re-entry times, but if you are into satellite monitoring, you will find Kepler elements for many of the not-always-listed satellites that we see pass overhead occasionally.

GOES-8 and GOES-10 WEFAX images:

<http://www.goes.noaa.gov/> This is an official NOAA site and usually

provides a range of WEFAX images from the American geostationary WXSATs, and in all three bands. On the side of the web page there are comprehensive options. One can select the tropical (hurricane) regions; METEOSAT-5 and METEOSAT-7 data is available in the limited format of whole-disc Primary Data. Similar format GMS images are available. Although these images are there at the click of a mouse, I personally much prefer the display one-at-a-time sequence direct from METEOSAT-7, although the site obviously carries images not available from METEOSAT.

The Indian Meteorological Department has a web site at:

http://www.imd.ernet.in/main_new.htm and a link to INSAT image data:

<http://www.imd.ernet.in/section/satmet/dynamic/welcome.htm>

Some of the INSAT images were up-to-date, but some were time-stamped May. INSAT is not a

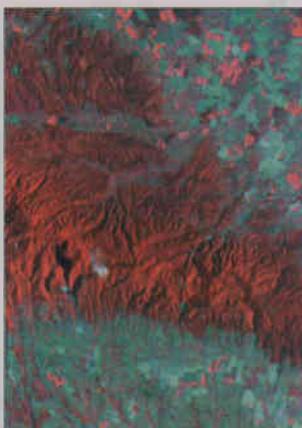


Fig. 5: Croatia - METEOR-3M 2 August 2002 courtesy ScanEx.



Fig. 6: Denmark - METEOR-3M 21 August 2002.



Fig. 7: Germany - METEOR-3M 21 August 2002.



Fig. 8: Eastern Mediterranean from NOAA-16 1111 on 12 October from SMIS.

WXSAT, but does provide some similar images. Final tests before inclusion here showed the site as having slow access. I would expect that the new Indian METSAT images might be made available through this site in due course. I have E-mailed their meteorological department with this enquiry.

The Indian Space Research Organisation carries a link to METSAT information:

<http://www.isro.org/index.htm>

America's National Environment Agency hosts a site at: <http://app.nea.gov.sg/default.asp> on which their satellite images are well hidden! Look for the meteorological services option near top-left corner, and then select satellite images. Images are updated at least daily, but although of interesting regions, they do not include Europe.

The University of Ulm deserves an accolade for an excellent METEOSAT updating service for WEFAX images. On their site - <http://meteosat.e-technik.uni-ulm.de/meteosat/index-latest.html> - they show a simple display of all METEOSAT-7 formats from both channels, and a choice of image size and GIF/JPG options, including the test and administration images. Web updating was astonishingly quick; I looked for the 1730 D2 image and it was there by 1734!

The Space Monitoring and Information Support laboratory (SMIS) of the Russian Space Research Institute, list their forthcoming h.r.p.t. passes on their site: <http://smis.iki.rssi.ru/>

Select the 'Receiving Station Schedule' option, where raw data is available. These files are original NOAA files that are between 30 and 65MB, so are only suitable for those on broadband. I downloaded a couple of files and processed them with David Taylor's superb HRPT-reader, to produce Fig. 8. This facility lets us see those regions too far east for our own reception facilities.

Finally, (and perhaps slightly off-WXSAT-topic), Anatoli Zak maintains the Russian Space Web site:

<http://www.russianspaceweb.com/index.html>

This authoritative site carries current (and archive) news stories concerning the Russian space programme. A number of the items were completely new to me, including one about MirCorp planning a new manned space station.

Monitoring Volcanoes

While reading about the use of NOAA h.r.p.t. (high resolution imagery) data by Ukrainian and American scientists, I came across an article called 'Two Channel AVHRR Discrimination of Volcanic

Clouds'. At first I suspected that a 'dry-as-dust' treatise followed, but far from it. It appears to have been written by NOAA meteorologists, and gives several references to published works.

The basic idea is that thermal image data from two channels of the Advanced Very High Resolution Radiometer (AVHRR) - channels 4 and 5 - can be used to watch volcanic dust clouds. Brightness temperature difference images are used to detect volcanic cloud, and distinguish it from meteorological clouds. The images of the Mt. Spurr cloud - see Fig. 9 and Fig. 10 - demonstrate the band subtraction technique.

The channel-4 image shows how difficult it is to distinguish volcanic cloud. The other image is a band 4-5 (4 minus 5) image, and shows the volcanic cloud clearly. For volcanic clouds, the amount of this negative brightness temperature difference depends upon both the optical thickness of the cloud, the amounts of water, volcanic ash and sulfuric acid in the cloud, the size and size distribution of the particles in the cloud, and other factors! Makes you wonder how they ever detect it. Reading about detecting volcanic dust in mid-autumn? Well, it was pouring with rain that afternoon...

Finally - Kevin Hughes' METEOR 3-5 picture - see Fig. 10 - seems remarkably free of interference!



Fig. 9: Channel 4 (intra-red) image.

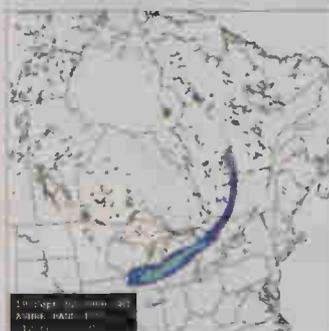


Fig. 10: Channel 4-5 image.



Fig. 11: METEOR 3-5 image from Kevin Hughes.

Frequencies

a.p.t.

NOAA-12 and NOAA-15 transmit a.p.t. on 137.50MHz.
 NOAA-14 and NOAA-17 transmit a.p.t. on 137.62MHz.
 (during overlap periods, the secondary WXSAT a.p.t. may be switched off).
 METEOR 3-5 usually transmits on 137.30MHz when in sunlight.
 METEOR 2-21 may transmit on 137.40MHz when METEOR 3-5 is switched off.

h.r.p.t.

NOAA-12 and NOAA-16 transmit h.r.p.t. on 1698.0MHz.
 NOAA-14 transmits (unsynchronised images) on 1707MHz.
 NOAA-15 transmits on 1702.5MHz.
 NOAA-17 transmits on 1707MHz.
 FENGYUN-1C and FENGYUN-1D transmit on 1700.5MHz.

WEFAX: METEOSAT-7 (geostationary) transmits WEFAX on 1691 and 1694.5MHz and Primary Data on 1691.0MHz.

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SSB Utilities

In the last few months I have written about various small portable long-wire antennas, principally those from Garex and Solid State Electronics (SSE). In the October 2002 issue I mentioned the 'WIA-SW2in1' wire antenna from SSE, and mentioned that I had to build myself a small adapter cable to go between the BNC connector and the telescopic antenna on my Sony ICF-SW7600. In my case, I took a simple BNC patch-lead and replaced the BNC plug on one end with a small crocodile clip.

This prompted a letter from James Finch of Solid State Electronics (UK) who wrote to comment on my review of the antenna and my minor addition to the kit. James says that the antenna was first produced in 1995 for use with pocket scanners which also covered the h.f. bands, and as these almost always had a BNC antenna connector socket, the SSE '2 in 1' antenna terminated in a BNC plug. Jim reports that since then, nobody has ever asked about a similar adapter to connect to a telescopic antenna, but as it was such a good idea, he has decided to add two suitable components to each 'WIA-SW2in1' wire antenna sold in the future.

The two extra parts are a short cable with a BNC socket on one and a small crocodile-clip on the other end (or an 'alligator clip' if you're in the USA) - extremely similar to my home-built example, and secondly a small crocodile-clip with a 4mm socket attached so that the 4mm plug on the '2 in 1' long wire can be directly connected to a telescopic antenna.

It is very gratifying to think that a simple idea of mine has led to a minor improvement in a product, and I hope that future users of the 'WIA-SW2in1' will find it useful.

GHFS Changes

During the first few weeks of October, there appeared to be a minor change in the way the GHFS network operates. For many years all the GHFS frequencies have been used for 'phone-patches to various ground stations. These have usually been very interesting messages to listen to, as you can find out all sorts of information about a flight, a callsign, or the ground station. Another use for the GHFS is for the broadcast of coded messages - the well-known EAMs.

Since the start of October 2002, there has been a subtle change in the way that 'phone patches are conducted. In most cases the GHFS ground station will ask the calling station to QSY to a

new h.f. frequency, and they then conduct the 'phone-patch on the new frequency. The 'phone-patch happens as before the change - pass the DSN 'phone number for the ground station, and when connected, the aircraft passes whatever information is necessary.

The important difference now is the requirement to change to a new frequency, so as to leave the published GHFS frequencies clear. The GHFS frequencies are still being used for EAMs and other coded messages.

Another significant aspect of this change is that almost all the discrete frequencies used so far are well known 'Mystic Star' frequencies. There are many or sources of partial frequency listings for the 'Mystic Star' network available from the Internet, and so far all the discrete frequencies that I have heard GHFS traffic using have been on these lists. In theory, the GHFS stations may direct an aircraft to a frequency not on the list, so it is likely that this would identify a new 'Mystic Star' frequency.

The big question is why has the GHFS suddenly changed. There is speculation that 'something big' is about to happen in the Middle East and that they are keeping the GHFS frequencies clear for traffic involved in that area. Personally, I do not think that this is completely true, as the GHFS (or GCCS as it was then) was able to cope with a massive increase in flight during the Gulf War build-up in 1990 and 1991. As I sit here typing these words during the middle of October, it is about six weeks before this issue reaches most of its readers, and anything can happen in that period.

Afghanistan On HF

Following the events in Afghanistan in the past year, there has been a small sign that some sort of normality is returning to the country. Aircraft passing through the airspace controlled by Afghanistan have not started to be controlled by ATC on h.f.

Over the past few months Kabul ATC has been heard on 5.658MHz talking with aircraft, and also heard communicating with Lahore ATC (Pakistan) concerning aircraft flying through Afghan airspace. Kabul ATC is also allocated a few other frequencies, and it is worth monitoring these to see if Kabul has restarted using them. The others are - 3.467, 10.018 and 13.288MHz.

With the massive number of US troops in Afghanistan and the large number of flight operating into the region, it should come as no surprise

that the US Forces have their own frequencies for incoming flights. They have set up a Regional Air Movement Coordination Centre (RAMCC) at Kabul with at least two h.f. frequencies - 17.389MHz (day) and 4.1505MHz (night). The callsign used is 'Luxor', so if you hear any flights on GHFS frequencies trying to contact this callsign, you will now know who it is.

Military Ships Callsigns

One of the regular questions that I receive is for a list of ships callsigns - the 4-letter or five-letter combinations used by vessels, as opposed to their ship's name. Those assigned to civil ships are usually listed in the various ITU lists and documents, but these generally do not contain the details of military ships. It came as quite a surprise to me to find the information is available via the Internet, for NATO ships at least.

A Defence Technical Information Centre (DTIC) of the US military has a website where you can download copies of various military documents, and one of these just happens to be the *Callsigns for Ships*. The document that you require is 'ACP113', and the example of the web page is 224 pages long. In fact, there are a number of other interesting documents and lists on the web page - I found the ACP100 document to be very interesting

CCF Contest

By the time that this issue reaches most of its readers, it will be towards the end of November, so the following item is timed especially so that most readers and listeners will have an opportunity to listen. The UK 'Combined Cadet Force' will be holding its annual h.f. exercise *Christmas Cracker* on 30th November and 1st December. The objective is for each cadet station to contact as many other cadet stations on as many cadet frequencies as possible during a 24-hour period.

In theory, the contest should run from 1400 on Saturday until 1400 on Sunday, but they may have changed this for their *Easter Bonnet* contest earlier this year, so there is every chance that they will have changed again for this contest. I have mentioned the CCF frequencies several times in the past, but it is worth listing them again here so that you have them available for the contest, they are:- 2.273, 2.413, 2.768, 3.848, 4.363, 4.443, 4.918, 4.921, 4.953, 5.328, 5.343, 6.913 and 7.708MHz. The results are usually announced on 25th December at 1200.

Web Watch

CCF Radio - www.acfccsignals.milnet.uk.net/

CCF Radio memories -

<http://home.cfl.rr.com/happysurfer/ham/ccfradio.htm>

DTIC web site - www.dtic.mil

Ship's callsigns - www.dtic.mil/jcs/j6/cceb/acps/acp113.pdf



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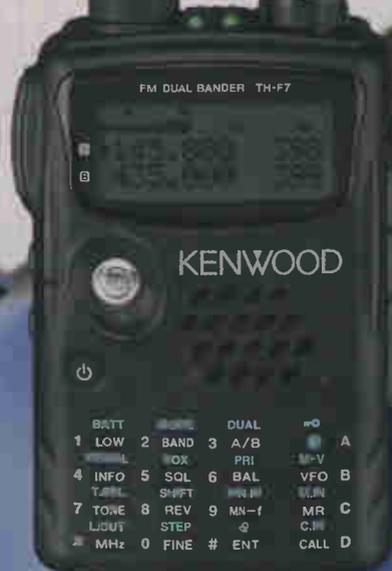
4 MILES FROM BOURNEMOUTH INTERNATIONAL AIRPORT ON B3073 300 YARDS FROM CHRISTCHURCH RAILWAY STATION. FORECOURT PARKING FOR DISABLED

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Propagation Forecasts

How to use the Propagation Charts

The charts contain three plots. The lower dashed line represents the lowest usable frequency (LUF), or ALF (Absorption Limiting Frequency). The chances of success below this frequency are very slim.

The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

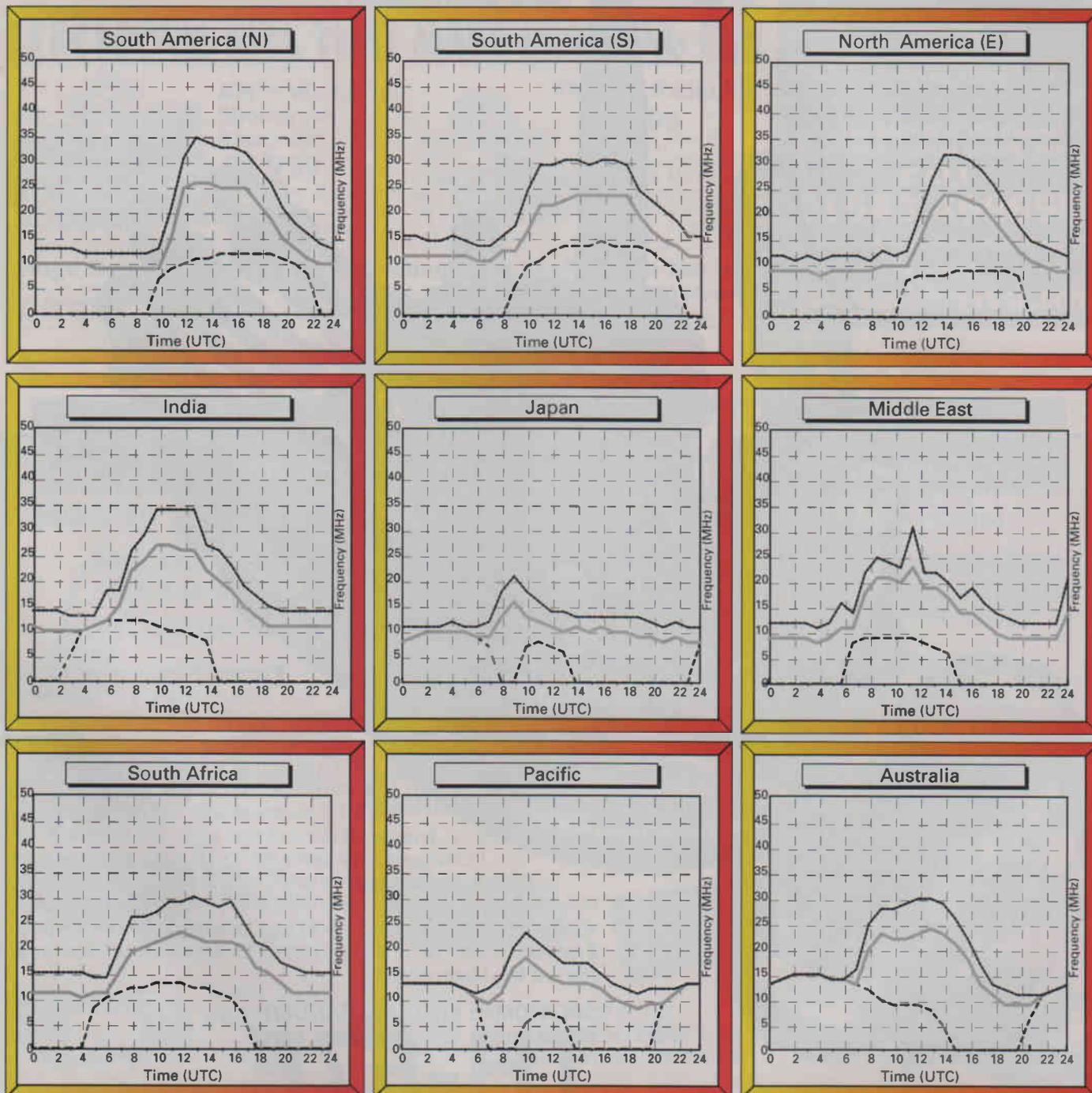
Lastly, the upper dashed line represents the maximum usable frequency (MUF), a 50%

probability of success for the path and time.

To make use of the charts you must select the chart most closely located to the region containing the station that you wish to hear. By selecting the time chosen for listening on the horizontal axis, the best frequencies for listening can be determined by the values of the intersections of the plots against frequency.

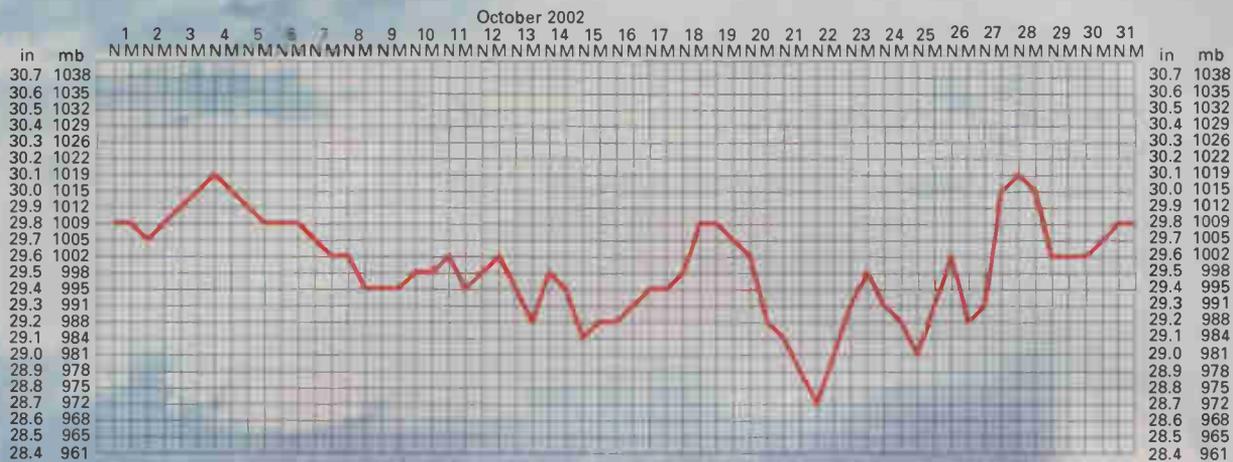
Good luck and happy listening.

December 2002
Circuits to London

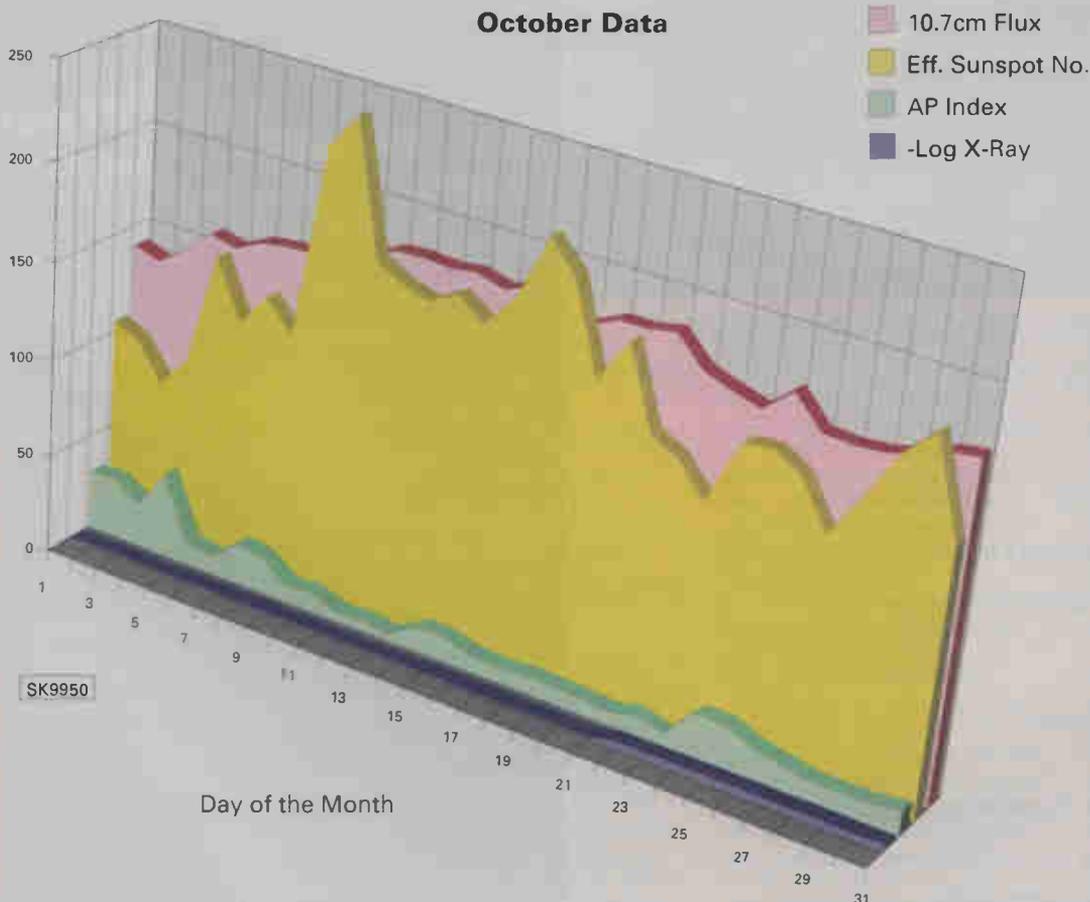


Propagation Extra

Ron Ham's barometric pressure chart, taken at Storrington, W. Sussex, October 2002.



October Data



guide to the chart

The 10.7cm solar radio flux is used as an indicator of the general level of solar activity.

The K and AP indices are measures of geomagnetic activity.

The K index ranges from zero (very quiet) to nine (severely disturbed).

K values of five or greater correspond to geomagnetic storm conditions that can relate to poor propagation conditions.

The AP index ranges from 0 to 400. An AP of 30 is the threshold for geomagnetic storm conditions.

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HAROLD ORT, EDITOR, POPULAR COMMUNICATIONS

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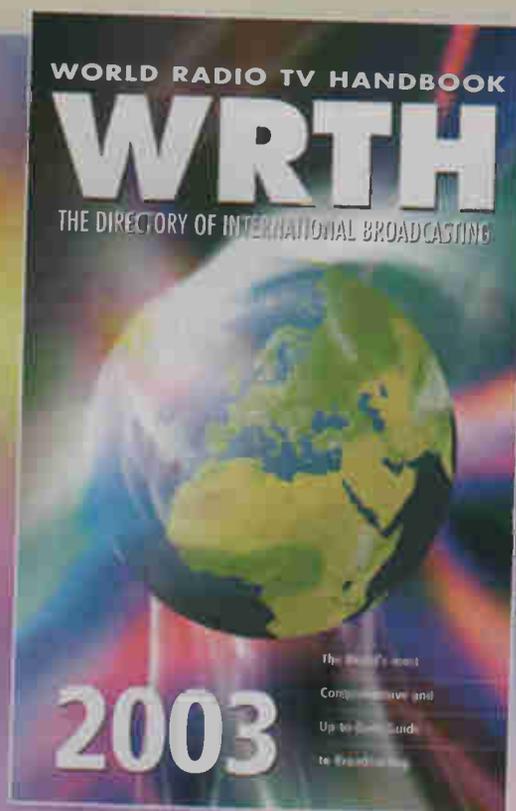
WRTH is the best DX book going J.F., UK

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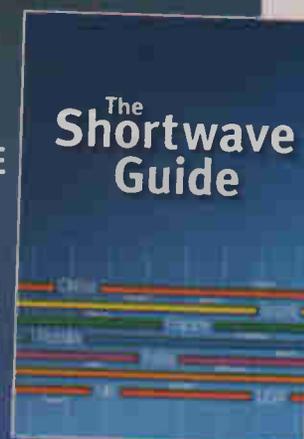
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■ DAVE ROBERTS c/o SWM EDITORIAL OFFICES, BROADSTONE

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

Scanning Scene

Many people just hate the wintertime. Certainly at this time of year I can't get out and about walking as much as I do in the summer months. Although I have full wet and cold weather gear, the compulsion to leave a warm house and hike out into the hills when the sleet is being driven horizontally into my face, is just not too great. What an excellent excuse to stay indoors and do something, *anything*, with radio.

During the long and often stormy winter evenings, there is quite often more to monitor on the scanner than would be the case during the spring and summer months. Every year I mention the council roads departments on low band f.m. as their gritting and road reports can be most useful to the traveller.

More importantly are the marine bands where coastguard weather reports and real time rescue coverage can be overheard. The same goes for airband and I won't trespass on Peter Bond's informed toes on this subject, but a few air frequencies in the machine will always provide something of interest. This will depend on your location, but when I am in the south of England, I monitor the local airfield's frequency, likewise when I'm in the frozen north, I always monitor 243.0, 121.5, 123.1 and 282.8 which can all carry emergency traffic. Also 123.450 lives in the memory bank to catch those amusing comments from commercial pilots on scheduled routes. Enough of the high altitude stuff, but honestly those channels are always in a scanner close to wherever I am.

If you live north of the Scottish border, then the Scottish Office Emergency Voice Network is always worth having in the memory bank. The frequencies are available from a couple of sources on the 'net I believe, but I can tell you that they operate in the 80MHz section of the spectrum.

I have shown a picture of a Philips transportable radio as used by the Scottish Office. The idea is that an emergency planner or other official would deploy to the scene of an incident with one of these and be able to access one of their repeaters. All are linked, so once you are into one of them, you have got in the lot. It makes access simple

for people who have absolutely no knowledge of radio at all. These sets are even stored with a printed crib sheet including basic advice such as 'On Microphone - Red Button. Push to Transmit. Release to Receive'.

Don't overlook the 2m and 70cm amateur bands. In snowy weather you'll often find that a net will swiftly evolve and road reports will be exchanged. A useful facility. The police and fire services often have handy information about winter conditions on their nets, but the British police are not known for leniency in these matters and tend to suffer acute sense of humour failure when they are made aware of an eavesdropper.

Finally, while banging on about winter frequencies, I must mention PMR446. You may recall from the October SWM that I mentioned that my neighbour, Geoff, and I were considering ways of keeping in touch other than by 'phone. Well, at the Donnington show there was this character flogging PMR446 sets at a knock down price of fourteen quid apiece or £24 for a pair. The singles were a bright yellow colour that can only be described as challenging, but were labelled 'Cobra' and therefore cash changed hands.

Now Geoff and I can be heard generally shouting the breeze about frequencies on PMR446 channel 1. Sad innit. These radios are not only in use by middle aged hobbyists, but also have some serious users as well. It's worth monitoring and I have heard many users using them 'car to car'.

An interesting letter came in from Mike Evans in Suffolk. Mike has been out of the scanning scene for about fifteen years when he had an AOR AR2001. Recently a kind soul named Steve donated a Realistic PRO-2004 to him. Steve told Mike that the '2004 was likely to be duff, but that it may be worth tinkering with. It is after all around 18 years old. The old codger was turned on and, sure enough, the display was constantly throwing a wobbler. Mike thought that he'd take a peek inside

the cabinet and on opening it up, he spotted a modification that was wired in with the aid of sticky tape that had long ago divested itself of glue content. He removed the mod that consisted of a small circuit board and the display started behaving again. Now Mike seems to be a bodger in the same mould as I am.

The next thing that he did was to put the '2004 in the airing cupboard for a while to dry out as the display had become misted. A night with the towels and Y fronts sorted out the display. The next thing Mike did was to wire in a replacement speaker, as the old one was well and truly *el finito*. Next was a speaker cover made from an old glove blagged from his wife. One or two things still



Picture by J. Barrall.

need attention, but apart from the radio trying to scan 400 channels occasionally, instead of the 300 that the manufacturers installed, the gadget seems to be behaving. Mike wonders whether anyone has an owner's manual, or copy thereof, that he could obtain. Mike will pay any reasonable expenses involved. If you can help, let me know and I'll pass on details to him.

The PRO-2004 was one of the most popular receivers in the mid eighties with many users worldwide. Covering 25-520 and 760-1300MHz, n.b.f.m., w.b.f.m. and a.m., it was user programmable and was supposed to be very fast to use with the membrane keypad. If you can get one of these in good nick then they are still capable of doing a good job as a basic shack receiver.

Regarding the circuit board, Mike. It looks like the circuit is an audio amplifier. I think that someone in the past wanted to use the set in a vehicle and found that the 1.8W of

audio that is produced was not enough to overcome engine noise, or whatever, and hashed up the little board to make it louder! Whether it worked or not is another matter. Thanks for the letter and for reminding me of what a good set the PRO-2004 is/was.

Yes, I went to the radio show at Castle Donnington. I always enjoy being there. As I live most of my year in a remote area and don't see many people, the mass of traffic in the Leicester area and all the people really puts the zap on my head. The good thing is that I get to see so many friends that otherwise I would never bump into.

Last year there was a little old gentleman stealing from stalls. He was ejected. This year I was

nattering on the PW Publishing stand and, sure enough, there he was again. Clearly a slow learner, he was again stealing from stalls. He was followed and watched by stewards, and he and an accomplice were again booted out of the show. It takes all sorts doesn't it? The steward who hoofed them out is now becoming quite an expert at watching for thieves and reckons that he's getting much better at spotting them all the time. It just indicates that each year the amateurs

who operate as stewards at this event are performing a difficult task for the benefit of the rest of us. Thanks folks.

With regard to what was available at the show this year. There were some bargains to be had. There was plenty of ex PMR kit at reasonable cost with Gary Dawson's Norcall company doing a roaring trade. A regular dealer was knocking out some ex military kit, but the price seems to be increasing out of the reach of many hobbyists. The other thing about green gear is that some of it has odd connectors and power requirements and there are usually precious few documents informing you how to drive it. Still if you are familiar with the equipment on the bench in front of you, a bargain may be had as all this stuff is sold at a fraction of its original cost to the government.

Enjoy Christmas

■ MIKE RICHARDS G4WNC, 49 CLOUGHS ROAD, RINGWOOD, HANTS BH24 1UU

■ E-MAIL: decode@pwpublishing.ltd.uk ■ Web: <http://www.mikespage.btinternet.co.uk>

Decode

NAVTEX Receivers

One listener has written to see if I know of a source of dedicated NAVTEX receivers for dual frequency (518 & 490kHz) operation. One of the most popular makes, at least amongst sailors, is from NASA Marine. The NASA Target LCD NAVTEX Pro Plus is a dual frequency NAVTEX receiver complete with decoder and l.c.d. readout. Although at the budget end of the NAVTEX market, this is quite a sophisticated receiver and so commands a price tag of around the £220 mark.

Whilst looking for this information, I also came across the NASA NAVTEX engine. This is a rather neat device, which comprises a combined antenna and receiver that uses software on a laptop computer to carry out the NAVTEX message processing. This is great for those listeners that just want to keep an eye on NAVTEX events. It's only single channel (518kHz), but costs around £110 so is quite an attractive proposition. You can find out more details and see other NAVTEX kit at the following sites:

<http://www.yachtbits.fsnet.co.uk> and
<http://www.seamarknunn.co.uk>

every 15 minutes. As well as providing the latest data, Ionoprobe includes a series of storm warnings to tip you off if band conditions are likely to change suddenly. If you'd like to give it a try, a fully functional demo is available from <http://www.dxatlas.com/IonoProbe/>

Utility Sources

For those of you that are starting to get hooked on decoding, I can highly recommend keeping a close eye on the World Utility Network Club. The club has been running since January 1995 and is probably the best source around for up-to-date monitoring information. The club relies on contributions from listeners and attracts the top enthusiasts from around the world.

The information available on the site is simply staggering. The WUN newsletter provides an update on all the main listening areas with comprehensive logs to support the news and commentary. One of the many gems on the site is the *Digital Signals FAQ*. This provides in-depth information on a huge range of digital modes and makes an excellent reference for those wanting to learn more or just trying to identify a new signal.

Another favourite with me, that I've mentioned before in 'Decode', is the digital sound files. This section provides .WAV samples of a huge range of data signals that are really good either for decoder testing or ear training.

ALE Reception

One of the modes that's only been scantily covered in 'Decode' is ALE or Automatic Link Establishment. Whereas many of the older modes are disappearing from the h.f. bands, ALE is on the increase. In fact, ALE has been responsible for giving h.f. communications a new lease of life.

ALE is a computer-based system that effectively replaces the radio operator and provides fully automated management of a network of h.f. links. As you will have discovered, the quality propagation on the h.f. bands is highly variable and demands a high level of operator skill to get the best results.

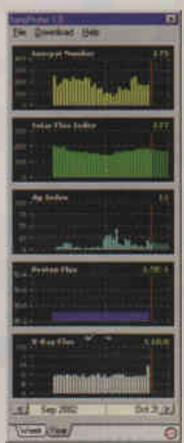
Whilst this is all very challenging and rewarding

for the enthusiast, it doesn't make for a very practical commercial communications system. Prior to the development of ALE, most operators were disappearing to satellite based systems at an alarming rate. The big

attraction of ALE is the way in which it can automatically find the optimum h.f. route across a complex radio network. The level of automated monitoring and testing used is far more than would have been practical with manually operated radio



Ionoprobe's week based Space Weather Display.



Ionoprobe's year based Space Weather Display.

SeaTTY Download

One or two readers have written with problems downloading the *SeaTTY* decoding program I covered recently. I've checked the site and all seems to be fine, so here's the details again. The main site is www.dxsoft.com but the sub-directory for *SeaTTY* is www.dxsoft.com/en/products/seatty/. Once entered, you will have the option to download from the sites USA1, USA2 or Austria3. You can pick any of these, they are the same program. The choice of download sites just gives you the opportunity to change site if the download appears too slow.

Ionoprobe

Having spent some time trying to find the best propagation program, I stumbled across a wonderful little program that provides up-to-date information on space weather. Why is this interesting? Well, space weather is the stuff that directly effects the ionisation of the Earth's atmosphere, so has a significant impact on h.f. propagation.

A very welcome side benefit of the program is the excellent tutorials that are included. These provide a really good introduction to propagation and clearly explain the impact of the different elements. The program is a very compact download at just 1.3MB that expands to around 3MB when installed.

Once installed, the program is minimised and sits neatly in the system tray. Whilst it is active, it can be set to automatically download the latest space data



NASA NAVTEX receiver.

links. The sophistication of the system really has brought new life back to h.f. radio.

For the utility enthusiast, ALE presents a new challenge, partly because it is a relatively new modulation system, but also because the messages are primarily for remote control. Despite this, decoding is possible and thanks to some pioneering listeners, there is a good range of reference material available.

The first requirement is some form of decoding program and there are several around. The first to be available was the excellent *PC-ALE* by Charles Brain. This is available from the following site:

www.pwpublishing.ltd.uk/decode/

Please note you need to download and install the main program then copy over the version 1.03k update file. The program uses the soundcard for input so you only need the software. Because the program has been written for fun, you don't get the usual detailed help file. Fortunately, it's pretty easy to use - the most critical aspect is getting the tuning right.

With the program running you first need to go to the Configuration menu, choose Options and tick the following: Display Sounds, Listen Calls, Freq Display, Trace and Command Trace. Next you need to find your first ALE frequency. A couple of good ones to start with are 9.025 and 13.215MHz. Set your receiver to u.s.b. and tune about 0.4kHz low of the desired frequency and wait. You should hear a bubbly warbling sound every now and then.

If you're really lucky, you may even get some gobbledegook in the decoder's main screen. If you don't, make sure you can see some movement in the spectrum display and then tune very slowly around the desired frequency, whilst watching the status text right at the bottom of the screen. When a signal is being processed, this changes from Scanning or Stopped and reads Sync Pause.

Now, let's take a look at the decoded message and see how we can interpret it. Here's a simple example to start with:

[21:22:41][CHN 00][SND] [TWS][RIC] [ALO] BER 22 SN 00

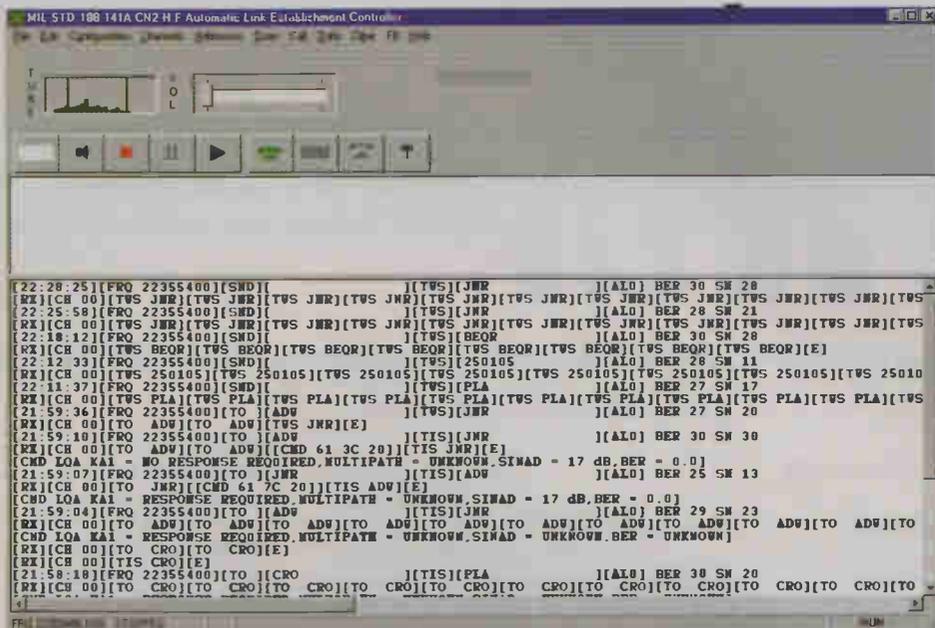
The first two fields are supplied by the decoder and give the reception time and the channel number. SND indicates that this is a sounding and TWS is a code for This Was. The next field shows the station code that, in this case, is the US Air Force, base at Richmond. The last part gives an indication of the quality of the link with BER representing Bit Error Rate and SN for Signal to Noise.

Let's just run through some of the common words used in ALE messages:

TO - This is used literally and the code that follows is the identity of the intended station.

THIS IS or TIS - This is followed by the station code for the originating station.

THIS WAS, TWAS or TWS - Used for a



final transmission in a sequence and is followed by the station's code.

THRU - Used to identify other stations when a group is being called.

FROM - This is used literally and is optional not seen this recently.

Command or CMD - This is one to watch for as it is usually followed by some plain text.

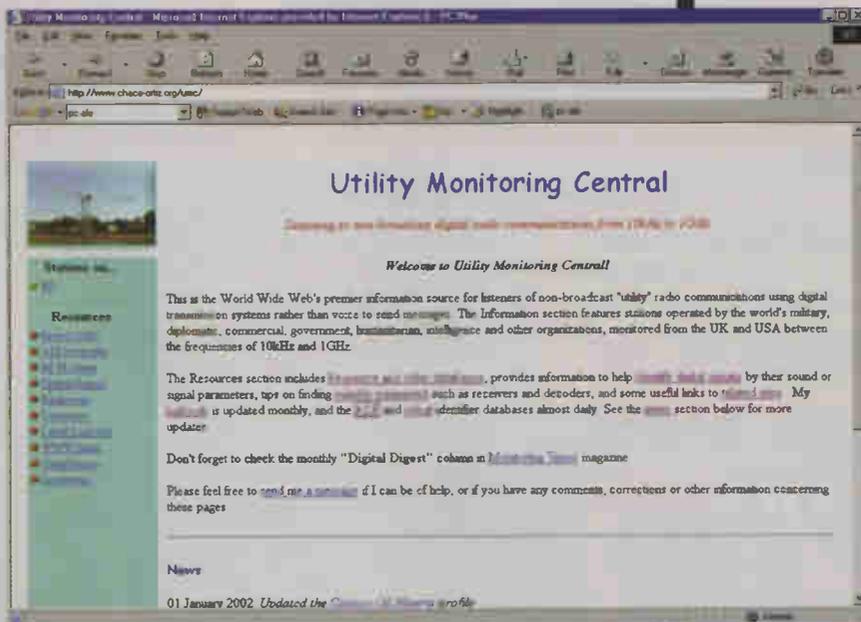
In order to make sense of these messages, you really need to be able to translate the three character station codes into real station details. Thanks to some excellent work by Mike Chace, you can do just that by visiting the following site:

<http://www.chace-ortiz.org/umc/> then follow the ALE locator link to: <http://www.chace-ortiz.org/umc/identia.html>

Just follow the alphabetical shortcuts to find the station details. If you manage to identify any new ones, please let Mike know so the site can be updated. I've just about run out of space for this month, so please let me know how you get on with this and I'll add some more detail in a future column.

Charles Brain's excellent ALE decoder PC-ALE.

Mike Chace's utility web site for ALE data.



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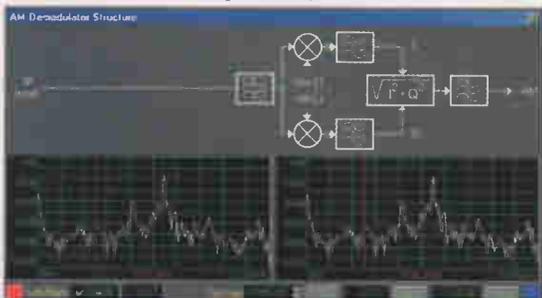


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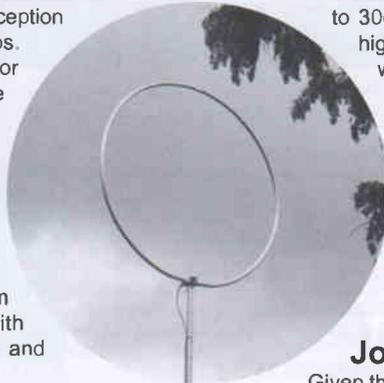
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WIN!

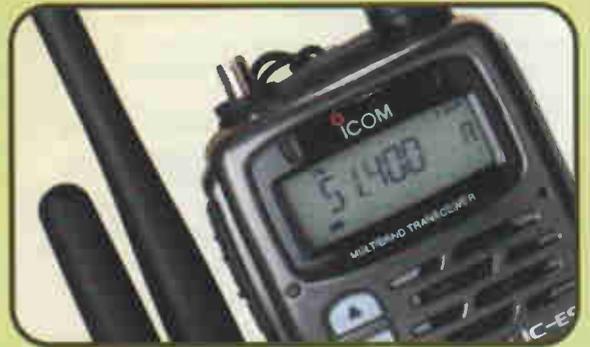
● An NES10-2 Noise Eliminating Speaker

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● **Stan Brown G4LU** looks at the origins of Rugby Radio Station.

FEATURE

● The *PW* team, with the help of readers provide some helpful hints and tips on Silent Key Sales



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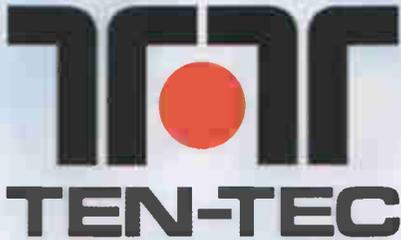
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RX-350: The Ten-Tec RX-350 is a full featured, mid-price range HF DSP receiver. on-screen band activity display adds a new dimension to locating transmissions and tuning the receiver, 34 DSP bandwidths provided, noise reduction etc. Extensively reviewed by John Wilson, SWM September 2002. **£1,099 inc VAT***

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- 307B optional external speaker **£89 inc VAT**

(carr extra on the above options if ordered separately)

RX-320: PC 'black box' dedicated short wave receiver. Don't be deceived by the small size of the cabinet or low price, the RX-320 performance is much closer to that of the RX-350 desktop short wave receiver than any low cost rival, it features 34 DSP bandwidths. Extensively reviewed by

John Wilson, SWM April 2002.

Supplied with UK mains power supply, floppy disk with Windows software (Win3.1 - WinXP compatible), RS232 9-pin lead, audio lead for PC sound card, phono plug for aerial connection, BNC-PHONO aerial adapter, whip aerial, operating manual.

RF performance is amazing £249 inc VAT*



TenTec Kits

TenTec produce a wide range of kits with prices from less than £20 through to short wave receivers and transceivers.

A cross section of kits are listed below, but many more are available to order as the range expands over the coming months. Full details may be viewed on the TenTec UK web site. A short-form catalogue is also available to request. Popular items are available from stock, for special orders (typically unlisted items) please allow 28 days for delivery.

Full instructions supplied with each kit, support is via e-mail from the factory in the USA only.



Full instructions supplied with each kit, support is via e-mail from the factory in the USA only.

Price / carr* / available from

Receivers

- 1054 Regen 4 band SW receiver.....£25.00 (B)
- 1056 SSB/CW direct conv SW receiver£25.00 (B)
- 1253 9 band short wave receiver.....£59.50 (A)
- 1254 SWL receiver with digital display£169.00 (A) end Nov'02
- 1552 active aerial (SWL)£12.00 (B)

Transceivers (50kHz segment)

- 1315 15m QRP CW£88.50 (A)
- 1320 20m QRP CW£88.50 (A)
- 1330 30m QRP CW£88.50 (A)
- 1340 40m QRP CW£88.50 (A)
- 1380 80m QRP CW£88.50 (A)

Accessory kits

- 1001 DC - 1GHz preamp.....£9.90 (B)
- 1051 noise bridge for ATU optimising.£15.00 (B)
- 1064 smart squelch for receivers.....£16.50 (B)
- 1553 budget Morse code keyer (excl paddle)....£10.50 (B)

Fun kits

- 1050 universal BFO£9.90 (B)

* Carriage costs (postage / packing / handling) to UK:
A = £8.00 B = £3.00

TenTec repair service

The UK workshop is capable of providing full service facilities for the RX320/340/350 which we are supplying, they carry a 12 month warranty. In addition, it is our intention to support all TenTec products, although at present we have limited spare parts and service information for earlier models... we will therefore build our capability on a dynamic basis, good support is offered to us from TenTec in the USA. If you have specific technical queries, let us know. The future potential is quite exciting, if you have internet access, keep an eye on the UK TenTec web pages or stay in contact in the conventional manner.



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