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cover subject: The AOR LA380 active loop antenna will appeal to listeners who are short on space or who enjoy monitoring away from their main location. Its compact design and good perfomance make it well worth a look. Enjoy this issue!

Don't forget the **December** issue of ***SWM*** is on sale on the **24 November**. So, for your regular dose of listening, scanning and your link to keeping on top of the world of monitoring make sure you don't miss it!

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SWM Services

Components For *SWM* Projects

In general all components used in constructing *SWM* projects are available from a variety of component suppliers. Where special or difficult to obtain, components are specified, a supplier will be quoted in the article.

Photocopies & Back Issues

We have a selection of back issues, covering the past three years of *SWM*. If you are looking for an article or review that you missed first time around, we can help. If we don't have the whole issue we can always supply a photocopy of the article. Back issues for *SWM* are £5.00 inc P&P each and photocopies are £3.00 per article inc P&P.

Binders are also available (each binder takes one volume) for £6.50 plus £1.75 P&P for one binder, £2.75 P&P for two or more, UK or overseas. Prices include VAT where appropriate.

A complete review listing for *SWM/PW* is also available from the Editorial Offices for £2 inc P&P.

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You can also **FAX** an order, giving full details to Broadstone **0870 224 7850**.

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Technical Help

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

New High-End Dual-Band Mobile

Nevada have recently announced a new addition to their range - the Alinco DR-635E. This dual-band mobile features high output power, full duplex operation and a multi-colour detachable front panel. It offers full coverage of 144 and 430MHz, plus f.m. broadcast band receive. Featuring a high-efficiency diplexer for single antenna working, the DR-635E is one of the few mobiles capable of full duplex operation

The manufacturers state that twin alphanumeric displays, 200 memory channels and twin receivers give very versatile operation. Its unique rotatable head means the body can be mounted either way up for optimum speaker orientation.

With dual receivers, you can listen simultaneously to any two frequencies - cross band or in the same band. Packet operators will love the optional EJ-50 TNC board, which can be connected to a GPS for APRS when mobile. Digital voice mode is also supported, using the optional EJ-47U modulator.

Other features include:

- Three output power settings - VHF: 50/25/5W, UHF: 35/20/5W
- Large six-character alphanumeric display
- Selectable display color illumination (Blue, Violet or Amber)
- Internal duplexer - single antenna connector
- Includes f.m. broadcast band (w.f.m.)
- Power supply voltage display
- Theft alarm feature
- CTCSS & DCS encode and decode plus four different tone bursts
- CTCSS Tone and DCS scan
- Programmable v.f.o. and memory scan modes

The Alinco DR-635E is available now from **Nevada Radio, Unit 1, Fitzherbert Spur, Farlington, Portsmouth PO6 1TT.**
Tel: 023-9231 3090
Website: www.nevada.co.uk
priced at £295.

Worthing Students Celebrate Success

The Worthing and District Amateur Radio Club held a Foundation level course and exam over two consecutive Saturday's of the 10 & 17th September 2005 at Lancing Parish Halls. All seven students who sat the course passed and therefore can be very pleased with their achievements

The Worthing Club has a very pro-active training team who run courses at all levels. A ten-week Intermediate course will commence on the 9 November 2005 cumulating in an exam on the 23 January 2006, an Advanced course will commence in mid-November with the exam on the 31 January 2006.

The courses are very popular and spaces are limited. For any level of course please contact **Lesley Gale (Training and Education Administrator)** on **(01903) 523769** or **Email: ld.gale@ntlworld.com** All WADARC training staff are enhanced CR8 checked for suitability and for parental peace of mind with the club operating to the Radio Society of Great Britain Child Protection Policy.

Pictured are: Left to right: Student, Frank Mills; Training and Education Administrator Lesley Gale s.w.l., (Rear) Foundation Training Officer, Kelvan Gale and Club Chairman 2E0BHF, Student Mathew Osborne, Student Richard White, Student 10-year-old Callam MacDonald, Student Peter Kerrgin, Student Cliff Hepburn, Student Mike Vineer, and Senior Training Officer Roger Parish M1RPY.

WiNRADiO Debut

Previewing at the UK Leicester Amateur Radio Show, held at Castle Donington over the weekend of 30th September/1st October, was the first commercial outing of the new WinRADiO G305/315 series of receivers. Building on the success of the software defined G303/G313 receiver.

The new receiver provides increased frequency coverage from 9kHz all the way up to 1800MHz and features a high quality tracking r.f. preselector for use above 30MHz and a switchable r.f. amplifier. In addition, an optional wide-band a f.m. demodulator is also available. By the time you are reading this the receivers should be on full commercial product release, although WinRADiO tell us that they have been delivered in quantity to MOD customers already.

On The Move!

Short Wave Magazine advertiser John's Radio formerly of Whitehall Works, 84 Whitehall Road East, Birkenshaw, Bradford, West Yorkshire have moved to **Smithies Mill, Smithies Moor Lane, Birstall, Batley WS17 8NN** and can now be contacted on **01924 477377.**

Newhaven Fort Rally 2006

The annual Newhaven Fort Rally will take place on Sunday 18 June 2006 between the ramparts of the popular Newhaven Fort Museum. Run by members of the Worthing and District Amateur Radio Club, the event will open at 1030 hours.

Admisson the rally will be £2.50, which will include access to all of the museum exhibits including the

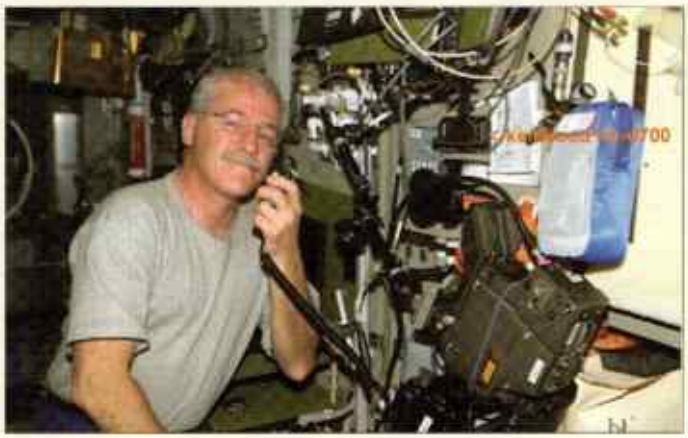
Signals Room Café facilities are available on site with a good souvenir shop also. Views over the English Channel are spectacular on a good day with ample areas available for picnic parties.

Tables for the event are bookable in advance only with additional rooms available for commercial retailers. Contact **Roy Bannister G4GPX** on **(01903) 753893** for bookings or further information.

communiqué

Tregaron ARISS School Contact Successful

On Thursday 29 September 2005 at 1128 UTC the Tregaron High School in Tregaron, Wales, UK had a very succesful Space Talk with US astronaut **John Phillips KE5DRY** onboard the *International Space Station*. Contact was established shortly after the *ISS* rose over the horizon and John Phillips started answering the questions put by the students. When student Kaleigh asked: "If you cry in space, what happens to the tears?", John said this was probably the most interesting question. He said he had no experience but supposed the tears would stay in the eyes or on the cheeks and evaporate.



John answered 18 questions before the *ISS* went over the horizon and contact was lost. He even answered two more questions, which were on the list and ground stations farther east could hear his answers and his signing off.

About 300 students, 30 teachers and VIPs filled the room at Tregaron High School. BBC TV covered the event, which was also broadcast by streaming video. The ground station was the RSGB's well known mobile Amateur Station **GB4FUN**, controlled by **Carlos Eavis G0AKI** and operated by AMSAT UK's **Howard Long G6LVB**.

Congratulations must go to Science Teacher **Chris Greenfield** who took the initiative and organised this ARISS School Contact. His students will remember their Space Talk for ever!

New Website

A new website has been set up for women radio amateurs. The brainchild of **Jackie Bosworth M3JTO**, the website – called Ladies on the Air – provides female amateurs with a place to discuss their hobby.

Jackie gained her foundation licence in May and launched the website with the aim of encouraging more women to participate in amateur radio. She said: "After noticing that there aren't too many women in this hobby, I decided to create a forum just for the ladies. It's still in the early days but we already have members from Malaysia and USA!"

Ladies on the Air is open to any woman who is interested in amateur radio. Membership is free. The site includes a discussion area, hints and tips section, advice on solving amateur radio problems and a place where members can post pictures. Take a look at **www.ladiesontheair.proboards37.com**

Lighthouses on the Air 2005

The Worthing and District Amateur Radio Club activated the Kingston Buci (Shoreham Lighthouse) using the callsign **GB8SL** to take part in the annual Lighthouses on the Air event. Conditions on the bands were somewhat erratic but a huge attendance by the club membership saw operators and loggers pooling resources to ensure a smooth operation throughout the event.

Peter Head G4LKW and Chairman **Kelvan Gale 2E0BHF** camped out overnight on-site securing a few distant contacts throughout the night watch period. Contacts over the weekend were 197 in 44 Countries, England, Isle of Man, Chile, South Africa, Spain, Germany, Scotland, Switzerland, Yugoslavia, France, Italy, Romania, European Russia, Czech Republic, Croatia, Ukraine, Sweden, Melilla, Austria, Portugal, Hungary, Wales, Netherlands, Northern Ireland, Canary Islands, Turkey, Namibia, Macedonia, Iceland, Panama, U.S.A., Bulgaria, Oman, Finland, Venezuela, Poland, Lithuania, Norway, Ireland, Greece, Slovenia, Denmark, Slovak Republic and Bosnia.

A beam antenna and 7MHz dipole were used along with the Icom IC-7400 transceiver at 100W.

The club wishes to thank the Horsham and District Amateur Radio Club for the loan of the beam, the Shoreham Rowing Club for the use of their facilities, the keepers of Shoreham Lighthouse and all the members of WADARC who made the event such a success.

The GB8SL installation showing the Kingston Buci (Shoreham Lighthouse) in the background.

MW & LW Transmitters - new CD!

Over the years information about long wave and medium wave transmitters operating in the UK and Ireland has been fragmented, incomplete or out of date. More recently the Internet has augmented the printed medium but it can still be exceedingly difficult to get all the information in one place.

However, now there is a solution in the form of a CD containing the following:

* A full listing of over 500 transmitters and who is using them, along with data about them such as power, location (both National Grid Reference and latitude and longitude) and, where known, date activated. A description of the antenna and its radiation pattern is also included. The listing includes all currently active stations and some recently decommissioned. You will find broadcasters, navigation beacons, time standards, maritime and military transmitters listed. You will also find some unusual frequency allocations;do you know who uses 87, 457, 846 or 1641kHz?
* A collection of 88C local radio coverage maps.
* A similar collection of maps for non-BBC stations.
* A large collection of detailed photographs of 200 plus transmitter sites and the antennae in use.
* A collection of high quality scans of QSL cards from 100 plus of the stations in the file.
* Directional antennae radiation patterns.
* Features. Extra features include a historical perceptive of m.w. frequency assignment & usage in the UK. Additionally, a dossier covering quiet radio areas in the UK is included with detailed information to help you select a listening site with minimum noise or interference. The CD also contains a range of useful country maps showing counties, postcode areas and so on.

In addition to all this the CD also includes direct linking to the Internet, which will take you to a station's own website and to a detailed on-line mapping service that will show you on an Ordnance Survey map where the transmitter is physically located.

You can order your copy of the CD, costing either $11US; 10 Euro or £5 Sterling notes well concealed by post to: **Landsvale, High Catton, York YO41 1EH, England**. If you don't want the risk of sending cash in the post, using registered post is recommended. Non-cash payments such as cheques, Postal Orders or International Money Orders must be £5 Sterling.

Alternatively, you can order over the Internet using PayPal by sending payment to: **transmitters@uk2.net** The PayPal prices are $11.75US; 10.75 Euro or £5.50 Sterling due to the charges levied by PayPal. Prices include P & P. All orders will be despatched by post in a protective envelope and overseas orders will go via Airmail.

Young Amateur

Jimmy **Read**, 12 years old from Macclesfield has become the latest youngster to complete one of Macclesfield Wireless Society's radio amateur training courses. Jimmy, who goes to Knutsford High School, had wanted to become a radio amateur for some time, in order that he could fully participate in a fast-growing craze known as SOTA, standing for Summits On The Air.

The SOTA scheme launched in 2002 and involves climbing the significant hills and mountains across the UK and setting up a temporary amateur radio station at the summit. Jimmy has so far climbed 135 of the UK hills that qualify for 'Marilyn' status and are therefore SOTA summits.

The Macclesfield Wireless Society provided a specially adapted training course for Jimmy, led by Foundation Licence tutor **Phil Archer G6AKK**. Other members of the club helped out with the training too. **Delia Archer** (Phil's XYL), a teacher at Henbury High School, stepped in to support Jimmy with his reading in the formal examination. Jimmy passed his exam on Thursday 15 September and immediately applied to Ofcom for his amateur radio licence.

The Macclesfield Wireless Society, which meets at the Pack Horse Bowling Club, Abbey Road on Monday evenings, is keen to attract new members and can offer further training courses for those wishing to become licensed radio amateurs. Courses can be provided for students of any age; adult or child.

Foundation Licence instructor Phil Archer G6AKK can also devise personalised learning programmes for students with learning disabilities. For more information about the Macclesfield Wireless Society, contact **Ron G0WUZ** on **(01625) 430433** or visit **www.gx4mws.com**

British Astronomical Association

The British Astronomical Association (BAA) **Radio Astronomy Group** (RAG) are a group interested in Radio Astronomy. They listen on 2695, 151MHz and 30kHz and have developed receiver kits for these bands, which may also be of interest to Radio Amateurs.

Members of the RAG, have just published their first newsletter, which can be downloaded from **www.britastro.com/radio/** The RAG *Circular* has been compiled by gathering of information and material over the last couple of months, resulting in a 48 page newsletter. Because of its size the *Circular* is available as a downloadable PDF from the above mentioned website.

The RAG team have worked hard to produce the first issue of *Circular* and would welcome feedback, both positive or negative. They also encourage readers to write a 'Letter to the Editor', write an article or send in a photograph for the next issue.

Rare WAB Square Activated

Members of **Brickfields Amateur Radio Society** on the Isle of Wight, recently operated a special event station from the rare WA8 square SZ28 to celebrate the 60th anniversary of the end of World War Two. The station

callsign was **GB2VJD**. Pictured in the photo are some of the BARS members at the site of the station at The Needles Old Battery at the extreme western tip of the Isle of Wight.

Castles and Stately Homes on the Air

John Williams G8LGC writes: Back in the 1970s there was an attempt by a Northampton group with Castles on the Air, although it never caught on, people are still talking about it!

In June 2003, Special Events Amateur Radio Educational Group (SEAREG) contacted the Ivanhoe Trust, who administers Conisbrough Castle, which is located about

6km west of Doncaster in South Yorkshire, with the proposition of putting on a public demonstration of Amateur Radio free of charge over a weekend. This was readily accepted as each QSL card would have their website address (**www.conisbroughcastle.org**) on it and these it was hoped would be going all round the world.

The SEAREG were lucky enough to get sponsorship for the QSL cards and on placing the order with the printer Chris M0DOL, he suggested that they considered getting Castles on the Air operational again. After some discussion, it was decided to go with: Castles and Stately Homes on the Air (CASHOTA), as it affords more flexibility for participants.

There must be a lot of Amateurs who enjoy going out portable or doing special-events, so why not consider your local heritage sites? There is so much history wrapped around us. Scattered the length and breath of the United Kingdom are countless venues just waiting to be put on the air. Some grand, while others paint a picture of our turbulent past.

Throughout Europe, there are a lot of other Amateurs, just like you, I and groups doing the same thing from their heritage sites. When activity here in the UK takes off we could contact these other groups and arrange a fantastic weekend activity, thereby stimulating greater interest.

There is so much fun to be had, either on your own or as a club outing. What have you got, virtually on your doorstep? Why not talk it over with your friends and join us and activate a venue near you? Either, use your own callsign /p or apply for a special event callsign, but remember, your GB demonstration must be on view to the public. From our experience at Conisbrough Castle, we have found the public are more than just interested.

New activations gain one point, anyone activating ten venues will be able to apply for an award. In order for an activation to become official you would be required to have a minimum of 10 h.f. contacts or 30 v.h.f. direct contacts, not using IRLP or repeaters.

We are not at this time suggesting a single weekend like some other groups, but rather to get these venues on the air throughout the year, so as an operator, you can fit them in to suit yourself. To register your venue, you will need to provide your regional controller with some information about your proposed site and they will issue your venue a unique CASHOTA number for the collectors of certificates. This registration number will be composed as follows: G for England, followed by the number /xxx followed by the suffix of /C for a castle or /SH for stately home. Conisbrough Castle has the registration No: G/001/C and it is also listed with International Museums Weekend No: 5124, as the demonstration here each year is over the third weekend in June.

You may be interested in transmitting from just one castle or stately home, or as many as pleases you, on your own or with friends making a day of it. Remember that it would be courteous to ask permission before any sustained period of operation is considered, explaining that you are introducing other Radio Amateurs and listeners the world over to their portion of our heritage.

Whatever your interest is, then please contact either: **Arthur MM0DHQ** for Scotland, **Melfyn GW1AKT** for Wales and myself **John G8LGC** for English sites, all of whom are QTHR. We are still looking for area representatives in Guernsey, Jersey, IOM and Northern Ireland, so get in touch if this also interests you: **John Williams G8LGC. E-mail: john-williams@tinyonline.co.uk**

Spot the Radio Amateur!

The European Space Agency (ESA) website **www.esa.int** has a page aimed at young people. On the bottom right hand corner of the ESA home page click on the 'Kids' icon. Now click on the 'Meet the SSETI Express team!' picture.

After the 'Intro' caricatures of some of the team members will appear, one of them is a radio amateur can you guess which one? Click on the person to find out.

The New FTDX-9000 Transceiver

At the recent Leicester Amateur Radio Show, Yaesu UK Ltd., launched their newest product, the FTDX-9000 an h.f. and 50MHz Transceiver. The FTDX-9000 really is in a class of its own with three different versions available - the FTDX-9000D, FTDX-9000 Contest and FTDX-900MP - offering a variation in facilities.

For example the 9000D has a 6.5in TFT display that provides a host of operating and station management information. It can show things like a world map with the Grey Line path marked or a logbook, as well as information such as the direction of the rotators or your real-time s.w.r. readings. The TFT display can also be set to show a spectrum scope that lets you watch the activity on the band. Interestingly, the meters on the front panel are inclined at a 2° angle so they face the operator directly when sat in front of the rig. This eliminates glare and the difficulty in reading the indicators. This radio can also provide full duplex operation when operating on two different bands.

The FTDX-9000 series has extensive digital noise reduction capabilities, as you would expect. Using 16 mathematical algorithms, the circuitry is capable of reducing atmospheric and other noises.

Another feature that Yaesu were keen to explain was the three-stage parametric equaliser. This allows very precise enhancements of three different ranges (bass, mid-range and treble) of audio frequency response allowing the operator to match the radio's response to their voice and microphone. You can adjust the centre frequency of each of the three audio pass bands, the width of each of these bands and the amount of boost or suppression you wish to engage within each of these frequency ranges. The front and rear microphone inputs may be equalised independently allowing you to focus available power where you want it.

Any transceiver in the FTDX-9000 series is a very comprehensive radio with more features than we have space to mention here but Yaesu would be happy to tell you more.

Pricing of the FT-DX9000 is dependant on the version you choose, as a guide, the FTDX-9000 Contest is a 200W custom-configurable version that comes with two pairs of meters plus and l.c.d. window, it has an VRF input preselector filter, three key jacks and dual head phone jacks and 50V/12A internal switching regulator power supply starts at £3,799. These radios will be available from the beginning of January 2006.

The FTDX-9000D is rated 200W and has the large TFT, data management unit and flash memory slot built-in, main/sub receiver VRF plus full dual receive capability, three μ-tuning modules for 160-20m and 50V/12A internal switching regulator power supply. This is priced at £7,299 and orders can be placed now. Finally, the FTDX-900MP is a 400W special order version that will cost from £8,299 and orders can be placed from January.

Contact Yaesu UK Ltd., Unit 12, Sun Valley Business Park, Winnall Close, Winchester SO23 0LB. Tel: (01962) 866667. www.yaesu.co.uk

Icom UK Ltd Support Rapid Chariots

Bob Stockley, Sales and Marketing Director of Icom UK Ltd. recently took part in a gruelling 24 hour endurance race at Silverstone. Bob is one of three drivers for the Canterbury based motorsports team Rapid Chariots. This was the first time Bob took part in such a race and the team achieved a highly respectable 21st overall and 6th in their production class.

Conditions for the weekend were less than perfect with torrential downpours and low visibility for most of the 24 hours. This made driving very difficult and dangerous. Rapid Chariots started in 40th place and continuously moved up the field throughout the 24 hours to finish in 21st place overall.

Bob said, "Considering we would've been happy just completing the race the whole team were delighted to finish so high up the table. The weather was appalling and driving was extremely difficult, at times you could barely see in front of you with all the spray coming up from the track. I think if the weather had been a little better we would have finished even higher".

The Icom team was supported by friends, family and work colleagues. Bob found support from many of the Icom employees who made the journey from Kent to Northampton to watch the racing over the weekend. Bob said, "I was thrilled at the number of supporters from Icom who came up for the weekend, especially since the weather was so bad. I'd like to say a huge thank you to all of them".

Icom provided Rapid Chariots with six IC-F22SR hand-held radios, two IC-F25 hand-held radios and two IC-F110S mobile radios to help with the communications between the pit crew and the driver. Icom dealer Talking Headsets provided earpieces and noise cancelling mics for the drivers' helmets the crew in the pit with headsets.

Lights Go Out On Electrovalue

The following statement was issued to the *SWM* Newsdesk on 22 September 2005 by Wilkins Kennedy on behalf of Electrovalue Limited.

The directors of **Electrovalue Limited** (Electrovalue) have announced that after 33 years in business the company has ceased trading. The directors have instructed **Keith Stevens** of **Wilkins Kennedy**, Business Recovery and Insolvency, specialists to assist them in placing the company into Creditors' Voluntary Liquidation.

Electrovalue incorporated in March 1972 had been trading from Unit 5, Beta Way Thorpe Industrial Park, Egham, Surrey, TW20 8RE. The company sold electronic components to hobbyists and home electronic engineers and was an authorised Siemens distributor selling to industrial and educational concerns. The loss of their Siemens distributorship in 1998 together with increased competition are cited to be the main reasons for the company's loss of market share and consequent failure.

Commenting on the decision, Keith Stevens says "it is always regrettable when businesses cannot be rescued. In the case of Electrovalue a combination of factors including pressures from the global market and growing competition domestically, made it increasingly difficult to sustain the business. After carefully reviewing the business it was decided that the best course of action would be to agree to voluntary liquidation".

All enquiries should be directed to **Keith Stevens or Mike Grieshaber at Wilkins Kennedy on (01784) 435 561.**

Details of any further developments to this story regarding this *SWM* advertiser will be published as and when they are received. Editor

rallies

October 29: The Rochdale & DARS Traditional Radio Rally will be held at St. Vincent de Paul Catholic Church Hall, Caldershaw Road, off the A680 Edenfield Road, approx 3km west of Rochdale. Follow the orangearrows from M62 J20. Opening time is 10.15/10.30 and admission is £1. There is ample free car parking, plenty of trade stands, a Bring & Buy stall and a large chat/refreshment area. Talk-in on S22. Contact via **John G7OAI, evenings, on (01706) 376204. or E-mail: RADARS@radars.me.uk Full details can also be found on the website at www.radars.me.uk**

October 30: The Rusty Radios Contest Group Rally will be held at Coltered Village Hall, Hertfordshire. Doors are open from 1030 to 1400. There will be amateurs and traders selling components, surplus equipment and good old fashioned junk. Contact **Sean on (01462) 459724 (evenings). www.rustyradios.com**

November 5/6th: The 19th North Wales Radio, Electronics & Computer show annual rally takes place at the North Wales Conference Centre, The Promenade , Llandudno. With new and used equipment, components, cables and connectors, computers and parts, RSGB stand, large Bring & Buy, SOTA, club rooms, Repeater Groups,Restaurant & Bar and loads more. Talk-in on S22. Admission £3, accompanied under 14's Free.Doors open 1000. Contact: **Jenny MW3BET on (01492) 549413, E-mail: rally@nwrs.org.uk or www.nwrs.org.uk**

November 20: The 16th Midland Amateur Radio Society (MARS) Birmingham Rally takes place at a new Venue at Alderbrook School, Blossomfield Road, Solihull. Approx 3 miles from M42 either Jctn 4 or 5. There will be separate areas for Traders to load/unload with ample adjacent car/van parking. Open to the Public from 1000 to 1500hours. Admission only £1 plus large free car park. Further details, prices for Traders etc. contact Rally Manager **Norman Gutteridge G8BHE on 0121-422 9787 or (07808) 078003 or E-mail: NLgutteridge@aol.com or Peter Haylor G6DRN on 0121-443 1189 or (07710) 963123 or E-mail: G6DRN@blueyonder.co.uk**

November 26: The Reddish Rally takes place today at St. Mary's Parish Hall, Reddish Road/Broadstone Hall Road South, Reddish, Soptckport. Doors open 1000. Admission £1. There will be refreshements available and at talk-in. Contact **John G4ILA on 0161-477 6702 or E-mail: john@mckae.freeserve.co.uk**

November 27: The West Manchester Radio Club is holding its RED ROSE WINTER RALLY, at Lowton Civic Centre, just off the A580 East Lancs. Road, this is a superb venue, all on one level, with disabled facilities and free parking. There will be a low cost Bring & Buy, RSGB bookstall, usual trade stands, component and special interest groups, licensed bar, excellent catering and large social area in which to mingle with fellow amateurs. Talk-in on S22. Opening at 10:00 am. Info on the club's website **www.wmrc.org.uk Further details from the rally manager: Steve on (01942) 895198.**

December 4: The Bishop Auckland Radio Amateurs Club (BARAC) 2005 Rally will take place at the Spennymoor Leisure Centre. This venue is ideally suited for both trader and disabled visitors as it boasts good parking and access to a large ground floor hall. There will be the usual radio, computer, electronics and Bring & Buy stalls, as well as 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 for those of the family not interested in radio. Doors open at 1030 (1000 for disabled visitors) and admission is £1.50, under 14s free or charge with an adult. Talk-in on S22. More information from Rally Organiser **Mark G0GFG on (01388) 745353 or from Deputy Rally Organiser Brian G7OCK on (01388) 762678.**

2006

February 5: The 21th South Essex Amateur Radio Society, Radio & Computer Rally will be held at the Paddocks Community Centre, Long Road, Canvey Island, Essex. (The Paddocks is situated at the end of the A130). Doors Open 1030. More details at **www.southessex.ars.btinternet.co.uk**

June 18: The Annual Newbury and District Amateur Radio Society Car Boot sale will take place at the Ackland Memorial Hall, Cold Ash near. Newbury, Berkshire. Directions and a map can be found on the Club Website at **www.nadars.org.uk** More information from **Kevin G6FOP, E-mail: g5xv@ntlworld.com**

If you're travelling a long distance to a rally, it could be worth 'phoning the contact number to check all is well, before setting off.

Explaining DRM

If you are feeling a little in the dark about the DRM digital broadcasting standard you may like to take a look at the following website: **www.drmradio.co.uk/** The site explains, amongst other things, the four different DRM modes, the audio compression techniques and multimedia. It also highlights that in order for DRM to provide near f.m. quality it will actually require 18kHz bandwidth rather than the 9kHz often quoted. This will inevitably lead to pressure to increase the spectrum allocated to broadcast services.

This could come about through an expansion of upper limit of the Medium Wave band from 1611 to 1790kHz and increases in the s.w. Broadcast Bands. Such developments will make it harder for Radio Amateurs to achieve a 7000-7300kHz world-wide allocation. If the Medium Wave band was extended to 1790kHz it could impact on Amateur 1.8MHz operation just a few kHz away at 1810.

Scanning Scene

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

It seems as if the world's going mad. About a thousand people died in Iraq when they were crushed as they ran away because they thought that a suicide bomber was going to detonate himself and as many other folk as he could take with him. Then the awful hurricane in the southern United States that has destroyed a huge area and the lives of so many people, to say nothing of the myth that New Orleans was a decent place to be. Armed gangs have terrorised survivors of the hurricane.

Letter to US President

Communications in the City of New Orleans have been devastated. The Governor of the State of Louisiana, Kathleen Babineaux Blanco, wrote a letter to President Bush asking for assistance with vehicles, gasoline, troops, food and in one paragraph she specifically mentions communications.

Kathleen writes: "Our communications grid was devastated and we need significant assistance in restoring governmental communications. The re-establishment of cellphone coverage and public safety networks is necessary to establish communications among governmental officials at all levels and among response agencies. The radio system that is currently operational in the greater New Orleans area was designed to support 800 users; there are currently 2500 users".

She continues: "To address the radio communications requirements, we need additional frequencies: 25 800MHz trunking repeaters, tower crews, 1000 portable radios, 100m tower trailers and additional BellSouth and Motorola staff. I also require additional staffed mobile command centers that provide satellite uplink to support additional voice and data needs at public safety and governmental sites".

The American Red Cross has set up a network of base stations and mobiles on 47MHz to enable communications between the refugee centres and other aid facilities, as well as keeping in touch with their staff in the afflicted areas. Now that the whole city area has been forcibly evacuated and it seems likely that much of the city that remains will be bulldozed to the ground in order to rebuild.

I remember being in Texas and mentioning to a police sergeant in San Antonio that I was considering a visit to New Orleans. He said, "You don't want to go there Dave. It's a bad place, too many bad people and drugs" He obviously knew his stuff. I gave the 'Big Easy' a miss.

The same advice could be given with regard to London these days. The suicide bombings have made everyone decidedly jumpy, including the police and military.

Elements of the newly formed Special Reconnaissance Regiment are performing duty in plain clothes in the capital in an intelligence and surveillance role. They are armed for their personal protection and are using covert radio equipment. Their mainstay radio is probably the Racal Cougar encrypted system.

The police are using their Met Radio system and some people are on Airwave and you can bet that others will be on all three! I reckon that the Personal Role Radio, part of the Bowman system, hasn't the range for deployments such as surveillance where circumstances can change very rapidly and something that may have started off as a very localised operation can turn into a motorised trek across vast swathes of the country.

Cougar

Cougar is an old system but one that works. Portable radios and vehicle systems are available and the mobile sets have a rebroadcast facility. Low band Cougar is generally in the 84-86MHz region and some sets have been used at 78MHz, by the Ministry of Defence Police, as well as in the 400MHz range. High band frequencies are in the 141, 149 and 155MHz area.

The difficulty with Cougar, is that sometimes it is difficult to resolve the encrypted transmissions. On occasions this has resulted in the encryption being turned off! Much use is being made of mobile 'phones and even if the cellphone system is turned off, or clogged with traffic, some units of the police and military will have 'Access Overload Control' enabled by their mobile service providers, which means that their 'phones will keep working when you and I get 'Network Busy' or 'No Network' messages and that annoying bleep.

There's Always One!

There's always one isn't there? This time it is some bozo in the north west of England who put in a hoax mayday call, on marine v.h.f., to Liverpool Coastguard stating that he was on a speedboat called *Boy David* and that it was sinking. He gave further details and, of course, everyone had to turn out.

The coastguard, lifeboat and a rescue helicopter all attended the location that the moron had given and after a thorough search they concluded that the call was a hoax. This is another occasion where a scannist monitoring channel 16 could have been useful in locating the transmitter. It's a fair bet that the radio had been pinched in any case.

Thames Valley Police

It seems that one of the Thames Valley Police (TVP) forcewide channels has been fired up. The frequency of 154.950 a.m., previously known as M2HB7, has been heard apparently broadcasting what seems to be background noise. The TVP have been on Airwave for sometime and recently upgraded the software on the officers' radios in order that they can operate in other force areas.

As transmissions on 154.950 have been heard, it would seem that this is the one that they have decided to keep as their single analogue standby channel. It may be worth leaving in the scanning machine if you reside or travel to the Buckinghamshire, Berkshire or Oxfordshire areas.

Tour of *Britain* Cycle Race

Many years ago I had a push-bike but I never aspired to the dizzy heights of cycle racing. Though, I used to get up a pretty good speed on the way back from the pub!

For those serious cyclists the *Tour of Britain* cycle race ran from Glasgow, on 30 August, and they got to London on 4 September. It seems that much of the communications were on 462MHz with 462.425, 462.475 and 462.4875 f.m. all being reported in use.

They were also running a mobile repeater. The 461 and 462MHz frequencies are always worth a search, as there are literally thousands of users in this area. You'll hear pretty much anything on that range of frequencies. They are very busy indeed.

Scanning in the USA

I recently received an E-mail from a reader who asked about the legality of radio scanning in the USA. He, like many others, is taking a holiday there and wanted to know the legal position before going. Everyone has the idea that scanning any frequencies in the USA is legal. This isn't the case.

Many of the States have different laws concerning the subject. Some allow radio scanning of almost anything just as long as the scanner isn't used in connection with committing a 'felony'. Others outlaw scanners in vehicles without a specific permit obtained from the local authority. Some only allow scanners to be used in vehicles if the scanner user holds an amateur radio licence, some

require that the amateur licence is of a higher grade than 'technician'.

There are different regulations concerning scanner use in commercial vehicles. The whole thing is a legal minefield. The one thing that is clear though, is that the American laws relating to scanning only apply if you are a US citizen. If you aren't a citizen then you are not allowed to use the radio to receive anything other than amateur, CB or broadcast traffic.

In addition, there is a total ban on the importation of any radio into the USA that can receive the cellular telephone frequencies in the 800, 900 and 1900MHz range. It's highly unlikely that any police officer you encounter will have a clue about the law regarding foreigners operating scanners and as some police departments start their officers on a salary of only US$16000 a year you can imagine the general calibre of many recruits.

The one thing to be sure of is that the police officers are all really edgy these days and are even arresting railway enthusiasts who photograph locomotives! They also get horribly worked-up if they think that anyone is monitoring cordless 'phones or cellphone traffic. I dread to think what they'd do if they found a Brit operating a radio scanner and listening to the police, border patrol or any other of the Feds.

Honestly, they'd do their crust and I wouldn't be surprised at all if the poor radio buff was locked up for an age in one of their secret detention facilities - seriously. Having said all this, I've used a scanner for months on end in the USA. I, however, have an amateur radio licence and own a Kenwood TH-F7E radio that is a dual-band transceiver and a scanner combined. If anyone asks – then it's just an amateur radio set.

My advice to anyone considering a trip to the USA would be to travel without the radio and purchase one while you are there. There is likely to be a significant saving over the price of an identic al unit here in the UK and you can be fairly sure that the set will be legal to own in the States even if you, as a foreigner, cannot legally operate it. I suppose that we should be used to such restrictions, after all it's not legal to listen to anything much in Britain, is it?

Rumours

Has anyone heard the rumours that several local authorities in Wales have decided to establish their own emergency communications system in case of fire, flood or strife. It appears that they went to a local commercial p.m.r. provider and asked him to come up with a system that will allow them to communicate between varying locations in the region.

The word is that the p.m.r. guy has some community repeaters in any case. Will these be used or will a new trunked system be put in place?

Business Expense

A couple of months ago I wrote about the sheer expense of running a business in the UK compared with the United States (and most other countries for that matter). I stick by that and recommend that you attempt to purchase your radio kit from a UK retailer.

It seems that some equipment is not, however, available in Britain and the only option is to purchase it from an outlet in America. This is because the unit's manufacturer may not be inclined to submit their equipment for the 'CE' certification due to the high cost of doing so.

Apart from the obvious intention by the EU to exclude some manufacturers from the European market this is clearly not in the best interests of consumers. Firstly, if you greatly lust after a piece of radio gear it's always worth trying the main retailers here in the UK. They may supply the non CE certified unit 'for export only' if you see what I mean.

If all else fails and you feel that you must import from the US then be advised that there should be no import duty payable on radio equipment if the correct commodity code is entered on the green customs form. If 'Apparatus for wireless telephony/telegraphy' is entered on the form and on the invoice, together with the code 852509900 then no import duty should be payable although VAT will be levied based on the amount shown on the invoice. Although a scanner isn't necessarily used for 'wireless telephony' it may well come under that category.

Other codes cover accessories such as power supplies, filters and antennas (85299040000) and equipment to generate Morse code, such as keys etc. (85179088000). I can't guarantee that this will save you money but it has to be better than doing nothing and being forced to pay the full whack of whatever they can pile onto your bill, probably just for the hell of it – remember Customs are the outfit that seize you car if they think that you have brought in too many ciggies and cans of Stella. As I never travel to Europe I feel that my old car is fairly safe from them.

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Alinco DX 70TH HF & 6m Trx SH DX 70TH £475.00
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All At Sea

Dave Roberts takes a look at the communications systems and important work of the Royal National Lifeboat Institution.

With the British Isles boasting over 30000 km of coastline and consisting of over 5000 islands, the inhabitants justly feel that they have an affinity with the sea. It seems that our history consists alternately of traders and invaders and until the advent of aviation the only way to travel to and from any part of Great Britain was over water.

The seas have always been unpredictable. This fickle behaviour has, often, suited us in time of war by shielding us from invasion but has also cost the lives of many mariners who travel around these shores. Seaside communities had traditionally come to the aid of vessels perceived to be in difficulties but this service was, by nature, erratic and somewhat disorganised.

Then Manxman Sir William Hillary, himself an accomplished sailor, perceived the need for a national service and approached the Admiralty to provide some funds to train volunteer crews. Realising that there was little interest from that quarter he lobbied his contacts in London Society who weighed in with the required cash and in 1824 the Royal National Lifeboat Institution (RNLI) for the Preservation of Life From Shipwreck was founded. Thirty years later the name was abbreviated and these days everyone in Britain and Northern Ireland or the Irish Republic must be unaware of what the initials RNLI stand for. The RNLI operate 230 lifeboat stations throughout Great Britain, Northern Ireland and the Republic of Ireland and have an active fleet of 309 boats.

Recently, I was fortunate enough to go on board one of the 309 RNLI boats - the *Stanley Watson Barker* based in Portree Harbour on the Isle of Skye. Thankfully, it was just a visit and not a rescue, as my idea of waterborne adventure is a narrow boat on the Grand Union Canal with a couple of beers at lunchtime. All this deep salt water stuff scares me stiff.

The Coxswain's control station.

Antennas and bridge including DF array, solar panel and GPS antenna.

Call Out System

Firstly, I wanted to find out how the crew's call out system worked so that if I fell in the 'drink' I could be confident of a swift response.

When it's decided to call out a lifeboat, the crew can be alerted by the Lifeboat Operations Manager, who will have received the request by telephone from the local Coastguard Centre (in the case of Portree this is at Stornoway in the Western Isles). Or Coastguard operations staff can, if necessary, summon the crew themselves by initiating a call out from the Control Centre. In either case this is accomplished by the activation of the Call Out And Communications System (COACS). This equipment is common to all RNLI stations and pages the crew members with a text message indicating whether imminent launch is required or whether they should remain on stand-by at the station.

The type of launch required (i.e. Inshore or All Weather Lifeboat) is also indicated. Pocket pagers are supplied by Multitone. The COACS can also be configured to send an SMS message to mobile 'phones in order to alert crew who may not have received the pager message. The system can also be used to send training messages as well. Occasionally, maroons (big noisy bang type flares) will also be set off but these are merely used as a stand-by call out system these days and are mainly used to draw the attention of people in the immediate area that a launch is imminent.

Networked by NTL the COACS system provides a print out of the incident details at the station, as well as updating the RNLI website with information regarding the callout. The COACS also boasts a v.h.f. repeater on talk-through, which enables crew members to keep in contact with each other. The system pages from a local site on 153.075MHz at 25W, while the voice communications are on 162.15625MHz f.m. with the hand-held units transmitting on 157.55625MHz.

Transmitter sites are at Penifiler on Skye and at Lochinver on the mainland. Both locations have back-up battery power

available while the antennas used are collinear types with 3dB signal gain.

Crewing

There are only two full time crew at the Portree Lifeboat Station, the Coxswain and mechanic (who usually minds the radio equipment while at sea) and these two are allocated CTCSS tones on their hand-held units in order that they can be contacted without the squelch opening other radios on the scheme. All other crew members are volunteers and only receive a few pounds in expenses to cover getting to the lifeboat station.

The crew also have access to acoustic headphones with built-in transceivers and microphones. With voice operated switching (VOX) these allow conversations to take place in the noisy conditions often encountered on operations.

The lifeboat will typically launch with five, six or seven crew depending on availability. Launch time, for the Portree crew, is typically 11 minutes from activation of the pager system.

The COACS v.d.u. (see text)

The Portree Lifeboat

The Portree Lifeboat is a 14m Trent Class vessel, the RNLB *Stanley Watson Barker*. Although it's nine years old the vessel was refitted in 2003 by Alexander Noble and Sons Ltd., of Girvan. The boat looks as clean as a new pin and smells as if it had just been delivered new to the island.

I felt ashamed to stand on board in case I made it untidy but Davie Urquhart, the Coxswain, sensing my unease said, "Doesn't matter where you stand, you won't break it". I guess he was right on that one. It certainly felt as if it were a tough ship and rightly so as the construction is mainly of Kevlar, which you may recall is the stuff that they use to make bullet proof vests and armoured limousines.

The boat is driven by two 840 HP MAN diesel engines that can power it to a top speed of 25knots and allow a range of 250 nautical miles, which is a whole lot of ocean to travel.

Davie can control the lifeboat from a flying bridge exposed to the elements at the top of the ship or from the forward control position inside. I have no knowledge of the sea or seafaring, a fact that must have apparent to Davie as he nonchalantly watched my white knuckles gripping the hand-hold on the Rigid Inflatable Boat (RIB) on which he took me out to the *Stanley Watson Barker*, on what was a flat calm day in Portree harbour.

On entering the cabin I started to get some idea of the conditions under which these vessels are designed to operate. Looking at the crew seating I could see that these were built more like aircrew seats with full harnesses to restrain the personnel in rough conditions. All the 90° corners on any equipment in the cabin were shielded by foam rubber corner coverings and all the radios were BIG with big buttons and controls.

Take a look at the average mobile or bench mounted radio receiver. Small controls and tiny buttons are the industry standard. I find them difficult enough to see and operate in the car but imagine trying to tune something up while you are being bounced around in all directions and at all angles while trying to keep your evening meal below your shirt pocket level.

Radios and electrical panel at the mechanic's position.

The mechanic, who is strapped into the second row of seating, has the large array of Sailor radio telephony equipment in front of him, and with that to operate, as well as his engineering controls, his 'day at the office' can only be described as full.

On Board Radios

The radios, manufactured by Sailor of Aalborg, Denmark (now Thrane & Thrane), are pictured and from left to right consist of an RT2048 v.h.f. marine-band transceiver with dual-watch, scanning and instant Channel 16 (156.800 f.m. access) The 2048 is allied to the 2042 modem below it.

The Sailor h.f. s.s.b Compact RE 2100 is to the right-hand side, it has usual R/T functions and instant switching to 2.182MHz, the distress channel. Below each radio is the corresponding Digital Selective Calling (DSC) modem, so below the v.h.f. set is the VHF Sailor 2042 unit with built in Channel 70 (156.525 f.m. – simplex) DSC receiver. Below the 2100 at bottom right is the Sailor HF DSC Modem and scanning receiver Model 2150.

Both the modems allow the preparation and editing of DCS messages and sound an audible alarm if a distress call is received. The 2150 also allows watch keeping on the MF DSC channel of 2187.5MHz as well as a scanning function.

The marine Medium Frequencies (MF) in use by the *Stanley Watson Barker* are 2.226, 2.241 and 2.246MHz – all use u.s.b. and, of course, 2.182MHZ will often be used as well. A stand-by v.h.f. set is also fitted in case of v.h.f. failure.

GPS Technology

As you can imagine the use of GPS technology complements the crew's chart reading skills and the system allows all the charts corresponding to their area of operations to be loaded into the system and assists the

The Sailor radio telephony equipment and modems (see text).

Coxswain in plotting a course to the scene of an incident with destination and waypoints being entered. On screen charts show a visual indication of the vessels position.

The heart of the GPS system on board is the Leica MX400 DGPS Navigator. This gadget incorporates full differential GPS, current tide details and can be connected to ship borne systems to calculate fuel usage and remaining range etc.

Antennas Fitted

The view of the antenna equipment fitted shows a GPS antenna at the front with the h.f. and v.h.f., whips at each side of the flying bridge. The solar panel powers a small heater that prevents the electronics from becoming too cold in the winter and aids the prevention of condensation, a major problem with all electronic equipment, especially in equipment that lives in a damp environment.

On the very top of the shot you'll notice the stack of v.h.f. direction finding antennas. These are connected with the Taiyo Simrad TD-L1620A direction finder display that's located above the Cox's control position in the vessel. Davie, the Coxswain, tells me that they normally take absolutely no notice of the unit at all. But when they need to look up at it they find it's a totally invaluable tool in assisting them to find vessels or downed aircraft.

With a digital display showing a bearing to the received signal in one degree steps and a frequency range of 110 to 170MHz (a.m. or f.m.) it allows civil air band distress frequencies to be loaded into its 30 channels, as well as v.h.f. marine channels. Four modes of DF are available, manual, spot, search and scan. The unit allows the data to be held on the display with automatic restart if required (this operates like a 'delay' on a scanned channel in a normal scanning receiver). It runs from the ship's 24V supply and has a back-up battery and an audio output of over 1.5W.

Should the lifeboat, itself suffer a capsize – righting capability would undoubtedly come into force but all the antennas and roof top radar equipment would have all disappeared into the ocean. On the cabin roof there's a small black piece of metal that resembles the thing that we used to have outside the back door when I was much younger to remove welly boots. But on the *Stanley Watson Barker* it's used as a standby v.h.f. marine band antenna. It can't be more than about 130mm high and about 350mm long and its blade like shape ensures that it will stay adhered to the ship when the rest of the aerial farm are headed for the depths. It works very well indeed on test and fortunately it's never been used in anger.

Like many I'm a bit lax when it comes to earthing my radio kit. Actually, I don't bother at all. The lifeboat builders took it very seriously indeed. The earthing circuit on the Portree boat is made of enough copper to make your average scrap dealer drool for a month. The earth circuit is terminated in the bilges.

All communications are recorded on board using the CG300 digital recording system supplied by Audio Telecommunication Information Systems (ATIS) whose European base is in Germany. There is also an in-boat intercom system.

The Engines

In the depths of the boat are the engines. I mentioned earlier that they are two enormous MAN diesel units. When Davie fired them up the noise was terrific. I could immediately see a need for the acoustic headphone communications system.

In the engine room there's also an automatic fire detection and extinguishing system. In addition to this on the bridge, in the consol above the helm a CCTV monitor watches the engines and the stern of the ship (a bit like a reversing camera on a large truck). In fact the bridge of the *Stanley Watson Barker* in many ways resembles the flight deck of a large airliner with engine and navigation controls looking strangely similar to those on an aircraft.

Mercifully, it is quiet in the crew's cabin when the engines are running. This luxury does not extend to those rescued. The 'passengers' are housed in a cabin below the deck with ten seats, they are securely strapped in and fitted with protective crash helmets. Crews are well trained in advanced first aid techniques and lifeboats carry equipment suitable to this task.

The rescued mariners can be patched-up and, if conditions allow, they can be given some hot drinks and water should they need it. There's a small galley area in the cabin area where those rescued are deposited.

Davie Urquhart told me that he has absolute confidence in taking the ship to sea in any conditions and having been on board I can understand why.The lifeboats turn out to all manner of incidents from the seemingly mundane, such as small boats stuck on rocks to full scale sea rescues in severe storm conditions.

Taken for Granted

In the UK we take the RNLI for granted because they're always there for us. In spite of modern equipment and training the crews are still exposed to great danger when they attend incidents, especially in bad weather.

It always seems to me that around Christmas time there is always some sort of major tragedy to dampen the celebrations. I can clearly remember the morning of the 21 December 1981 when I heard on the morning news of the loss of the Penlee Lifeboat *Soloman Browne*. The crew had been socialising in the British Legion bar on the evening of the 20th when a call came to assist a brand new coaster called the *Union Star* whose crew reported engine failure 12km east of Wolf Rock Lighthouse, south west Cornwall. With a cargo of fertiliser bound for Ireland Captain **Henry Morton**, his wife, two daughters and the four crew on board were in deep trouble.

Because of the terrible sea conditions that night only one lifeboat crew member was selected from each family at the event. They launched just after 2000 that night under command of Coxswain **Trevelyan Richards**.

Most of the crew were from the small village of Mousehole. Winds were from the south east at hurricane force 12 and the waves were reaching18m in height. The Penlee boat reported rescuing four of the eight people on board the *Union Star* then contact was lost. Following a search the *Soloman Browne* was located the following morning in pieces. All the crew of the *Union Star* were lost as were all 16 lifeboatmen aboard the *Soloman Browne*.

My thanks go to Davie Urquhart for showing me around the RNLB *Stanley Watson Barker*. ***SWM***

The RNLI is totally funded from public subscription and as such depends on donations to continue operations to save lives on British and Irish waters, both inshore and offshore. The RNLI is a British charity, whose flag is designed around the St. George Cross.

Donations can be sent to **RNLI, West Quay Road, Poole, Dorset BH15 1HZ** and further information about other ways in which the RNLI can also be supported can be obtained from that address or from **www.rnli.org.uk**

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Dimensions	115cm total length. Antenna tube 50mm x 160mm. Ideal for base stations

ARA-2100 Active Antenna. £239.95

Frequency range	50-2100MHz
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Gain	18dB-100MHz 9dB-1500MHz 6dB-2100MHz
Noise figure	1.5-2dB 100MHz 1.8-2.5dB-1500MHz 2.5-4dB-2000MHz
3rd order IP	+36dBm typical P1dB = +22dBm
Output impedance	50-75 ohms coaxial
Connector standards	N type connector at the antenna. BNC male connector to the receiver
Power supply	12V DC at 160mA DC. Power supply for 230V AC is delivered comes with the antenna
Dimensions	Length 450mm. Diameter 90mm
Weight	2kg
Accessories	Mains wall plug adaptor (230V A/12V DC) interface unit (remote supply unit) 12m coaxial cable and mast mounting clamps

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The G313 breaks out!

Now the excellent software defined radio from WiNRADiO is available in external guise, allowing laptop PC users to enjoy the benefits of the radio. Long term user Jack Weber investigates the new model's characteristics.


Fig 1.


Fig 2.

Fig 1: With its silver case and translucent shell, the G313e is definitely not your average black-box receiver.

Fig 2: The three connectors are grouped at one end of the case.

WiNRADiO's new model G313e is the latest addition to their range of software-defined receivers. Functionally, it's exactly the same as the existing G313i, which I reviewed last year (*SWM* December 2004), i.e. a double-conversion superhet covering 9kHz to 30MHz. The difference is that the 'i' model is mounted on a PCI card, which fits inside your PC, while the e version is built into an external box that connects by cable to the PC's USB port.

Big Impact

This is more than just a change of packaging - it has a big impact on how and where you can use this receiver. Perhaps the main point is that the internal model can't be used with a laptop. The external version, on the other hand, is ideally suited to mobile use as it's small and light, and USB ports are universally found on all modern laptop and desktop computers.

Even if your PC does take PCI cards, you may not have any free as audio, video and other cards can easily fill up the available slots. Compact PCs are also a problem because many of them only allow you to fit half-height and/or half-length PCI cards, whereas the G313i is a two-thirds length, full height card. With USB there's no danger of running out of ports as several are always provided and you can use a USB hub to expand the number up to a maximum of 127. In terms of compatibility then, the new model is much more flexible.

The advantages aren't all one way though. The internal model disappears out of sight and doesn't add to desktop clutter or excessive cable spaghetti. Also, it handles the whole process, including audio amplification and output, directly within the receiver, whereas the external model uses the computer's sound card for its audio output. This means that you can't simultaneously use that soundcard for running a spectrum analyser or doing any additional audio processing. Fitting a second soundcard would solve the problem, but that involves additional expense and adds to the processor load on your PC. So, if the USB option isn't required, the internal model wins out in convenience terms.

It's pointless to say that one approach is better than the other, but they do make different demands and have different benefits, which means they'll suit different needs and different users. What's good is that having the choice really does extend the scope of these receivers. Especially as many people who would have wanted to use the G313i, but weren't able to accommodate it, will now be able to use the external version.

Translucent Shell

Physically, the G313e comes in an aluminium alloy box that's encased in a translucent plastic shell (Fig. 1). This has four non-slip feet on the base and eight moulded projections that fit together to allow multiple receivers to be stacked neatly on top of each other. The overall size is 164 x 96 x 41mm and the weight is just 480g so you could easily slip the whole receiver into a coat pocket. More to the point, even quite a large multi-receiver stack could be built up very compactly either for fixed or mobile use.

The only control is a power on-off button at one end, with a blue l.e.d. nearby to indicate the receiver's status. At the other end (Fig. 2) are three connectors – a standard concentric socket for 12V d.c. power, an SMA antenna input and a 14-way connector for the USB cable that goes to the PC. This is entirely different from either of the standard USB connectors, which means that you do have to use the special cable that's provided and not a generic USB cable.

Everything else that you'll need is also supplied in the box. There's a 12V d.c. linear power supply with mains lead, a BNC-SMA adapter for the antenna and even a basic wire antenna to get started with. All the necessary software comes on a CD and there's a well-produced 84 page printed manual. This is also available on-screen as a Help file.

As I've mentioned, both versions of the G313 are software-defined receivers. That's to say, they use computer software to perform all of the bandwidth filtering and demodulation, which would traditionally be carried out by a receiver's i.f. and detector stages. Only the r.f. front-end and first i.f. as far as the second mixer are in the form of physical circuits. The potential benefits of this approach are significant – not only are digital filters capable of giving a superb shape factor with steep sides and deep rejection of stopband frequencies, but they are also infinitely adjustable. And that's something you simply can't do with crystal filters.

Purely Mathematical

Treating demodulation as a purely mathematical process also has its advantages. It ensures consistency and stability without the same risk of thermal drift or component ageing as you'd get with conventional circuits. Also, new modes can be added with nothing more than a simple software upgrade. Of course, this applies to all aspects of the software, so bug fixes and new features can also be made available for download at any time.

With no need to open up the PC, installation is extremely straightforward. All you do is connect up the power, antenna and USB cables and run the software installer that's on the CD. It took all of five minutes before I had the receiver set up and ready to go.

The control software is exactly the same as that for the G313i and offers an identical on-screen front panel (Fig. 3). This provides precise tuning in steps down to 1Hz and a good clear S-meter that can be set to show r.m.s. or peak signal strength in dBm, µV, or as traditional S-units if you prefer.

Below the frequency display is a real-time bandscope

Fig 3.

Fig 4.

showing up to ±10kHz of the centre frequency. Surrounding this are buttons for selecting the demodulation mode and i.f. filter bandwidth as well as controls for the notch filter, noise blanker etc. For me, the best operational feature is that the filters can be controlled graphically on the bandscope. You just use the mouse to drag the filter passband to fit exactly the width you need in order to maximise the required signal and cut out nearby interference.

There's a great deal more that I don't have room to describe, including built-in audio and spectrum recording, two a.g.c. loops, an audio filter, memories (upgraded in the latest software version to allow 10,000 entries per memory file), comprehensive search and scanning facilities plus a very good wideband spectrum analyser for checking band occupancy. Many of these features were covered in my review of the G313i, so it may be worth looking back to that, but do bear in mind that there have been numerous improvements in the software since then. There are more details of those in my review of a recent software upgrade (*SWM* August 2005).

Performance Difference?

Because both the G313i and G313e share the same hardware front-end and the same software system, there should be absolutely no difference in their performance. This was something I was keen to explore because, if there is a difference, it might reveal problems resulting from the physical location of the receiver. From an r.f. point of view, the inside of a PC is a very hostile environment with lots of digital noise spread over a vast swathe of spectrum. I was a little nervous about this because I've owned a G313i ever since they became available and I've been extremely impressed at how effectively it's screened. But still, the nagging doubt was there that maybe I'd been living with all sorts of problems that would disappear if only it could be taken away from all that nasty hash.

With both receivers installed on the same PC and alternately using the same antenna, I set out to compare them on a wide variety of signals across the frequency range. And the result, I'm very pleased to say, is that I couldn't find any noticeable difference between them. There was, at times, a slight difference in the audio quality, but it didn't consistently favour either receiver over the other and I suspect it simply reflects the difference between my sound card and the audio circuitry in the G313i. In terms of general background noise there was no audible difference and both receivers were impressively free of spurious signals except in the range below 30kHz.

Adopting a less subjective approach, I fitted a 50Ω terminator to each antenna input and compared the noise level as measured by the receivers' own S-meter at intervals across the range. Again, this showed no significant difference, with both receivers being matched to within 1dB across the whole range.

All this is very reassuring as it shows that the two models are fully interchangeable in performance terms. This means that you can make your choice based on the real differences in physical form and computer connection without worrying that you're compromising reception.

Receiver Of Choice

Overall, the G313, in both its forms, remains my receiver of choice when trying to extract weak signals out of noise and interference. The Synchronous a.m. mode is particularly effective and the i.f. filters manage to cut a very sharp line between passband and stopband. Sensitivity and stability are also excellent. In fact, when I tested the drift against a GPS-derived 10MHz frequency standard it was just 1.8Hz from a cold start. That's well within the quoted 0.5 p.p.m. and exemplary by any standards. Compared to the better valve or solid-state communications receivers, the G313's digital approach does sound slightly more processed, less natural, but its intelligibility is far superior and that's worth more than fidelity in a communications receiver.

There were no problems to report except for one apparent bug, which means that the receiver loses many of its settings (mode, bandwidth, notch filter and others) if it's shut down and then launched again. My G313i always restores the same front panel settings that it had when last shut down, so presumably this loss of settings is not intentional and can be fixed in a future software release. Once in use, however, the receiver worked just as expected with no problems at all. My only slight quibble is that the blue l.e.d. is rather distracting, especially at night, because it flashes continuously while the receiver is switched on. It's also worth noting that this external version of the G313 has a built-in cooling fan. It's not noisy, but it is audible. For both reasons, the light and the fan, I'd choose to mount the receiver slightly away from where I'm sitting.

Mobile Operation

If you've been tempted by the G313i but couldn't physically accommodate it in your PC, then I can certainly recommend getting the new G313e. Although dearer than the G313i, it is still excellent value at £851.82 inc. VAT and shipping as you get top-class performance and a lot of powerful features for the money, as well as the option of mobile operation. WiNRADiO has shown that it can keep up a steady stream of software upgrades (all free) and the availability of a good DRM demodulator also helps to keep these receivers ahead of the pack. It's not really a beginner's radio, but anyone who is serious about h.f. listening should definitely consider the G313. Now that we have two versions of it, there's no reason not to.

SWM

My thanks to Ian Bateman of **Radixon Ltd,** the WiNRADiO UK distributor, for the loan of this receiver. Further details and an on-line order form are available at their website **www.winradio.co.uk**

Fig 3: The control panel with its real-time bandscope is exactly the same on both the internal and external models.

Fig 4: One benefit of a software-defined radio is that new facilities can be added with just a simple software download. This shows the optional DRM demodulator in use.

AOR LA 380 Compa

Whilst every listener dreams of being able to set up their own specialist antenna farm, for most of us, more practical options are required. The new LA 380 from communications expert AOR offers a particularly compact solution for real-world listeners! Mike Richards puts it to the test.

As you can see from the photos, the LA 380 really is very compact indeed with an overall height fully assembled of just over 400mm. So, there's really no excuse for not being able to squeeze one of these into the shack!

The other truly remarkable aspect of the LA 380 is its exceptionally wide frequency range of 10kHz through to 500MHz. That covers just about everything that most listeners would ever want. In addition to these attractive features, the LA 380 antenna has directional properties and can be rotated to improve reception - more on this later.

Noise Rejection

One of the first points to note about the LA 380 is that it has its own noise reduction system built into the design - so how does that work? To appreciate how this works you first need to understand a little more about how radio signal propagate.

All radio signals have two main components - an electric field and a magnetic field. When you are very close to the transmitter the electric field dominates, however, as you move further away the magnitudes reverse and, for most of the signals that we listen to, it's the magnetic field that counts.

Getting back to the design of the LA 380, the use of a loop design and the aluminium tubing provides effective rejection of the electric field, but allows the magnetic field to pass relatively unimpeded. Now here's the really clever bit; all that irritating local noise has a predominance of electric field so, will be attenuated by the design of the LA 380. This is because the majority of these noise sources are very close at hand, hence the dominant field is electric. This special feature of the loop design works particularly well with the LA 380 because it will inevitably be operated near local noise sources, so the built-in rejection makes the antenna a practical proposition.

The loop and its control box attaches to the power coupler/stand via a BNC plug/socket arrangement that allows free rotation of the loop.

Set-up

Getting started with the LA 380 is very straightforward, as everything you need is supplied in the box. The power-feed unit acts as the base with the combined tuning unit and loop mounted via a BNC plug and socket arrangement. The use of a BNC plug/socket is very neat because it provides an adequate mechanical joint to allow the loop to turn whilst also providing a high quality screened r.f. connection. The power-feed unit is mounted in a die-cast case to give it sufficient bulk to provide a stable base for the antenna.

Power for the antenna comes from a plug-top power unit fitted with a flying lead and a small coaxial power connector. The final connection for the unit, is BNC socket and lead for the connection to your receiver's antenna socket.

Choosing a suitable location for the antenna is important and it should ideally be well away from any obvious sources of interference - TVs computers, etc,. However, that may prove impossible in the modern shack with the computer now becoming a standard accessory! In this position I would just recommend that you experiment to find the least worst position! Fortunately, the LA 380 copes remarkably well in this situation, as I'll show you later.

Operation

Unlike a conventional external wire antenna small loops like the LA 380 need a little extra attention to bring-out the best performance. However, this is by no means a chore and just adds to the sense of achievement when you manage to dig out that rare station. With the power on, the first task is to set the band switch to the appropriate frequency range. There are five ranges provided, the first two of which are fixed and

ct Active Antenna

designed for monitoring standard frequency transmissions.

The 40kHz option is for a Japanese station whilst the 60kHz setting is ideal for MSF Rugby. The next three settings are for 3 to 10MHz, 9 to 40MHz and Others, i.e. everything else.

Once the band is set you need to adjust the tuning control for best results. This is located at the top of the pre-amplifier and has a 180° range of adjustment. Adjustment of the tuning can be quite critical and under some circumstances I experienced close to a 30dB difference in receiver signal level between off-tune and in-tune.

The requirement to tune the antenna is one of the few disadvantages of this compact antenna. However, the minor inconvenience of having to re-tune is more than compensated by the excellent sensitivity and noise rejection of the LA 380. The only other adjustment to consider is rotation the antenna as despite its small size it does exhibit directional properties on h.f.

Performance

I have to say I was surprised at the performance available from this tiny antenna. For the review I really gave the antenna rough treatment and set it up on my main PC workstation where it was surrounded by all manner of r.f. noisy devices. Within a metre of the test location you could find my main PC, flatbed scanner, printer, external hard drive, TFT monitor and various nasty switch-mode power supplies!

Despite the horrible location, the antenna sat there and pulled-in a stack of short wave signals to my amazement. I tried comparing the performance with a wire antenna located in the same hostile environment and it's no surprise to find that the LA 380 offered a significant improvement.

I also tried a few comparisons with an outside loop - unfair I know, but it was done to give some idea of the difference. For most of the tests the difference in signal level between the external loop and the LA 380 on the workstation was around 10-15dB, which was quite a surprise. Hamburg Met on 2.618MHz came roaring in remarkably well.

Whilst testing various stations across the h.f. bands I experimented with the directional aspects of the antenna. As expected, the peak was not well defined, but the end null certainly was. The null was very sharp with a clearly defined 10-12dB dip as the null point of the loop passed across the station.

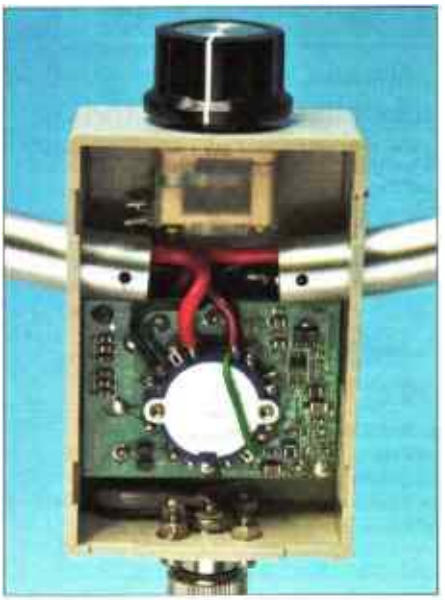
Having a null may not seems very useful at first sight, but it's invaluable for reducing disruption from a station on an adjacent or even the same frequency. By careful adjustment of the antenna you can make some significant improvements.

The power supply is of a low-noise format, to minimise pick-up through the supply lead.

The peaking effect of the tuning control was also significant with a huge difference when properly tuned. I checked the effect of a broadcast station on the 7MHz band and the difference was up to 22dB between optimum tuning and way off-tune. With such a large difference it's important to remember to adjust the antenna tuning regularly if you're searching through a band to see what's about.

Having satisfied myself that the l.f. through to h.f. performance was good I set about examining the v.h.f. performance. I gave it the same hard time next to my PC but the interference dominated with some very significant carriers spread throughout the v.h.f. bands. This is no surprise really but I did manage to receive quite a few ACARS signals despite the adversity!

The loop appears to work well at v.h.f. but you can't really expect very much operating at ground level surrounded by interference sources. Height is everything with v.h.f. so if you seriously want to use the LA 380 for v.h.f. you will need to he in an upstairs bedroom with the antenna mounted on the windowsill if at all possible. In that situation the loop performs pretty well. ***SWM***



A view inside the control box at the base of the AR 380 loop antenna.

Summary

The LA 380 is a surprising little antenna with quite remarkable performance for its diminutive size. It is ideal either for someone with severe space restrictions or as a portable antenna to take away on holiday. Incidentally, I'm putting on a Jamboree on the Air station and I intend to use the LA 380 as part of the station, giving my local Scout group the chance to obtain their Radio Communicator badge so, look out for a news item next month to see how we got on.

Thanks to AOR UK for the loan of the LA 380, which costs **£189 inc. VAT plus £10 P&P. AOR UK Ltd., Unit 9, Oimple Road Business Centre, Dimple Road, Matlock, Derbyshire DE4 3JX. E-mail: info@aoruk.com Website: www.aoruk.com**

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*Built-in PSU or 12V Ext

£1399 C

NVA-319 £199.95 C
Ext. Speaker 8 Ohms
ST-3 £79.95 B
Communication Headphones
CGD-197 £89.95 B
TCXO High Stability Crystal
CHE-199W £299.95 B
VHF/UHF Converter adds L.O.

Yaesu Receivers

YAESU VR-5000

*100kHz - 2599MHz
*FM AM SSB CW
*Large digital display
*Real-time band scope
*DSP Noise & notch filters (Opt)
*Super HF performance
*Automatic Tape recorder option

£489 C

Sony Receivers

SONY ICF-SW7600G

*150kHz-30MHz (LW/MW/SW), 76-108MHz (FM)
*AM, SSB, CW (FM)
*100 memory presets
*Audio output 380mW
*Supply 4 x AA
*Size 190 x 118.8 x 35.3mm
*Weight 608g

£119 B

Mizuho Active Loop Antenna

UZ-77 Ultra Loop

*530kHz - 1600kHz
*DX & Local switch
*Front-panel tune control
*Size 115 x 35 x 110mm
*Weight 400g with batts
*Loop 200 x 210mm
*Loop weight 200g

£89.95 B

Works great on scanners that cover the medium wave band. We received European stations during daylight. Rotate for best reception or to null out signals

Mizuho Receiver ATU

MIZUHO KX-S9

*Freq 3.5-52MHz
*Pwr input 5W max. QRP
*Input Impedence 50-600 Ohms
*Config PI C network
*For all types of antennas
*Sockets 2xSO-239
& 2x Terminal Post
*Size 162x55x130mm
*Weight 800g

£99.95 B

Power Stations

FD-7021

Self-contained power station output 12V at up to 12 Amps plus 1A outputs for 3 / 6 / 9V. Built in lamp. Includes AC & DC charger

£24.95 B

CH-1-150

Power station with built-in 150W inverter
*12V out up to 15A *230V out up to 150W *200K candle power spot *Dual fluorescent lantern *Cigar socket *Blinking warning light *Cartridge fuse *AC wall charger

£32.95 B

Watson Dipole Antenna

WDP-30

*1 - 30MHz
*8.5m long
*10m feeder with PL259's
*Impedance 50 Ohms
*Balanced, Low noise

Especially for use with receivers. Comes with balun, wire, insulators and 10m feeder with PL259's for Balun to receiver connection. Easy to put up either straight or inverted V. Ideal for small gardens

£49.95 B

Optoelectronics Frequency Counters

X-SWEEPER

A fully featured nearfield receiver that displays analogue signals in spectrum format
*30MHz-3GHz
*FM Analogue
*64x128 graphical display
*2000 Memories
*Sens: 100uV @ 500MHz
*Pwr 8xAA alkaline or AC adaptor (optional) 12V DC 350mA

X-SWEEPER with GPS: £1599.95

£1399.95 C

XPLORER £659.95 B
Nearfield Test Receiver 30MHz-2GHz LCD display
DIGITAL-SCOUT £429.95 C
Digital Frequency Recorder, 60MHz-2.6GHz
SCOUT £299.95 B
Frequency Recorder 10MHz-1.4GHz LCD display
CUB £129.95 B
Mini Counter 1MHz-2.8GHz LCD display

Watson Frequency Counters

WATSON FC-130

*Off air Frequency Counter *10MHz - 3GHz range *4 Switched Gate Spreads *Hold Display Button *2 Switched ranges *Internal Ni-Cad battery *Whip Antenna *AC Charger

£59.95 B

HUNTER £49.95 B
10MHz-3GHz 8 digit display, Imped. 50 Ohms
SUPER HUNTER £149.95 B
10Hz-3GHz 10 digit readout Imped. 50 Ohms

bhi DSP Equipment

bhi NES 10-2 MKII

NES10-2 Combined speaker and programmable DSP unit now with On/Off bypass switch. Offers dramatic noise reduction, even reduces annoying hetrodynes. 8 Ohms, 8 filter settings, 3.5mm plug. 12-24V DC

Special Offer
£89.95 B

NES-5 £79.95 B
Fixed level DSP noise cancelling Speaker
NEIM-1031 £129.95 B
Noise eliminating in-line module, 8 levels of reduction

Watson Audio Equipment

WATSON SP-2B

*Tailored response for speech
*Cast alloy construction
*Extremely Rugged
*Matches modern radios
*Includes patch lead
*Size 12W x 18H x 11D cm
*Weight 0.85kg

£29.95 B

HP-200 £22.95 B
Headphones with padded earpieces 8 Ohms 200Hz-10kHz
HP-100 £19.95 B
Lightweight Headphones 8 Ohms 200Hz-9kHz

NEW STOCK & OFFERS

SGC ADSP-2 DSP Speaker

* Built-in DSP Filtering
* Amazing noise reduction
* Works with any receiver
* Plugs directly into 3.5mm socket
* Requires 12V DC 500mA

~~£119.95~~ ~~£99.95~~ £69.95 B

NEW Heil HCS DSP Speaker

The Deluxe Heil Clear Speech DSP Speaker has easy to use controls inc a 5-step DSP level switch, tone and volume controls as well as a by-pass switch

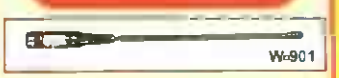
£169.95 B

MFJ-935B "Magic Circle" Loop Tuner NEW

This is the most amazing indoor antenna we have seen in years. For optimum results take a wire around 1/5th wave long and make a square loop (14ft for 20m - 3.5ft square). Then attach to MFJ-935B to get ultra low indoor noise and real DX reception. Works on any band from 40m - 10m. You make the loop, the tuner does the rest! The loop will also tune up to 0.75 of lowest frequency

£179.95 B

Watson Handheld Antennas



WSMA-450	£12.95	A
SMA 2m/70cm Rubber Duck 4.5cm long		
WDB-32	£12.95	A
BNC 2m/70cm Rubber Duck 4.5cm long		
WSMA-7000	£14.95	A
SMA 2m/70cm Rubber Duck 17.7cm long		
WHX-7000	£14.95	A
BNC 2m/70cm Rubber Duck 20cm long		
WHSM-270	£19.95	A
SMA 2m/70cm Rubber Duck 40cm long		
WHXX-270	£19.95	A
BNC 2m/70cm Rubber Duck 40cm long		
WSMA-801	£12.95	A
SMA Reg/Gain 25-1900MHz 21cm long		
W-801	£12.95	A
BNC Reg/Gain 25-1900MHz 21cm long		
WSMA-881	£19.95	A
SMA Super-Gainer 25-1900MHz 40cm long		
W-881	£19.95	A
BNC Super-Gainer 25-1900MHz 40cm long		
W-901	£19.95	A
VHF/UHF airband flexi 40cm long BNC		
ANT-60	£9.95	A
Portable SW antenna 7m long 3.5mm jack		

COMPUTERS & RADIO PART 5A

The benefits of the marriage!

The possible applications for the combination of radio receiver and computer running various programs are limited mainly by imagination. This month Jack Weber continues his investigation into the many benefits of the marriage.

One of my favourite receivers is a great big brute of a radio called the BRT400D (Fig. 1), which was made by GEC during the early 1950s. It may just be because I have an irrational fondness for chrome trim on radios, but I think it's mostly because of the set's ergonomics. The knobs are nice and chunky, the switches flip with a satisfying clunk, every function has its own control and there's enough space between them all that you won't find yourself accidentally moving the wrong one. It may not match modern receivers for performance, but it's always a pleasure to operate. And how many radios can we say that about?

If you've ever found yourself unable to remember the lengthy and obscure sequence of button presses needed to achieve a simple result, or cursed the fact that some regularly used control is always obscured by the headphone plug then you'll know what I mean. As receivers have become more complex they've also become smaller, and the collision of those two trends has inevitably led to incomprehensible menu-driven commands, multi-function controls that do different things in different contexts and buttons too tiny for anyone except a five year old to operate.

● **Fig.1: The GEC BRT400D, a 15-valve superhet dating from the early 1950s. With its large, well spaced control panel it's a pleasure to operate.**

Fortunately, there is a solution, and by now I'm sure you won't be surprised to hear that I'm referring to computer control, sometimes known as CAT or Computer-Aided Tuning. If done well, this has the potential to wipe out most of the problems of a cramped and cryptic control panel. And it's not just the physical controls that are often under-sized today, digital features such as memory banks are an indispensable part of any modern receiver or scanner, but don't you ever wish you could have more? And not be limited to an abbreviated alpha-tag of just a few characters?

By moving control of the receiver to a computer you can, at least in principle, achieve whatever sort of control layout will suit your needs, or even have several layouts for different uses. Memory limits evaporate because you're only restricted by hard disk space and if you want to expand an alpha-tag to a whole paragraph of notes, you can do.

More Than Extending

More than just extending the receiver's capabilities, computer control lets you do things that simply aren't possible with a stand-alone radio. One of the most significant is the ability to run the receiver from a database. With the sole exception of Fairhaven, radio manufacturers have treated memory as a precious resource that has to be restricted for fear the extravagance will go to our heads. Actually, having unlimited memories is a big benefit because it means you can load in complete frequency listings and capture extensive scanning hits with no problems.

Other possibilities in computer control include integration with mapping software to show you where a station is and where the signal path lies. Add in propagation software and it could tell you which stations are likely to be currently audible. If you have an antenna rotator, then it can be operated automatically when you select a station. Combined with audio and spectrum recording, you can set up complex sequences of events for unattended monitoring and recording across different bands. You can even operate your radio by remote control from another room or from the other side of the world.

At its most basic, the fundamental problem that computer control will tackle is size. As I'm writing this I have a computer display sitting in front of me and an AOR AR7030 receiver to the side. The AR7030 is a superb radio - I've kept it longer than any other, which must say something. To my mind, it's also one of the few truly elegant modern receivers, a real design classic. But with a front panel area of only about 172cm² it has what must be one of the most cryptic front panels ever made. One control is simply labelled "*" and another has just two arrows to explain its function. Eventually you get the hang of it and it all becomes quite straightforward, but I do sometimes wish for a switch that simply said "Notch Filter On/Off". Of course, there's no room for that sort of thing.

By contrast, my computer display - just a modest 17"

model - has a screen area of about 910cm². That's over five times as big, which gives more than enough space for all the controls I'd ever need. In fact, it's nearly as big as the 1,050cm² panel on my BRT400D. Admittedly, that has fewer functions and therefore doesn't require so many knobs and switches, but unlike a real control panel, a virtual one can be packed much tighter because it doesn't need to provide gaps for your fingers to fit in.

Offered The Possibility

For some years now, most communications receivers and scanners have offered the possibility of computer control. Many come supplied with software and there are also various independently produced programs that can work with the more popular models of radio. Connection is normally through a socket on the back of the receiver that links to an RS-232 serial port on your computer.

In some ways this isn't a very helpful choice as RS-232 is an ancient and awkward protocol that's hardly used by modern PCs. Some, such as Macintoshes, haven't bothered with serial ports for years while others generally provide just one as a legacy connector for old bits of kit. Anyway, merely having an RS-232 port isn't enough, because you then have to discover which one of several different cable types you need and which of many possible connectors is required at each end. Once that's been sorted out, you have a whole list of options such as baud, stop bits, parity, handshaking and others to get right before any of it can be made to work.

The modern serial alternatives - USB and Firewire (IEEE-1394) - don't need any of this nonsense. Just plug them in and off you go. Strangely though, radio manufacturers have only recently and rather tentatively begun to use USB, most still rely on the 1960s RS-232 technology. The only real advantage to the users is that RS-232 is easier to program, which helps if you want to write your own control software (we'll come back to that later on).

Assuming that your receiver is equipped for computer control, it may be supplied with a suitable serial cable. If not, then you'll have to check what's required. In most cases, you'll need a cable fitted with a female DB-9 plug at one end and a male DB-25 at the other end - see **Fig. 2**. However, these cables come in two versions, which both look exactly the same yet are wired differently (nothing is ever simple with RS-232). One is called a standard or straight-through cable, the other is a cross-over or null modem cable. Some receivers use one, some use the other, so you'll have to check with the manual or manufacturer. Fortunately, both types are readily available, as are adapters to convert between them. You may not be lucky though - there are some awkward exceptions such as receivers that need a DIN plug on their end of the cable. The only option then is to make your own or buy an expensive special cable. Hand-held scanners also generally need a special cable because, of course, there's no room on them for a big DB-25 connector.

Just to complicate matters even further, there are also various proprietary interfaces. For example, Icom's CI-V system is used on many of their tabletop receivers and transceivers. The advantage is that you can control up to four receivers from the same software. The disadvantage is that the voltage levels are incompatible with RS-232 so you'd need to buy a special level converter to interface the two. At least the Icom IC-R8500 provides both CI-V and RS-232 connectors, so you can just use the normal serial connection, provided you don't need to control multiple receivers.

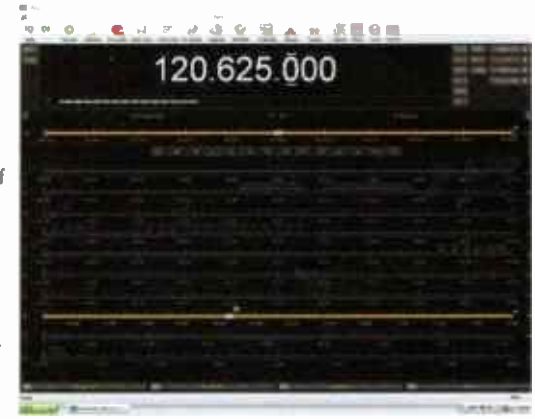
Better Choice

Some professional monitoring receivers use the RS-422 protocol, which is actually a better choice in terms of

● **Fig. 2: A serial cable with a female DB-9 plug at one end and a male DB-25 at the other will connect most receiver/PC combinations, but do check whether it needs to be a cross-over cable or not.**

technology because it's a balanced connection that reduces interference and allows longer cable runs. Unlike RS-232, it's also a multi-drop system, which means that multiple receivers can be connected to the same cable and addressed individually. However, it's not well supported by domestic computers so you'd probably need to get an interface card to make use of it.

Having plugged your radio into the computer, you now need some software to take control of it. The software that's provided by radio manufacturers is a good place to start, but some of it is decidedly lacklustre so it's well worth looking at the third-party alternatives that are available. There are lots of them, but for a start here are a few that I'd recommend trying.

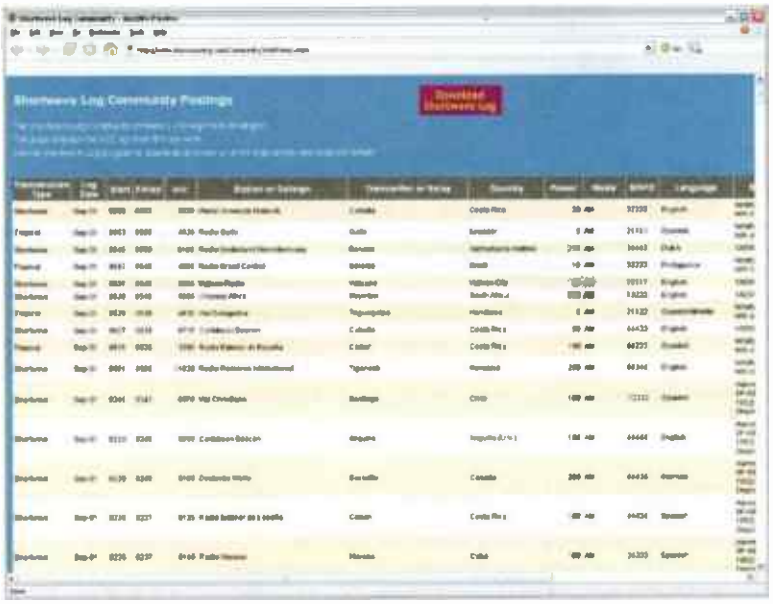


● **Fig. 3: *Ham Radio Deluxe* has one of the most flexible layouts, allowing you to change the position, style and colour of all the elements.**

One of the most ambitious is a program called *Ham Radio Deluxe* (*HRD*), which was written by **Simon Brown HB9DRV** and the late **Peter Halpin PH1PH**. Despite its name, it can also be used for broadcast and utility DXing or for general scanning. However, its origins in amateur radio mean that *HRD* mostly supports transceivers and only a limited list of receivers and scanners, though this does cover some of the more popular models. You can check the list of compatible equipment at their website (all URLs for downloads and information are at the end of this article).

HRD comes configured for amateur, short wave broadcast and a few other bands (see **Fig. 3**), but you can easily define your own and even customise the appearance of the controls to suit your needs. There's a wealth of features including integration to frequency databases such as the HFCC and ILG broadcast lists, rotator control and maps. All this will cost you precisely nothing - just download it and use it.

Another very capable - and free - control program is *Shortwave Log*. This one's primarily aimed at broadcast DXers, but it's adaptable enough for amateur and utility monitoring. Like *HRD* it offers all the big features - databases, propagation, recording and so on. What sets it apart, though, is that it's very much an Internet-based program. It searches on-line frequency databases and fetches current ionospheric data from various websites. More



● **Fig.4: The *Shortwave Log* program encourages users to share their loggings on-line, allowing you to download details of what others have heard so you can pursue them yourself.**

importantly and unusually, it aims to create an on-line community where the program's users can share logs with each other (**Fig. 4**). It also provides a server option which lets you make your receiver available over the Internet or a local network. You could use this for remote control, but you can also make your receiver publicly available via a web page, rather like the DX Tuners system. As an alternative to the other control programs, *Shortwave Log* is interestingly different.

Long Established

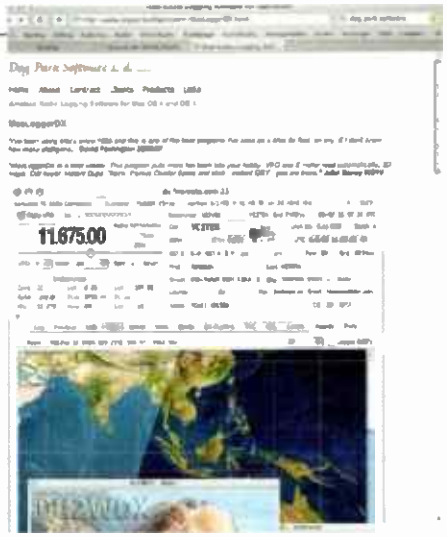
One of the longest established radio applications is *Ergo*, which is now up to version 4. This is probably best suited to h.f. broadcast DXing, but could be used for utility and amateur listening too. It too provides database integration, propagation prediction, audio recording and d.s.p., as well as the ability to control two receivers simultaneously. The interface looks quite plain compared to some of the newer programs and I'd describe it as functional rather than ergonomic. Also, there's no control over receiver memories in the current version.

On the plus side *Ergo* does handle several seriously upmarket receivers, such as the Rohde & Schwarz EK890 and Watkins Johnson HF1000, as well as some difficult receivers, such as the AOR AR7030. Many other control programs provide no support at all for these so *Ergo* is definitely worth a look if you have a radio that isn't widely supported. The price is CDN$135, which is about £63.

Also worth mentioning is *RxWings* - another program with AR7030 support, which is available for free download. This has been around for quite some time and doesn't have all the bells and whistles of some of the more recent programs but is still a solid performer. There are others too and I'm sure that more will appear as computer control becomes the norm. Some are free, but those that aren't are generally in the £20-60 range and offer a free trial period before you have to pay. To put the prices into context, consider that *Visual Radio*, which is a typical professional application for receiver control, costs 2,100EUR (about £1,430). And that's just for the most basic version.

The programs I've mentioned so far all run under Windows. If you're a Mac user, the choice is very much more limited. However, if the amateur bands are your thing, then one program I'd strongly suggest looking at is *MacLoggerDX* from Dog Park Software (see **Fig. 5**). This is a very impressive application that can log into a DX Cluster, check what stations have been reported, tune the receiver (or transceiver) to the station you choose, find the location from a callsign database, swing an antenna rotator round to the correct bearing and finally even send off an e-QSL if you want. *MacLoggerDX* costs $95 (about £53).

The only other receiver control program that I know of on the Mac is *MacR-1000*, which is specifically designed for controlling the Icom PCR1000. One reason for the dearth of Mac-based receiver control software is bound to be because Macs don't have RS-232 ports. This needn't really be a problem though as you can use a USB to RS-232 converter on any Mac, or a PCI serial card if you have a PowerMac. In fact, you'd also need to use adapters or serial port expanders on a *Windows* PC if you've run out of COM ports. A PCI card with four additional serial connectors costs around £60, while a USB to RS-232 adapter cable costs in the region of £20.



● **Fig. 5: Dog Park Software produces a number of very polished amateur radio applications for the Mac. Among them is *MacLoggerDX* which can control receivers or transceivers, and do much more besides.**

Useful Sources

Ham Radio Deluxe can be downloaded from **http://hrd.ham-radio.ch/**

Shortwave Log can be downloaded from **www.shortwavelog.com/default-english.html**

Details of the *Ergo 4* receiver control application are at **http://swldx.com/**

The *RxWings* program is available from **http://home.wxs.nl/~jarkest/swl/swl.html**

MacLoggerDX by Dog Park Software is available from **www.dogparksoftware.com/MacLoggerDX.html**

MacR-1000 can be downloaded from **http://manoverboard.org/**

Information about *Runtime Revolution* is at **www.runrev.com/**

Details of *FileMaker Pro* are at **www.filemaker.co.uk/** and the Serial Plug-in for *FileMaker Pro* is available from Troi Automatisering at **www.troi.com/software/serialplugin.html**

You can get more details of the Griffin PowerMate from **www.griffintechnology.com/products/powermate/**

Info in Orbit

Lawrence Harris 55 Richville Road, Shirley, Southampton SO16 4GH
E-mail info.orbit@swpublishing.ltd.uk **Website** www.astronomerplus.com

Hurricane *Katrina* converted the once proud and beautiful American county of New Orleans into a wasteland. Despite ample warning from the National Oceanic and Atmospheric Administration (NOAA) and other agencies (National Hurricane Centre) - see later - of the likely impact of *Katrina*, many of the population were simply unable to afford transport to leave the area when evacuation was ordered. Marion and I do not have a car, so what might we do in comparable circumstances? I do not know. Only after the natural catastrophe did the facts emerge of the man-made catastrophe: the flood water protection schemes that were supposed to protect New Orleans had been quietly abandoned by politicians due to the so-called cost. Now the real cost in lost lives makes that nominal cost seem paltry!

This exceptional event demonstrates just how much our lives are intertwined with the ever-changing weather, and prompts me to include a section for beginners on the background to the hobby of obtaining weather satellite (WXSAT) images.

Hurricane *Katrina* - The Satellite View

Hurricane *Katrina* came to our attention as a Tropical Depression on 23 August 2005, located between the Bahamas and eastern Cuba. It developed into a Category 1 hurricane (average wind speed between 115 and 147km/h) while moving towards Florida. First landfall was made on 25 August, and after crossing southern Florida, it roared into the Gulf of Mexico, moving south-westerly and then changing to a north-westerly direction. The warm waters of the Gulf gave it more energy so it developed into a Category 5 (average wind speed of more than 260km/h) hurricane - the maximum intensity class.

The hurricane remained at full force as it made landfall over Grand Isle (the Mississippi River Delta) on 29 August, with winds reaching 250km/h.

One of the most dramatic images of *Katrina* came from meteorologist Patrick Prokop of WTOC-TV in Savannah, USA - see **Fig. 2.**

On Tuesday 30 August the centre of tropical storm *Katrina* sprawled over the Tennessee valley. The storm had weakened significantly from the category 4 hurricane status it had when it struck the Gulf Coast, and it was still weakening as it rained and blew over the region. NASA's Multi-angle Imaging SpectroRadiometer (MISR) measured cloud-top heights and cloud-tracked wind velocities as the storm passed over the valley - **see Fig. 3.**

NOAA's Seasonal Weather Forecast

At the start of the hurricane season, NOAA published its seasonal weather forecast, anticipating a 95 to 100% chance of an above-normal "2005 Atlantic hurricane season". This forecast was based on a consensus of scientists at the National Oceanic and Atmospheric Administration's Climate Prediction Centre(CPC), Hurricane Research Division (HRD), and the National Hurricane Centre(NHC). This forecast reflected NOAA's highest confidence of an above-normal hurricane season since their outlooks began in August 1998.

The updated outlook anticipated an extremely active season, with an expected seasonal total of 18-21 tropical storms (the average is 10), with 9-11 of these becoming hurricanes (the average is 6), and 5-7 of these becoming major hurricanes (the average is 2-3). These predicted seasonal totals included the activity that had already occurred prior to the update; there had been seven tropical storms and 2 major hurricanes. Therefore, from August until the end of the season, NOAA expected an additional 11-14 tropical storms, with 7-9 becoming hurricanes, and 3-5 of these becoming major hurricanes. These very high levels of activity compare with those seen during August - November 2003 and 2004. Historically, seasons with above-normal levels of overall activity have averaged 2-3 U.S. hurricane landfalls and 1-2 landfalls in the region around the Caribbean Sea during August-November.

The predicted 'nearly 100%' chance of an above-normal season is higher than the 70% likelihood given in NOAA's pre-season outlook issued 16 May. This increased certainty reflected the fact that the atmospheric and oceanic conditions favouring hurricane formation predicted in May were actually in place. These conditions, combined with the high levels of activity already seen, made an above-normal season almost certain.

Most of the severe weather activity in the tropical Atlantic region is still expected to occur during the peak months of August-October. Many of the storms during this period develop from disturbances moving westward from the west coast of Africa, and usually form over the tropical Atlantic Ocean and Caribbean Sea in the region between 9°N - 21.5°N. Historically, tropical storms that form in these areas account for 85% of all hurricanes and 80% of all major hurricanes.

The conditions that produce hurricane land crossings are well known; they are often related to daily weather patterns rather than the seasonal climate patterns, but are very difficult to predict. As a result, it is currently not possible to confidently forecast the number or intensity of landfalling hurricanes over longer time-scales, or to forecast whether a given locality will be impacted by a hurricane during the season. "Given the forecast of above-normal activity for the remainder of the season, it is imperative that residents and government officials in

Fig.1: *GOES-12* 1800UTC 28 August hurricane *Katrina* about to hit New Orleans © EUMETSAT 2005.

Fig. 2: *NOAA-15* an evening view of hurricane *Katrina* from Patrick Prokop.

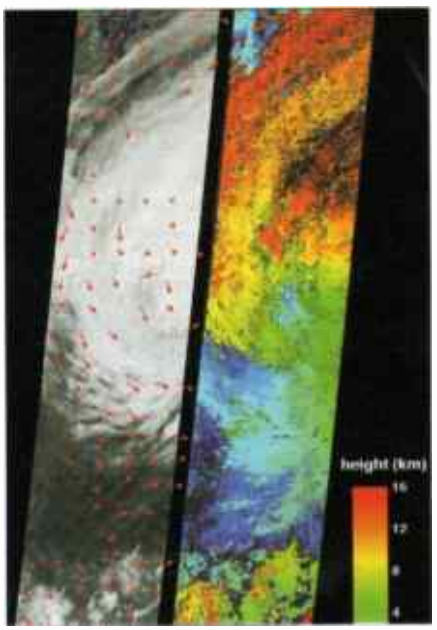


Fig. 3: *Katrina* - NASA image from TERRA satellite courtesy NASA/GSFC/LaRC/JPL, MISR team.

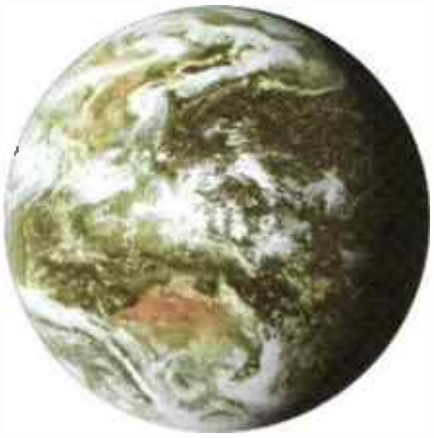


Fig. 4: *GOES-9* (GMS position) visible-light (false colour) 11 September 0600UTC © EUMETSAT 2005.

hurricane-vulnerable communities have a hurricane preparedness plan in place".

METEOSAT's Foreign Satellite Relay Changes

METEOSAT-8 currently provides WXSAT imagery via the EUMETCast transmission facility from *HotBird-6*. This includes foreign satellite data - currently *GOES-10* and *GOES-12* over the USA, *METEOSAT-5* over the Indian ocean, *METEOSAT-7* over Europe, and *GOES-9* over Japan. *GOES-9* - see Fig. 4 - has been 'standing in' for the Japanese WXSAT that will be replaced by the new digital WXSAT *MTSAT-1R*. From mid-September MTSAT will be the new operational WXSAT and its data will replace that of *GOES-9*.

NOAA-18 a.p.t. - Possible Switch!

Subject to agreement between NOAA and EUMETSAT, by the time this edition appears we could be tuning our a.p.t. receivers to a new frequency for *NOAA-18*! The following notice is extracted (courtesy of NOAA) from the NOAA Polar Orbiting Weekly reports for *NOAA 18*:

"Discussions regarding the possible swap of *N18*'s VTX (APT) assignment are also underway among the engineering and scheduling divisions. Apparently, the VTX currently in operation (#2 at 137.9125MHz) on *N18* is often interfered with by cellular devices while orbiting over the European continent. To alleviate this condition a swap to VTX#1 (137.1MHz) is under consideration. No date has yet been determined for this reconfiguration, if it should occur".

Fires in Portugal

Fire struck Portugal in August, and Peter Schoen sent me high resolution images showing the region scanned by *NOAA-16*. "Burning soil is evident on the images from the satellites", explained Peter. "I wished they could get that rain that was falling the last few weeks here in Germany". Peter also sent me an h.r.p.t. image from *NOAA-14*, the WXSAT that somehow recovered from a serious failure and that NOAA was able to resurrect.

An Analogue Past Transforms to a Digital Future

I have received several letters from readers, including **Philip Burton G4CUR** and **Jim Roberts** in recent weeks wanting to enter or rejoin the world of WXSAT monitoring. Although the WXSAT Special (published in March *SWM*) tries to provide guidelines for this, it is useful to include some notes every few months about changing equipment needs and setting up a suitable reception system.

Those of us that have been monitoring WXSATs for over a decade know that the starting costs were originally relatively high. It is a high technology hobby with a price tag to match, but the situation has changed significantly in recent years. The cost of setting up a reception system has declined in real terms, simply because the electronics required to decode WXSAT signals have reduced in price due to unchanged signal formats. This is now in the process of changing dramatically. The professional weather forecasters for whom the satellite data were originally intended, have specified new types of data, and want much more of it. They want to be able to improve their weather forecasting computer models in order to predict ever more accurately how the weather can be expected to develop in the short term, and the medium and long term. No longer can this be done using limited analogue transmissions.

The future is digital. All future WXSATs are being designed to provide digital data streams, with the much-loved analogue streams being phased out over a long period. Analogue data - particularly WEFAX (the weather facsimile transmissions from *METEOSAT-7* and previous satellites in that series) - will disappear and be replaced by considerably enhanced digital data. The analogue transmissions have lasted many decades.

Pressure for the switch to digital comes from the professional users of the data, and it is these same users that can factor in the necessary increased costs for the essential upgrades to their receiving equipment. As amateurs, therefore, we have to console ourselves with the knowledge that the switch is overdue anyway. We can reasonably anticipate that over a period of time experimenters and entrepreneurs will develop systems to receive the new signals at ever decreasing cost. Just like with the original WEFAX and a.p.t. reception systems that required a framestore, it may seem expensive to contemplate now, but history has shown that amateurs will eventually conquer the problems using new electronics and new ideas. Remember how using the BBC and other computers helped to crack the protective domain of the framestore during the mid-1980s! Optimism seems appropriate!

So What's Available?

The frequency list published at the end of this column summarises the signal transmissions that are currently available for amateurs to receive and decode. They can be divided into two different categories, one of which can be divided into two further categories. The two main categories are geostationary WXSATs and polar orbiting WXSATs.

The geostationary WXSATs are a constellation of several different nations' satellites located at various fixed positions around the Clarke belt - the circle above the earth's equator at an average distance of 36,500km. In this orbit, satellites take almost exactly 24 hours to orbit the earth - and therefore appear to hover over the same location all the time. Europe has METEOSAT positioned nominally above Greenwich meridian and - for instance - China has *FENG YUN-2C* positioned above its country. Several major space-faring countries operate geostationary WXSATs above their longitudes and, by international agreement, most use agreed signal formats and frequencies. Many exchange images as well.

There is a significant difference between *METEOSAT-8* data transmission and the other geostationary WXSATs due to an accident; amateurs and professionals receive its principal data (the images) via a different (relay) satellite. When we set up a receiving system for *METEOSAT-8* imagery, we are actually going to receive a signal stream from the *HotBird-6* television broadcast satellite. The data stream is called EUMETCast and provides high quality images originating from *METEOSAT-8*, with *HotBird-6* acting as a relay for these transmissions. EUMETCast will be our main method of METEOSAT data reception for several years to come - even after the next METEOSAT is launched and starts to provide the originally planned data stream via direct, conventional radio links. More about this in future editions. Meanwhile

Fig. 5: *NOAA-14* h.r.p.t. 10 August from Peter Shoen in Germany

Fig 6: *NOAA-16* h.r.p.t. 21 August showing fires in Portugal from Peter Schoen.

Fig. 7: *NOAA-17* from Kevin Hughes

the other geostationary WXSATs continue with their conventional transmissions, although most of them are outside the reception area of British stations.

Polar WXSATs are also undergoing significant changes although for the current decade we shall be able to continue to receive the long established image streams. The majority of amateurs receive automatic picture transmission (a.p.t.) images, as shown in **Fig. 7** and **Fig. 8**. To receive these images we require three basic units: a suitable polar WXSAT receiver, a WXSAT antenna, and a suitable computer with software to decode the resulting image stream that appears as data from the WXSAT receiver. Suitable antennas are available from the WXSAT clubs RIG and GEO and the commercial outlet Timestep - costing approximately £40. Suitable receivers are available and typically cost about £100. In real terms, these prices are considerably lower than a decade ago!

There will be much more in future months in this section.

Pictures Received

Kevin Hughes enjoyed the sunny skies in early September from which **Fig. 7** from *NOAA-17* was recorded. George Newport has just set up an RX2CC receiver with which he has been successfully receiving NOAA-18 a.p.t. - see **Fig. 8**.

WXSAT Groups Update

Edition number 7 of the GEO (Group for Earth Observation) quarterly arrived in early September. The quality of the magazine and its image contents has remained at a high level under the production editorship of Les Hamilton. Where possible, Les is using large or full-page, full colour image reproduction, to greatly enhance its impact. This edition includes a summary of the Internet survey completed by Nick Hewgill and myself into the nationwide reception of NOAA-18's 137.9125MHz a.p.t. signals, together with an accompanying feature about minimising pager impact. A new a.p.t. WXSAT receiver is a rarity; Les reviews the new German R2FX model from Holger Eckardt, and finds the twin antennas feature of great interest. Other features include a look at Australian weather, obtaining and processing images from the Chinese geostationary WXSAT *FENG YUN-2C*, and software applications. Finally, a chilling look at the possibility of hurricanes intensifying as the earth warms, is suggested. Maybe we are there already.

Fig. 8: *NOAA-18* 1255UTC 8 September from George Newport.

The h.r.p.t. Saga Continues

Some weeks back, the rotator on my high resolution system's tracking dish failed; the problem was traced to a faulty potentiometer. I had this replaced with a new one from the manufacturer but although the rotator subsequently tracks fine, the reception system itself developed some sort of fault leading to low signal levels. I checked the computer's clock and the Kepler elements, but still the signal from all h.r.p.t. satellites remained noisy. I tried some replacement cable, previously used with my PDUS system (the high resolution image stream from *METEOSAT-7*) but still the signal was noisy. The next stage was to refer back to the original supplier - Timestep; Dave Cawley kindly offered to check the hardware. Subsequently he confirmed that all was working well, so I shall have to do a thorough check once more!

Fig. 9: One of the first *MTSAT-1R* images from the satellite replacing *GOES-9*. It was processed to obtain artificial colour, by **David Taylor** using *GeoSatSignal-5*.

Frequencies

a.p.t.

MHz	WXSAT
137.50	*NOAA-12*
137.50	*NOAA-15*
137.62	*NOAA-17*
137.9125	*NOAA-18*

During overlap periods with *NOAA-15*, *NOAA-12*'s a.p.t. may be switched off.

h.r.p.t.

GHz	WXSAT	
1.6980	*NOAA-12*	
1.6980	*NOAA-16*	
1.707	*NOAA-14*	
1.7025	*NOAA-15*	
1.707	*NOAA-17*	
1.698	*NOAA-18*	One of the two
1.707	*NOAA-18*	frequencies in use.
1.7005	*FENGYUN-1D*	

WEFAX

METEOSAT-7 (geostationary) transmits WEFAX on 1.691 and 1.6945GHz, and Primary Data on 1.691GHz until the end of 2005.

METEOSAT-8 HRIT, HRIT and other formats transmitted via *HotBird-6* at 13°E on transponder 117 - 10.85344GHz as EUMETCast data.

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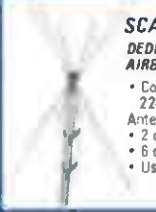

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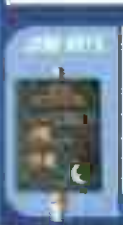

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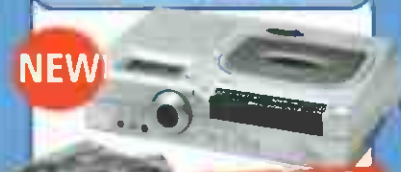

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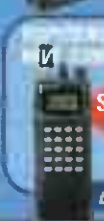

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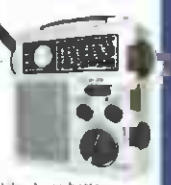

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● **Martin Peters** 11 Gilbert Drive, Reading RG31 5DZ
● **E-mail:** lms@pwpublishing.ltd.uk

As you read this, winter time will once again be upon us and the new **B'05 broadcasting plan** comes into being. From the end of October to the end of March, many broadcasts beamed to Europe will go out an hour later, which, in plain language means that a programme that went out at 1800UTC during the summer will, during winter time, get aired at 1900UTC.

With the onset of winter propagation conditions, many broadcasters also take the opportunity to shunt their transmissions down in frequency by a band or two. Next month we'll print a selection of English schedules for your enjoyment.

This month's listings refer to stations logged during the month of August. Bear the intervening plan change in mind if you intend to use it as the basis of your listening activities.

Bernard Curtis filed his report from Dorset, which includes the Sudan Radio Service on 11.665MHz and West Africa Democracy Radio from Dakar, Senegal on 17.555MHz.

The Sudan Radio Service was, according to their website, developed by the Education Development Centre, a USA non-governmental organisation that specialises in distance learning, which in turn is supported by the United States Agency for International Development (USAID).

Broadcasts started in July 2003 and go out in ten languages, including English. Programming includes news, education, health and agriculture, in addition to music and entertainment strands.

Their production studios are located in Nairobi but the desire is to relocate to Sudan once conditions allow.

There is a total of six hours broadcasting each weekday: 0600-0800UTC on 11.665MHz, 0800-0900UTC on 15.325MHz and 1800-2100UTC on 17.660MHz. English-language programming can be heard between 0600-0645UTC.

In a similar vein, **West Africa Democracy Radio** (WADR), aims to broadcast "distinctive programs on transparency and accountability in government, regional economic integration as well as social and culture development".

, Supported by the Open Society Initiative for West Africa (OSIWA), the station will broadcast (in local languages and French) a wide variety of programmes, including news and current affairs.

A week's worth of test transmissions were made in mid-August on 17.555MHz from Rampisham and the initial target area embraces Guinea, Liberia and Sierra Leone.

In Liberia, the hope is that ten local stations will either relay or rebroadcast WADR's output.

Promise

The promise of regular broadcasts by the autumn has been made but no further details available as I pen this...

In Truro, **Thomas Williams** is having to resort to batteries following his discovery of a intermittent connection to his YB400's power connector.

Now to Bristol, and, not to be outdone, **Francis Hearne** has been having problems on more than one front. August Bank Holiday weekend saw not only his car break down but also his computer crashed. Bad luck, old son. I look forward to E-mail contributions in the future when you're all sorted.

Eddie McKeown sent in his usual comprehensive listings from Newry and asks if the Voice of Turkey has moved off 9.830MHz. Apparently not, as Dave Peters (no relation) includes it in his log at 2212UTC.

Mr R Frost has been putting his newly-acquired Roberts R9962 radio to good use on the short wave bands: China Radio International and Radio Free Europe among the first to be logged. He asks for the address of the former. With pleasure. Write to: **English Service, China Radio International, Beijing, China 100040.**

I've just spent an interesting few days at the **International Broadcasting Convention** (IBC) in Amsterdam. The DRM consortium was there, promising digital/analogue radios in the shops by Christmas - I assume they meant **this** Christmas. There was a real working prototype there, and I must say, it's all looking rather like it's about to fly. I'll bring you a fuller report if Kevin can find space for an IBC update soon.

The presence of recently relaunched **Radio Luxembourg** using DRM has ruffled some feathers in the Amateur Radio community. It seems that the transmitter had fallen out of specification and its output was spreading even further than expected. At 7.145MHz, the 'station of the stars' broadcasts bang in the middle of the recently-expanded 40m amateur band, and this obviously didn't go down too well. Complaints were filed and the rogue transmitter reined in. Still, even with its in-spec. bandwidth of 10kHz, RTL is winning no friends amongst the radio amateur community.

As one station returns to the air, another falls silent - but for how long?

DXers.-
A Vic Prior, Seaton
B Bernard Curtis, Stalbridge
C L Jesson, Aberdeen
D Dave Peters, Cheltenham
E Michael Casey Manchester
F David Bullock, Kilburn, Derbyshire
G Simon Hockenhull, Bristol

Tropical Band Table

MHz	UTC	Service	Country	Listener
3.185	0332	WWRB, Manchester	USA	E
3.200	0329	Trans World Radio	MCO/SWZ	E
3.210	0430	WWCR, Nashville	USA	A E
3.240	0325	Trans World Radio	MCO/SWZ	E
3.255	0415	BBC World Service	G/AFS	A G
3.315	0051	All India Radio, Bhopal	IND	E
3.320	2146	Radio Sonder Grense	AFS	D E F
3.345	0347	Channel Africa	AFS	E G
3.350	0435	Radio Exterior Espana	E/CTR	A E
3.910	2030	Reflections Europe	IRL	D F
3.915	2115	BBC World Service	G/SNG	A E G
3.927	1910	Spaceman 3527	HOL	D
3.927	2217	Radio Korak	HOL	F
3.955	1935	WYFR	USA/G	C
3.955	2036	KBS World	KOR/G	D E G
3.965	1940	Radio Taiwan	TWN/F	C F G
3.975	1945	Radio Budapest	HNG	C D E
3.985	1931	Voice of the Islamic Rep of Iran	IRN	D
4.005	0445	Vatican Radio	CVA	A D E
4.025	2305	Laser Hot Hits (pirate)	?	C
4.635	2200	Radio Tajikistan	TJK	A C D E
4.775	0350	Trans World Radio	MCO/SWZ	E
4.800	2338	CNR1 Shijiazhuang	CHN	D E F
4.800	2316	CPBS 2 Beijing	CHN	C
4.810	1959	Voice of Armenia	ARM	D E
4.820	0547	Radio Botswana	BOT	F
4.820	2325	Xizang Lhasa	CHN	C D E F
4.825	0015	Radio Cancao Nova, Cachoeira Paulista	B	E
4.840	0104	All India Radio, Mumbai	IND	E
4.845	0109	Radio Cultura Ondas Tropicais	B	E
4.845	2120	ORTM Nouakchott	MTN	A C D F F
4.880	1747	All India Radio, Delhi	IND	E
4.885	2258	Radio Clube Do Para	B	E
4.905	2223	Xizang Lhasa	CHN	E F
4.910	2115	ZNBC Radio 1	ZMB	A C D E
4.915	0012	Radio Difusora, Macapa	B	E
4.915	2200	GBC 1 Accra	GHA	E
4.920	1715	All India Radio, Chennai	IND	F
4.920	2222	Xizang Lhasa	CHN	E
4.930	0304	Voice of America	USA/STP	E G
4.930	2133	Turkmen Radio	TKM	E
4.935	2023	Radio Capixaba	B	E
4.940	2155	Voice of America	USA/STP	C D E
4.950	1727	All India Radio, Srinagar	IND	E
4.965	0021	Christian Voice Radio	ZMB	E
4.976	2042	Radio Uganda, Kampala	UGA	E
4.985	0127	Radio Brasil Central	B	E F
5.005	2210	RNGE Malabo	GNE	C E F
5.010	0120	All India Radio, Thiru puram	IND	E
5.015	2053	Turkmen Radio	TKM	E
5.015	2205	Radio Pioneira Teresina	B	C
5.025	0500	Radio Rebelde	CUB	A E F
5.025	2010	Radio Tashkent	UZB	D G
5.030	0301	University Network	USA	E
5.030	0510	Radio Burkina	BFA	A F
5.050	0300	WWRB, Manchester	USA	E
5.070	0535	WWCR, Nashville	USA	D E F
5.085	0542	WWRB, Manchester	USA	F
5.240	2324	Xizang Lhasa	CHN	E F

Long Wave Table

kHz	Service	TX Location	Country	Power (kW)	Listener
153	Radio Romania	Brasov	ROU	1200	G*
153	Deutschlandfunk	Donebach	D	500/250	A B C* D* E F* G H
162	France Inter	Allouis	F	2000/1000	A B C* D* E F* G
171	Medi 1	Nador	MRC	2000	G* H*
171	Radio Rossii	Bolshakovo	RUS	600	A B E H
177	Deutschlandradio Berlin	Zehlendorf	D	500	A* B C* F* H
183	Europe 1	Saarlouis	D	2000	A B C* D* E F* G
189	Rikisutvarpid	Gufuskalar	ISL	150	A* E
198	BBC Radio 4	Droitwich	G	500	A B C* E F* G
207	Deutschlandfunk	Aholming	D	500	A B C* D* E F* G H
207	RTM A	Azilal	MRC	400	H*
207	Rikisutvarpid	Eidar	ISL	100	A*
216	Radio Monte Carlo	Roumoules	F	1400	A B C* D* E F* G* H
225	Polish Radio 1	Solec Kujawski	POL	1000	A* C* D* F* G* H*
234	RTL	Beidweiler	LUX	2000	A B C* D* E F* G
243	Denmark Radio 1	Kalundborg	DNK	300	A B C* D* E F* G H
252	Algiers Radio 3	Tipaza	ALG	1500/750	H*
252	RTE Radio 1	Clarkstown	IRL	500/150	A B C* D* E F* G H
261	Radio Rossii	Taldom	RUS	2500	G* H*
270	Czech Radio 1	Uherske Hradiste	CZE	650	A B C* D* E* F* G* H*
279	Belorussian Radio 1	Sasnovy	BLR	500	A* C* D* E* F* H*
279	Radio Rossii	Many	RUS	50-500	G*

* = dark

Listeners -
A Eddie McKeown, Newry
B Phil Townsend, London
C L Jesson, Aberdeen
D Thomas Williams, Truro
E Dave Peters, Cheltenham
F Freddy McGavin, Dublin
G David Bullock, Kilburn, Derbyshire
H Simon Hockenhull, Bristol

Big L Radio London, which is produced in Frinton but broadcast on 1395kHz from Trintelhaven in Holland, has not been observed since 12 September.

Transmission provider, Nozema, are citing non-payment as the reason for switching off the power. Meanwhile, Ray Anderson, the name behind Big L, produced a long list of complaints as his reason for non-payment. This included reduced transmitter output and intermittent cut-outs.

Whilst the station maintains its presence on line and via satellite, Anderson states that an alternative solution to the Trintelhaven site is being sought and that transmissions on 1395kHz will resume.

For an unusual catch, why not check out 7.875MHz in u.s.b. Reports have been coming in that this is a relay ABC's Western Australia service. It's been heard around 1100 and again at 1800UTC, fading in as conditions allow. Informed opinion reckons this may be an Australian Defence Force relay. Please let me know if you bag this one.

Thanks for all your contributions, large and small. They're all very much appreciated. Logs, as always, by the 10th of the month. Meanwhile, happy listening.

Medium Wave Table

kHz	Service	Location	Country	kW	Listener
531	Swiss Radio (German)	Beromunster	SUI	600	F* G*
531	RNE 5	Many	E	10-25	F* G
531	Utvarp Foroya	Akraberg	FRO	200/100	B*
540	Radio Tone	Wavre	BEL	150	A B* C F* G
549	UCB Europe	Dundalk	IRL	20	C E F G
549	Deutschlandfunk (DLF)	Nordkirchen/Thurnau	D	100	A G*
549	Algeria	S. Hamadouche	ALG	600/300	C* G*
567	RNE 5	Murcia	E	50	F*
567	RTE 1	Tullamore	IRL	500	A B* C E F G
576	Sudwestrundfunk (SWR)	Muhlacker	D	100	B* G*
576	RNE 5	Barcelona	E	100	C* F*
585	BBC Radio Scotland	Dumfries	G	2	BC
585	FIP	Paris	F	8	A C E* G
585	RNE 1	Madrid	E	600	B* C* F G*
594	RTM A	Oujda	MRC	100	C* G*
594	HR Skyline	Frankfurt	D	250	B* C* F* G*
603	BBC Radio 4	Newcastle upon Tyne	G	2	E
603	RNE 5	Seville	E	5	C*
603	France Info	Lyon	F	300	B* F* G*
612	RNE 1	Vitoria	E	10	E* G*
621	RTBF 1	Wavre	BEL	300	A B* C E* F G
630	NRK Europakanalen	Vigra	NOR	100	B* E* F*
630	Tunis Radio	Djedeida	TUN	600	G*
639	Czech Radio 2	Prague	CZE	1500	B* E* F* G*
639	RNE 1	Many	E	10-300	C* F* G*
648	BBC World Service	Orfordness	G	500	A B* C F* G
657	BBC Radio Wales	Wrexham	G	2	A C F G
657	RNE 5	Madrid	E	50	C* F* G*
657	RAI Uno	Many	I	25-120	F*
666	Sudwestrundfunk (SWR)	Rohrdorf	D	150	E* G*
675	Arrow Classic Rock	Lopik	HOL	120	A B* C* E* F G
684	RNE 1	Seville	E	300	E* F* G*
693	BBC Radio 5 Live	Many	G	1-150	A B* C E* F
702	NDR 4	Flensburg	D	5	G
711	Radio Bleu	Rennes	F	300	A C E* F G
720	BBC Radio 4	Londonderry	G	10	A C E* F G*
720	RNE 5	Many	E	10-100	G*
729	RTE Radio 1	Cork	IRL	10	B* C E* G
729	RNE 1	Many	E	10-100	C* F*
738	RNE 1	Barcelona	E	500	C* E* F* G*
747	Radio 747	Flevoland	HOL	400	A C E* F G
756	BBC Radio 4	Redruth	G	2	B*
756	Deutschlandfunk (DLF)	Many	D	100-200	E* F* G*
765	Option Musique	Sottens	SUI	300	B* E* F* G*
774	RNE 1	Many	E	20-100	C*
783	MDR Info	Leipzig	D	100	E* G*
792	France Info	Limoges	F	300	B* E* F* G*
801	Bayern	Munich	D	100	F* G*
801	RNE 1	Many	E	10-20	F*
810	BBC Radio Scotland	Westerglen	G	100	B* C E* F* G
819	Sud Radio	Toulouse	F	20	G*
819	RAI Uno	Trieste	I	20	G*
819	ERTU	Batra	EGY	1300	B* G*
828	NDR	Hanover	D	20/5	G*
837	France Info	Nancy	F	200	B* C* F* G
846	Radio North	Galway	IRL	100	G*
855	RNE 1	Murcia	E	300	E* F* G*
864	La Cruz Radio	Paris	F	300	A C E* F G
873	BBC Radio Ulster	Enniskillen	G	1	B* F
873	American Forces Network	Frankfurt	D	150	F G*
873	SER	Many	E	10-25	C* E*
882	BBC Radio Wales	Washford	G	100	A E* F*
891	RTA 1	Algiers	ALG	600/300	F* G*
900	RAI Uno	Milan	I	600	E* F* G*
909	BBC Radio 5 Live	Many	G	0.25-200	B* E* F
918	Radio Slovenia	Domzale	SVN	600/100	F* G*
927	Radio Een/927 Live	Wolvertem	BEL	300	A G*
936	RNE 5	Many	E	10-20	E*
945	France Bleu	Toulouse	F	300	E* G*
954	Onda Cero Radio	Madrid	E	20	C* E* F* G*
954	Czech Radio 2	Brno	CZE	200	G*
963	YLE Radio	Pori	FIN	600	C* E* G*
972	Norddeutscher Rundfunk (NDR)	Hamburg	D	100	E* F* G*
981	RTA 2	Algiers	ALG	600/300	E* G*
990	Radio Bilbao	Bilbao	E	10	C* F* G*
990	Deutschlandfunk (DLF)	Berlin	D	100	G*
990	BBC Radio Scotland	Redmoss	G	1	E*
999	COPE	Madrid	E	50	E* F* G*
999	Superloustic	Paris	F	5	G*
1008	Radio 10 Gold	Flevoland	HOL	400	A B* F* G
1017	RNE 5	Many	E	10	G*
1017	Sudwestrundfunk (SWR)	Wolfsheim	D	100	E* F* G*
1026	SER	Many	E	5-10	G*
1035	Radio Nacional	Porto Alto	POR	100	E* G*
1044	Radio San Sebastian	San Sebastian	E	10	E* G*
1044	MDR Info	Dresden	D	20	G*
1044	RTM C	Sebaa Aioun	MRC	300	G*
1053	Talksport	Droitwich	G	500	E* F* F
1062	Danmark Radio P3	Kalundborg	DNK	250	D E* F G*
1071	Talksport	Capstone	G	1	F
1071	Euskadi Irratia	Bilbao	E	50	C* E* G*
1080	SER	Many	E	5-10	E* F*
1080	Onda Cero Radio	Toledo	E	10	E*
1089	Talksport	Brookmans Park	G	400	B* E* F
1098	Radio Slovensko	Nitra	SVK	50	E*
1098	RNE 5	Almeria	E	10-25	F*
1107	Talksport	Many	G	2	F
1107	American Forces Network	Bavaria	USA/D	10	F* G*
1116	Radio Pontevedra	Pontevedra	E	5	F* G*
1125	BBC Radio Wales	Llandrindod Wells	G	1	G
1125	Radio 21	Houdeng	BEL	10	A E* G*
1125	Croatian Radio HR1	Deanovec	HRV	100	F*
1134	Croatian Radio HR1	Zadar	HRV	600	C* E* F* G*
1143	COPE	Many	E	2-5	E* F*
1143	American Forces Network	Many	USA/D	0.3-10	B* C* G*
1152	RNE 5	Many	E	10-20	F*
1179	Swedish Radio	Solvesborg	S	600/300	E* F* G*
1179	Radio Canada Int	Solvesborg	CAN/S	600/300	E* G*
1179	Radio Nederland	Solvesborg	HOL/S	600/300	G*
1188	Radio Tyske	Kuurne	BEL	5	A E* F* G*
1197	Virgin Radio	Many	G	0.2-2	E* F
1206	France Info	Bordeaux	F	300	E* F* G*
1215	Virgin Radio	Many	G	0.32-200	B* E* F
1224	Radio Popular	San Sebastian	E	10	F* G*
1233	Virgin Radio	Many	G	0.1-0.3	F
1242	France Info	Marseille	F	150	F* G*
1242	Virgin Radio	Many	G	0.5-2	E* F*
1251	Radio 747	Hulsberg	HOL	10	C* F* G*
1269	Deutschlandfunk (DLF)	Neumunster	D	300	C* F* G*
1278	France Bleu	Strasbourg	F	300	G*
1287	Radio Lleida	Lleida	E	10	E* F*
1287	SER	Many	E	5-10	G*
1296	COPE	Valencia	E	20	G*
1305	RNE 5	Many	E	10-25	E*
1314	NRK Europakanalen	Kvitsoy	NOR	1200	C* E* F G*
1323	BBC World Service	Limassol	G/CYP	200	G*
1323	Voice of Russia	Wachenbrunn	RUS/D	1000/150	E*
1341	BBC Radio Ulster	Lisnagarvey	G	100	B* C* E* F G*
1350	Radio Orient	Nancy	LBN/F	300	F G*
1350	Radio Caroline	?	?	?	E*
1359	RNE 3	Madrid	E	600	C* E* G*
1368	Manx Radio	Douglas IOM	G	20	B* E* F* G*
1377	France Info	Lille	F	300	A E* F G
1386	China Radio Int'l	Siauliai	CHN/LTU	750	E
1395	Big L Radio London	Trintelhaven	HOL	120	A E* G*
1404	France Info	Brest	F	20	E* F G*
1413	RNE 5	Many	E	5-10	F*
1422	RTA	Hadjout	ALG	40	G*
1422	Deutschlandfunk (DLF)	Heusweiler	D	1200/600	E* F* G*
1440	RTL + China Radio Int	Marnach	CHN/LUX	1200/300	F* F G*
1449	BBC Radio 4	Redmoss	G	2	B*
1449	Libyan Radio	Misurata	LBY	20	E*
1467	Trans World Radio	Roumoules	MCO/F	1000	C*
1476	Radio 1476	Vienna	AUT	60	F* G*
1485	SER	Many	E	2-5	F*
1494	France Info	Clermont-Ferrand	F	20	G*
1494	France Bleu	Bastia	F		G*
1503	RNE 5	Many	E		G*
1512	Radio Vlaanderen/Radio Een	Wolvertem	BEL	300/25	E* F G*
1521	China Radio Int	Urumqi	CHN	500	F
1521	Saudi Radio	Duba	ARS	2000	F* G*
1530	Vatican Radio	Vatican City	CVA	150/450	F G*
1539	Evangeliums Rundfunk	Mainflingen	D	700/120	E* F G*
1557	China Radio Int	Siauliai	CHN/LTU	150	F*
1557	France Info	Nice	F	300	F G*
1575	SER	Many	E	5	F* C*
1575	Radio Nouveaux Talents	Paris	F	5	G*
1584	SER	Many	E	2	E* G*
1593	Voice of America	Kuwait	USA/KWT	150	G*
1602	Radio Vitoria	Vitoria	E	25	B* C* F* G*

* = dark

Listeners:-

A Phil Townsend
B L Jesson, Aberdeen
C Dave Peters, Cheltenham
D Michael Casey, Manchester
E Freddy McGavin, Dublin
F David Bullock, Kilburn, Derbyshire
G Simon Hockenhull, Bristol

Local Radio Table

kHz	Service	Svc area/TX site	kW	SWL
558	Spectrum	Crystal Palace	1	A C F
603	Capital Gold	Littlebourne	0.1	A C F
630	BBC 3CR	Luton	0.2	A C E F
666	BBC Radio York	York	0.5	E
666	Classic Gold	Exeter	0.34	F
729	BBC Essex	Manningtree	0.2	A
738	BBC Hereford & Worcester	Worcester	0.037	A C F
756	Magic Malcolm	Newtown	0.63	E F
765	BBC Essex	Chelmsford	0.5	F
774	BBC Radio Kent	Littlebourne	0.7	A
774	BBC Asian Network	Leeds	0.5	E
792	Classic Gold	Bedford	0.275	A C F
801	BBC Radio Devon	Barnstaple	2	C D* F
828	Classic Gold	Bournemouth	0.27	A F
828	BBC Asian Network	Wolverhampton	0.2	C E F
828	Classic Gold	Luton	0.2	F
837	BBC Asian Network	Leicester	0.5	A C E F
837	BBC Radio Cumbria	Barrow in Furness	1	D*
855	BBC Radio Norfolk	Norwich	1.5	A
855	Sunshine 855	Ludlow	0.15	C F
873	BBC Radio Norfolk	West Lynn	0.3	A
936	Fresh AM	Skipton	1	D*
945	Capital Gold	Bexhill	0.7	A F*
945	Classic Gold	Derby	0.2	E
954	Classic Gold	Torbay	0.4	F
954	Classic Gold	Hereford	0.16	F
963	Asian Club	Hackney	0.95	A F
972	Asian Club	Southall	1	A F
990	BBC Radio Devon	Exeter	1	F
990	Classic Gold	Wolverhampton	0.09	E F
999	BBC Radio Solent	Fareham	1	A F
999	Valleys Radio	Ebbw Vale	0.3	F
999	Classic Gold GEM	Nottingham	0.25	E
1017	Classic Gold	Shropshire	0.63	A E F
1026	BBC Radio Jersey	Trinity	1	E
1026	BBC Radio Cambridgeshire	Cambridge	0.5	A F
1026	Downtown Radio	Belfast	1.7	D*
1035	Kismet Radio	Crystal Palace	1	A F
1035	North Sound 2	Aberdeen	0.78	B*
1035	BBC Asian Network	Sheffield	1	E*
1116	Valleys Radio	Ebbw Vale	1	C* F
1116	BBC Radio Derby	Derby	1	D* E
1116	BBC Radio Guernsey	Rohais	0.5	F
1134	Kool AM	Harlow	0.001	A
1152	LBC	London	23.5	F*
1152	Capital Gold	Birmingham	3	E F
1152	Classic Gold	Plymouth	0.32	F*
1152	Magic	Manchester		D*
1161	BBC 3CR	Bedford	0.1	A E*
1161	Tay AM	Dundee		B* D*
1170	Swansea Sound	Swansea	0.58	F
1170	Classic Gold Amber	Ipswich	0.28	A
1170	Signal's Big AM	Stoke on Trent	0.2	E
1170	Capital Gold	Portsmouth	0.12	D* E
1170	Magic	Stockton		D*
1242	Capital Gold	Maidstone	0.32	A
1251	Classic Gold Amber	Bury St Edmunds	0.76	C*
1260	Classic Gold	Bristol	1.6	D*
1260	Sabras Sound	Leicester	0.29	B* E
1278	Classic Gold	Bradford	0.43	C*
1296	Radio XL	Birmingham	10	B* D* E F
1323	Capital Gold	Brighton	0.5	A C*
1332	Classic Gold	Peterborough	0.6	D* F
1350	Hospital Radio Pulse (RSL)	Redditch	0.001	C
1359	Classic Gold Breeze	Chelmsford	0.28	A
1359	Classic Gold	Coventry	0.27	E
1368	BBC Southern Counties Radio	Duxhurst	0.5	A
1413	BBC Radio Gloucester	Bourton/Berkeley Heath	0.5	D* E
1431	Classic Gold Breeze	Southend	0.35	A F*
1431	Classic Gold	Reading	0.14	C*
1458	Sunrise	London	125	A F
1458	BBC Asian Network	Birmingham	5	E F
1458	BBC Radio Devon	Torbay	2	D*
1485	BBC Radio Merseyside	Wallasey	2	D*
1485	BBC Southern Counties Radio	Brighton	1	A
1485	Classic Gold	Newbury	1	C F
1500	Sound Radio	London	1	A
1503	BBC Radio Stoke	Staffordshire	1	B* E F*
1503	Forest of Dean Community Radio	Newent	1	C
1521	Classic Gold	Reigate	0.64	A F*
1521	Forest of Dean Community Radio	Coleford	0.1	C F
1530	Classic Gold	Huddersfield	0.74	B* F*
1530	Capital Gold	Worcester	0.52	F
1530	BBC Radio Essex	Southend	0.15	A F*
1548	Capital Gold	London	97.5	B* D*
1548	BBC Radio Bristol	Bristol	5	C D*
1548	Forth 2	Edinburgh	2.2	D*
1548	Magic	Liverpool	1	D*
1548	Magic	Sheffield	0.74	E
1557	Classic Gold	Northampton	0.76	C
1557	Capital Gold	Southampton	0.5	C
1566	County Sound	Guildford	0.8	A F
1566	BBC Somerset Sound	Taunton	0.6	B* C D* F
1584	BBC Radio Nottingham	Clipstone	1	E
1584	BBC Hereford & Worcester	Woofferton	0.3	F
1584	Tejlust Radio	London	0.2	A F*
1602	BBC Radio Kent	Rusthall	0.25	F*

* = dark

Listeners:-

A Phil Townsend, London
B L Jesson, Aberdeen
C Dave Peters, Cheltenham
D Freddy McGavin, Dublin
E David Bullock, Kilburn, Derbyshire
F Simon Hockenhull, Bristol

Short Wave Table

MHz	UTC	Service	Country	Lang	SINPO	SWL
0000-0600						
5.950	0544	Family Radio	USA	Eng	22222	DB
5.985	0545	Vatican Radio	CVA	Ita	34243	DB
5.925	0546	Radio France Int	F	Fre	55555	DB
5.955	0547	Radio Nederland	HOL	Dut	55555	DB
5.975	0545	Radio Japan	J/G	Eng	55333	MC
6.000	0010	Radio Havana Cuba	CUB	Eng	34232	EM
6.005	0425	BBC World Service	G/ASC	Eng	43333	BC
6.005	0549	Deutschlandfunk	D	Ger	33333	DB
6.015	0548	Radio Nederland	HOL	Dut	55555	DB
6.025	0550	Radio Kossuth	HNG	Hun	44444	DB
6.055	0550	Radio Exterior de España	E	Spa	44343	DB
6.065	0551	Swedish Radio	S	Swe	55555	DB
6.075	0555	Deutsche Welle	D	Ger	55555	DB
6.120	0556	YLE Radio Finland	FIN	Fin	44444	DB
6.155	0507	ORF Radio Austria Int	AUT	Ger	44444	PP
6.135	0539	Radio Nederland	HOL/ATN	Eng	54544	MC
6.200	0510	BBC World Service	G	Eng	44344	PP
6.230	0515	Radio Polonia	POL	Pol?	34233	PP
7.250	0520	Vatican Radio	CVA	Eng	55455	PP
7.345	0002	Radio Prague	CZE	Eng	35232	EM
7.355	0530	WYFR	USA	Ger	34443	PP
7.415	0420	WBCQ	USA		54334	BC
7.440	0005	Radio Ukraine Int	UKR	Eng	55555	LJ
7.465	0535	WHRI	USA	Eng	55455	PP
7.490	0520	WHRI	USA		43334	BC
9.410	0012	BBC World Service	G/CYP	Eng	35423	SH
9.440	0010	Radio Prague	CZE	Eng	35433	SH
9.570	0004	Radio Thailand	THA	Eng	45344	EM
9.520	0045	China Radio Int	CHN/ALB	Eng	55545	SH
9.630	0538	Deutsche Welle	D	Eng	44444	PP
9.645	0540	Vatican Radio	CVA	Lat	44444	PP
9.785	0543	Unid	?	Ger	44444	PP
9.845	0000	Radio Nederland	HOL	Eng	25122	EM
11.665	0445	Sudan Radio Service	USA/G		45334	BC
11.735	0530	Radio Belarus	BLR	Rus	44444	DB
11.735	0534	YLE Radio Finland	FIN	Fin	55555	DB
11.775	0535	China Radio Int	CHN	Chi	35455	DB
11.900	0435	RAI Int	I		44334	BC
12.080	0538	TransWorld Radio	MCO	Eng	34343	DB
12.095	0539	BBC World Service	G	Eng	33343	DB
0600-0900						
5.930	0630	Radio Prague	CZE	Ger	34233	PP
6.005	0632	Deutsche Welle	D	Ger	55545	PP
6.140	0634	Deutsche Welle	D	Eng	55555	PP
6.155	0636	ORF Radio Austria Int	AUT	Ger	34433	PP
6.165	0600	Croatian Radio	HRV	Cro	45344	DB
6.180	0612	Voice of America	USA/MRC	Eng	33442	MC
7.160	0603	BBC World Service	G	Eng	34343	DB
7.170	0604	Deutsche Welle	D	Eng	44344	DB
7.190	0605	Deutsche Welle	D	Rus	44444	DB
7.200	0606	Int R of Serbia & Mont	SCG/BIH	Ser	33333	DB
7.220	0607	Radio Romania Int	ROU	Fre	34442	DB
7.230	0609	Radio Japan	J	Eng	54444	DB
7.240	0610	RDP Portugal	POR	Por	55555	DB
7.250	0611	Vatican Radio	CVA	Ita	55545	DB
7.315	0612	Radio France Int	F	Fra	43233	DB
7.345	0613	Radio Prague	CZE	Fre	54444	DB
7.355	0614	Family Radio	USA	Eng	55545	DB
7.465	0615	WWCR	USA	Eng	55545	DB
7.520	0616	Radio Taiwan	TWN	Ger	44343	DB
7.570	0618	WEWN	USA	Eng	43433	DB
7.570	0831	WEWN	USA	Eng	54443	MC
9.355	0618	Family Radio	USA	Fre	23232	DB
9.355	0638	WYFR	USA	Fre	34333	PP
9.410	0620	BBC World Service	G	Eng	43343	DB
9.420	0622	Voice of Greece	GRC	Gre	55455	DB
9.460	0624	Voice of Turkey	TUR	Tur	55555	DB
9.470	0625	Croatian Radio	HRV	Cro	33223	DB
9.490	0626	Swedish Radio	S	Swe	55555	DB
9.520	0632	YLE Radio Finland	FIN	Fin	55555	DB
9.525	0715	Star radio	LBR	Eng	34333	PP
9.545	0640	Deutsche Welle	D	Ger	44444	PP
9.560	0627	Medi 1	MRC	Fre	55555	DB
9.575	0628	Radio Romania Int	ROU	Rom	44444	DB
9.575	0645	Lebanese Radio?	LBN	Eng	44444	PP
9.625	0633	Radio Nederland	HOL	Dut	33333	DB
9.635	0635	Radio Romania Int	ROU	Rom	44444	DB
9.645	0636	Vatican Radio	CVA	Eng	55545	DB
9.655	0638	Radio Romania Int	ROU	Eng	55455	DB
9.710	0639	Radio Exterior de España	E	Spa	55345	DB
9.710	0830	Radio Vilnius	LTU	Eng	45432	EM
9.735	0640	Deutsche Welle	D	Ger	55555	DB
9.830	0641	Croatian Radio	HRV	Ger	55555	DB
9.870	0636	TransWorld Radio	MCO	Eng	55555	EM
9.880	0700	Radio Prague	CZE	Eng	53555	EM
11.690	0756	Scandinavian Weekend Radio	FIN	Fin	23442	MC
11.865	0656	TransWorld Radio	MCO	Eng	55555	EM
13.710	0730	China Radio Int	CHN	Eng	54554	PP
13.840	0802	IRRS	I	Eng	55233	EM
15.440	0645	Channel Africa	AFS	Eng	25122	EM
15.485	0820	BBC World Service	G	Eng	45434	SH
17.490	0730	China Radio Int	CHN	Eng	44444	PP
17.490	0825	China Radio Int	CHN	Eng	34533	SH
17.535	0845	West Africa Democracy Radio	SEN/G	Fre	55445	BC
17.600	0725	Voice of the Islamic Rep of Iran	IRN	Fre	34423	PP
17.750	0840	Radio Australia	AUS	Eng	1442?	SH
17.835	0803	Radio Pakistan	PAK	Eng	35232	EM
0900-1200						
5.885	1005	Vatican Radio	CVA	Ita	24232	RI
5.945	0955	Bible Voice Broadcasting	G/D	Eng	55354	EM
5.995	1008	Radio Nederland	HOL/D	Dut	44434	RI
6.005	1014	Deutschlandfunk	D	Ger	34433	RI
6.025	1019	Radio Budapest	HNG	Hun	34333	RI
6.055	1023	Radio Prague	CZE	Ger	34433	RI
6.075	1024	Deutsche Welle	D	Ger	44444	RI
6.110	1141	The Overcomer Ministry	USA	Eng	44232	EM
6.120	1026	YLE Radio Finland	FIN	Fin	24332	RI
6.140	0913	Deutsche Welle	D	Eng	44444	TW
6.155	1025	ORF Radio Austria Int	AUT		55544	TW
6.155	1027	ORF Radio Austria Int	AUT	Ger	44433	RI
6.165	1119	Croatian Radio	HRV	Cro	24332	RI
6.170	0924	Scandinavian Weekend Radio	FIN	Fin	23442	MC
6.175	1125	Radio France Int	F	Fre	55445	BC
6.190	1029	Deutschlandfunk	D	Ger	34444	RI
6.219	1037	Laser Hot Hits	IRL	Eng	34333	RI
6.285	1040	Laser Hot Hits	IRL	Eng	24432	RI
6.520	0923	Voice of America	USA	Eng	44434	TW
7.205	1057	Radio Rossii	RUS	Rus	24332	RI
9.520	1100	Voice of America	USA/D	Eng	34333	RI

MHz	UTC	Service	Country	Lang	SINPO	SWL
9.545	1107	Deutsche Welle	D	Ger	44444	RI
9.560	0938	Voice of Turkey	TUR	Tur	24332	RI
9.575	1106	Medi 1	MRC	Ara	44434	RI
9.660	1109	Radio Japan	J/G	Ger	34333	RI
9.770	1116	Deutsche Welle	D		44344	RI
9.830	1125	Croatian Radio	HRV		44333	BC
9.840	1126	Voice of Turkey	TUR	Tur	33453	RI
9.885	0922	Radio Nederland	HOL	Dut	44444	TW
9.895	1127	Radio Nederland	HOL	Dut	33337	RI
9.965	1133	Voice of Greece	GRC	Gre	43333	RI
9.970	0945	RTBF Belgium	BEL	Fre	34333	RI
11.530	0956	Voice of Mesopotamia	IRQ/RUS		34332	RI
11.645	0958	Voice of Greece	GRC	Gre	44433	RI
11.700	1006	Radio Bulgaria	BUL	Ger	24421	RI
11.700	1139	Radio Bulgaria	BUL	Eng	25222	EM
11.755	0938	YLE Radio Finland	FIN	Fin	44444	TW
11.755	1009	YLE Radio Finland	FIN	Fin	44434	RI
12.085	1000	Radio Mongolia	MNG		22222	TW
13.600	1107	Radio Bulgaria	BUL	Bul	24421	RI
13.650	1120	China Radio Int	CHN	Eng	55445	BC
13.720	0924	Radio Exterior de Espana	E	Spa	44444	TW
13.730	0926	ORF Radio Austria Int	AUT		44444	TW
13.730	1054	ORF Radio Austria Int	AUT	Ger	35433	SH
13.730	1139	ORF Radio Austria Int	AUT		55445	BC
15.130	1105	Radio Liberty	USA/O	Rus	44433	OP
15.150	1027	Voice Islamic Rep of Iran	IRN	Eng	55444	OP
15.190	1033	China Radio Int	CHN	Chi	43333	OP
15.190	1034	BBC World Service	G	Eng	55534	OP
15.205	1035	Voice of America	USA/GRC	Eng	44434	OP
15.210	1039	China Radio Int	CHN	Eng	43333	OP
15.275	1041	Deutsche Welle	D	Ger	54444	OP
15.290	1118	Radio Jordan	JOR	Ara	55555	OP
15.335	1123	RTM Morocco	MRC	Ara	55555	OP
15.350	1125	Voice of Turkey	TUR	Tur	54444	OP
15.410	1128	All India Radio	IND	Eng	44333	OP
15.450	1132	Radio Veritas Asia	PHL	Tag	44333	OP
15.485	1135	BBC World Service	G	Eng	35434	MC
15.490	1050	Deutsche Welle	D/CUN	Ger	33333	OP
15.575	1053	RDP Portugal	POR	Por	54444	OP
15.585	1055	Radio Exterior de Espana	E	Spa	44433	OP
15.595	0935	Vatican Radio	CVA		44444	TW
15.600	1057	Voice Islamic Rep of Iran	IRN	Eng	44433	OP
15.600	1116	Voice Islamic Rep of Iran	IRN	Eng	35433	MC
15.620	0915	Voice of Greece	GRC	Eng	35222	EM
15.675	1109	Radio Ukraine Int	UKR	Eng	25212	EM
15.700	1137	Radio Bulgaria	BUL	Eng	25222	EM
17.490	0934	China Radio Int	CHN	Eng	44444	TW
17.515	0935	Vatican Radio	CVA		33333	TW
17.535	0934	Kol Israel	ISR	Heb	33333	TW
17.585	1022	Radio Japan	J/CAL	Eng	55444	MC
17.640	1010	BBC World Service	G	Eng	34432	MC
17.660	0932	China Radio Int	CHN	Eng	35433	MC
17.765	1054	Deutsche Welle	D	Ger	55544	OP
17.835	952	Radio Pakistan	PAK	?	54434	OP
17.850	1059	Radio France Int	F	Fre	44433	OP
17.885	1025	BBC World Service	G/ASC	Eng	44333	OP
19.010	0932	Voice of America	USA		44433	TW
21.470	0928	BBC World Service	G	Eng	43333	TW
21.470	1002	BBC World Service	G/SEY	Eng	25332	MC
21.540	1043	Radio Exterior de Espana	E	Spa	35544	SH
21.570	1045	Radio Exterior de Espana	E	Spa	25533	SH
21.590	1103	Radio Budapest	HNG	Hun	55545	OP
21.610	1047	Radio Exterior de Espana	E	Spa	25543	SH
21.660	1018	BBC World Service	G/THA	Eng	35332	MC
21.700	1049	Radio Exterior de Espana	E	Spa	24432	SH
21.745	0930	Radio Prague	CZE		22222	TW
1200-1559						
5.955	1315	Radio Nederland	HOL	Dut	45545	SH
6.140	1430	Deutsche Welle	D	Eng	43333	PT
9.375	1422	Voice of Greece	GRC	Eng	25433	SH
9.420	1424	Voice of Greece	GRC	Eng	35422	SH
9.525	1225	Radio Polonia	POL	Eng	35232	EM
11.690	1300	Radio Jordan	JOR	Eng	55434	MC
11.725	1432	Radio Free Europe	USA	Rus	44434	RI
11.735	1434	Voice of Turkey	TUR	Ara	34434	RI
11.765	1414	China Radio Int	CHN	Eng	14321	SH
11.780	1437	CBS Taiwan	TWN	Man	33433	RI
11.790	1442	Voice of America	USA/AFM	Hau?	34433	RI
11.800	1347	BBC World Service	G/CYP	Ara	24433	RI
11.830	1305	Radio Romania Int	ROU	Eng	25332	SH
11.830	1450	Voice of Russia	RUS	Rus	43433	RI
11.845	1456	Radio France Int	F	Fre	33443	RI
11.850	1225	Radio Polonia	POL	Eng	23232	EM
11.850	1459	Voice of Turkey	TUR	IS	43433	RI
11.945	1425	Deutsche Welle	D	Eng	35545	BC

MHz	UTC	Service	Country	Lang	SINPO	SWL
12.095	1428	BBC World Service	E	Eng	25422	SH
13.650	1216	China Radio Int	CHN	Eng	44142	EM
13.665	1225	Voice Int	AUS	Eng	34333	TW
13.790	1410	China Radio Int	CHN/ALB	Eng	45534	SH
13.830	1348	Croatian Radio	HRV	Cro	25432	SH
15.105	1302	Radio Romania Int	ROU	Eng	35443	SH
15.120	1224	Voice of Nigeria	NIG	Eng	24222	EM
15.225	1230	Voice of Turkey	TUR	Eng	55243	EM
15.240	1228	Swedish Radio	S	Swe	44444	TW
15.240	1330	Swedish Radio	S	Eng	44444	TW
15.535	1230	Voice of Turkey	TUR	Eng	25222	EM
15.560	1400	Voice of Russia	RUS	Eng	44434	TW
15.560	1442	Pan American Broadcasting	USA	Eng	35222	EM
15.565	1430	BBC World Service	G	Eng	24523	SH
15.575	1432	BBC World Service	G/CYP	Eng	25422	SH
15.615	1420	Radio France Int	F	Eng	13421	SH
15.630	1426	Voice of Greece	GRC	Eng	35433	SH
15.735	1230	Swedish Radio	S	Eng	35222	EM
15.735	1330	Swedish Radio	S	Eng	44444	TW
17.490	1412	China Radio Int	CHN	Eng	25433	SH
17.490	1445	Radio Canada Int	CAN	Eng	44444	PT
17.690	1450	China Radio Int	CHN	Eng	33333	PT
17.815	1225	Radio France Int	F	Eng	43444	BC
19.010	1219	Voice of America	USA		22222	EM
21.470	1435	BBC World Service	G/ASC		25422	SH
21.505	1335	Sawa Radio	ARS	Ara	23222	VP
21.660	1400	BBC World Service	G/CYP	Eng	55434	BC
1500-1800						
5.920	1847	Radio Slovakia Int	SVK	Eng	35444	SH
5.920	1655	Radio Slovakia Int	SVK	Eng	44334	BC
5.930	1900	Radio Prague	CZE	Eng	43333	PT
5.955	1726	Radio Polonia	POL	Eng	25232	EM
6.025	1730	Radio Budapest	HNG	Ger	43444	BC
6.065	1745	Swedish Radio	S	Eng	54444	BC
6.195	1718	BBC World Service	G	Eng	44233	EM
7.160	1717	BBC World Service	G	Eng	33232	EM
7.345	1650	Radio Slovakia Int	SVK	Eng	55444	BC
7.410	1745	All India Radio	IND	Eng	43334	BC
9.410	1650	BBC World Service	G/CYP	Eng	43334	BC
9.500	1735	Radio Bulgaria	BUL	Eng	34232	EM
9.510	1722	BBC World Service	G	Eng	24132	EM
9.700	1609	Voice of America	USA/D	Eng	24543	SH
9.726	1711	Voice of Vietnam	VTN	Eng	44243	EM
9.895	1725	Voice of Russia	RUS	Eng	55444	BC
9.915	1539	Merlin Network 1	G	Eng	33432	MC
9.950	1745	All India Radio	IND	Eng	44444	BC
11.900	1732	Radio Bulgaria	BUL	Eng	44243	EM
11.925	1734	Vatican Radio	CVA	Eng	34433	MC
11.960	1500	Radio Australia	AUS		43334	BC
11.960	1610	Radio Australia	AUS	Eng	32222	PP
11.975	1530	Radio Canada Int	CAN	Eng	33333	PT
11.980	1616	Radio Jordan	JOR	Eng	55455	PP
11.870	1505	Int Radio of Serbia and Mont	SCG/BH	?	33432	RI
11.880	1516	China Radio Int	CHN	Pas	44434	RI
11.885	1518	Radio Free Europe	USA/GRC	Rus	32332	RI
11.915	1523	RAI Int	I	Ita	43433	RI
11.940	1645	China Radio Int	CHN	Eng	43333	PT
11.955	1535	Voice of Turkey	TUR	Tur	43333	RI
11.965	1515	China Radio Int	CHN	Eng	44444	PT
11.990	1543	Radio Kuwait	KWT	Ara	44444	RI
12.010	1545	Voice of Russia	RUS	Ger	44434	RI
12.035	1548	Voice of Russia	RUS	Urd	43343	RI
12.040	1515	Voice of Russia	RUS	Eng	43333	PT
12.090	1555	Radio Cairo	EGY	Ara	43433	RI
12.055	1650	Voice of Russia	RUS	Eng	32422	SH
12.075	1601	Voice of Russia	RUS	Fre	43333	RI
12.080	1605	Voice of America	USA/SDT	Eng	34333	RI
12.095	1608	BBC World Service	G	Eng	43333	RI
12.115	1612	Voice of Russia	RUS	Eng	44333	RI
12.140	1615	Voice of America	USA/CUN	?	43333	RI
12.155	1616	Voice of America	USA/CUN	Urd?	44344	RI
12.160	1618	WWCR	USA	Eng	23332	RI
13.490	1500	China Radio Int	CHN	Eng	44444	PT
13.590	1715	Right Voice Broadcasting	G/D	Eng	53554	EM
13.635	1620	Radio Australia	AUS	Eng	32222	PT
13.635	1640	Voice Int	AUS	Eng	34232	EM
13.635	1722	Voice Int	AUS	Eng	54444	BC
13.745	1650	BBC World Service	G	Rus	55555	BC
13.750	1615	China Radio Int	CHN	Eng	43333	PT
13.765	1730	Vatican Radio	CVA	Eng	43343	EM
15.160	1800	Radio France Int	F	Eng	33333	PT
15.235	1550	Radio Australia	AUS	Eng	43333	PT
15.235	1713	Channel Africa	AFS	Eng	34233	EM
15.310	1545	BBC World Service	G/THA	Eng	43333	BC
15.400	1708	BBC World Service	G/ASC	Eng	55544	OP

MHz	UTC	Service	Country	Lang	SINPO	SWL
15.455	1505	Voice of Russia	RUS	Eng	45444	SH
15.475	1730	Africa No 1	GAB	Fre	33333	PT
15.565	1721	BBC World Service	G/GRC	Eng	25112	EM
15.570	1756	Vatican Radio	CVA	Eng	53444	BC
15.605	1605	Radio France Int	F	Eng	25433	SH
15.685	1745	WEWN	USA	Eng	43323	BC
15.825	1740	WWCR	USA		44344	BC
17.495	1708	Radio Prague	CZE	Eng	25122	EM
17.605	1607	Radio France Int	F	Eng	15521	SH
17.630	1500	Africa No 1	GAB	Fre	43333	PT
17.640	1630	WWR	USA	Eng	33333	PP
17.700	1725	Radio Sohl	USA/		53555	BC
17.850	1540	BBC World Service	G/ASC	Eng	44334	BC
17.890	1652	BBC World Service	G/ASC	Eng	35433	SH
17.895	1630	Voice of America	USA	Eng	44444	PP
18.930	1750	WYFR	USA	Rus	44334	BC
21.455	1740	WYFR	USA	Eng	45323	BC
21.470	1629	BBC World Service	G	Eng	34433	PP
21.485	1650	RDP Portugal	POR	Por	54444	BC
21.680	1635	BBC World Service	G/CYP	Eng	25543	SH
21.700	1656	Radio Exterior de Espana	E	Spa	54444	BC
1800-2300						
5.775	1950	IRRS	I	Eng	44333	PP
5.775	2023	IRRS	I	Eng	45243	EM
5.800	1955	Radio Bulgaria	BUL	Ger	44444	PP
5.900	2048	Radio Bulgaria	BUL	Fre	54444	OP
5.840	1934	Swedish Radio	S	Eng	54444	OP
5.850	1958	Radio Canada Int	CAN	Fre	54444	PP
5.850	2049	Radio Canada Int	CAN	Eng	44444	TH
5.855	2041	Vatican Radio	CVA	Spa	44433	OP
5.860	1939	Radio Farda	USA/TJK	?	33333	OP
5.885	1951	Vatican Radio	CVA	Eng	55444	EM
5.900	2045	Radio Bulgaria	BUL	Ger	54434	OP
5.905	1940	China Radio Int	CHN	Chi	44433	OP
5.915	2057	Kol Israel	ISR	Ara	44333	OP
5.920	1845	Radio Slovakia Int	SVK	Eng	55455	MC
5.930	2055	Radio Prague	CZE	Spa	35544	OP
5.945	1817	ORF Radio Austria Int	AUT	Ger	35433	SH
5.945	2059	ORF Radio Austria Int	AUT	Ger	35544	OP
5.960	1937	RAI Int	I	Eng	34222	EM
5.980	2042	China Radio Int	CHN/?	Eng	34532	SH
5.970	1905	China Radio Int	CHN	Fre	54344	LJ
5.975	2010	Radio Taiwan	TWN	Spa	44434	PP
6.015	2019	Radio Nederland	HOL	Dut	55555	OP
6.025	1900	Radio Budapest	HNG	Eng	55254	EM
6.025	2021	Radio Budapest	HNG	Fre	54444	OP
6.040	2040	Voice of America	USA/GRC	Eng	33442	MC
6.045	1951	Radio Taiwan Int	G	Chi	44444	OP
6.050	2026	RAI Int	I	Eng	43443	EM
6.055	1950	Radio Slovakia Int	SVK	Eng	55545	VP
6.055	1909	Swedish Radio	S	Eng	55535	EM
6.075	2015	Deutsche Welle	D	Ger	44444	PP
6.115	1947	Radio Tirana	ALB	Eng	34232	EM
6.185	1950	Radio Taiwan Int	TWN/G	Ger	55555	OP
6.190	2016	BBC World Service	G/AFS	?	44333	OP
6.195	1915	BBC World Service	G	Eng	55545	VP
6.205	2022	Radio Tirana	ALB	Ser	44333	OP
6.220	2025	Lesar Hot Hits	IRL	Eng	54333	OP
6.220	2030	Radio Canada Int	CAN/S	Eng	54433	OP
7.105	1933	Radio Belarus	BLR	Eng	24222	EM
7.155	1957	Radio Thailand	THA	Eng	33333	TW
7.170	2031	Voice of Turkey	TUR	Eng	34233	EM
7.180	2045	China Radio Int	CHN	Ita	33443	PP
7.210	1948	Radio Tirana	ALB	Eng	44232	EM
7.260	1950	Vatican Radio	CVA	Eng	45344	EM
7.255	2050	China Radio Int	CHN	Eng	46543	PP
7.275	1900	Radio Exterior de Espana	E	Spa	55555	VP
7.280	1917	Voice of Russia	RUS	Eng	55555	LJ
7.280	1930	Radio Belarus	BLR	Eng	34232	EM
7.285	2025	China Radio Int	CHN	Eng	44333	TW
7.290	1930	Radio Belarus	BLR	Eng	34232	EM
7.295	1925	China Radio Int	CHN	Eng	44433	VP
7.295	2018	China Radio Int	CHN	Eng	34232	EM
7.360	2055	WYFR	USA	Eng	34434	PP
7.410	1930	All India Radio	IND	Eng	54434	VP
7.410	1902	All India Radio	IND	Eng	24212	EM
7.460	1945	ERT 3	GRC	Gre	45534	VP
7.475	1942	Voice of Greece	GRC	Gre	54444	VP
9.325	2014	Voice of Korea	KOR	Kor	44433	OP
9.345	1945	Kol Israel	ISR	Heb	44434	VP
9.375	1940	Voice of Greece	GRC	Gre	44444	VP
9.390	2102	Swedish Radio	S	Swe	55555	OP
9.410	1900	BBC World Service	G/CYP	Eng	55545	VP
9.410	2328	BBC World Service	G/CYP	Eng	45434	SH
9.425	2027	All India Radio	IND	Eng	44433	OP

MHz	UTC	Service	Country	Lang	SINPO	SWL
9.440	2013	China Radio Int	CHN	Eng	45343	BM
9.445	1930	All India Radio	IND	Eng	53434	VP
9.445	1302	All India Radio	IND	Eng	32232	BM
9.480	1305	Voice of Russia	RUS	Eng	54545	MC
9.480	1311	Voice of Russia	RUS	Eng	55555	LJ
9.500	1900	Radio Australia	AUS	Eng	23212	BM
9.560	2307	Voice of Turkey	TUR	Ivr	44433	SP
9.570	2022	Radio Exterior de Espana	E	Eng	34444	SH
9.585	2038	China Radio Int	CHN	Chi	54444	DP
9.600	2045	China Radio Int	CHN	Eng	55545	VP
9.620	2040	Deutsche Welle	D/POR	Ger	54444	DP
9.635	1954	Radio Romania Int	ROU	Eng	43532	MC
9.645	1940	Vatican Radio	CVA	Eng	43432	BM
9.645	2043	Vatican Radio	CVA	Ita	55544	DP
9.650	2044	Radio Exterior de Espana	E	Spa	54444	DP
9.655	2046	China Radio Int	CHN	Chi	43433	DP
9.680	2048	Radio Thailand	THA	Tha	55544	DP
9.730	2033	Voice of Vietnam	VTN	Eng	22222	BM
9.750	2051	Radio Liberty	USA/MRC	Rus	55555	DP
9.775	1925	Voice of Armenia	ARM	Eng	45344	BM
9.795	1947	Voice of Turkey	TUR	Eng	54454	BM
9.815	2055	Voice of America	USA/BOT	Fre	55555	DP
9.845	1946	RAI Int	I	Eng	55545	MC
9.885	1901	Radio Nederland	HOL	Eng	23432	MC
9.885	2027	Radio Nederland	HOL	Eng	33232	BM
9.950	1930	All India Radio	IND	Eng	55545	VP
9.950	1903	All India Radio	IND	Eng	34233	BM
11.585	2043	Kol Israel	ISR	Heb	54444	DP
11.590	1945	Kol Israel	ISR	Heb	55534	VP
11.600	2021	Radio Prague	CZE	Eng	35232	BM
11.605	1925	Swedish Radio	S	Swe	55555	DP
11.615	1929	Voice of Africa	LBY/F	Fre	35232	BM
11.630	1931	Voice of Russia	RUS	Eng	34343	DB
11.630	2046	Voice of Russia	RUS	Spa	55555	DP
11.650	1932	China Radio Int	CHN	Ger	55555	DB
11.650	1934	China Radio Int	CHN	Ger	55544	DP
11.655	2027	Radio Nederland	HOL	Eng	55354	BM
11.660	2048	China Radio Int	CHN	Fre	55555	DP
11.670	1937	China Radio Int	CHN	Rou	55544	DP
11.675	1933	Voice of Russia	RUS	Eng	55545	DB
11.685	1940	China Radio Int	CHN	Rus	55544	DP
11.690	1942	Deutsche Welle	D	Ara	54434	DP
11.695	1944	China Radio Int	CHN/AUS	Mar	50433	DP
11.710	1953	China Radio Int	CHN	Tur	54444	DP
11.740	1955	Saudi Radio	ARS	Ara	55541	VP
11.755	1945	YLE Radio Finland	FIN	Fin	55555	VP
11.755	2003	YLE Radio Finland	FIN	Fin	55555	DP
11.765	1935	Radio Romania Int	ROU	Ita	55554	DB
11.765	2004	Radio Canada Int	CAN/G	Eng	44434	DP
11.775	1937	China Radio Int	CHN	Chi	55545	DB
11.790	2029	China Radio Int	CHN	Eng	55555	BM
11.795	1938	Deutsche Welle	D	Ger	55544	DB
11.805	2009	RAI Int	I	Rus	44232	VP
11.820	1939	Saudi Radio	ARS	Ara	54444	DB
11.820	2011	Saudi Radio	ARS	Ara	55544	DP
11.830	1940	Radio Romania Int	ROU	Eng	55545	DB
11.830	2013	Radio Cairo	EGY	Ara	44333	DP
11.840	2014	Voice of America	USA/MRC		44433	DP
11.850	2017	Voice of Turkey	TUR	Fre	55544	DP
11.860	2020	V of Islamic Rep of Iran	IRN	Eng	55544	DP
11.875	2028	RAI Int	I	Eng	45243	BM
11.880	1808	Radio Cairo	EGY	Eng	44222	BM
11.895	1941	China Radio Int	CHN	Chi	44343	DB
11.895	2024	Deutsche Welle	D	Eng	55544	DP
11.915	1842	Saudi Radio	ARS	Ara	44444	DB
11.915	2025	Saudi Radio	ARS	Ara	55544	DP
11.940	1930	China Radio Int	CHN	Eng	55555	LJ
11.970	2030	Radio Japan	J	Jap	44434	DP
11.975	2053	Voice of America	USA/STP	Eng	33333	DP
11.985	2035	Family Radio	USA/MDC	Ine	54444	DP
11.995	1844	Radio France Int	F	Fre	34343	DB
11.995	2029	Radio France Int	F/GAB	Fre	54434	DP
12.000	1948	Voice of Russia	RUS	Fre	45544	DB
12.010	1947	Voice of Russia	RUS	Ger	55545	DB
12.015	1814	Voice of Korea	KRE		42242	BM
12.040	1931	Radio Cairo	EGY	Ara	54433	DP
12.055	2033	Voice of Russia	RUS	Eng	54433	DP
12.070	1851	Voice of Russia	RUS	Fre	45541	DB
12.080	1850	Radio Cairo	EGY	Ara	55545	DB
12.085	1832	BBC World Service	G	Eng	44545	DB
12.105	1845	Voice of Greece	GRC	Eng	54243	BM
12.140	2030	Voice of America	USA	Eng	45243	BM
12.160	1851	WWCR	USA	Eng	55445	MC
13.580	1854	Radio Prague	CZE	Fre	55455	DB
13.605	2016	All India Radio	IND	Fre	54444	DP

MHz	UTC	Service	Country	Lang	SINPO	SWL
13.620	2017	All India Radio	IND	Fre	54444	DP
13.660	2021	BBC World Service	G	Ara	54434	DP
13.700	1956	China Radio Int	CHN	Chi	55555	DB
13.730	2024	Radio Canada Int	CAN/G	Fre	55544	DP
13.730	1957	Radio Canada Int	CAN	Eng	44444	DB
13.750	1915	China Radio Int	CHN	Eng	35433	SH
13.750	2025	Deutsche Welle	D/POR	Ara	55555	DP
15.085	1915	V of Islamic Rep of Iran	IRN	Fre	54434	DP
15.105	1917	BBC World Service	G/ASC	Eng	54434	DP
15.130	1953	Voice of Indonesia	INS	Eng	44434	DB
15.180	1925	Radio Canada Int	AUT	Ara	54444	DP
15.195	2004	Family Radio	USA/ASC	Eng	54441	DP
15.205	2012	Deutsche Welle	D	?	54434	DP
15.255	2014	Radio Canada Int	CAN/G	Eng	55555	DP
15.275	2015	Deutsche Welle	D/RNW	Eng	54434	DP
15.280	2000	Radio Romania Int	ROU	Rom	55555	DB
15.290	2017	Radio Exterior de Espana	E	Eng	54444	DP
15.325	2024	Radio Canada Int	CAN	Eng	25222	BM
15.340	1901	RTM Morocco	MRC	Ara	54444	DP
15.345	2029	Radio Argentina Int	ARG	Spa	43333	DP
15.400	1930	BBC World Service	G/ASC	Eng	45431	VP
15.455	2042	Voice of Russia	RUS	Eng	44333	TW
15.465	2033	Radio Romania Int	ROU	Rou	44333	DP
15.475	1951	Africa No 1	GAB	Fre	54333	DP
15.485	2035	Voz Cristiana	CHL	Spa	43333	DP
15.495	1955	Radio Kuwait	KWT	Ara	44333	DP
15.495	2005	Radio Kuwait	KWT	Ara	44444	DB
15.535	1957	Radio Kuwait	KWT	Ara	54434	DP
15.535	2006	Radio Kuwait	KWT	Ara	44444	DB
15.555	2009	RDP Portugal	POR	Por	44433	DP
15.590	1900	Voice of America	USA/BOT	Eng	34333	DP
15.630	1904	Family Radio	USA	Rus	33333	DP
15.630	1940	Voice of Greece	GRC	Ger	34422	VP
15.640	1908	Kol Israel	ISR	Eng	54444	DP
15.640	2050	Kol Israel	ISR	Heb	34543	VP
15.730	1911	Voice of America	USA/STP	Fre	33323	DP
15.705	2044	WHRI	USA	Eng	44433	DP
17.810	2026	Radio Nederland	HOL	Eng	25232	BM
17.830	1930	BBC World Service	G	Eng	53333	LJ
17.830	2020	BBC World Service	G/ASC	Eng	25332	SH
2180-0080						
5.725	2100	IRRS	I	Eng	44434	DP
5.930	2125	Radio Bulgaria	BUL	Eng	55555	VP
5.975	2108	BBC World Service	G	Ara	55534	DP
5.985	2206	Vatican Radio	CVA	Ita	55555	LJ
5.995	2159	Radio France Int	F	Eng	54433	DP
5.930	2100	Radio Nederland	HOL	Dut	55555	DP
5.990	2103	China Radio Int	CHN/AUS	Eng	55544	DP
6.025	2203	BBC World Service	G	Eng	44344	DP
6.005	2117	Deutschlandradio	D	Ger	55555	DP
6.025	2120	Radio Budapest	HNG	Eng	44534	SH
6.040	2131	Radio Belarus	BLR	Rus	43323	DP
6.055	2104	Radio Japan	JAP	Eng	54434	SH
6.080	2214	RAI Int	I	Ita	54444	DP
6.080	2208	RAI Int	I	Eng	25222	BM
6.085	2144	Swedish Radio	S	Eng	33333	FH
6.075	2133	Deutsche Welle	D	Ger	55555	DP
6.110	2148	Radio Veritas Asia	PHI	Eng	44433	DP
6.120	2136	YLE Radio Finland	FIN	Fin	55544	DP
6.120	2218	YLE Radio Finland	FIN	Fin	22222	TW
6.130	2201	Radio Liberty	USA/MRC	Rus	44444	DP
6.140	2309	Radio Romania Int	ROU	Eng	33333	FH
6.145	2209	Voice of Russia	RUS/D	Ara	55555	DP
6.155	2139	OR Radio Austria Int	AUT	Ger	54444	DP
6.180	2108	Radio Japan	JAP	Eng	42422	SH
7.135	2236	RTM Morocco	MRC	Ara	53535	DB
7.195	2135	Radio Romania Int	ROU	Eng	34232	BM
7.265	2356	Radio Romania Int	ROU	Eng	33333	FH
7.380	2115	Voice of Nigeria	USA/G	Eng	45232	BM
7.410	2200	All India Radio	IND	Eng	45433	SH
7.420	2142	Swedish Radio	S/MDG	Eng	35333	SH
7.460	2109	Radio Ukraine Int	UKR	Eng	45243	BM
7.500	2134	Radio Bulgaria	BUL	Eng	33333	FH
9.320	2341	WINB	USA	Eng	24212	BM
9.375	2127	Voice of Greece	GRC	Ger	55544	DP
9.390	2135	Radio Nederland	HOL/MDG	Dut	55535	DP
9.420	2138	Voice of Greece	GRC	Ger	54444	DP
9.440	2152	Deutsche Welle	D	Eng	33333	FH
9.445	2143	All India Radio	IND	?	44333	DP
9.445	2210	All India Radio	IND	Eng	53333	LJ
9.460	2154	Voice of Turkey	TUR	Tur	55544	DP
9.520	2146	Radio Liberty	USA/TMK	Rus	54444	DP
9.525	2112	Radio Budapest	HNG	Eng	55243	BM
9.535	2137	Radio Romania Int	ROU	Eng	45433	SH
9.560	2307	Radio Havana Cuba	CUB	Eng	34232	BM

MHz	UTC	Service	Country	Lang	SINPO	SWL
9.565	2153	Saudi Radio	ARS	Ara	54444	DP
9.600	2124	China Radio Int	CHN	Eng	44444	FH
9.640	2156	China Radio Int	CHN	Chi	55555	DP
9.645	2143	Radio Romania Int	ROU	Eng	33533	SH
9.715	2115	Adventist World Radio	USA/AUI	Eng	45244	BM
9.720	2208	Deutsche Welle	D	Eng	33333	FH
9.780	2200	Yemen Radio	YEM	Ara	44444	DP
9.795	2205	Radio Australia	AUS	Eng	44434	DP
9.800	2133	China Radio Int	CHN	Eng	54354	BM
9.820	2209	Radio Budapest	HNG	Hun	54434	DP
9.830	2201	Voice of America	USA	Eng	55555	DP
9.830	2212	Voice of Turkey	TUR	Tur	55555	DP
9.855	2123	China Radio Int	CHN	Eng	44444	FH
9.855	2215	Radio Kuwait	KWT	Ara	44444	DP
9.870	2218	Saudi Radio	ARS	Ara	54444	DP
9.875	2330	Radio Wales	ITU	Eng	35222	BM
9.885	2222	China Radio Int	CHN	Chi	44444	DP
9.935	2105	V of Islamic Rep of Iran	IRN	?	55555	DP
9.955	2224	All India Radio	IND	Eng	55555	DP
9.980	2111	Radio Farda	USA/CUA	?	44433	DP
9.990	2115	Radio Cairo	EGY	Eng	45344	BM
11.600	2133	Radio Prague	CZE	Eng	33333	FH
11.680	2215	China Radio Int	CHN	Fre	55444	LJ
11.715	2207	All India Radio	IND	Eng	34322	SH
11.820	2226	Saudi Radio	ARS	Ara	32432	DB
11.885	2234	Deutsche Welle	D	Ger	33333	DB
11.895	2305	Radio Cairo	EGY	Eng	25322	BM
11.940	2133	Radio Romania Int	ROU	Eng	43243	BM
11.945	2230	RDP Portugal	POR	Por	54444	LJ
12.005	2306	Radio Damascus	SYR	Eng	25333	BM
12.140	2223	Voice of America	USA	Eng	54233	LJ
12.160	2305	WWCR	USA	Eng	55444	LJ
13.620	2215	Radio Australia	AUS	Eng	25322	SH
13.670	2118	Voice of America	USA/CLN	Eng	25522	SH
15.275	2250	Deutsche Welle	D	Ger	54444	LJ
15.315	2250	Radio Nederland	HOL	Dut	54333	LJ
15.400	2241	BBC World Service	G	Eng	55455	LJ
15.435	2225	Radio Japan	JAP	Ara	43223	LJ
15.445	2231	Voice of America	USA	Eng	43323	LJ
15.505	2220	Radio Kuwait	KWT	Ara	55444	LJ
15.600	2252	Family Radio	USA	Spa	44333	LJ
15.695	2158	Family Radio	USA	Eng	33333	TW
15.770	2255	Family Radio	USA	Eng	32222	LJ
15.785	2150	WHRI	USA	Eng	44444	TW
15.795	2250	WWCR	USA	Eng	54444	LJ
17.680	2225	Voz Cristiana	CHL	Spa	44233	LJ

DXers:

BC	Bernard Curtis
DB	David Bullock
DP	Dave Peters
EM	Eddie McKeown
FH	Francis Hearne
FM	Freddy McGavin
LJ	L Jesson
MC	Mike Casey
PP	Peter Pollard
PT	Phil Townsend
SH	Simon Hockenhull
RF	R Frost
RI	Rhodeneck Illman
TW	Thomas Williams
VP	Vic Prier

Equipment Used:

Bernard Curtis - Realistic DX-390 + outdoor wire
David Bullock - Sangean ATS505 + whip
Dave Peters - WinRadio G313i + random wire + Palstar MW550P Tuner/Pre-Amp
Eddie McKeown - Grundig YB400 + whip
Francis Hearne - Sharp WQT370 or Yaesu FRG-7 Vega Selena + wire
Freddy McGavin, Dublin - Roberts RC828 + indoor wire
L Jesson - Icom RC A75 + indoor wire or Yaesu FT-817 + half G5RV
Mike Casey - Roberts RC828 - CTU9 + 60m indoor loop or outdoor 75m inverted dipole
Peter Pollard - Sony ICF2001D + whip
Phil Townsend - AOR AR7030 + amplified frame
Simon Hockenhull - Grundig YB400 + whip
R Frost - Roberts R9962 + whip
Rhodeneck Illman - Kenwood R5000 + wire or Sony AN1
Thomas Williams - Grundig YB400 or YB206
Vic Prier - Fairhaven RD500VX + Datong AD-270 or vertical

DX

Television

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Prolonged and intense Sporadic-E openings continued until the very end of August, breaking the trend of premature ending of the season that's occurred in recent years. A path into the Middle East materialised towards the end of the month, which is very unusual so late in the season.

Reception Reports

So, let's go to your reception reports. Portugal's low-power Channel E4 repeater (RTP-1) has once again been identified by **Peter Barber** (Coventry). Emerging at 1025 on 3 August with folk dancing, it sported a new 'TVP' logo, which was first seen on the first at 0850 from the high-power E3 Lousã outlet. On the 8th at 1042 on R2, colour bars were identified as Ukraine's '1+1' network.

In Bristol, **Stephen Michie** experienced an action-packed day on the 27th, the highlights being Iceland (RUV) E4, Ukraine R2, Belarus (BT) R2, Russia (RTR) and Moldova R2, the latter showing 'Messanger' at 1919. Stephen comments that while it was a glorious month for reception, signal strengths were not what they were a few seasons ago, maybe due to ageing Band I transmitters operating on reduced power.

Fig. 1: A Swedish programme schedule received by Stephen Michie.

Fig. 2: Stable Sporadic-E reception on Channel E3 from the transmitter in Denmark (Stephen Michie).

By contrast, **Simon Hockenhull** (also in Bristol) found it one of the quieter months but 'Murphy's Law' dictates that the good openings occur while you're at work! While in Romsey, **Roger Bunney** heard Arabic audio on E2 at 0815 on the 24th beneath a sea of stations jamming the band; Syria E3 surfaced later in the morning.

Best Day

The 27th was arguably the most productive day for Sporadic-E, according to the collective logs submitted by Peter Barber, Stephen Michie and Simon Hockenhull. All reception was achieved using D-100 converters fed from simple indoor antennas.

0900 -1200
Spain (TVE-1) E2; Italy (RAI UNO) A and B; Moldova (Moldova 1) R2; Italy (TV LUNA) E2; Portugal (RTP-1) E3; Croatia (HRT-1) E4; Lithuania (L1) R2; Sweden (SVT-1) E2 and E4; Denmark (DR) E3; Norway (NRK-1) E2; Hungary (RTL KLUB) R2; Germany (ARD) E2.

1200-1800
Sweden E4; Moldova R1; Czech Republic (NOVA) R1 and R2; Rumania (TVR-1) R2 and R3; Norway E2 and E3; Slovenia (SLO-1) E3; Iceland (RUV) E4 (rare this season); Lithuania R2; Hungary (RTL KLUB) R2; Belarus (BT) R2.

1800-2400
Ukraine (YT-2) R2; Russia (RTR) R2; Rumania R2 and R3; Norway E3; Moldova R2; Sweden E2 and E3.

New Italian Station

Two reporters, **Paul Farley** (Newhaven) and **Tom Crane** (Hawkwell) discovered a new Italian station, displaying a crescent-shaped logo, just below E2. This has now been confirmed as TV Luna from Mt. Faito and since the beginning of August appears to have displaced the shopping channel, TeleA+. Just before 1000 on the 25th, **Peter Barber** unearthed a mystery Italian station on Channel A (on 53.285MHz), followed by a second one shortly after on Channel C (82.25MHz).

FM Reports

During the build-up to the Perseids meteor shower event, **George Garden** (Edinburgh) began hearing brief snatches of programmes on various FM channels from the 4th. Activity peaked from midnight to 0300 on 12 August, with lengthy signal bursts on 107.1 and 104.4MHz. The two frequencies of 88.9 and 101.4MHz were less active. Much of the reception is thought to have originated from northern Germany.

Fig. 3: The BBC Coat of Arms, which was incorporated into an identification symbol and first transmitted on 21 May 1950.

At around 0900 on the 25th, while travelling up the M1 in Derbyshire, **Dave Whelan** reported (via an E-mail) hearing his local BBC Radio Leeds (on 92.4MHz) drowned out by Eastern European/Russian voices. The RDS identification showed 'VOL 202' but a search for this identification has been done to no avail. Can anyone identify its source?

Welcome Back

Dave Taylor (Nottingham) and **Neil Purfleet** (via an E-mail) are making a comeback into the world of TV DXing after a break of several years. Dave is hoping to reduce the i.f. bandwidth of a recently acquired Plustron portable by fitting a Philips G8 TV selectivity module to peak its performance. That is provided he can obtain one. The G8 range was phased out by the mid-70s, so the modules are like gold. Does anyone know of a source of these? Neil wonders what has changed after 15 years - well, most test cards have vanished for one thing!

Mike Evans (Bungay) hopes to equip his PC with a multi-band TV card. Has anyone had any worthwhile results with these cards without the weaker signals being obliterated by internal interference generated by the PC?

Service Information

Sweden: SVT-1 commenced 24-hour broadcasts from August 22nd; SVT-24 news is shown during the night. In the run-up, Stephen Michie saw a cartoon-type caption featuring old test cards, implying that test transmissions were now history. Fortunately, Peter Barber spied the PM5534 on the 31st, so it has not faced the axe just yet. When it does, Slovenia may be the only 'E' channel country to air the PM5534 test card.

Digital switch over starts this autumn with the final closure planned for October 13, 2007. Some SVT-1 and TV-4 transmitters may still remain on-air for a further three weeks after that date. The first analogue closures include:

Visby (Gotland):-
September 19, 2005: SVT-1 (E9, SVT-2 (E41) and TV-4 (E44).

Gävle:-
October 10, 2005: SVT-2 E27 and TV-4 (E30).
October 24, 2005: SVT-1 (E9).

Motala:-
November 21, 2005: SVT-1 (E7), SVT-2 (E45 and E52) Ch E7/E45 and E52.
December 5th, 2005: TV-4 (E39).

Latvia:- 'TV1' or 'LTV1' is shown within an oval displayed in the top-right of the picture.

Ukraine:- The G-204 test card seen on R2 during the mid-afternoon most likely originates from the Ukraine.

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, good-quality VHS video and "low-speed" (x4 maximum) DVD recordings.

Our DXTV and Archive TV website can be found on the Internet at:
www.test-cards.fsnet.co.uk

Sky High

Peter Bond c/o Editorial Offices
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Exercise Excalibur

Thanks to David L, I can bring you a brief report from Exercise Excalibur at Lakenheath. Aimed at participants from USAF Europe, it was once a major exercise that attracted up to 80 aircraft (plus support) from US units all over Europe. With many of those units now long gone it is a shame that they do not expand the exercise to include RAF and other NATO air-arms.

Arriving on 16 August were six F-16s from the 31st Fighter Wing at Aviano, callsigns NICKEL01 – 06. Arriving the following day were 52nd Fighter Wing aircraft from their home base at Spangdahlem in Germany. They included four A-10s, callsigns PANTHER01 – 04, five F-16's from the 22nd Fighter Squadron, callsigns GAMBLE01 – 05 plus three F-16s from the 23rd Fighter Squadron, callsigns HAWK01/02/04. The following Air-to-Air frequencies were noted, there are a couple of queries that need to be confirmed:

Frequency (MHz)	User
138.025	52 FW/F-16
138.5	52 FW/F-16
139.5	31 FW/F-16
140.35	31 FW/F-16
140.5	52 FW/F-16
140.55 ?	52 FW/F-16
141.5	52 FW/A-10?
142.55	52 FW/A-10

The Commander USAFE arrived in an F-16 on Friday 19 August, to present the prizes, his callsign was MINGO01. The Excalibur aircraft all departed on 20 August.

Google Earth

Off topic you may think! Well not really! *Google Earth* is an amazing mapping programme that became available on the Internet around the beginning of August this year. Thousands of satellite images are linked together to form an aerial view of the entire Planet. It is simple to use and is very flexible, you can zoom in and out, pan around, tilt the image, etc, etc. However, there is a bit of a down side and that is that the satellite images vary in the quality of the resolution. The initial target audience for the software is obviously the USA and as a consequence a fair percentage of the USA coverage is using high resolution images, unfortunately quite a large percentage of the UK is of a lower resolution. Some European countries have up to 30 or 40% of high resolution images whilst other countries in the world have very few. These images are being upgraded regularly and will hopefully give a much larger high resolution coverage of the UK and Europe in the future.

So why is *Google Earth* relevant to the 'Sky High' column? Well the answer is simple – airfields! Being aviation minded, one of the first thing I did was to zoom in on some of my favourite airfields in the UK and around the world. It occurred to me that if you were going to visit an airfield for the first time you could use this programme to have a look at an airfield and work out the lie of the land. And so, you'd be able to assess the best places for viewing and photography. In high resolution you can see roads and other detail quite clearly, so it is fairly easy to locate a road that runs under the approach or by a taxi way for example.

Google Earth gives you the facility to apply all sorts of different layers, which can show things such as airfields, roads, motels, hotels, eating places, petrol stations, etc, etc. Consequently, you can not only suss out the airfield but you can find a local place to stay and most likely book it in advance on the Internet. If you are planning a trip to the USA it would give you an excellent aid to planning your aviation trip.

I have not even touched on what *Google Earth* can do in its entirety but it is very addictive and absorbing and it is hard to drag yourself away. Aside from the aviation aspect it is an excellent learning tool for both adults and children. Perhaps best of all is that *Google Earth* can be downloaded free of charge for personal use. The minimum configuration for your computer is as follows : Windows 2000 or XP, Pentium PIII 500MHz, 128MB RAM Memory, 200MB Disk space, 3D Graphics card, 1024 x 768 32-bit true colour screen. However, a higher specification is recommended : Windows XP, Pentium P4 2.4GHz, 512Mb Memory, 2GB Disk space, etc. Full details for installation can be found on their website. Lastly, at least a 512kbps broadband Internet connection is pretty much essential. *Google Earth* can be downloaded from: **http://earth.google.com/earth.html**

More SBS-1

Following on from my review of the SBS-1 in the October *SWM*, I can now confirm that the new version of the *BaseStation* software has now been released, this includes many of the suggestions made by SBS-1 end users. The latest software version is, *SPIDER (1.0.0.36)* and can be downloaded free of charge from the Kinetic website at: **http://www.kineticavionics.co.uk** or you could look under the News/Announcements Forum. The interest in this new and innovative product seems to have caught Kinetic and Martin Lynch by surprise as the first deliveries sold out very quickly.

Consequently, I gather that some people have had to wait a while for their delivery but that should now be sorted out with a two new batches arriving during the middle of September. When you are all up and running drop me a line and let me know your thoughts on this new product and especially pass on any information that may be helpful to other SBS-1 users. Is anyone out there compiling Hex Code/Registration databases?

John's Field/Mildenhall

I have had an E-mail from one of the local enthusiasts at Mildenhall, which brings some unfortunate news. After the sad passing of the farmer **John Morley** last year, his field under the approach to Runway 11 has continued to be used by airband and aircraft enthusiasts. But it now seems that the family no longer intend to retain the field and it is due to be returned to the local council from whom it was leased, (possibly by the end of September). The future of the field is now very much in doubt, especially for use by aviation/airband enthusiasts. It may be leased to another farmer but there are some suggestions from the locals that the USAF may try to acquire the land and move the base fence further back towards Pollards Lane – Time will tell.

Coningsby Typhoons

Both 17 (R) OEU Squadron and 29 (R) Squadron OCU are now operational at RAF Coningsby, which I am sure has pleased the local enthusiasts. Thanks to Dave and Keith I can report on some frequency changes. 17 (R) Squadron are using 242.1 (STUD 17) as their Operations frequency with the callsign LASER OPS, this frequency is also used for Air-to-Air, no independent Air-to-Air frequency has yet been reported. Coningsby seems to use Stud 16 for Ops and Stud 17 for Air-to-Air, so I wonder if there is a bit of Stud confusion here, any thoughts anyone? 29 (R) squadron are

A screen shot from *Google Earth* showing a very busy ramp around the central terminal area at Chicago O'Hare airport. The satellite image is shown as if taken from an altitude of 4500ft.

using 243.325 (STUD 16) as their Operations frequency, callsign BUZZARD OPS, their Air-to-Air frequency is 359.475 (STUD 17).

It has also been reported that Stud 18 for 29 (R) Squadron is Spadeadam Range, this was 340.3 but I assume it is now 337.9, (see changes below). Using the now regular callsign FAZER, 29 (R) Squadron aircraft have been noted using OTA GOLF, (Operational Training Area), across the West of the UK and Wales on a number of occasions especially during August and September. OTA G operations are on 396.475 (TAD 157) and the callsign Boulmer is usually used, they often feed into OTA G using TAD 029, 311.5.

Has anyone managed to find out the full stud list for either of the two Typhoon Squadrons since their move to Coningsby? Earlier in the year I was sent a report stating that TONIC OPS at Coningsby had been changed to 254.675. Since then I have seen no evidence to support this and the original frequency 365.05 still appears to be in use. (Last reported late August).

Yeovilton Air-Day

It had been my intention to travel to the Friday arrivals day at Yeovilton but an urgent job on the Friday morning put paid to that plan, (annoying thing work, isn't it!). Nevertheless, I still managed to monitor some of the days movements, which to my mind seemed to be a lot less busy for military traffic than in previous years, I only heard four foreign movements two of including two helicopters, which arrived on the Thursday. Sadly, for the Sea Harrier this was its final public outing before retirement next year.

There were no real callsigns of interest to report, most are already well documented. Yeovilton airshow and other frequencies noted in use on the 15/16th September were as follows. (121.275, 231.55 and 372.45 were all used for the Commando Helicopter Attack demonstration). Also very busy was the D-School primary radar frequency 364.65.

Frequency (MHz)	User
121.175	UK Airshow Common
122.100	NATO Tower
123.3	NATO Approach
127.35	Approach/Radar
132.900	UK Airshow Common
231.550	848 Sqn Ops
311.325	Ground
341.85	847 Sqn Air/Air
372.65	Tower
375.450	702 Sqn Ops
369.875	Approach

I understand that due to construction work on the airfield that the Air Day next year is being moved to the earlier date of 8 July 2006. This is going to make for a very busy July for Air Shows with Waddington (1/2nd), RIAT 06 (15/16th), Culdrose (19th), Farnborough (17-23rd), Lowestoft (27/28th) and the main two day Duxford Air Show (8/9th) all within four weeks!

Bits And Pieces

1) An unusual visitor to St. Mawgan, reported by **Bob L** on the 26 August was an Airbus 319-133X, registration A6-E5H of the United Arab Emirates Royal Flight, callsign was SHARJAH 01.

2) After a visit to London, HMS *Invincible* sailed into Portsmouth for the final time on the first of August and sadly was de-commissioned on the third, (after all, there's not too many Sea Harriers left to deploy on her!).

(3) Whilst using the AOR SR2000 in FFT search mode I had several hits on the frequency 372.525. Both times it was an English voice which was audible but faint and sounded like a jet of some kind. According to my records this is 39 (PRU) Squadron BARON Ops at Marham, but as Canberra's never travel down to my part of the UK, it seemed that a bit of investigation was needed ?

The next Thursday war soon solved the problem. This frequency is being used by FR Aviation Falcon 20's out of Bournemouth/Hurn whilst operating with the Royal Navy FOST (Fleet Officer Sea Training) in the southwest approaches. Using the callsigns AMBER 1/2/3 there were a number of Air-to-Air contacts but mainly Air- to-Ground communications with both ships and Plymouth Military. (4) There has been a NOTAM change to the frequencies at Spadeadam Range, the primary hold frequency remains as 369.15 (Stud 01), 340.3 is withdrawn and is replaced by 337.9 (Stud 02) and 360.75 is withdrawn and is replaced by 257.0 (Stud 03).

Decode

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This month I've had a few enquiries about interference and how to minimise the number of problems for utility decoding. So, I've set aside some time to deal with this troublesome area.

With so many electronic devices in our lives the potential sources of radio interference is huge and it's sometines surprising that we manage to hear any long distance stations at all! From a listening viewpoint the bad news is there is no total cure for interference problems. However, there is a host of things you can do to minimise the effects and make the problem bearable.

The first essential steps in creating a workable utility station are in the set-up of your equipment and antenna. Mistakes made at this point will probably be more difficult to fix later. These days just about anything that plugs into a mains socket has the potential to cause interference, from the dimmer on a standard lamp through to your 'phone charger!

The first rule therefore is to locate your station, and more importantly, your antenna as far away as possible from the interference sources. The same applies to the feeder for your antenna - keep the run well clear of all cables particularly mains cables and TV antennas.

The best choice of location for your station is near an external wall and take the antenna feeder through the wall or window to the outside world as soon as you can. Steer well clear of any TV antennas and locate your antenna as high as possible and well clear of any overhead cables.

The next point to think about is the mains supply for your station. If you have a choice, don't run your station from the same ring main as the TV/Video/DVD, as this ring can be very noisy. The ideal is to have a separate feed from the distribution box - but only attempt this yourself if you're appropriately qualified!

Antenna Choice

A look through the advertisers in this issue or radio book stores will soon show you that there are a huge range of options available to the listener from space saving active antennas through to huge wire antenna systems. The choice will largely be determined by the space you have available and any family or local restrictions on what you can get away with! Generally speaking, if you have lots of space and live in a rural area, a large wire antenna should work well.

In recent years the antenna of choice for urban areas or those with restricted space has been the active magnetic loop antenna. Not only is the antenna extremely compact, with a diameter of around a metre or so, it also has excellent local noise rejection properties.

You're probably wondering how on earth an antenna can differentiate between wanted and unwanted radio signals. I know it sounds far fetched but it's true. To understand how it works you need to appreciate that all radio signals have two main radiating components - an electric field (known as E) and a magnetic field (known as H). The magnitude of these components varies proportionately with distance from the transmitter. When very close to the transmitter the E field dominates, i.e. within 35m at 1.5MHz. However, for the types of signal that utility listeners monitor, the listener is very definitely in the far field where the H component dominates.

From what I've said you can see that most sources of local interference will be mainly E field, whereas the utilities we want to receive are H field. Therefore for an antenna to reject local interference it needs to reject E field whilst remaining very sensitive to H field. This is exactly what the active magnetic loop antenna does.

I've been using a Wellbrook ALA for many years now and it is a truly exceptional antenna. It's extremely compact has useful directional properties and provides useful rejection of local interference. If you're stuck for a Christmas present and don't have a Wellbrook, it might be worth a note to Santa!

Local Fixes

Even with a noise rejecting loop antenna and a great station lay-out you can still be blighted by interference problems partly thanks to the computer revolution. I suspect most utility stations will include a computer in the set-up so this is a potential source of problems.

Although the computer itself seems the obvious cause of noise, the ever tightening emission regulations have produced some significant improvements. As a result most PCs manufactured in the past few years are remarkably r.f. quiet. The real demons for r.f. interference are the switch-mode power supplies used for all the peripherals.

Switch-mode p.s.u.s have found favour because they can provide low-voltage high-current supplies without using the heavy and bulky mains transformers required by traditional designs. They achieve the conversion by switching the mains voltage at very high frequencies.

The combination of high frequency and high power make the resultant interference very difficult to contain. When these are used inside a PC with a double screened case, the interference is not too bad, but when mounted in a plastic plug-top power unit and it's a different story! Not only is the noise radiated but the power lead takes the interference right into the appliance.

I've had countless reports from readers of how they cured their interference problems by turning-off a FAX machine, printer, etc. It's well worth a close look in the vicinity of your shack to spot and disconnect any plug-top unit to see

Switch-mode p.s.u.s can provide low-voltage high-current supplies without using the heavy and bulky mains transformers required by traditional designs (see text).

the effect. If you're using a laptop PC I would recommend running on batteries because the majority of laptop power units are extremely noisy.

HFDL Frequencies

With the readily availability of Charles Brain's excellent software and the presence of HFDL in a number of decoders, there's a growing interest in this mode. For those of you that haven't encountered the mode before, HFDL is the short-wave version of the popular ACARS messaging system that's used by aircraft the World over. The facility to effortlessly convey positional data, technical performance information and crew requests is invaluable as our airways get ever busier. Whilst v.h.f. ACARS works well whilst over land, the short wave HFDL is essential for providing continuity whilst flying over the oceans or vast unpopulated areas.

From the new listener's viewpoint finding active stations can be quite a challenge as there are a huge range of frequencies available and HFDL transmission are very brief. By far the most successful technique is to tune-in to a ground station frequency that's within range and listen out for their regular transmissions. All HFDL ground stations emit a regular burst of HFDL that's used to show that the ground station is active and available for service.

Finding those active HFDL ground stations has now been made a whole lot simpler thanks to some excellent cataloging works carried-out by Mike L. Table. 1 shows ground stations down the l/h axis along with the station ID No. The horizontal axis shows the frequency bands used for HFDL with lowest to the right and highest to the left. Within each box are all the frequencies used by that station in the chosen band. The convention is to number HFDL frequencies for each station in descending frequency order so Molokai 1 is 21937KHz and Molokai 20 is 2947kHz.

If you're based in the UK a good starting point is Shannon as this station is relatively local and very active. The optimum frequency to use depends on time of day and prevailing propagation, but the range F3 to F10 would normally be the best bet. Some patience is required as the station will broadcast squitters every 32 seconds so you need to wait that long before trying the next frequency.

Table 1

Ground Station	ID	F21	F17	F15	F13	F11	F10	F8	F6	F5	F4	F3	F2	Notes
San Fran California	01	21934	17919		13276	11327	10081	8927	6559	5508	4672		2947	10 Freqs
Molokai Hawaii	02	21937 21928	17934 17919		13276	11348 11312	10081	8936 8912	6559	5538 5529 5508 5483		3434 3019 3001	2947 2878	20 Freqs
Reykjavik Iceland	03		17985	15025 A5,B 1,B2		11184		8977 A3	6712 A4	5720		3900 3116		8 Freqs
Riverhead New York	04	21934 21931	17934 17919		13276	11315		8912	6652	5523		3428		10 Freqs
Auckland N.Zealand	05	21949	17916		13351 V2	11327	10084 A7	8921	6535	5583		3404 3016		10 Freqs
Hat Yai Thailand	06	21949	17928		13270 V3		10066	8825 A8	6538	5655	4687	3470		9 Freqs
Shannon Ireland	07	21928 ?				11384 A6	10081	8942 8843 A1	6532	5547		3455	2998	9 Freqs
Jo'burg S.Africa	08	21949			13321			8834			4681	3016		5 Freqs
Barrow Alaska	09	21937 21928	17934 17919			11354	10093 10027	8936 8927	6646	5544 5538 5529	4687 4654	3497 3007	2992 2944	19 Freqs
Santa Cruz Bolivia	13	21997 21988 21973 21946	17916		13315	11318		8957 V1	6628		4660	3467	2983	12 Freqs
K'noyarsk Russia	14				13321		10087						2998 2878	4 Freqs
A Muharraq Bahrain	15	21982	17967 B2		13354	11312	10075 A2	8885 A9		5544			2988	8 Freqs
Agana Guam	16		17934 17919		13339 13312 13276	11306 11288		8936 8927 8912	6661 6652 6634 6550					14 Freqs
Las Palmas Canaries	17	21955	17928		13303 A11	11348		8948	6529 A10	5589			2905	8 Freqs

HFDL, Active frequencies, Sept 2005
Mike L
Frequencies are numbered in ascending order from the highest to lowest eg: Molokai 1=21937, 20=2878kHz
Conflicting TXs heard.
V1 Shannon Volmet, **V2** Recife & Brazilia Volmets, **V3** Gander & NY Volmets
A1 EA-2 atc, **A2** LDOC, **A3** S&R Alt freqs, **A4** HFGCS, ALE, LDOC, **A5** HFGCS, LDOC, **A6** CWP atc, **A7** EUR atc, **A8** NAT-A atc, **A9** HFGCS, **A10** LDOC
A11 El Al LDOC **B1** Radio Sofia, **B2** ALE **Nnnn** received stations, multiple use freqs colour coded

SSB Utilities

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No one can be unaware of the disaster that has befallen the southern states of Alabama, Mississippi and Louisiana. The night of 29 August saw wind speeds top 175mph as Hurricane *Katrina* made landfall. The devastated area that was New Orleans and the coastal regions of Louisiana, Mississippi and Alabama, was made devoid of potable water, electricity and landline and cell 'phone communications. Satellite telephones were working briefly but usually rely on rechargeable batteries and without grid power there's no way of charging them, so they didn't last too long.

Communications were lost and the rest of America had no idea of how bad things were or how bad they would become. The seaside city of New Orleans is below ocean level and only protected by dams, that the locals call levees.

When the first levee was breached the whole city began to flood even though some parts had not been damaged by the high winds. The floods took out the remaining generators and the city and surrounding areas went dark.

Pretty much the first h.f. signals from the stricken city came into the Salvation Army Team Emergency Radio Net (SATERN) on 14.265MHz u.s.b. At 1825 on the 29th the National Hurricane Watch net on 14.325 u.s.b. took a weak call from a station who was attempting to report that 15 people were trapped on a roof in the centre of New Orleans. One of the people was 81 years old and needed medical attention. The person who reported this signal heard the Hurricane Watch net ask the calling station to call the SATERN net with that information as they only accepted weather reports, which four minutes later, he did.

The Hurricane Watch took a more lenient attitude when a low power amateur station, obviously running on a battery, was heard in contact with them. The amateur was stranded in the Riverside Hilton located, as the name suggests, by the Mississippi River on Two Poydrass Street, New Orleans and was operating from an upper storey. It seems that his wire antenna had been hung from the window in an upper storey. He was asking for insulin to be dropped to the hotel for a diabetes sufferer. They had trouble copying his signal due to the poor quality signal but he got through! The hotel had just been refurbished and is now, no doubt, a mess.

Then h.f. lit up! Rescue services, the Coastguard and Military all have allocations in the h.f. bands and many came alive. The USA amateur allocations at 80, 40 and 20m are all (as I write, September '05) hosting a multitude of emergency related radio nets.

I'll not list them here but a search of those bands should find some depending on the time of day or night. Much of the emergency traffic carried was inaudible in the UK but some stations have been heard despite generally bad radio conditions (we are at the bottom of the sunspot cycle) and some activity from the *Aurora Borealis*, which always kicks h.f. propagation where it hurts.

I have not personally monitored traffic on all the frequencies in the table below, but I have collated the frequencies reported by others and trust that some listeners may be able to hear something of interest. It may well be that by the time that this is in print much of the communications infrastructure has been reinstated in the stricken area. Unfortunately, there's nothing like a major incident to smoke out official frequencies.

It matters not where in the world that the disaster or incident occurs, little used frequencies will always come alive when something unpleasant happens. Some of the frequencies listed above are usually busy with various traffic, others have only come to light due to the emergency. You can bet that these channels will be used time and time again should any more awful events befall the United States.

I, of course, had antenna problems during the week that the hurricane struck but this has now been remedied. I made up a doublet antenna that, end-to-end, measures up at just over 159m. It's in one straight line and I pop outside and admire it several times a day. My wife, however, doesn't share this view and just shakes her head in total incomprehension!

Frequencies

Here are some of the frequencies that have been in use in connection with the Hurricane *Katrina*.

All MHz u.s.b.

3.1714	American Red Cross disaster channel
4.582	Federal Emergency Management Agency and others are using this.
5.1364	American Red Cross Disaster Channel
5.211	FEMA
5.236	USA wide coordination channel
5.696	Coastguard channel (CAMSLANT) Carries much rescue traffic.
5.732	Customs Over The Horizon Network is in use re the disaster Four Charlie Sierra was heard (not by me) working Hammer and reporting a group of stranded people at an address on Highway 1088. There was talk of hospitals being unable to accept new patients and asking for a list of open hospitals and their helo pad frequencies. Also on the 2 September a helicopter crew reported seeing explosions on the ground - this was a paint factory going up in flames.
6.8595	American Red Cross disaster channel
7.507	US Navy and Coastguard Hurricane net
7.527	Coastguard Command Centre - working helicopters
7.550	American Red Cross primary disaster channel
7.6985	American red Cross disaster channel
8.291	Traffic regarding disaster relief
8.912	Coastguard helicopter reporting that they are in the Biloxi area and then a conversation ensued regarding the evacuation of four people from Biloxi High School.
8.983	Masses of traffic reported on this frequency. Calls reporting conditions on the ground and references made to damage assessment flyovers and observations for looters. A very busy frequency.
8.992	Another busy frequency
9.380	Navy and Coastguard secondary hurricane frequency
10.493	FEMA
10.588	FEMA
11.202	Primary on – scene control frequency
11.494	Coastguard (CAMSLANT) Helicopter crew speaking of making water delivery
18.594	Again there's been plenty of disaster relief related traffic on this frequency
28.024	American Red Cross disaster channel

Satellite TV News

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Hurricane *Katrina* plunged the deep south USA into chaos, death and destruction as it blew and then flooded the New Orleans region after the water way retaining levees broke down. The UK media has been full of video coverage showing floods, rescues, looting and even water-bombing out-of-control fires within the flooded regions, also presidential visits and statements. Live updating coverage for the BBC, commercial and Sky TV has been extensive such is the immediacy of today's breaking news. The 'usual' sources of news feeds and available exchange material has been carried over APTN capacity, such as *UP4* on *Eutelsat W1*, 10°E - 10.972GHz-V and another source over *W1* has been the 'Miami News Pool' - 10.961GHz-V (both SR 4167 + FEC 5/6). For a few days the 'Reuters WNS' feeder over *NSS-7*, 21.5°W went into the clear providing additional access to live pictures, though by 7 September they had gone into hard encryption again.

Noting the water-bombing as mentioned above, we have some interesting pictures from **Roy Carman** (Dorking) on the subject. The Iberian Peninsula has suffered extreme heat and drought conditions for the summer, often over +40°C, resulting in extensive forest fires. Early August and the sat truck 'ISRAEL 2' was providing dramatic pictures of aircraft and helicopters dropping water bombs on burning fires across Portugal and Spain. These pictures were carried over the Spanish *HISPASAT* satellite, 30°W - 11.626GHz-V (4500+ 3/4). At the end of August fires are still breaking out across Portugal/Spain - sat truck 'AMP' was found over *Eutelsat W3*, 7°E transmitting material back into the UK from the fire ravaged areas. Things were so bad that the Portuguese government were calling up any and all able bodied men to fight the fires. 'AMP' appeared @ 10.995GHz-H (6666+7/8). The Cypriot Airline crash 14 August in Greece *en route* to Athens - when all on board were killed - caused localised forest tires which were also water-bombed, *Hellas-Sat-1*, 39°E carried these images over 10,957GHz-V (5632+3/4) via @GRC-013'.

There were a few aircraft buzzing round the Longleat 'Red Bull Air Challenge and Race, from deepest Wiltshire in August. Small aircraft were buzzing in loops, around circuits and in between and around giant inflatable 'obstacles', *SWM* 'SkyHigh' readers would have had a field day!

It was hot and there was no rain on the Spanish plain but it was pouring in both Switzerland and Germany with severe flooding and loss of life. On 23 August having just seen via 'ENEX' (European News Exchange) the fires in Iberia (*W2*, 16°E), within minutes *W1*, 10°E, revealed the 'DSNG HOL 78' truck linking pictures of two reporters huddled together in the rain and standing in floodwater, black rain shrouded mountains as a backdrop, they're offering a live news update into the Bayerischer Rundfunk studio, Munich on the flood situation - 10.989GHz-V. Simultaneously the *W1*, 10.980GHz-V (both 6109+3/4) slot is in use by 'TELEMOBIL DSNG' with more watering updates, a flooded church and locals peering out of the windows.

Alan Richards (Skegness) also on the watery subject of floods found an easier option for news feeds. He found from the 28.5°E (*Astra 2*) slot 3 feeds - 12.519GHz-H (6000+5/6) NEWS EQUIPE SNG' using MPEG 4:2:2, French; 12.538GHz-H 'N24 SNG FRANKF' and 12.573GHz-H 'NDR' (last 2 German and 6111+3/4). This is the *Astra-2* slot @ 28.2°E which carries all the Sky TV services, the BBC using the nearby Eurobird slot. Signal levels are high and enthusiasts may well find European OB feeds here.

A favourite satellite of mine is *Atlantic Bird-1* @ 12.5°W, which provides a very strong footprint signal into the UK - an 800mm should provide reception with a low noise LNB. The Globecast bouquet - 11.016GHz-H (20145+3/4) generally provides sporting action, Wall Street updates and occasional interviews. Back on 27 August Channel 1 in the bouquet was carrying 'DAYSTAR' heavy USA type religion and a preacher is healing the sick - on live TV! Channel 2 has ladies' golf - it's the 'Wendy's Championships for Children', which is cosponsored by Dr. Pepper and Tynenol for the LPGA. Channel 3 has the WCG-NEC International Golf championships. An all action night...

PAS-12, formally *Europe*Star* over at 45°E is rarely busy, unfortunate as it's Easterly slot provides great potential for signal carriage into Europe from SE Asia with high level UK footprints. September 3rd and 'GLOBECAST AFRICA' is transmitting rugby from South Africa, as it has done frequently in past weeks. Saturday afternoon and it's the 'Sharks' versus 'Cheetahs' hard fought battle on the green turf, carried on the commonly used 11.525GHz-V. Previously, Alan Richards had seen the 'Tri-Nations' Rugby from Cape Town, the 'All Blacks' v. 'Springboks', the match opening with pictures of Table Mountain against a blue sky and the harbour area. Impressive! Once again 'Globecast Africa' but 11.513GHz-V and 6111+ 3/4.

From African Rugby to Irish football and 'SATCOMSERVICE' is providing coverage from the Republic over *W1*, 11.081GHz-V (both 5632+3/4), this a mid-evening match from 2000. All audio channels are carrying FX only, perhaps the commentary is over a wire circuit - or commentary is added later at the studio. One of our old friends is the 'BT TES-43' sat truck that did sterling service for Meridian-TV until SISLink won the contract from BT. 'SSN BT TES-43' is operating for Sky Sports News and they've arrived at a UK cricket ground for a 'Live" into Sky News at 1850, 21 August - they're using W2, 16°E 11.137GHz-H (5632+3/4). It's interesting that Sky News tend to use the SR5632 + FEC 3/4 parameters extensively, unlike a mystery Israeli test card that also appeared the same day but this unique image never went into any news or program and it just switched off. The parameters for this transmission on *W2* were 11.044GHz-H with SR3390 + 3/4. Another disappointment was another non-active signal feed from the former Bombay, carried via *AB-1*, the 'MUMBAI NEWS FEED' test card remained for over an hour and then just cut to Globecast colour bars.

Sat-enthusiast **Edmund Spicer** of Littlehampton, has just moved into the satellite receiver 'Blind Search' technology with a Manhattan Plaza ST550, which also has a 120GB HDD fitted. Works well but gets rather hot during heat waves, so keep well ventilated! The receiver dislikes a few high signal level data channels - or non-standard MPEG-2/DVB transmissions. *AB-3* @ 5°W and *Hellas-Sat* 39°E on 11.636GHz-V (30405+7/8) and 11.134GHz-V (27500+2/3) respectively. For radio fans, *Hispasat* 30°W carries Spectrum FM for ex-pat Britons in Spain - 0800-1100 Spanish time - 12.149GHz-V (27500+3/4) and idents 'RADIO SPECTRUM', you'll also hear BBC World Service news as well. Your host for this English language service is DJ Dave Lee Travis. Yours truly hit Dave on the head with a sound boom microphone whilst operating a large studio boom on a Southern TV show years ago, he stood up whilst I was day dreaming and not paying attention! But Edmund's Manhattan otherwise is performing well and he highly recommends the Blind Search receiver.

Finally a sad note, Roy Carman an ex-serviceman of many years was saddened to see a Hercules C130 of the Spanish Air Force return from Afghanistan with bodies of fallen servicemen. A short ceremony on the tarmac with the immediate relations and military colleagues followed. 'TVE INSTITUCION E83' and 'TVE DIRECTO E83' carried the sad occasion over *W2*, 16°E on 11.052 and 11.061GHz-V (6111+3/4) respectively.

Hurricane *Katrina* move inland in the southern USA, local weather programming is being fed into CBS New York Main (W2).

Drought ridden Spain had aircraft water bombing the raging fires - via *Hispasat* 30°W.

The *Red Bull Air Challenge* from the Longleat residence of the Marquis of Bath.

Hercules C130 of the Spanish Air Force return from Afghanistan with bodies of fallen servicemen (W2).

A report from the edge of a burned out spanish forest showing the devastation caused by the fires *Hispasat* 30°W.

The mystery Israeli test card (W2).

Mumbai test card (*AB-1*).

Stand by for the latest Shuttle launch (W1).

Off the Record

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By the time you read this the English language service of Radio Luxembourg should be back on the air. As I write this they are counting down to the launch in a few days time and are being a bit cagey about exactly what form it will take, but with the parent company RTL being one of the big players in developing and experimenting with DRM digital radio broadcasts it seems that the intention is to carry the Classic Rock music programmes via one or more of their short wave transmitters in DRM format.

One frequency that has been mentioned is 7.145MHz. Interestingly, this is in the part of the 41m band, which overlaps the part of the 40m band, which has recently been made available for licensed amateurs to use.

Over the last two or three years or so, most radio listening enthusiasts will have noticed a number of these DRM transmissions springing up. They are difficult to miss and I expect that the majority of listeners have figured out what they are, even though for almost everybody they are not something you would want to listen to, quite the contrary in fact.

Analogue Is Alive & Well

Looking through the pages of this magazine and observing life in general some truths are obvious. Around the world many millions of people listen to analogue radio broadcasts via the many millions of analogue radio receivers that are out there.

Analogue radio receivers are still current technology and are still being produced and sold in substantial numbers. They are not old or outdated or redundant.

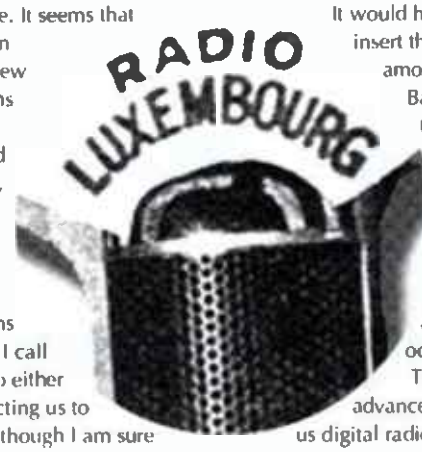
For anyone tuning in to a DRM transmission via an analogue receiver the signal appears (or rather jumps out at you) as a loud, unpleasant, ear-piercing noise, which is usually quite broad in bandwidth and appears to bleed over adjacent channels on either side.

Nasty Noises

Short wave listeners will know only too well of the various horrible noises, which have populated the bands through the years and decades, be they Russian Woodpeckers, grinders, honkers, bleepers, fog-horns, washing machines or whatever. Also there's all the more recent forms of local noise generated by new technology electronic gadgets, which seem so abundant these days. Why is there no apparent quality control over the amount of r.f. filth they radiate?

Now it seems that when we are going about our rightful business as radio listeners we have to be subjected to the assault on our ears of these DRM signals in amongst our analogue broadcast signals as we are tuning through the bands. We know that the regulatory authorities frantically accuse all pirates of causing interference. It's my opinion that the large majority don't.

Something that is blatantly obvious however, is that DRM signals are an unwelcome source of interference and should be removed from the frequencies where they have been appearing of late. It seems that the fact they are involved in developing a supposedly new technology transforms, turns some broadcasters into arrogant, inconsiderate and discourteous organisations, who feel that they have some right to pollute the bands with their awful racket.



On behalf of the millions of analogue radio listeners I call upon these organisations to either justify what they are subjecting us to (contact me here at *SWM*, though I am sure there can be no valid excuse) or clear their offensive noises out of our broadcast bands where we are trying to listen to radio stations. Analogue was there first and should be given more respect.

I would also urge listeners to consider carefully, which stations or organisations they lend support to. I have noticed that a number of radio anoraks, perhaps remembering some of the great pirate radio stations that have existed in the past, live in hope that a fantastic new radio project is just around the corner and have been taken in by the hype that digital formats may hold the key to this.

The reality is that there is no logical reason for believing that this could ever be the case. The fact that modulation is digitally encoded does not change the fundamental challenges of licensing, funding, engineering and perhaps most importantly, programming. We must not allow ourselves to be deceived by those who push any of the digital marketing messages.

Separate Frequencies

If people are going to insist that digital radio technologies need to be developed then we need the international frequency co-ordinators and band-planners to find space in the spectrum, which can be made available for such things and it needs to be well away from analogue broadcast bands. Many analogue radios (especially domestic ones) are designed to only tune to the broadcast bands on l.f., m.f. and h.f.

On the other hand DRM radios are (as well as few in number) all new technology and do not need to be restricted to the a.m. broadcast allocations. I believe in fact, they are general coverage with no gaps anyway. This means that the sensible thing to do is to allocate some other bands to DRM specifically, in the way that Band 3 has been used for DAB.

It would have been silly to try to insert the DAB signals in amongst the f.m. signals on Band 2 and yet we have the equivalent of this happening on the a.m. bands. I am not saying that I support DAB by the way, because for the most part I do not, but I will say more about this on another occasion.

The same technological advancements that are bringing us digital radio must surely be providing us with modern forms of satellite navigation and communication, which would in turn mean that areas of the l.f., m.f. and h.f. spectrum previously needed for this can now be freed up for the likes of DRM. We know that the lower half of h.f. can give good coverage over a wide area some of the time, and experiments with local line-of-sight broadcasting and long-skip could be conducted in the upper half of h.f. somewhere. These will always be subject to propagation conditions though. Digital will not change that.

One suggestion for stations where reliable reception is paramount might be the beacon band in between long wave and medium wave. Even if some of these antiquated navigational aids are still needed maybe they could co-exist with some DRM, bearing in mind that these beacons normally feed signals to instruments, whereas broadcasts are designed to feed pleasurable audio sounds to human ears.

Of course if space were to be found on some new frequencies, another idea would be to use that space for more analogue stations. After all, we are not digital creatures. Anything transmitted in digital form ultimately has to be converted back for our consumption. Our sense of hearing is an analogue experience by nature.

Amateur Bands

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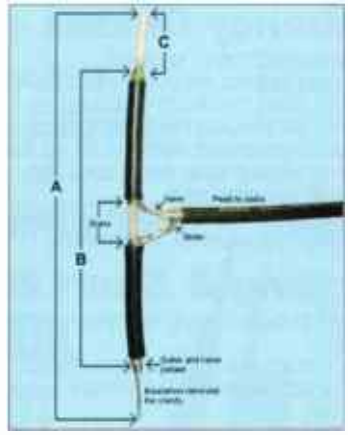
MFJ Antenna Analyser showing 1.2:1 s.w.r. at 70.400MHz.



Construction details of the Bazooka antenna

Vertical 70MHz antenna at G4SLU QTH.

It's very tempting to believe that there are off-the-shelf radios available for all of the amateur bands in general use, from 1.8 through to 1296MHz. There are several radios, such as the ubiquitous Yaesu FT-817, that cover the bands from 1.8 through to 430MHz.

There's probably a dual-band hand-held covering 144 & 430MHz in almost every amateurs' shack. Whilst 1296MHz isn't everyone's first choice of operating frequency, there are transceivers from major manufacturers out there to buy.

However, there's one amateur band that you won't usually find covered by radios from the main manufacturers, 70MHz. Also known as four metres, there's a very good reason why the Icom and Kenwood etc. haven't bothered with it. That's because there's only a few countries with a 70MHz amateur allocation and neither the USA or Japan is one of them.

With no sales potential for 70MHz equipment in two major markets, the lack of 'black box' equipment is no surprise. Yaesu's FT-847 can be modified to operate on 70MHz, but received wisdom is that its receive performance on that band isn't particularly good, and unless the modification is properly carried out, the purity of the transmitted signal can leave something to be desired.

One of its main benefits of the band is its relatively long ground-wave propagation compared to 'Two and Seventy'. This makes it particularly useful for mobile operating and gives good local chit-chat coverage.

It's true that activity can be a bit sporadic, but there are pockets of operating dotted around the country. Currently f.m. is the mode where the growth of activity is taking place. Local to me in east Dorset, the Flight Refuelling ARS recently obtained a number of the Philips FM1000 ex-PMR radios and organised a bit of a club project converting them to operate on 70MHz.

As a result there's a bit more going on in southern England at the moment. For those disinclined to do their own conversions on that particular radio (it involves changing a couple of EPROMs. Not physically difficult - I'm told that taking the casing apart is the hardest part of the job, but few people have access to suitable EPROM blowing gear) they can be obtained fully modified for amateur use from Tetra Communications.

Antennas

There's a selection of antennas for 70MHz available from the usual sources-Sandpiper, Moonraker and Nevada to name three, but in the spirit of this 'do it yourself' band, several home-brew designs are available from the Internet. As a toe-dip into the 70MHz water I knocked up a gamma matched dipole featured on the Four Metre Website, aka **www.70mhz.org** The antenna is commonly known, I know not why, as the 'Double Bazooka' design.

Following the dimensions on the site, when built, I found the resonance to be a little below the band, despite me having been very careful to get the dimensions spot on. However, by trimming a few tens of millimetres from each end of the main element an s.w.r. of 1.2:1 was obtained across the band. Most impressive was the wide range of 2.5MHz either side of the centre frequency before the s.w.r. exceeded 2:1.

The picture (top right) is of a mini version of the antenna just to demonstrate the construction technique. The dimensions for a particular resonant frequency F (MHz) are calculated:

Overall length A = (140.21/F)m
Coaxial section B = (99.06/F)m

For 70.450MHz, the f.m. calling frequency, the dimensions works out at 1.9m overall, with the centre section at 1.4m. The feed is at the mid-point, and the length of each end section C = (B – A)/2, or 205.7/F, which, at 70.450MHz, is 290mm.

As a single band antenna it must rate as one of the easiest to build. The good bandwidth, and the lack of any requirement for transmission line matching are both significant plus points. From a mechanical perspective, when used horizontally the continuous single element means it can suspended by its ends without putting any stress on the feed point connections.

I wanted a vertical antenna so, the one I built for 70MHz was mounted in plastic water pipe. The total cost, including the BNC plug to connect the coaxial feed to the rig, was no more than £10, so not exactly expensive.

Test

To test the antenna out I lashed it to the pole that currently carries my 29MHz vertical antenna. Although only supposed to be a temporary bodge, as is the way of these things, the set-up works fine, and so the motivation to finish off the job properly has waned a little.

Fixed just above the gutter level of my bungalow, the antenna centre height a.g.l. is about 3m. Despite that and with the added disadvantage that my home is in a bit of a valley, the antenna combined with my trusty IC-R100 could receive stations up to 50km distant.

Bandplan

The band covers from 70.000 to 70.500 and the frequencies to listen to are:

MHz	Use
70.030	Personal beacons
70.085	PSK31
70.185	cross-band activity
70.200	s.s.b. c.w. calling
70.260	a.m./f.m. calling
70.300	r.t.t.y. FAX
70.450	f.m. calling

DX

Now for a little bit of DXpedition information courtesy of *425DX News*. The Korean DX Club will operate as **H40HL** from Nendo Island in Temotu Province at the eastern end of the Solomon Islands, which are themselves north east of Australia. Activity will be from 5-11 November and is to celebrate the 50th of anniversary of the Korea Amateur Radio League (KARL).

Team members will include HL5FUA, DS2AGH, DS2BGV, 6K2AVL, 6K2DJM and N1PW (ex HL1PW). Operation will most likely be on all bands between 1.8 and 52MHz with two or three stations and using s.s.b, c.w., and r.t.t.y. modes. Listen out for them with the callsign **H44HL** before and after the Nendo operation when they'll be on nearby Honiara. More information can be found at **http://kdxc.net/h40hl_2005/index.html**

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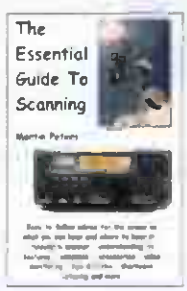

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ARC OF NOTTINGHAM, G3EKW. Meets at the Haywood Road Community Association, Haywood Road, Mapperley Road, Nottingham NG3 6AD. Details from Ron Hague G4XOU. Tel: 0115-919 9177.

DUKERIES ARS, G4XTL. Meets at Ambleside Community Centre, Ambleside, New Ollerton, Notts. Details from Colin Foster G7DEX.

HUCKNALL ROLLS ROYCE ARC, G5RR. Meets at the Hucknall Rolls Royce Sports & Social Club, Watnall Road, Hucknall, Nottingham. Details from Mr P. Hart G4JSM.

MANSFIELD ARS, G3GQC. Meets at the Debdale Park Sports & Recreation Club, Debdale Lane, Mansfield Woodhouse, Notts. Details from David Peat G0RDP. Tel. (01623) 631931.

NORTH NOTTS DATA GROUP, G0WNN. Details from Tony Jenkins G8TBF.

SIEMENS ARC, G8ZK, G8IGQ. Meets at the GPT Sports Ground, Beeston, Nottinghamshire. Details from Chris Archer G4VFK. Tel: 0115-943 3387.

SOUTH NOTTS ARC, G0OAU. Meets at the Farnborough Community College, Farnborough Road, Clifton, Nottingham NG11 9AE. Details from Gary [illegible]. Tel: (01509) 672846.

WORKSOP ARS, G3RCW. Meets at the Club House, 59-61 West Street, Worksop, Nottingham S80 1JP. Details from Terry Calvert G4GBS. Tel: (01302) 743130.

SHROPSHIRE

SALOP ARS, G3SRT. Meets at the Telepost Club, Railway Lane, Abbey Foregate, Shrewsbury. Details from John Burnford G0GTN. Tel: (01743) 249943. E-mail: john.burnford@virgin.net

TELFORD & DARS, G3ZME. Meets at the Dawley Bank Community Centre, Dawley, Telford, Shropshire. Details from Mr M. Vincent G0LMV. Tel: (01952) 255416.

STAFFORDSHIRE

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CANNOCK CHASE ARS, G8BW. Meets at the Four Crosses Inn, Watling Street, Hatherton, Cannock. Details from Arnold Matthews G3FZW. Tel: (01543) 262495.

CHAD RC, G4CAR. Meets at the Swinfen Officer's Club, Swinfen, Lichfield, Staffs. Details from Bernard Jayne G8BFL. Tel: (01543) 268569.

LICHFIELD ARS, G3WAS. Meets at the Queens Head, Sandford Street, Lichfield. Details from Roger Smethers G3NLY. Tel: (01543) 672782.

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HILLCREST ARS, G0SPM. Meets at The College, Simms Lane, Netherton, Dudley, West Midlands. Details from Stuart Viney. Tel: (01384) 232457.

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MIMRAM CONTEST GP, M0MBC. Details from Alan Holdsworth G8OO. Tel: (01707) 392950.

RADIO SCOUTING TEAM, G[illegible]. Meets at Tolmers Scout Camp, Tolmers Road, Cuffley, Herts EN6 4JS. Details from Mal Lyons G2CKB. Tel: [illegible].

STEVENAGE & DARS, G3SAD. Meets at the Stevenage Day Centre, Chells Way, Stevenage, Herts SG2 0LT. Details from Don Bache M0[illegible]. E-mail: d.bache1@ntlworld.com

VERULAM (ST. ALBANS) RADIO CLUB. Meets at the RAFA, New Kent Road, off Marlborough Road, St. Albans, Herts. Details from Ralph G1BNZ. Tel: (01923) [illegible].

WELWYN & HATFIELD ARC, G3WGC. Meets at the Royal Naval Association, Black Fan Road, Welwyn Garden City, Herts. Details from Dean Jackson G7PHF. Tel: (07973) 560849.

SURREY

BENTLEY ARC, G0AZB. Details from Derek Gilbert G0NFA.

CATERHAM RG, G0SCR. Details from Mr P.N. Lewis G4APL.

COULSDON AMATEUR TRANS. SOC., G4FUR. Meets at St. Swithuns Church Hall, Grovelands Road, Purley, Surrey. Details from Andy Briers G0KZI. Tel: (01737) 552139.

DORKING & DRS, G3C2U, G7DOR. Details from John Greenwell G3AEZ. Tel: (01306) 631236.

FARNBOROUGH & DRS, G4FRS. Meets at The Community Centre, Meudon Avenue, Farnborough, Hants. Details from Mr Steve Auston-Jones M0CYF. Tel: (07759) 215842. E-mail: scaj@blueyonder.com

GUILDFORD & DRS, G8GS. Meets at the Guildford Model Engineers HQ, Stoke Park, Guildford, Surrey. Details from Stella Whitbourn G0SWE.

KINGSTON & DARS, G3MN. Details from Mrs Mary Ashdown G0BQV.

REIGATE ATS, G8LK, G7RAT. Details from Mr A.C. Embling G1UNT. Tel: (01883) 344723.

SUTTON & CHEAM RS, G2BP, G7SAC. Meets at the Sutton United Football Club, Borough Sports Ground, Gander Green Lane, Sutton, Surrey. Details from John Puttock G0BWV. Tel: 0208-644 9945.

THAMES VALLEY ARTS, G3TVS. Meets at the Thames Ditton Library, Watts Road, Giggs Hill, Thames Ditton, Surrey. Details from [illegible]. Tel: (01483) 284279.

WIMBLEDON & DARS, G3WIM. Meets at St. Andrews Church Hall, Herbert Road, Wimbledon, London. Details from Jim Bell. Tel: 0208-874 7456 or E-mail: [illegible]0144.fsnet.co.uk

SOUTH & SOUTH EAST

EAST SUSSEX

BRIGHTON RADIO CLUB, G4GQR. Meets at Vallance Community Centre, Sackville Road, junction of Connaught Road, Hove. Details from Hon. Sec G0RNS. Tel: (01273) 699104.

CROWBOROUGH DARS, G0CRW. Meets at the Plough & Horses, Walshes Road, Jarvis Brook. Details from Mrs M. Clark. Tel: (01892) 663666.

EAST SUSSEX AMATEUR TV GROUP, RS178475 was GB3VX. Details from Keith Ellis G8HGM. Tel: (01323) 720220.

HASTINGS ELEC. & RC, G6HH, G1HHH, G6LL. Meets at the William Parker School, Parkstone Road, Hastings, East Sussex. Details from Peter Firman G0FUU. E-mail: peter[illegible].net or visit www.g4cus.freeserve.co.uk

SOUTHDOWN ARS, G3WQK. Details from Jim Harris G4DRV. Tel: (01323) 728479.

THE QRZ ARG OF SUSSEX, GB3VX. Meets at the Coach Station, Watling Road, Eastbourne. Details from Stuart Constable M0CHW. Tel: (01435) 863020.

HAMPSHIRE

ANDOVER RAC, G0ARC. Meets at the Village Hall, Wildhern, Andover, Hants. Details from Mr R.S. Coleman G0WYD.

BASINGSTOKE ARC, G3TCR, G8JVN. Meets at the GEMS Social Club, Lister Road, Basingstoke, Hants. Details from Bob Brown M0CJJ.

FAREHAM & DARC, G3VEF. Meets at the Portchester Community Centre, Westlands Grove, Portchester, Hants. Details from Andrew Sinclair G0AMS. Tel: (01329) 235397.

HIGHFIELD PARK RC, G4AID. Meets at Highfield Park RC, National Air Traffic Service, Highfield Park, Heckfield, Hants RG27 0LD. Tel: (01734) 226019.

HORNDEAN & DARC, G4FBS. Meets at Lovedean Village Hall, Lovedean Lane, Lovedean, Hants. Details from Stuart Swain G0FYX. Tel: (01705) 472846.

ITCHEN VALLEY ARC, G0IVR. Meets at the Scout Hut, Brickfield Lane, Chandlers Ford, Eastleigh, Hants. Details from Shane Williams G0VRE. Tel: (01703) [illegible].

SONY BROADCAST ARC, G4BZC. Accredited C&G RAE centre. Meets at Sony Sports & Social Club, Priestley Road, Basingstoke. Details from Stephen Harding G4JGS. Tel: (01256) 55011.

SOUTH HAMPSHIRE INT. TELE SOC., G3DIT. Meets at G3JZV's QTH, space is limited. Details from Rev. T.R. Mortimer G3JZV. Tel: (02392) 649254.

SUBMARINE ARC, G3BZU. Meets at HMS Collingwood, Newgate Lane, Fareham, Hants PO14 1AS. Details from Mr W.S. Bryth G0PPH. Tel: (01329) [illegible].

THREE COUNTIES ARC, G4WWR. Meets at the Bramshott Parish Inst. & Club, Headley Road, Liphook, Hants. Details from Damian Kamm G7RPV. Tel: (01428) 724456.

WATERSIDE ARS, G4JYN. Meets at the Applemore Scout HQ, Applemore, Hythe, Southampton. Details from Tony Horton G0LKG. Tel: (01703) 841794.

ISLE OF WIGHT

BRICKFIELDS ARS, G0BAR. Meets at Brickfields Horse Country Centre, Newnham Road, Binstead, Isle of Wight. Details from Mr [illegible].

ISLE OF WIGHT RS, G3SKY. Meets at The Old Cafe, Whitecliff Bay, Holiday Park, Bembridge. Details from Alan Reeves G4ZFQ. Tel: (01983) 294309.

OXFORDSHIRE

BANBURY ARS, G0BRA. Meets at St. John's Church Social Club, South Bar, Banbury, Oxon. Details from Mr R.S. Manson G1YSY. Tel/FAX: (01295) 253509.

HARWELL ARS, G3PIA. Meets at the Social Club, Harwell Laboratory, Didcot, Oxon. Tel: (01235) 223250.

OXFORD & DARS, G5LO. Meets at the Grove House Club, George Street, Summertown, Oxford. Details from Mr D. Walker G3BLS. Tel: (01865) 247311.

VALE OF WHITE HORSE ARS, G5RP, G4WVH, G8VWH. Meets at The Fox, Steventon. Details from Ian White G3SEK. Tel: (01235) 531559.

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CHICHESTER ARC, G2NM. Meets at the St. Pancras Hall, Chichester. Details from Graham Swann G0WSD.

CRAWLEY ARC, G3WSC. Meets at the Tilgate Forest Rec. Centre, Hut 18, Tilgate Forest, Crawley, West Sussex. Details from Keith Farrow G8KZZ. E-mail: keith[illegible].com

HORSHAM ARC, G4HRS. Meets at the Guide Hall, Denne Road, Horsham, West Sussex. Details from Alister Watt G3ZBU. Tel: (01403) 253432.

MID SUSSEX ARS, G3ZMS. Meets at Marle Place, Leylands Road, Burgess Hill, West Sussex. Details from Mr C. Chick 2E1DCP. Tel: (01444) 244689.

T.S. VINDICATRIX ASN, G0WVB. Details from Don Still G0OOC.

WORTHING & DARC, G3WOR. Meets at the Lancing Parish Hall, South Street, Lancing, West Sussex.

WORTHING & DISTRICT VIDEO RG, GB3VR. Details from the Treasurer. Tel: (01903) 211919 (w).

WILTSHIRE

CHIPPENHAM & DARS, G3VRE. Meets at the Sea Cadet HQ, Chippenham. Details from Jon Ange G4LGZ. Tel: (01249) 462610.

SWINDON & DARC, G3FEC. Meets at the Eastcott Community Centre, Savernake St., Swindon. Details from Den Forrest M0ACM.

TROWBRIDGE & DARC, G2BQY. Meets at the Southwick Village Hall, Southwick, Trowbridge, Wilts. Details from Ian Carter G0GRI. Tel: (01225) 864698.

SOUTH WEST & CHANNEL ISLANDS

AVON

BRISTOL ARC, G3TAD. Meets at the Lodgeside Club, Lodge Road, Kingswood, Bristol. Details from Dave Bendrey G7BYN.

GORDANO ARG, G8GRG. Meets at The Ship, Redcliffe Bay, Portishead, Avon. Details from Mr R.T. White G8SPC. Tel: (01275) 874001.

NORTH BRISTOL ARC, G4GCT. Meets at the Self Help Enterprise, 7 Braemar Close, Northville, Bristol. Details from David Coxon G0GHM. Tel: (01275) 790448.

SEVERNSIDE TV GROUP, GB3ZZ. Meets at NBARC, Filton, Bristol. Details from Paul Stevenson G8YMM. Tel: 0117-965 5386.

SHIREHAMPTON ARC, G4HHS. Meets at the TS Enterprise Sea Cadet Unit, Station Road, Shirehampton. Details from Mr R.G. Ford G4GTD. Tel: 0117-985 [illegible].

SOUTH BRISTOL ARC, G4WAW. Meets at the Whitchurch Folk House, East Dundry Road, Bristol. Details from Mr L.F. Baker. Tel: (01275) 834282.

THORNBURY & SOUTH GLOS ARC, G4ABC. Meets at the United Reform Church Hall, Rock Street, Thornbury, Bristol. Details from Stan Greenhill G0RYM. Tel: (01454) 413177.

WESTON SUPER MARE RS, G4WSM. Meets at the Woodspring Hotel, High Street, Worle, Weston-Super-Mare. Details from Stephen Cole G[illegible]. Tel: (01934) [illegible]144.

CORNWALL & SCILLY IS

CORNISH RAC, G4CRC. Meets at the Perran-ar-Worthal Village Hall, Perranwell, Nr Truro, Cornwall. Details from Mrs Cheryl Hammett 2E1ADQ. Tel: (01726) 882758.

NEWQUAY & DARS, G4ADV. Meets at the Treviglas School, Newquay. Details from Mrs Maggie Rose G0KEM. Tel: (01726) 882752.

POLDHU ARC, GB2GM. Meets at the Club House, Poldhu Cove, Mullion, Cornwall TR12 7JB. Details from Mrs Carolyn Rule M0ADA. Tel: (01326) [illegible]44.

SALTASH & DARC, G4GXK, G8SAL. Meets at the Toc H Hall, Warraton Road, Saltash, Cornwall. Details from Brian Giles. Tel: (01752) 844321.

ST AUSTELL ARC, G0BCC. Meets at Poltair School. Details from Reg Pears G4TRV. Tel: (01726) 72951.

DEVON

APPLEDORE & DARC, G2FKO. Meets at the Appledore Football Club. Details from Mr B. Jewell M0BRB.

AXE VALE ARC, G8CA, G7AXE. Meets at the George Hotel, Axminster, Devon. Details from Pat Cross G0GHH. Tel: (01297) 33756.

DARTMOOR RADIO CLUB, G1RCD, G0DRC. Meets at the Yelverton War Memorial Village Hall, Meavy Lane, Yelverton, Devon. Details from Ron Middleton G7LLG. Tel: (01822) 852586.

EXETER ARS, G4ARE. Meets at the Moose Centre, Spinning Path Lane, Blackboy Road, Exeter. Details from Ray Donno G3YBK.

EXMOUTH ARC, G0MRC. Meets at The Scout Hut, Marpool Hill, Exmouth.

NORMAN LOCKYER OBSERVATORY ARG, G0NLO. Meets at the Norman Lockyer Observatory, Salcombe Hill, Sidmouth. Details from Ron Hamson G0NOC. Tel: (01395) 515349.

NTE (PAIGNTON) ARS, G0OSH. Meets at Paignton Community College, Upper School, Waterleat Road, Paignton. Details from Roc Vauce G0SWM. Tel: (01803) 521066.

PLYMOUTH RADIO CLUB, G8PRC, G3PRC. Meets at the Welbeck Manor Hotel, Sparkwell, on the 1st & 3rd Tuesdays of the month. Details from Frank Russell G7LUL. Tel: (01752) 263222 or E-mail: frank@[illegible].fsnet.co.uk

TORBAY ARS, G3NJA. Meets at the New Scout Headquarters, Wolborough Street, Newton Abbot, Devon. Details from John Otway G3PMA. Tel: (01803) 556425.

UNIVERSITY OF PLYMOUTH ARS, G0UOP. Details from Alan Santillo G0XAW.

DORSET

BLACKMORE VALE ARS, G4FBV. Meets at Shaftesbury Club for Young People, Coppice Street, Shaftesbury, Dorset SP7 8PF. Details from Mr A. Mannell G0GFL. Tel: (01258) 860741.

BOURNEMOUTH RS, G2BRS. Meets at the Kinson Community Centre, Kinson, Bournemouth, Dorset. Details from Chris R. Ellis M0AGG, Brown Ridge, Fir Tree Close, St. Leonards, Ringwood, Hants BH24 2NW. Tel: (01202) 893126.

CHRISTCHURCH ARS, G0MUD. Meets at the Siemens Plessey Sports & Social Club, Grange Road, Somerford, Christchurch, Dorset. Details from John Goodall. Tel: (01202) 579899.

FLIGHT REFUELLING ARS, G4RFR. Meets at the Flight Refuelling Social Club, Merley, Wimborne, Dorset. Details from Tony Baker G3PFM. Tel: (01202) 622262. website: www.frars.org.uk

POOLE RS, G4PRS. Meets at the Bournemouth & Poole CFE, Constitution Hill Site, Poole, Dorset. Details from Phil Mayer G0KAL. Tel: (01202) 700903.

PORTLAND ARC, G0VQP/G7VQP. Meets at Clifton Hotel, Grove Road, Portland. Details from Kerry Morris G1WIK. Tel: (01305) 786591.

SOUTH DORSET RS, G3VDS. Meets at the Chickerell Youth Centre, Chickerell Village, Weymouth, Dorset. Details from Carol Hodges. Tel: (01305) [illegible].

SWANAGE & PURBECK ARC, M0BLJ. Meets at Kings Arms, Langton Matravers, Dorset. Details from Peter Wakefield M1[illegible]. Tel: (01929) 424413.

WESSEX AMATEUR WIRELESS CLUB, G1WAW. Details from Ken Powell G1NKS. Tel: (01202) [illegible].

International Radio Clubs

AMSAT-UK (G0AUK)
Information from Jim Heck G3WGM, Badgers, Letton Close, Blandford, Dorset BH11 7SS. E-mail: g3wgm@amsat.org or visit www.uk.amsat.org

British Amateur Radio Teledata Group (BARTG - G4ATG, GB2ATG)
Contact Membership Secretary Andrew Thomas G8GNI, M5AEX, Dame School House, 103 High Street, Stony Stratford, Buckinghamshire MK11 1AT, E-mail: members@bartg.demon.co.uk or visit www.bartg.demon.co.uk

British Amateur Television Club (BATC - RS38114)
Enquiries to Dave Lawton G0ANO, 'Grenehurst', Pinewood Road, High Wymcombe, Bucks HP12 4DD. Tel: (01494) 528899. E-mail: memsec@batc.org.uk or visit www.batc.org.uk

British DX Club (BDXC-UK)
Enquiries to Club Secretary Colin Wright, 126 Bargery Road, London SE6 2LR. E-mail: secretary@bdxc.org.uk or visit www.bdxc.org.uk

Danish Shortwave Club
Information from Treasurer Bent Nielsen, Egekrogen 14, DK-3500 Vaerloese, Denmark or visit www.dswci.org

Group for Earth Observation
Information pack from GEO Info S, 34 Ellerton Road, Surbiton, Surrey KT6 7TX or via info@geo-web.org.uk or visit the GEO website at www.geo-web.org.uk

International Short Wave League (ISWL - G4BJC)
Information from Honorary Secretary Bill Mackie G-9137/G4AIE, 23 College Park, Horncastle, Lincs LN9 6RE. E-mail: bill.mackie@zetnet.co.uk or visit www.iswl.org.uk

Military Wireless Amateur Radio Society (G0PTZ)
Further details from John Taylor-Cram, 7 Hart Plain Avenue, Cowplain, Waterlooville, Hampshire PO8 8RP. Tel: 0239-225 0463.

Radio Amateurs Invalid and Blind Club (RAIBC - G4IBC, GB0IBC, GB1IBC)
Enquiries to Honorary Treasurer/Membership Secretary Mrs Shelagh Chambers, 78 Durley Avenue, Pinner, Middlesex HA5 1JH. Tel: 0208-868 2516.

Radio Amateur Old Timers' Association
Enquiries to Membership Secretary Ted Rule, G3FEW,15 Norwich Road, Lenwade, Norwich NR9 5SH. Tel: (01603) 872309, E-mail: edit@raota.fsnet.co.uk or visit www.raota.org

Remote Imaging Group (RS88803)
Further details from the Membership Secretary John Din, 59 Woodend Road, Coalpit Heath, Bristol BS36 2LH. FAX: (01454) 887880. E-mail: membership@rig.org.uk

Royal Air Force Amateur Radio Society (RAFARS - G8FC, G8RAF)
Details from the Administrator, HQ RAFARS, RAF Cosford, Wolverhampton WV7 3EX. Tel: (01902) 372722, E-mail: administrator@rafars.org

Royal Navy Amateur Radio Society (RNARS - GB3RN, G3CRS, G1BZU)
Enquiries to Secretary Philip Manning G1LKJ/M3LKJ, 1 Wavereley Gardens, Ash Vale, Surrey GU12 5JP. Tel: (01252) 334929, E-mail: g1lkj@amsat.org or visit www.rnars.org.uk

Royal Signals Amateur Radio Society (RSARS - G4RS)
More information from General Secretary, HQ RSARS, Cole Block, Blandford Camp, Dorset DT1 8RH. Tel: (01258) 482814, E-mail: gensec@rsars.org.uk or visit www.rsars.org.uk

The Medium Wave Circle
Details from c/o C. Rooms, 59 Moat Lane, Luton LU3 1UU.
E-mail: contact@mwcircle.org

World Association of Christian Radio Amateurs & Listeners M1CRA
Details from Membership Secretary Derek Chivers G3XNX, 51 Alma Road, Brixham, South Devon TQ5 8QR. Tel: (01803) 854504 or visit www.wacral.org

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Advertisers' Index

AOR DIRECT *'Aerial magic'*

LA380

The LA380 is a compact active (30cm diameter) loop aerial specifically designed to provide good reception when away from the main monitoring location or when large external aerials are not practical. Compact, but achieving high performance, featuring an internal high gain amplifier (20dB for 10kHz-250MHz) and excellent overall strong signal handling (high IP3 +10dBm). The loop section may be detached from the BNC connection to the base unit for mounting in a window. The loop may be rotated for peaking signals.

Usable frequency coverage extends to 500MHz, so can be used with scanning radios as well as dedicated short wave receivers. Ranges are selected from the loop unit with preselection for the short wave bands:

* 40kHz - for time signal monitoring
* 60kHz - for time signal monitoring
* 3MHz - 10MHz - preselected for short wave
* 9MHz - 40MHz - preselected for short wave
* OTHERS - 60kHz - 3MHz / 40MHz - 500MHz

£189.00 inc VAT, UK carriage £10.00

DA753G

The DA753G aerial is designed to receive across the frequency range of 75MHz to 3000MHz (3GHz) employing a compact discone configuration. The small size and relatively light weight design is ideal for installation in a confined space such as an apartment. The DA753G is **about half the height, size and weight of other typical dicones** measuring just 870mm high, 470mm across the bottom of the cone and 690g in weight (aerial section only). The **quality of construction is first class**. Termination to the aerial is via a N-type plug, 10m of coax is included (fitted with a BNC plug for the radio).

£69.00, UK carriage £10.00 inc VAT

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 inc VAT, UK carriage £10.00

SBS-1 Real-time Virtual Radar

If you are interested in **aircraft**, this is a must have product. View aircraft in real-time from their MODE-S and ADS-B transponders. Its on display in Matlock (and in stock subject to high demand), so you can see it operate... its fascinating.

Simply plug the supplied lead into the USB connection of your PC, load the software (supplied on CD), connect the aerial (supplied) and away it goes - its that simple. ***£499.95 inc VAT, UK carriage £10.00***

FMD77 Software Defined Radio

The ELAD receiver has been built in Italy and provides all mode reception from 50kHz to 60MHz including demodulators for **DRM** reception. Tuning steps from 1Hz to 1MHz.

The triple conversion superheterodyne circuit features a high dynamic range front end with seven band preselection and preamplifier.

Software supplied (XP/W2000), audio lead, USB cable, 230V power supply.

It's on display in Matlock (and in stock subject to demand), so you can see it operate.

£449.95 inc VAT, UK carriage £10.00

RX350D

The Ten Tec **RX-350D** is a full featured, mid-price range HF DSP receiver. 34 DSP bandwidths provided, noise reduction etc.

£999.00 inc VAT, UK carriage £10.00

RX340 19" RACK MOUNTED RECEIVER

Commercial grade short wave DSP receiver with 57 IF filter bandwidths. Three fluorescent displays, keypad, mains powered. Commercial receiver of the year in 2003 WRTH. ***£3299.00 inc VAT, UK carriage £10.00***

SR2000 FFT FREQUENCY MONITOR

CATCH ELUSIVE TRANSMISSIONS **FAST !!!**

The SR2000 puts the power of FFT (Fast Fourier Transform) algorithms to work in tandem with a powerful embedded receiver covering 25MHz ~ 3GHz continuous.

The FFT search function enables incredibly high speed signal monitoring, up to 10MHz search in 0.2 seconds! Using the built-in 5 inch TFT colour display, it is easy to monitor the images of received signals. Up to 10 MHz of bandwidth can be displayed in real time through advanced Digital Signal Processing. ***£1589.00 inc VAT, UK carriage free***

AR5000A & AR5000A+3

Wide frequency reception in all modes from VLF (10kHz) through to UHF (3GHz) in 1Hz tuning steps, impressive strong signal handling capabilities. Used extensively by government monitoring stations throughout the world. **AR5000A** standard version ***£1799.00***

AR5000A+3, as above with synchronous AM, noise blanker and AFC ***£1999.00***

RX320D

PC 'black box' dedicated short wave receiver with 12kHz I.F. socket on the rear panel for DRM use (demodulation software required). *John Wilson, SWM April 2002 ...**Third order intercept** point measured at a nominal 14MHz was **+15dBm** with a 50kHz signal spacing as used by TenTec themselves (handbook specification +10dBm). **Dynamic range was 98dB** against the specification of 90dB, so all better than manufacturer's figures. In conclusion, the TenTec RX-320 is an **amazingly satisfying receiver to use**, and despite its simple appearance when you look inside, it really does perform...* ***£239.00 inc VAT, UK carriage £10.00***

AOR UK LTD Tel: 01629 581222 Fax: 01629 580070

Unit 9, Dimple Road Business Centre, Dimple Road, Matlock, Derbyshire DE4 3JX

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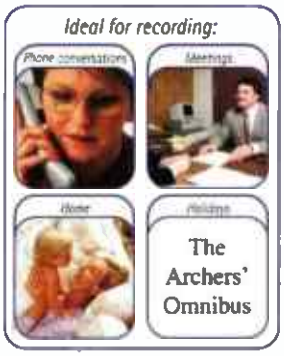

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