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April 2005

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- Antenna Flexible, low profile

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Share your thoughts

Join in with the on-line action on the SWM Readers' E-mail Forum - send an E-mail to swm_readers_subscribe@yahoo.com to subscribe - don't miss the on-line action!

For the latest radio news, see our website www.pwpublishing.ltd.uk

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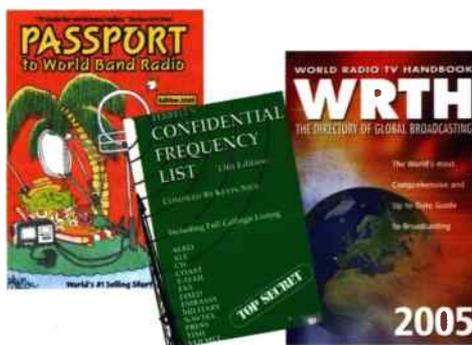
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see page 36



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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 £1.50 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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Technical Help

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

ED's



comments

There was some doubt as to whether the recent successful attempt to circumnavigate the globe without a refuel by Steve Fossett would be heard on h.f. Previous aviation escapades involving the intrepid enthusiast have used satellite communications to maintain contact with HQ. This time however, the aircraft was snagged talking to Oceanic Control.

Steve Fossett successfully landed at Salina, Kansas on 3 March at 1950 and achieved the record of completing the first solo non-stop circumnavigation of the world without stopping or refuelling in an aircraft, meeting the criteria of the Federation Aeronautique Internationale (FAI).

The solo round-the-world flight was completed in 67 hours, two minutes and 38 seconds. The Virgin Atlantic GlobalFlyer took off for its round-the-world record attempt from Salina Airport, Kansas at 0047 and 10 seconds Monday 28 February.

Steve also earns records for 'Speed Around the World non-stop, non-refuelled' and 'Close Circuit Distance Without Landing'. These records will be verified by the FAI and NAA over the next few weeks. A Guinness World Records official was present on arrival and has confirmed that, based on a preliminary examination of the flight data, Steve has gained yet another world record for "First non-stop solo circumnavigation of the world by an aircraft".

The pioneering aircraft piloted by Steve is described as the world's most efficient jet plane. It was designed and built by aviation legend Burt Rutan's Scaled Composites. The aircraft took off at a weight of 22,100lbs - fuel accounting for 18,100lbs of this total. The Virgin Atlantic GlobalFlyer aircraft is a single pilot, single engine turboprop aircraft and was specifically designed for this non-stop global circumnavigation. Scaled used computer aided aerodynamics to design the aircraft and the structure is made entirely from composite material and is ultra light - allowing it to fly 75% further than the previous range record for a jet-powered aircraft.

YS!

Those of you who monitor h.f. utilities or numbers station and frequent either, or both, the WUN and SPOOKS E-mail lists on t'Internet, may well already be aware of the goings-on relating to a curious set of signals that became known as YS. So called because of the content of the transmissions.

Back in December 2004 the transmissions were first noted, they contained snips of Yosemite Sam of Warner Brothers cartoon character fame. The voice of Melvin Jerome Blanc, the voice of Yosemite Sam in the Leon Schlesinger cartoons from which the sample was taken. If you'd listened on 3.7, 4.3, 6.5 and 10.5MHz. These transmissions resulted in much interest and speculation in the h.f. monitoring community. There were many theories as to the purpose and location of the source.

The mystery was concluded recently, when a pair of New Mexico radio amateurs decided to trace the interference.

On Wednesday 16 February, **Mike Stark WASOIP** and **Mike Langner K5MGR** set out to locate some annoying interference on 3.700MHz, a signal that had been on the band since last December.

The interference manifested itself as a digital data burst followed by an audio clip from a *Yosemite Sam* cartoon.

The transmission lasted just a few seconds at intervals of just under two minutes.

Using Mike's mobile installation the pair quickly found that the signal grew stronger as they headed West. So they then swapped to using a Field Intensity Meter and a shielded loop antenna. Using this gear they located the offending transmitter at the MATIC facility on the Laguna Indian Reservation. MATIC is

an acronym for the Mobility Assessment Test and Integration Centre, which is a military facility used to develop advanced battlefield communications systems and not generally known to the public.

The two drove up to the building not leaving the public highway. Mike Langner began taking pictures of the towers, antennas, and building. This resulted in an occupant of the facility walking towards their car yelling and gesturing for the two to stop taking pictures and leave. Both amateurs beat a hasty retreat.

The intrepid pair found the interfering transmitter at about 1430 in the afternoon - local time. The signal went off the air around two hours later and has not been heard since. Mike Langner suggests that the origin was a contractor's employee having a little fun on the radio. Obviously his or her superiors got the message that amateur radio operators do not consider interference to their spectrum to be something to enjoy. I wonder if they're right.

Free Databcard!

Continuing on an aviation theme, I'm pleased to say that this month we bring you an updated version of the Civil Airband Databcard. This revised card has been sponsored by Icom UK Ltd and I'd like to thank them for their support with the project. I hope that all you airband enthusiasts enjoy the card.

Stevenage Rally

Back in February I took a trip to the Stevenage Amateur Radio Rally that was held in the rather well appointed town centre leisure centre. It was a cold day and the 0600 start had me de-icing the car - cold weather indeed. I was ably assisted by **Clive G4SLU** and his wife **Chris M3SHE**. It all proved to be well worth the effort, as we met lots of you who visited the event. Although the show wasn't officially attended by my publishers PWP, I was offered a table by the organisers. Fortunately for us, the trader who'd intended using it was unable to make the journey due to being snowed in and unable to escape Yorkshire!

The result was a well located position which really suited the main purpose of the visit. That of meeting and talking to SWM readers.

Survey

We were there also to survey the show visitors. A simple 22 question survey was completed by 87 of the rally attendees. There was hardly a moment when our little stand wasn't surrounded by visitors filling out the survey form. I'd like to thank everyone for helping us gather important information regarding what you think about SWM, it made interesting reading indeed. It was a superb opportunity to meet lots of readers and exchange pleasantries and views. Sadly, since I'm not a member of the PWP 'Rally Team', it's not something I get to do very often! I reckon I'll have to make a habit of visiting a few more rallies...see you there!

2004 73 Kevin



QSL

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Dear Sir

I am a s.w. listener on the 0-30MHz bands and am mainly interested in the amateur bands. I have a Kenwood R-5000 and a 25m skywire approx 6m off the ground. I have no problem picking up the local operators, but the long distance station seem to be beyond me. I have asked several people about different antennas such as beams, verticals and loops but cannot seem to get a consistent answer. The magazines are full of antennas, which seem to cater for transmission only, but are they suitable for reception only? Your advice would be greatly appreciated.

Paul Wilde

Paul, I'm sorry to learn that you are having problems with reception. You've only provided scant information regarding your complete set-up, so I'm going to have to make some assumptions.

If you are getting large deflections of your S-meter for the local stations then I'm guessing that your antenna is correctly connected. If not, then it may well be the antenna, feeder or plug that are the problem. It is also possible that your radio is suffering poor sensitivity and may be faulty. I wonder if you've just acquired it and whether you know its history?

Back to my assumption that the problem lies with your capture of signals. The most likely problem, in my experience, is that you are suffering from a high local noise level. It may be that you can improve things with a good earth connection to the R-5000. If it is noise that's your problem, then it is possible that the signals you are trying to hear are below the ambient noise level.

You need to see if your S-meter reads above say S1-2 at all times. If it does, or perhaps a higher level, then this would confirm that noise is the problem. To confirm this, see what happens when you disconnect the antenna from the socket on the rear of the radio. If the S-meter falls to no reading then noise is the problem. If it stays high then you may have a radio fault.

Just another thought, you don't mention if you are using coaxial feeder or not. It can be possible to get a short circuit between the inner and the outer of the feeder either at the plug or the antenna end. A whisker of braid is all it takes. This might be the source of the problem. If you have access to an ohm meter then it's worth checking that there is no short circuit between the inner and the outer of the cable.

There are a few things to check, hopefully that will get you going. Please let me know how you get on. - Ed.

Dear Sir

I would like to reply to the letter in *SWM* from **Windsor Hargraves G8ZTF**.

Dear Mr Hargraves

I am aware and concerned that members of RIG have been let down badly during 2004 and continue to be so. However, GEO has provided its members with four quality journals - the *GEO Quarterly* during 2004, (Q5 has now been published) and has helped and informed many users with practical and technical advice, given presentations and demonstrations on weather satellite reception and held a Symposium.

GEO maintained frequent liaison during 2004 with EUMETSAT, NOAA and the Met. Office for and on behalf of all amateur users and schools and continues to do so in 2005. Why not join GEO and become a part of this exciting forward looking group and enjoy all the benefits of membership? E-mail: info@geo-web.org.uk or Website: www.geo-web.org.uk

If you are not Internet connected, then you can write to John Tellick at GEO-INFO, 34 Ellerton Road, Surbiton, Surrey KT6 7TX.

Dear Sir

Thanks for the chat last week, it was much appreciated, as I'm sure you are a busy man. As I said, I would like to be put in touch with anyone that you know who has similar interests as myself. My main current interest is to monitor and log flyovers on the military route NAVP1-CSL (Coltishall) - MAM (Marnham) - DKAS/Lands End, which pass over here. (There were five today plus two, which I didn't see, due to cloud cover and one or two others, which I heard, but were not in this area.)

Also, I recently acquired a DX-394 so as to monitor Shanwick and USAF Global, but I'm not having much success. I've only heard on two things. Maybe I haven't got it set up properly. However, I was 'twiddling' about last Thursday and picked up Family Radio on 7.359MHz, also Radio Taiwan - 9.354MHz and Kol Israel - 6.279MHz. Unfortunately, I'm not on-line yet so if anyone is interested in my monitoring, please pass on my 'phone number. Thanks.

**Colin Warnes
Woodston
Peterborough (01733) 569147**

Colin, I suspect that you may well have a problem with local noise that is preventing Paul Wilde receiving distant signals too! Please see my reply to Paul. - Ed.

topqsl

Dear Sir

I heartily agree with Ian Philips ('QSL', March 2005) and think that CB is an important and under utilised band, however I have another suggestion. It has been a big disappointment to me that mobile 'phone producers have not marketed one with an open channel to allow users to communicate directly with other cellphones in close proximity.

A large proportion of cars have mobile 'phones in them, so why not have a direct calling channel and maybe a few extra channels available to QSY to when contact has been made? On main roads, roadside transmitters could be used to convey traffic information on the calling channel, a lot cheaper than installing huge information signs which can distract drivers from the road in front.

In an emergency or disaster situation the network tends to collapse so, this would give users a life-line as they would not have to rely on a relay (repeater), which depends on mains power and in hilly sparsely populated regions where there is no signal.

There are four bands in use so there should be enough room, how about lobbying the mobile 'phone companies to introduce this?

**Richard Jones GW4XXJ
Llandrindod Wells, Powys**

Richard, a most excellent suggestion. I'm sure that I recall that there was a manufacturer that was providing this type of function. It is quite possible that I'm mistaken, but I'm sure I remember it. The only problem from this type of functionality that I can see, is the reluctance of the network providers to enable it. The downside for them is the loss of revenue. Making money is the only reason that they operate the networks. User convenience is secondary. Perhaps you should invest in a PMR446 radio? Though I'm sure that as you are a licensed amateur you'll be able to contact others and co-ordinate safety of life activities, in the event of a national disaster - you are a RAYNET member aren't you? - Ed.

Dear Sir

My old Hitachi TRK-W260E Radio Cassette Recorder gives poor reception when I am listening to music from distant European m.w. stations, such as Radio Slovenia (918kHz), even after set has been lined up in the direction for optimum reception. Could long range reception on m.w. be improved by providing an external antenna in place of the built-in antenna, which is used for m.w. reception?

When the two halves of the plastic casing were moved a short distance apart, after removing six screws, a thin straight horizontal piece of insulated flex about 200 or 250mm long could be seen. Was this the built-in antenna? Could it be extended after drilling a suitable hole in the plastic casing?

Joe Carr's article 'Phased Vertical Array Antennas', page 36, in February 2005 issue of *SWM* suggests that even a Quarter Wavelength Vertical antenna suitable for 918kHz would be about 80m high!

Alan MacDonald, Peterborough

Alan, your set will be optimised for the internal antenna that was built into the radio. It may well be possible to add an external antenna and a.t.u. combination with improved results. I suspect it may well lead to overload, though. You may run into planning permission problems if you want to install a quarter wave vertical in your garden for 918kHz! Success in m.w. dxing tends to be about nulling out stronger stations so you can hear the weak ones on the same or adjacent frequency - Ed.

communiqué

US Military Choose Icom

Icom (UK) Ltd. is delighted to announce that Icom America Inc. has won a multi-million dollar contract with the US Army for the provision of their latest u.h.f. transceivers - the IC-F43GS. This new transceiver will be used by US Army troops for in-the-field communications.

The Icom IC-F43GS radio is being supplied as part of a package, which includes headsets, encryption modules and other accessories needed to meet the US Army's requirements. The radios were tested extensively by the Army's Battle Lab before a purchase recommendation was made.

The contract is for over 20,000 radios and accessories and is worth over US\$40 million. The order follows on the heels of two earlier, high profile contracts where 22,000 IC-F35 v.h.f. transceivers were supplied to the Ranger, Airborne, Air Assault, Light Infantry and Mechanised Infantry Units and 13,000 IC-4088 licence free units were supplied as the US Marine's Infantry Squad Radio.

The new order uses Icom's new, next generation IC-F43GS series hand-held radios. These radios offer more power for today's urban-patrolling forces. Their higher power increases useable range.

Ian Lockyer, Marketing Manager for Icom UK said, "The previous Icom 'Soldier Intercom' was the first use of commercial grade two-way radios at the squad level for the US Army. It proved the viability of radios to replace hand and arm signals for co-ordinating squad actions on an objective. These new models increase transmission security, reduce size and weight and supply improved battery performance".



Capital Of Culture Award

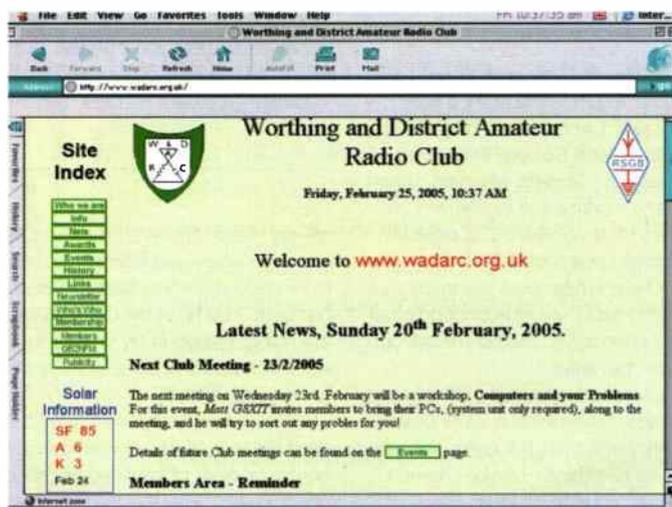
To celebrate Cork City's status as European Capital of Culture during 2005, Cork Radio Club and the East Cork Radio Group have introduced the Cork Capital of Culture Award. The award is available to all radio amateurs and short wave listeners and to qualify you need to work or hear the special event station EI05CCC (Echo India Zero Five CCC) and one other of the following three callsigns: EI5CRC, EI1C or EI7M.

Contacts must be made during 2005. QSL cards are not required for the award and all QSOs can be confirmed via the bureau. For direct cards see QRZ.com All four callsigns will be activated regularly during 2005.

Claims for the award should be submitted to Rev. Fr. Finbarr Buckley, 'Curraghmore', Cherry Grove, Model Farm Road, Cork. The cost of the award is £5 or 8 IRCs. Enquiries to Finbarr EI1CS at buckleyf1@eircom.net

Summer Rally

Following the success of last year's event, the Worthing and District Amateur Radio Club are holding their Summer Rally at Newhaven Fort Museum on Sunday 19 June from 1030 to 1430. A special entrance fee of £2.50 has been agreed, which will also give radio amateurs access to all other Fort facilities, including GB2NFM and the display of radio equipment from the past.



Tables are available at £15 for traders and £10 for private sellers and clubs. Tables must be booked in advance by calling Roy G4GPX on (01903) 753893, car parking is free. Any profits from the rally will go towards enhancing the radio museum display at the Fort. Newhaven is in Sussex midway between Brighton and Eastbourne and the Fort is well signposted from the centre of the town.

The date of the Rally is also the date of the London to Brighton charity bike ride so traffic may be heavier than normal on the A23 although the thousands of cyclists do take an alternative route. It is also Fathers' Day so, what better way to spend it than with your family at the Fort Museum taking in the rally and the spectacular views across the Channel? Follow this by watching the hoards of cyclists on their last leg down the Lewes Road into Brighton, an impressive sight and a great day out.

Members of the club meet every Wednesday at Lancing Parish Hall from 2000, anyone with an interest in communications and related subjects is welcome to go along. For more information on club events and activities, please visit www.wadarc.org.uk

Berlin-based Broadcaster Goes High-tech

By Jason Walsh

Berlin's latest radio station MotorFM is seeking to redefine how commercial music radio works, by using the radio broadcast as an adjunct to their online activities. The new f.m. station, which commenced broadcasting on 1 February has abandoned the traditional revenue stream of on-air commercials in favour of making money by selling music downloads on its website.

"In the short term we don't think that the downloads will be able to finance the station - maybe in two or three years - but that's why we have sponsors", said the station's Markus Kuehn, former marketing manager of Universal Music Germany. The next step will be streaming audio directly to 3G mobile phones and paying for downloads by SMS text message.

Media analyst Tim Crook said that MotorFM's proposal was: "an interesting and alternative way to fund radio broadcasting - the Internet streaming could fund the analogue music output, but this is only feasible if the music with an anticipated demand is only available on a pay-to-listen basis".

First Foundation Exam

The **Harlow and District Amateur Radio Society** recently held its first Foundation licence exam since becoming a registered examination centre. All three candidates were successful and are already studying for their Intermediate Licence.

The club has previously held Foundation training, but registered in order to provide all three levels of training and examinations. Courses are organised and run on a demand basis. Anybody interested in taking one of the club's courses should contact **Alan M0TEC** on (01279) 441092 or by E-mail m0tec@g6ut.com



● Standing left to right: Adam M3YZR; Sonia M3YZS; Alan M0TEC (Instructor) and Murat M3MVA

Club Corner

The **Hilderstone Radio and Electronics Club** meet on the second and last Friday of the month at Hilderstone Adult Education Centre, St Peters Road, Broadstairs. They cover a wide range of interests in Amateur Radio, Electronics and computers. There will be no meeting on Good Friday, but on 8 April the club will have a project evening, including Amateur TV equipment and the 160m d.f. receiver. Further information on www.g0hrs.org.uk E-mail: mick.howland@btinternet.com or 'phone **Ken** on (01304) 813175 or **Mike** on (07732) 133230.

Members of the **Waterside (New Forest) Amateur Radio Society** are celebrating 25 years as a club and they still have a few founder members. The club meets on the 1st and 3rd Tuesday of the month at 2000 at The Scout Hut, Applemore College, Dibden, near Hythe, Hampshire. The committee are arranging many activities throughout the coming year. For more information, contact **Bob G0WNV** on (02380) 435398.

The **Horndean & District Amateur Radio Club** meet on the 1st and 4th Tuesday of each month at the Lovedean Village Hall, 160 Lovedean Lane, Lovedean, Hants. Meetings commence at 1930 and visitors are always most welcome to attend. Lots of events are already planned throughout the coming months, so find out more from **Stuart Swain G0FYX**, Club Secretary, on 0239-247 2846 or E-mail: g0fyx@msn.com

Meetings take place Wednesday evenings at the Whitchurch Folkhouse Association, Bridge Farm House, East Dundry Road, Whitchurch, Bristol, for the **South Bristol Amateur Radio Club**. Find out what the club is up to in the coming months by visiting www.sbarc.co.uk or contact **Len Baker** on (01275) 834282.

Members of the **Aylesbury Vale Radio Society (G4VRS)** meet on the 2nd Wednesday of each month at the home of Roger Piper G3MEH in Wigginton, near Tring, Hertfordshire. Meetings usually start at 2000 and non-members are most welcome, but please 'phone or E-mail before travelling any distance to check times and space availability. If Morse practice is detailed in the Events column on the website, this normally starts at 1930 and lasts for 30 minutes. Contact **Roger Piper G3MEH** on (01442) 826651 or E-mail: Roger_G3MEH@hotmail.com or visit www.avrs.mandarinsolutions.co.uk

Radio Support For Ski Team

Icom (UK) Ltd. and leading retailer **Martin Lynch & Sons** have recently supported the British Children's Ski Team by supplying members with radio communication equipment. "When we received the initial enquiry, we approached Icom UK who were very pleased to help us put together an affordable package," said **Chris Taylor**, Sales Director of Martin Lynch. "Their equipment gets a tough old battering in all weathers, but the IC-F12s we are supplying are extremely robust and easy to use, even with gloves on!"



Dr Jenny Shute, manager of the Children's Team, was happy to concur, "We are very grateful to Chris and his friends at Icom for all their help. We need the radios to communicate between trainers on the mountain and on race days to feed information back to the next racers. Reliability, ease of use and battery life in cold weather are crucial - we have found Icom to be extremely sturdy".

Martin Lynch & Sons operating from Chertsey are one of the largest specialist radio retailers, repairers and mail order companies in the UK and are able to deliver the goods within days. Chris Taylor was pleased to hand over the new equipment, specially protected in a purpose-lined flight bag, to **Harry Craggs** of the Children's Squad, just in time for the first race of the season in Czechoslovakia, see picture.

The Team have eight races in Europe during the season and to track their progress, visit their website at www.gbjuniorski.com

Another New Venue!

Mike Street G3JKX, Hon. Secretary of the **Telford Rally Group** writes: "Due to extensive building works at the RAF Museum Cosford and problems obtaining permissions/insurance, etc., for our previous alternative venue, the **2005 Telford Rally** will now be held on **Sunday 4 September** at the **Shrewsbury Agricultural Showground**, home of the well-known West-Mid-Show". For further details contact: Mike Street G3JKX, Hon Sec. on (01952) 299677. Mark the date and venue in your diary now!

communiqué

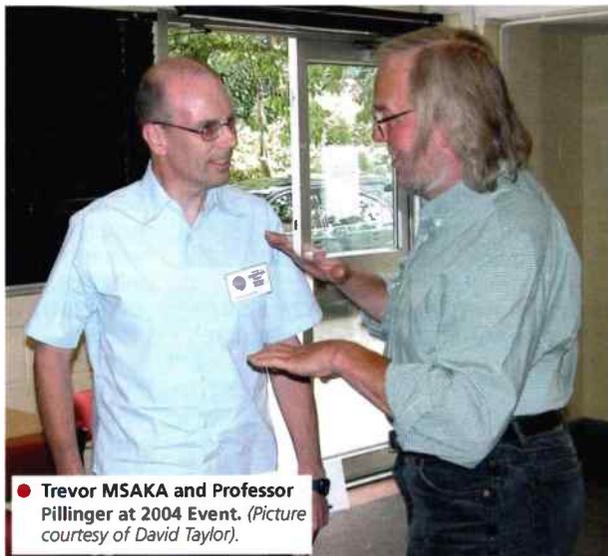
Space Colloquium

Free CD!

AMSAT-UK will be holding a Space Colloquium at the University of Surrey in Guildford from **29-31 July**. This three day event always attracts radio amateurs from across Europe as well as North America, Africa, Asia and the Pacific. Over a third of those attending come from outside the UK. It provides an opportunity to rub shoulders with the designers of the Amateur Satellites and find out the latest news.

As in previous years there will be special beginner's sessions to teach newcomers how to get started in the fascinating world of Amateur Radio Space communications. You can get started using little more than a standard dual-band f.m. hand-held radio.

An antenna testing range will be available to enable you to check out the gain of your latest antenna, not all commercial antennas perform as well as you might think! Microwave experts will be on-hand with test equipment covering up to 24GHz so you can have your equipment tested and receive professional advice.



● Trevor MSAKA and Professor Pillinger at 2004 Event. (Picture courtesy of David Taylor).

Fluke is offering a free interactive Oscilloscope training CD. Designed to operate on a standard PC, the guide provides illustrated lessons regarding standard analogue and digital oscilloscopes and their use, together with information about how to obtain the best results from a hand-held, portable Fluke 190 Series ScopeMeter.

The free Fluke Scope Training CD contains self-paced Training Modules, one set based on general Oscilloscope Theory, the second set explaining best practice in the use of the Fluke ScopeMeters. Oscilloscope Theory includes three lessons, covering waveform types and their measurement, choosing between analogue and digital oscilloscopes and setting up probing safely. Interactive tests are provided along the way.

The CD also contains documents that cover the specifications of all models of the Fluke 190 Series ScopeMeter, colour and black and white and some example application notes, which describe their use in the field. The hand-held ScopeMeters offer up to 200MHz bandwidth, up to 2.5 giga samples per second real time sampling rates and 27,500 points of memory per unit, i.e. the speed, performance and analysis power usually found only on high-end bench oscilloscopes.

CDs can be obtained by contacting Fluke directly on **0207-942 0700**, FAX: **0207-942 0701** or via E-mail: **industrial@uk.fluke.nl** Alternatively, visit **www.fluke.co.uk**

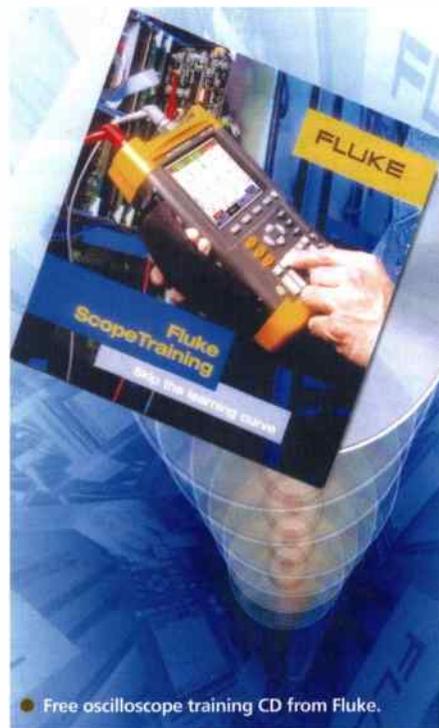
● Some of the 2004 Space Colloquium Attendees. (Picture courtesy of David Taylor).



There will be guided tours of the Surrey Space Centre with the satellite mission control centre and the satellite assembly facility. These tours are always popular and they provide a unique opportunity to see satellites in various stages of construction. The RSGB GB4FUN van, which has a fully equipped satellite station, will be available during the event for visitors to work the Satellites.

There is an extensive lecture programme ranging from highly professional technical presentations to basic down to earth 'how to do it' type talks. We were privileged last year to have **Professor Colin Pillinger** who led the *Beagle 2 Mars Probe* project as our keynote speaker.

Guildford is 64km from Central London and is easily reached from both London-Heathrow and London-Gatwick airports. Day passes and two or three day packages covering meals and accommodation in the University grounds are available. For details, contact the Secretary **Jim Heck G3WGM** on **(01258) 453959**, E-mail: **g3wgm@amsat.org** or visit **www.uk.amsat.org**



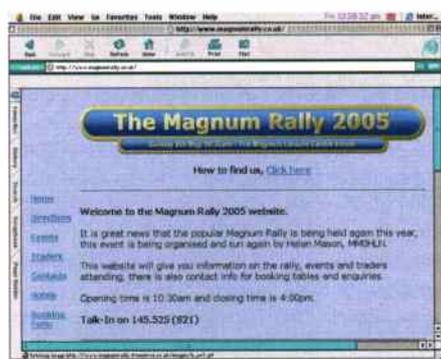
● Free oscilloscope training CD from Fluke.

Haydon On-Line

The SWM Newsdesk has recently heard from **Haydon Communications**, who inform us that they have just launched a new on-line catalogue, with 128-bit SSL order facility. The web page is active now and they are adding content daily, its full size is expected to be reached by mid-March 2005. Haydon can be reached at **Unit 1 Thurrock Commercial Park, Purfleet Industrial Estate, London Road, Averley, Essex RM15 4YA, Tel: (01708) 862524, FAX: (01708) 868441** or visit www.haydon.info



Magnum's May Rally



The **Magnum Rally** is to be held on **Sunday 8 May 2005** at the **Magnum Leisure Centre, Irvine, Ayrshire**. There will be trade stands for radio and computer, Bring & Buy, raffle and free parking. Entrance fee is £3, under 14s free. More information from **Helen Mason MM0HLN** on **(07776) 385247** or visit www.magnumrally.co.uk

rallies

March 12: The Lagan Valley ARS are holding their rally at the Lagan Valley Hospital Recreation Hall. Doors open from 1100. There will be the usual stalls, plus a Bring & Buy, talk-in on S22 and refreshments. Ample car parking available. More information from **Ron McCaughey GI4NTO** on **0289 260 1941**.

March 13: The Wythall Radio Club are holding their 20th Annual Radio & Computer Rally at the Woodrush Sports Centre, Shawhurst Lane, Hollywood, Nr. Wythall, Birmingham. Book early as this is a popular rally. Trader booking forms can be obtained from **Chris GOEYO** on **(07710) 412819**, E-mail: g0eyo@blueyonder.co.uk or visit www.wrcrally.co.uk

March 19: The South Normanton Alfreton & District Amateur Radio Club, in association with the G-QRP Club are holding their 5th Junction 28 QRP Rally at the Village Hall Community Centre, Market Street, South Normanton, near Alfreton, Derbyshire. Fully signposted and open to the public from 1000. There will be Amateur Radio, electronics and related items, Bring & Buy and special interest group stalls, outdoor flea market (weather permitting) and refreshments. More information from **Russell Bradley G0OKD** on **(01773) 783394**, E-mail: russel.bradley@ntlworld.com or **Mike Jeffs M0RMJ** on **(01949) 876523**, E-mail: mike.jeffs@ntlworld.com

March 20: The Cambridge & District Amateur Radio Club have now confirmed the date for their rally, which is to be held at Britten Arena, Wood Green Animal Shelter, King's Bush Farm, London Road, Godmanchester. Doors open at 1000 and entrance fee is just £2 (concession for OAP/disabled, children free). There will be free parking for up to 2000 cars, along with a bar and restaurant on-site. There will also be a Bring & Buy and a Talk-in on S22. More information from **John Bonner G0GKP** on **(01954) 200072**, E-mail: j.bonner@ntlworld.com or from **Ian Alexander G4AKD** on **(01954) 782974**, E-mail: g4akd@thersgb.net

April 3: The Northern Mobile Rally (Harrogate Rally) is to be held at the Harrogate Ladies College, Clarence Drive, Harrogate, N. Yorkshire. There will be all the usual facilities plus a Bring & Buy, catering and transport for any disabled visitors, etc. More information from Rally Manager **Gerald Brady G0UFI** on **(07734) 478080** or visit www.harrogaterally.co.uk

April 10: The Yeovil ARC have booked the Digby Hall, Sherbourne for their 21st QRP Convention, the popular get together of QRPers from the South and West of England. Doors open at 1000 and car parking is free in the town centre car parks, which adjoin the hall. Follow the black and white Town Centre signs, off the A30 Yeovil to Salisbury Road. There will be two talks in the morning and another after visitors have enjoyed the excellent food available and browsed the many trade stands. Also, the Construction Challenge will be adjudicated and certificates will be presented to winners of the QRP Convention CW Funrun, which takes place prior to the Convention on the evenings 14-18 March, 1900-2100. Rules available from G3ICO. E-mail: george@mudford.fstnet.co.uk

Packet Conference

The **4th UK Packet Radio Conference** will take place on **Saturday 7 May 2005** at the Poacher's Pocket, Warndon, Worcester. It will be free of charge, and open to anyone with an interest in Packet Radio.

There will be demonstrations and presentations, plus ample time for informal discussions and socialising. As the boundaries between Packet Radio, the Internet and packetised speech are becoming blurred, possible topics also include Voice Over IP (VOIP) if there is sufficient interest.

For further details please visit <http://pzt.org.uk/pk2005> To reserve your place, add items to the agenda or for any other queries, please contact **Paula Dowie G8PZT**, E-mail: g8pzt@blueyonder.co.uk

Table Top Sale

A future date for your diary. The **Exeter Amateur Radio Society** are holding their Rally/Table Top Sale at the Moose Hall, Spinning Path, Blackboy Road, Exeter on **Sunday 9 October 2005**. Entrance is just £1 and tables are £10 each. Doors open 1000 and close at 1500. More information from **Steven Webber M3WRS** on **(01392) 498934/495690**.

LM&S

Long, Medium & Short Wave Bands

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

One of broadcasting's most flamboyant preachers is no more. There can be few amongst us who have not stumbled across **Dr Gene Scott's** University Network whilst trawling the bands. According to his website, two outlets in Costa Rica broadcast his brand of evangelism for 24 hours-a-day. Described as unpredictable, entertaining, ridiculous and brilliantly inspired, Scott held an enviable reputation for his ability to raise thousands of dollars within minutes of taking to the air. The cigar-smoking shock jock of broadcast evangelism had been ill for some time and he suffered a stroke towards the end of February. He was 75.

Europa Radio International is building its empire. Broadcasting is via hired facilities at Miami's WRMI and occasionally via a transmitter in Latvia. However, plans are afoot to improve reception in Europe. The station has acquired a Collins transmitter which they will be installing in a "former Russian state" - not Latvia, apparently. The deal is done but certain formalities need to be finalised before going public - some time in the summer. The transmitter has been completely refurbished and upgraded whilst the antenna system is being re-engineered as it has lain unused for four years.

- Listeners:-
- A Thomas Williams, Truro
 - B David Bullock, Kilburn, Derbyshire
 - C Simon Hockenhull, Bristol

Long Wave Table

kHz (kW)	ServiceTX	Location	Country	Power	Listener
153	Deutschlandfunk	Donebach	D	500/250	A* B C
162	France Inter	Allouis	F	2000/1000	A* B
171	Medi 1	Nador	MRC	2000	C*
171	Radio Rossi	Bolsakovo	RUS	600	C
177	Deutschlandradio Berlin	Zehlendorf	D	500	B C
183	Europe 1	Saarlouis	D	2000	A* B
189	Rikisutvarpid	Gufuskalar	ISL	150	C*
198	BBC Radio 4	Droitwich	G	500	B
198	Polish Radio 1	Raszyn	POL	200	C
207	Deutschlandfunk	Aholming	D	500	A* C
207	RTM A	Azilal	MRC	400	C*
207	Rikisutvarpid	Eidar	ISL	100	C*
216	Radio Monte Carlo	Roumoules	F	1400	A* B C
225	Polish Radio 1	Solec Kujawski	POL	1000	C
234	RTL	Beidweiler	LUX	2000	A* B
243	Denmark Radjo 1	Kalundborg	DNK	300	B C
252	RTE Radio 1	Clarkstown	IRL	500/150	A* B C
252	Algiers Radio 3	Tipaza	ALG	1500/750	C*
261	Radio Rossi	Talqom	RUS	2500	C
270	Czech Radio 1	Uherske Hradiste	CZE	650	C
279	Belarussian Radio 1	Sasnovy	BLR	500	C

* = dark

Tropical Band Table

MHz	UTC	Service	Country	Listener
3.915	2145	BBC World Service	G/SNG	G L
3.955	1719	WYFR	USA/G	J
3.965	2240	Radio France Int'l	F	I K L
3.975	2029	Radio Budapest	HNG	I K L
4.800	2119	CPBS 2 Beijing	CHN	K
4.845	2200	ORTM Nouakchott	MTN	G K
4.860	1736	All India Radio, Delhi	IND	K
4.875	1402	Radio Dif Rorajima	B	I
4.905	2135	Xizang Lhasa	CHN	K
4.920	2210	Xizang Lhasa	CHN	G K
4.930	2131	Turkmen Radio	TKM	K
4.940	1636	Voice of Russia	RUS	L
4.975	1628	Voice of Russia	RUS	L
5.015	2218	Turkmen Radio	TKM	K
5.025	2034	Radio Tashkent	UZB	I K

Whilst on the subject of station launches, Radio Tatra International, brain-child of a certain **Mr Eric Wiltshir**, has been slated for a 9 April start.

The station's website reveals that RTI will broadcast to over 40 million people on a.m. and f.m. in central Europe, to the rest of the continent via satellite (28°E) and around the world on the Internet.

Local rebroadcasters will opt-out each morning to present their own breakfast show embracing local news, traffic and weather. During the opt-outs, RTI will provide centralised programming for its satellite and the Internet outlets. These will be fun, family shows, devoid of bad language or subjects

that could "offend a family enjoying breakfast". How many families do you know who still have breakfast together? Anyhow, music will feature tracks from the 1960s through to the present day with most being available from their on-line music store. The overnight sustaining service will be supplied by Radio Caroline.

Eric himself will be presenting a media-related show - from mergers to the

DXers:-

- A John Parry, Cyprus
- B Bernard Curtis, Stalbridge
- C Gerald Guest
- D Robert Hughes
- E Peter Pollard, Rugby
- F Fred Wilmshurst, Northampton
- G Vic Prier, Seaton
- H Thomas Williams, Truro
- I David Bullock, Kilburn, Derbyshire
- J Graham White
- K Michael Casey, Manchester
- L Rhoderick Illman, Oxted

latest 'techie' toys, whilst the missus - his, not mine - airs twice - weekly with her Top 40 Gold show.

The Light Of Day

Now, call me a cynical old hack, but I've lost count of the number of pop radio stations that have, despite the hype, never made the light of day. The industry seems to attract those with well intentioned but ill-conceived business models. If this one launches in April I shall eat my *WRTH!*

Although...Radio London, another venture I'd mentally consigned to the scrap heap, may after all, have launched by the time you read this. This is the station that ran test transmissions on 1008kHz from Holland, only to discover that coverage in the UK was less than hoped for. Well, it seems that the station has registered with Ofcom and planned to launch over the Sky satellite platform on 21 March; possibly channel 940. Radio London hopes to provide popular, rock and R 'n' B music from the 1950s, 1960s and 1970s with news and weather each hour.

Radio Korea International changed its name to KBS World Radio following a survey of its employees. The station merged recently with the similarly named TV channel for

Local Radio Table

kHz	Service	Svc area/TX site	kW	SWL
558	Spectrum	Crystal Palace	1	B* C E
603	Capital Gold	Littlebourne	0.1	B* C E
630	BBC 3CR	Luton	0.2	B* C E
657	BBC Radio Cornwall	Bodmin	2	E*
666	BBC Radio York	York	0.5	D
666	Classic Gold	Exeter	0.34	E
729	BBC Essex	Manningtree	0.2	C E
738	BBC Hereford & Worcester	Worcester	0.037	A C E
756	Magic Maldwyn	Newtown	0.63	C D E
765	BBC Essex	Chelmsford	0.5	C E
774	Classic Gold	Gloucester	0.14	C
792	Classic Gold	Bedford	0.275	B* C D E
801	BBC Radio Devon	Barnstaple	2	C E
828	Classic Gold	Bournemouth	0.27	E
828	BBC Asian Network	Wolverhampton	0.2	B* C D E
828	Classic Gold	Luton	0.2	C E
837	BBC Asian Network	Leicester	0.5	B* D E
855	BBC Radio Norfolk	Norwich	1.5	A
855	Sunshine 855	Ludlow	0.15	A C E
873	BBC Radio Norfolk	West Lynn	0.3	A C
936	Classic Gold	West Wiltshire	0.18	C
945	Classic Gold	Derby	0.2	C D
954	Classic Gold	Torbay	0.4	E
954	Classic Gold	Hereford	0.16	C E
963	Asian Club	Hackney	0.95	C E
972	Asian Club	Southall	1	C E
990	BBC Radio Devon	Exeter	1	E
990	Classic Gold	Wolverhampton	0.09	C D E

overseas viewers, and the new name supposedly reflects its "new status and mission".

The broadcaster launched a new stream - Vietnamese - on 3 March; the occasion of its 79th birthday. The daily 30 minute strand brings to 11 the number of languages carried by KBS World. Vietnamese goes out on 9.640MHz at 1500.

Medium Wave Table

kHz	Service	Location	Country	kW	Listener
531	Utvarp Foraya	Akrabeg	FRO	200/100	E
531	RNE 5	Many	E	10-25	E*
531	Swiss Radio (German)	Beromunster	SUI	600	B* E
540	RTM A	Tanger	MRC	300	E*
540	Radio Twee	Wavre	BEL	150	B* D E
549	Deutschlandfunk (DLF)	Nordkirchen/Thumau	D	100	D E
549	UCB Europe	Dundalk	IRL	70	B* D* E
558	RNE 5	Many	E	5-50	D
567	RTE 1	Tullamore	IRL	500	B* D* E
576	Sudwestrundfunk (SWR)	Muhlacker	D	100	B* D* E
585	RNE 1	Madrid	E	600	B* D* E*
585	RF	Paris	F	8	E
594	HR Skyline	Frankfurt	D	250	B* D E
594	Radio Renascença	Muge	POR	100	E*
603	France Info	Lyon	F	300	E
603	RNE 5	Seville	E	5	E*
612	RNE 1	Victoria	E	10	E*
621	RTBF 1	Wavre	BEL	300	B* D E
630	Tunis Radio	Djedeida	TUN	600	E*
639	RNE 1	Many	E	10-300	E*
639	Czech Radio 2	Prague	TCH	1500	D* E
648	BBC World Service	Orfordness	G	500	B* E
657	RNE 5	Madrid	E	50	B*
657	BBC Radio Wales	Wrexham	G	2	B* D E
666	Radio Vilnius	Sitkunai	LTU	500	C*
666	Sudwestrundfunk (SWR)	Rohrdorf	D	150	E
675	Arrow Classic Rock	Lopik	HOL	120	D E
684	RNE 1	Seville	E	600	E*
683	BBC Radio 5 Live	Many	G	1-150	D
702	NDR 4	Flensburg	D	5	E
711	Radio Bleu	Brennes	F	300	B* D* E
720	WDR	Langenberg	D	85	E
720	BBC Radio 4	Lisnagarvey	G	10	E
720	BBC Radio 4	London	G	0.75	B* D*
729	RNE 1	Many	E	10-100	B*
729	RTE Radio 1	Cork	IRL	10	E
738	RNE 1	Barcelona	E	500	B* E
738	Radio France International	Paris	F	5	E
747	Radio 747	Flévoland	HOL	400	B* D* E
756	Deutschlandfunk (DLF)	Many	D	100-200	B* D* E
756	Radio Euskadi	Bilbao	E	25	E*
765	Opton Musique	Sottens	SUI	600	B* D* E
774	RNE 1	Many	E	20-100	B*
783	MDR Info	Leipzig	D	100	B* E

kHz	Service	Svc area/TX site	kW	SWL
999	Classic Gold GEM	Nottingham	0.25	C D
999	BBC Radio Solent	Fareham	1	E
999	Valleys Radio	Ebbw Vale	0.3	E
1017	Classic Gold	Shropshire	0.63	C D E
1026	BBC Radio Jersey	Trinity	1	E
1026	BBC Radio Cambridgeshire	Cambridge	0.5	B* C D E
1035	Kismet Radio	Crystal Palace	1	A* C E
1116	BBC Radio Derby	Derby	1	C D
1116	Valleys Radio	Ebbw Vale	1	E
1116	BBC Radio Guernsey	Rohais	0.5	E
1152	LBC	London	23.5	C E*
1152	Capital Gold	Birmingham	3	C D E
1152	Classic Gold Amber	Norwich	0.83	E*
1152	Classic Gold	Plymouth	0.32	E*
1161	BBC 3CR	Bedford	0.1	C
1170	Swansea Sound	Swansea	0.58	E
1170	Signal's Big AM	Stoke on Trent	0.2	C D
1170	Capital Gold	Portsmouth	0.12	A
1251	Classic Gold Amber	Bury St Edmunds	0.76	E*
1260	Sabras Sound	Leicester	0.29	C D
1287	Garrison Radio RSL	Tidworth	0.001	E
1296	Radio XL	Birmingham	10	C D E
1305	Premier	London	0.5	C
1323	Capital Gold	Brighton	0.5	E*
1332	Premier	Central London	1	B*
1332	Classic Gold	Peterborough	0.6	C D
1359	Classic Gold Breeze	Chelmsford	0.28	B*
1359	Classic Gold	Coventry	0.27	C D
1368	BBC Radio Lincolnshire	Lincoln	2	C D
1368	BBC Southern Counties Radio	Duxhurst	0.5	E*
1413	BBC Radio Gloucester	Bourton/Berkeley/Heath	0.5	C

If you noticed some extra DRM transmissions on 7.200MHz and wondered where they were from, the answer is that they were broadcasts intended for UK reception from religious broadcaster Christian Vision. The 40kW casts, beamed out from Germany's Julich site, went out between 1600-1800 during the last week in February, and between 1500-1700 from 7 to 14 March.

kHz	Service	Svc area/TX site	kW	SWL
1431	Classic Gold Breeze	Southend	0.35	A E*
1431	Classic Gold	Reading	0.14	C E
1449	BBC Asian Network	Peterborough	0.15	C
1458	Sunrise	London	125	C E
1458	BBC Asian Network	Birmingham	5	B* C E
1458	BBC Radio Devon	Torbay	2	E*
1485	BBC Radio Merseyside	Wallasey	2	E*
1485	Classic Gold	Newbury	1	C E
1485	BBC Southern Counties Radio	Brighton	1	E*
1503	Sound Radio	London	?	A
1503	BBC Radio Stoke	Staffordshire	1	A* C D E*
1530	Capital Gold	Worcester	0.52	E*
1548	Capital Gold	London	97.5	D
1557	Classic Gold	Northampton	0.76	C D
1557	Capital Gold	Southampton	0.5	B*
1566	County Sound	Guildford	0.8	E*
1566	BBC Somerset Sound	Taunton	0.6	E*
1575	RSL Stoke Mandeville Hospital	Aylesbury	0.001	C
1584	BBC Radio Nottingham	Clipstone	1	D
1584	BBC Hereford & Worcester	Woofterton	0.3	E*
1602	BBC Radio Kent	Rustall	0.25	E*
1602	Desi Radio	Southall	0.07	C E*

* = dark

Listeners:-

- A Sheila Hughes, Morden
- B Peter Pollard, Rugby
- C Fred Wilmshurst, Northampton
- D David Bullock, Kilburn, Derbyshire
- E Simon Hockenhull, Bristol

Christian Vision intends to broadcast regularly to the UK and Europe on the back of these tests so listen out for more.

Good & Bad News

Harry Richards wrote with good news and bad. RTL have kindly sent him a copy of their DVD outlining their plans for DRM - good. Unfortunately, Harry does not yet possess a

kHz	Service	Location	Country	kW	Listener
1278	France Bleu	Strasbourg	F	300	E
1287	RNE 1	Many	E	5-10	B*
1296	BBC World Service	Orfordness	G	500	D
1314	NRK Europakanalen	Kvitsoy	NOR	1200	D* E
1323	Voice of Russia	Wachenbrunn	RUS/D	800/150	A B* D* E*
1323	BBC World Service	Limassol	G/CYP	100	E*
1332	RAI Uno	Rome	I	300	D
1341	BBC Radio Ulster	Lisnagarvey	G	100	B* E
1350	Radio Orient	Nancy	LBN/F	300	B* E
1359	RNE 3	Madrid	E	600	E
1368	Manx Radio	Douglas, IOM	G	20	E*
1377	France Info	Lille	F	300	B* D* E
1386	The Overcomer Ministry	Sitkunai	USA/LTU	750	A*
1386	China Radio Int'l	Sitkunai	CHN/LTU	750	E*
1395	Trans World Radio	Flake	MCO/ALB	500	B*
1395	Radio Tirana	Flake	ALB	500	E*
1404	France Info	Brest	F	20	D* E
1413	RNE 5	Many	E	5-10	B*
1422	Deutschlandfunk (DLF)	Heusweiler	D	1200/600	B* D E
1440	RTL+China Radio International	Marnach	(CHN)/LUX	1200/300	B* D* E*
1448	Lilyan Radio	Misurata	LYB	20	B*
1476	Radio 1476	Vienne	AUT	60	B* D* E*
1494	Voice of Russia	Krasny Bor	RUS	600	E
1494	France Info	Clermont-Ferrand	F	20	B* E
1512	Radio Vlaanderen/Radio Een	Wolvertem	BEL	300/25	B* D* E*
1521	Saudi Radio	Duba	ARS	2000	B*
1530	Vatican Radio	Vatican City	CVA	150/450	B* E*
1539	Evangeliums Rundfunk	Mainflingen	D	700/120	B* D* E*
1567	France Info	Nice	F	300	D* E*
1575	RAI Uno	Genova	I	50	B* E*
1575	SER	Many	E	5	B* E*
1575	Radio Nouveaux Talents	Paris	F	5	E
1583	Voice of America	Kuwait	USA/KWT	150	E*
1583	Radio Cija	Sibiu	ROU	7	B*
1602	Radio Victoria	Victoria	E	25	B* D* E*
1611	Vatican Radio	Vatican City	CVA	100	B*

* = dark

Listeners:-

- A Bernard Curtis, Stalbridge
- B Peter Pollard, Rugby
- C Edward Turnbull
- D David Bullock, Kilburn, Derbyshire
- E Simon Hockenhull, Bristol

DVD player - bad. I have a copy of the aforementioned DVD. Drop me a line, Harry, if you'd like me to send you a VHS copy. All part of the service.

A very warm welcome to **Eddie Frost** who wrote in for the first time with some loggings of China Radio International. You don't say where in the UK you are, Eddie, but I look forward to hearing from you again.

A beautifully crafted letter from Edward Turnbull from Northumberland describes his reception of Radio Vilnius in English on 666kHz medium wave. See the listings.

Good to hear from you Edward. Keep in touch.

By the time you read this, British Summer Time will almost be upon us. The end of March and again at the end of October is when broadcasters revise their schedules to take account of the change in propagation conditions. In summer, the higher frequency bands are favoured: even the all but forgotten 25MHz band may get a look in.

Over the next couple of months I'll endeavour to publish some schedules for you. In the meantime, please be aware that

this month's listings refer to stations logged in January so many broadcasts aimed at Europe may go out an hour earlier than shown.

Thanks for all of your logs. In a bizarre twist, we had a record number of contributors to the tropical bands section but very few stations actually heard. 4.845MHz out of Mauritania is consistently the strongest station here at LM&S Towers and is easily heard on a portable with a whip antenna. Please send your findings in by the 10th of the month. That'll do it for now.

See you next time.

Short Wave Table

MHz	UTC	Service	Country	Lang	SINPO	SWL
0000-0600						
5.825	0600	WEWN	USA	Eng	56534	VP
5.825	0650	WEWN	USA	Eng	36343	MC
5.860	0827	WHRI	USA	Eng	36343	MC
5.865	0845	Voice of Greece	GRC	Gre	34323	VP
5.885	0610	Vatican Radio	CVA	Eng	56555	VP
5.885	0743	Vatican Radio	CVA	Eng	36343	MC
5.910	1114	Radio Ukraine Int.	UKR	Eng	44233	EM
5.945	0819	Bible Voice Broadcasting Net. G/D	G	Eng	56555	EM
5.965	0823	Radio Vlaanderen Int.	BEL/D	Eng	45545	MC
5.970	0307	Radio Belarus	BLR	Eng	33433	EM
5.975	1012	BBC World Service	G/ATG	Eng	34433	SH
6.000	0109	Radio Havana Cuba	CUB	Eng	55544	FM
6.005	0655	BBC World Service	G/ASC	Eng	34233	VP
6.020	0114	China Radio Int.	CHN/?	Eng	55444	SH
6.065	0000	Radio Exterior De Espana	E	Eng	54454	EM
6.075	0212	Deutsche Welle	D	Ger	55434	DB
6.075	0615	Deutsche Welle	D/POR	Ger	43544	VP
6.085	0733	Bayerischer Rundfunk	D	Ger	45545	DB
6.115	0254	Radio Tirana	ALB	Eng	44434	GV
6.140	0116	Radio Romania Int.	ROU	Eng	44433	SH
6.155	0635	ORF Radio Austria Int.	AUT	Ger	55555	DB
6.165	0636	Croatian Radio	HRV	Cro	55545	DB
6.185	0741	Vatican Radio	CVA	Eng	25333	MC
6.200	0125	Radio Prague	CZE	Eng	54544	SH
7.115	0000	Radio Cairo	EGY	Eng	31422	EM
7.115	0103	Int. R. of Serbia and Mont.	SCG/BH	Eng	42442	EM
7.200	0115	Voice of America	USA/GRC	Eng	35433	SH
7.230	0109	Radio Slovakia Int.	SVK	Eng	33333	FH
7.250	0638	Vatican Radio	CVA	Latin	55454	DB
7.250	0741	Vatican Radio	CVA	Eng	55455	DB
7.275	0640	Tunisian Radio	TUN	Ara	45434	DB
7.285	0307	Croatian Radio	HRV	Eng	45323	GV
7.345	0127	Radio Prague	CZE	Eng	32422	SH
7.345	0128	China Radio Int.	CHN/?	Eng	32422	SH
7.345	0743	Radio Prague	CZE	Ger	55445	DB
7.400	0001	Radio Bulgaria	BUL	Eng	45243	EM
9.565	0642	Radio Romania Int.	ROU	Rou	34333	DB
9.645	0643	Vatican Radio	CVA	Latin	44344	DB
9.660	0644	Vatican Radio	CVA	Eng	44444	DB
9.825	0004	BBC World Service	G	Eng	24122	EM
9.870	0610	Trans World Radio	MCO	Eng	55555	EM
9.875	0050	Radio Vilnius	LTU	Eng	44323	FM
9.880	0811	Radio Prague	CZE	Eng	55555	EM
9.885	0330	Radio New Zealand Int.	NZL	Eng	25533	SH
11.600	0746	Radio Bulgaria	BUL	Eng	45354	DB
11.600	0635	Radio Prague	CZE	Fre	45534	VP
11.690	0040	Radio Vilnius	LTU	Ger	44344	FM
11.710	0630	Radio Romania Int.	ROU	Eng	44333	SH
11.745	0743	Vatican Radio	CVA	Eng	24423	GV
11.755	0850	YLE Radio Finland	FIN	Fin	55534	VP
11.765	0615	BBC World Service	G	Eng	34444	SH
11.780	0015	Radio Nai da Amazona	B	Por	34343	FM
11.855	0700	China Radio Int.	CHN	Eng	55444	SH
11.855	0812	China Radio Int.	CHN	Eng	55545	DB
11.865	0745	Trans World Radio	MCO	Eng	43443	EM
11.865	0814	Trans World Radio	MCO/ALB	Eng	44544	DB
12.005	0835	Voice of Russia	RUS	Eng	44444	SH
15.210	0845	Radio Korea Int.	KOR	Fre	34222	VP
15.350	0850	Voice of Turkey	TUR	Tur	55534	VP
15.400	0830	BBC World Service	G/ASC	Eng	34433	VP
17.485	0800	China Radio Int.	CHN	Eng	55555	EF
17.640	0855	BBC World Service	G	Eng	34433	VP
17.700	0816	South African Relay League	AFS	Eng	15221	EM
17.730	0845	Saudi Radio	ARS	Ara	33323	VP
17.740	0845	Saudi Radio	ARS	Ara	44233	VP
21.530	0845	Voice of Greece	GRC	Gre	55555	VP
0900-1000						
5.825	0955	WEWN	USA	Alb	44334	BC
5.860	0945	WHRI	USA	Eng	55444	BC
5.855	0950	Radio Netherlands	HOL	Dur	55445	PP
6.005	0955	Berlin Radio	D	Ger	35233	PP
6.075	0957	Deutsche Welle	D	Ger	44444	PP
6.085	0959	Radio Bayern	D	Ger	55555	PP
6.140	0909	Deutsche Welle	D	Eng	45444	HB
7.590	0918	AFRTS	USA	Eng	33332	HB
9.710	0930	Radio Vilnius	LTU	Eng	45544	SH
9.885	0910	Radio New Zealand Int.	NZL	Eng	33333	HB

MHz	UTC	Service	Country	Lang	SINPO	SWL
9.980	0919	AFRTS	USA	Eng	33332	HB
11.660	0900	RDP	POR	Por	44444	VP
11.800	0907	RAI	I	Ita	25323	GW
11.840	0822	KTWR	GUM	Eng	33333	HB
11.855	0944	Voice of America	USA/THA	Chi	24333	RI
11.965	0946	Voice of America	USA/THA	Chi	24221	RI
12.010	0948	Voice of America	USA/PHL	Chi	33322	RI
13.650	0950	Voice of America	USA/MRA	Chi	23422	RI
15.190	0950	BBC World Service	G	Eng	34434	HB
15.615	0957	Voice of America	USA	Eng	44422	RI
15.630	0954	Voice of Greece	GRC	Gre	43443	RI
15.665	0942	Voice of America	USA/TWN	Chi	24333	RI
15.770	0938	All India Radio	IND	Mal	24332	RI
17.490	0830	China Radio Int.	CHN	Eng	45534	VP
17.535	0832	Kol Israel	ISR	Heb	44434	VP
17.555	0920	Voice of America	USA/MRC	Eng	44334	BC
17.600	0945	Radio Rossii	RUS	Rus	45444	VP
17.610	0927	BBC World Service	G	Ara	32342	RI
17.615	0924	Saudi Radio	ARS	Ara	33333	RI
17.630	0922	Africa No.1	GAB	Fre	24322	RI
17.640	0820	BBC World Service	G	Eng	33442	RI
17.650	0918	China Radio Int.	CHN	Fre	24342	RI
17.650	0918	China Japan	J/ASC	Jap	22431	RI
17.660	0914	Voice of Islamic Rep. of Iran	IRN	Swa	24422	RI
17.690	0806	China Radio Int.	CHN	Eng	43433	RI
21.460	0950	United Nations Radio	USA/UAE	Eng	24322	RI
21.495	0955	Saudi Radio	ARS	Ara	34333	RI
21.620	0900	Radio Sohl	G	Dtp	55545	VP
21.705	0820	Saudi Radio	ARS	Ara	55555	VP
1000-1100						
5.825	1020	WEWN	USA	Eng	44232	EM
6.155	1001	ORF Radio Austria Int.	AUT	Ger	55555	PP
6.190	1004	Berlin Radio	D	Ger	55555	PP
9.645	1048	Vatican Radio	CVA	Eng	44444	TW
9.790	1003	Radio Netherlands	HOL	Eng	45444	HB
9.815	1010	RDP	POR	Por	33333	PP
9.885	1045	Radio New Zealand Int.	NZL	Eng	34444	TW
9.895	1040	Radio Netherlands	HOL	Dut	44444	TW
9.965	1002	Voice of Hope	PLW	Eng	25444	FW
9.985	1015	WYFR	USA	Eng	55555	PP
9.985	1021	WWOR	USA	Eng	32222	EM
11.755	1045	YLE Radio Finland	FIN	Fin	55544	TW
11.800	1020	RAI	I	Ita	44344	PP
11.875	1025	RDP	POR	Por	55555	PP
11.880	1015	Radio Australia	AUS	Eng	32332	EM
12.065	1014	Radio Netherlands	HOL	Eng	24121	EM
12.085	1030	Voice of Mongolia	MNG	?	34333	TW
12.095	1026	BBC World Service	G	Eng	34233	PP
13.650	1017	Voice of Korea	KRE	?	43343	EM
13.685	1052	Voice Int.	AUS	Eng	34333	TW
13.720	1035	Radio Exterior De Espana	E	Spa	55555	PP
13.730	1035	ORF Radio Austria Int.	AUT	Ger	33333	TW
13.780	1055	Deutsche Welle	D	Ger	44444	TW
13.830	1048	Croatian Radio	HRV	Eng	44444	TW
13.840	1037	IRRS	I	Eng	33333	TW
13.885	1038	Voice of America	USA	Eng	44444	TW
15.415	1031	Radio Australia	AUS	Eng	15432	MC
15.540	1009	Voice of Russia	RUS	Ger	44333	RI
15.565	1007	BBC World Service	G/CYP	Ara	23322	RI
15.565	1005	BBC World Service	G	Eng	24333	RI
15.575	1002	BBC World Service	G	Ara	24332	RI
15.595	1000	Radio Exterior De Espana	E	Spa	34332	RI
15.595	1048	Vatican Radio	CVA	Eng	55544	TW
15.615	1032	Voice of America	USA	Eng	45424	GV
17.490	1012	China Radio Int.	CHN	Eng	55444	HB
17.510	1046	All India Radio	IND	Eng	33333	TW
17.515	1048	Vatican Radio	CVA	Eng	55544	TW
17.515	1052	All India Radio	IND	Eng	25433	PP
17.535	1043	Kol Israel	ISR	Eng	44444	TW
17.565	1019	Voice of America	USA	Eng	44243	EM
17.585	1010	China Japan	J	Eng	45444	HB
17.695	1048	All India Radio	IND	Eng	33333	TW
17.895	1050	All India Radio	IND	Eng	35444	PP
19.010	1038	Voice of America	USA	Eng	34323	TW
21.455	1053	BBC World Service	G	Ara	34333	TW
21.515	1000	BBC World Service	G	Far	24333	RI
21.540	1004	Radio Exterior De Espana	E	Spa	24322	RI
21.570	1005	Radio Exterior De Espana	E	Spa	24322	RI
21.590	1008	Radio France Int.	F	Fre	34333	RI
21.610	1010	Radio Exterior De Espana	E	Spa	34433	RI
21.620	1030	Radio Sohl	AFG/G	Pas	55555	BC
21.620	1046	Peace Radio	USA/G	Pas	34333	RI

MHz	UTC	Service	Country	Lang	SINPO	SWL
21.660	1013	BBC World Service	G/THA	Eng	24333	RI
21.670	1015	Saudi Radio	ARS	Ind	34333	RI
21.685	1016	Radio France Int.	F	Fre	24332	RI
21.705	1025	Saudi Radio	ARS	Ara	55445	BC
21.740	1030	?	?			

MHz	UTC	Service	Country	Lang	SINPO	SWL	MHz	UTC	Service	Country	Lang	SINPO	SWL	MHz	UTC	Service	Country	Lang	SINPO	SWL
15.700	1236	Radio Bulgaria	BUL	Eng	45433	SH	15.565	1422	BBC World Service	G	Eng	35423	SH	5.970	1750	China Radio Int.	CHN	Ger	44454	RH
17.490	1250	China Radio Int.	CHN	Eng	54445	BC	15.585	1405	Radio Exterior De Espana	E	Spa	44454	RH	6.055	1742	Radio Slovakia Int.	SVK	Eng	45444	SH
17.535	1210	Kol Israel?	ISR	Heb	55445	BC	15.585	1454	Radio Netherlands	HOL/MDG	Eng	24324	SH	7.185	1748	Radio Bangladesh	BGD	Eng	26343	RW
17.670	1230	Radio Cairo	EGY	Eng	25222	EM	15.605	1400	Radio France Int.	F	Rus	33343	RH	7.255	1709	China Radio Int.	CHN	Eng	33442	MC
17.690	1204	Radio Vlaanderen Int.	BEL/UBZ	Dut	33432	RI	15.630	1400	Voice of Greece	GRC	Gre	44454	RH	9.410	1705	BBC World Service	G/CYP	Eng	25544	RW
17.700	1224	Voice of Turkey	TUR	Tur	44232	RI	15.748	1415	Sri Lanka Broadcasting Corp.	CLN	Eng	43333	BC	9.500	1730	Trans World Radio	MCO/SWZ	Eng	34443	MC
17.720	1229	Voice of Turkey	TUR	Tur	34433	RI	17.560	1410	WHRA	USA	Eng	55445	BC	9.565	1740	United Nations Radio	USA/G	Eng	33333	FM
17.730	1216	Radio Free Europe/Radio Liberty	USA/GRC	Rus	32431	RI	17.620	1420	Radio France Int.	F	Eng	44553	JP	9.830	1748	Croatian Radio	HRV	Eng	43333	HB
17.735	1214	Tunisian Radio	TUN	Ara	44444	RI	17.640	1424	BBC World Service	G	Eng	44243	BM	10.330	1730	All India Radio	IND	?	54444	VP
17.745	1201	Radio Vlaanderen Int.	BEL/AFS	Dut	34433	RI	21.455	1439	HCBJ	EOA	Spa	24332	RI	11.630	1750	RDP	POR	Por	44444	VP
17.760	1200	BBC World Service	G/THA	Eng	24222	RI	21.470	1417	BBC World Service	G	Eng	15221	EM	11.695	1750	Deutsche Welle	D	Eng	44334	FM
17.830	1255	BBC World Service	G/ASA	Eng	45554	JP	21.490	1451	BBC World Service	G	Som	44343	RI	11.845	1710	Radio Farla	USA/CLN	Ara	54454	RH
17.860	1230	All India Radio	IND	Eng	15221	EM	21.505	1453	Saudi Radio	ARS	Ara	24332	RI	13.765	1734	Vatican Radio	CVA	Eng	34443	MC
21.455	1231	HCBJ	EOA	Eng	35443	FM	21.550	1456	RAI	I	Ita	24322	RI	15.240	1730	Voice of America	USA/MRC	Eng	55534	VP
21.505	1255	Saudi Radio	ARS	Ara	33343	RH	21.640	1414	Saudi Radio	ARS	Ara	35444	MC	15.250	1745	RAI	I	Ita	55534	VP
21.760	1240	Radio France Int.	F/AFS	Fre	44344	RH	21.655	1454	RDP	POR	Por	45444	MC	15.265	1722	Channel Africa	AFS	Eng	45344	EM
21.800	1252	YLE Radio Finland	FIN	Fin	45544	SH	21.660	1490	BBC World Service	G/ASC	Eng	25222	SH	15.355	1724	Radio Japan	J	Eng	24122	EM
1300-1400							1500-1600							1800-1900						
5.955	1353	Radio Netherlands	HOL	Dut	44344	PP	5.955	1525	Vatican Radio	CVA	Eng	45555	FW	5.910	1832	Radio Vlaanderen Int.	BEL	Eng	55555	EM
6.140	1356	Deutsche Welle	D	Eng	44334	PP	6.110	1500	Overcomer Ministry	USA	Eng	44444	GG	5.930	1809	Radio Prague	CZE	Eng	45534	SH
7.240	1320	Radio Sweden	S	Swe	34333	TW	7.160	1502	BBC World Service	G/SNG	Eng	14432	MC	5.965	1825	Voice of Vietnam	VTN	Eng	44444	FM
9.760	1335	WYFR	USA/RUS	Eng	25443	MC	7.445	1535	Voice of Russia	RUS	Rus	54454	RH	5.965	1900	Radio Romania Int.	ROU	Eng	33433	SH
9.525	1313	Radio Polonia	POL	Eng	35343	GW	7.455	1530	Trans World Radio	MCO/GUM	Chi	33343	RH	6.015	1848	China Radio Int.	CHN	Chi	54444	PP
9.715	1335	Radio Tashkent Int.	UZB	Eng	34343	PP	7.470	1530	Radio Free Asia	USA/MNG	Chi	43333	RH	6.065	1837	Radio Sweden	S	Eng	53444	GW
9.760	1335	Voice of America	USA/FHL	Eng	44544	JP	7.475	1525	Voice of Greece	GHC	Gre	42333	RH	6.155	1850	ORF Radio Austria Int.	AUT	Ger	54434	PP
9.870	1305	Radio New Zealand Int.	NZL	Eng	34333	TW	7.540	1525	Radio Free Asia	USA/TJK	Chi	44344	RH	6.165	1852	Croatian Radio	HRV	Cro	54555	PP
11.550	1343	Radio Sweden	S	Eng	45545	SH	7.570	1539	Voice of Korea	KRE	Eng	34343	FM	6.195	1859	BBC World Service	G	Eng	44444	PP
11.850	1343	Radio Polonia	POL	Eng	33333	PP	7.620	1520	China People's B. casting Ser.	CHN	Chi	21122	RH	7.130	1902	Radio Romania Int.	ROU	Eng	45333	SH
11.855	1349	WYFR	USA	Eng	25443	MC	9.435	1522	China Radio Int.	CHN	Eng	34433	SH	7.160	1945	Radio France Int.	F/AFS	Fre	43433	VP
11.865	1348	China Radio Int.	CHN/CAN	Eng	35444	MC	9.475	1520	Radio Australia	AUS	Eng	34333	SH	7.265	1850	Radio Polonia	POL	Eng	43334	BC
13.610	1340	China Radio Int.	CHN	Eng	45544	FW	9.535	1555	China Radio Int.	CHN	Chi	33343	RH	7.490	1830	Radio Vlaanderen Int.	BEL	Eng	44344	EM
13.685	1320	Voice Int.	AUS	Eng	54344	DB	9.545	1555	Deutsche Welle	D	Ger	54444	RH	7.570	1806	Voice of Korea	KRE	Eng	32332	HB
13.790	1325	China Radio Int.	CHN	Eng	54555	DB	9.585	1545	Deutsche Welle	D/CLN	Fin	43343	RH	9.415	1804	Radio Prague	CZE	Eng	24432	SH
15.050	1356	All India Radio	IND	Hin	34553	JP	9.630	1540	YLE Radio Finland	I	Ita	55444	FM	9.445	1825	All India Radio	IND	Eng	54444	VP
15.105	1329	Radio Romania Int.	ROU	Eng	45454	DB	9.685	1500	Voice of America	USA/GRC	Eng	54454	RH	9.475	1855	Radio Australia	AUS	Eng	54444	BC
15.155	1330	Voice of Turkey	TUR	Eng	55545	GW	9.715	1525	Deutsche Welle	D	Rus	44454	RH	9.520	1830	Voice of America	USA/GRC	Rus	44423	VP
15.195	1349	Voice of Turkey	TUR	Eng	34433	SH	9.730	1520	Saudi Radio	ARS	Ara	33343	RH	9.525	1830	Voice of Turkey	TUR	Eng	55545	VP
15.240	1301	Radio Sweden	S	Swe	44444	TW	9.760	1515	Voice of America	USA/FHL	Eng	43333	RH	9.775	1830	Voice of Islamic Rep. of Iran	IRN	Hau	45333	VP
15.240	1342	Radio Sweden	S	Eng	35544	SH	9.770	1515	Radio Free Europe/Radio Liberty	USA/D	Kur?	43343	RH	9.790	1815	Republic of Yemen Radio	YEM	Eng	44334	FM
15.310	1335	BBC World Service	G	Eng	45554	JP	9.830	1512	Croatian Radio	HRV	Cro	43444	DB	9.870	1855	Trans World Radio	USA	Eng	55555	GW
15.405	1328	HCBJ	EOA/AUS	Eng	43333	TW	9.870	1510	Trans World Radio	MCO/GYP	Eng	45534	PP	11.585	1830	Kol Israel	ISR	Eng	45534	VP
15.575	1310	BBC World Service	G/CYP	Eng	45554	JP	9.910	1510	All India Radio	IND	Eng	34333	BC	11.875	1830	Radio Canada Int.	CAN/D	Eng	54434	VP
15.700	1355	Radio Bulgaria	BUL	Bul	54454	RH	11.520	1500	Radio Free Asia	USA/ARM	Tib	43333	BC	11.925	1840	Adventist World Radio	AFS	Eng	43333	FM
15.795	1355	Galei Zahel	ISR	Heb	33343	RH	11.660	1505	Radio Australia	AUS	Eng	45444	DB	12.050	1845	Radio Cairo	EGY	Ara	55545	VP
15.825	1355	WYFR	USA	Eng	44344	RH	11.690	1530	Radio Jordan	JOR	Eng	54444	SH	12.095	1825	BBC World Service	G	Eng	54445	BC
17.535	1335	Kol Israel	ISR	Heb	44454	RH	11.730	1520	Tunisian Radio	TUN	Eng	45555	FW	15.240	1820	Voice of America	USA/MRC	Eng	54344	BC
17.560	1330	WHRA	USA	Eng	44454	RH	11.750	1527	Radio Australia	AUS	Eng	35343	FW	15.420	1855	BBC World Service	G/AFS	Eng	44334	BC
17.600	1330	Radio Rossi	RUS	Rus	55555	RH	11.975	1518	Radio Canada Int.	CAN	Eng	45333	FM	21.455	1830	WYFR	USA	Ger	45333	BC
17.630	1330	Africa No. 1	GAB	Fre	43343	RH	12.015	1513	Voice of Korea	KRE	Eng	32233	FM	1900-2000						
17.640	1318	BBC World Service	G	Eng	25433	MC	12.025	1523	Voice of Russia	RUS	Eng	43344	FM	5.915	1943	Radio Slovakia Int.	SVK	Eng	35433	SH
17.735	1325	Tunisian Radio	TUN	Ara	43333	RH	13.800	1514	Croatian Radio	HRV	Cro	44444	DB	5.990	1920	Voice of Turkey	TUR	Tur	54444	RH
17.745	1302	Radio Romania Int.	ROU	Eng	45444	SH	15.275	1500	Deutsche Welle	D/FRW	Ger	33343	RH	6.010	1904	Sri Lanka Broadcasting Corp.	CLN	Eng	44444	EM
17.800	1320	Deutsche Welle	D/FRW	?	33333	RH	15.750	1500	WHRA	USA	Eng	44323	VP	6.025	1925	Radio Budapest	HNG	Hun?	43343	RH
17.825	1320	Radio Romania Int.	ROU	RoU	44454	RH	17.630	1550	Africa No. 1	GAB	Fre	45444	FM	6.035	1905	Voice of America	USA/STP	Eng	43334	BC
17.850	1315	Radio France Int.	F	Fre	43343	RH	17.710	1545	Radio Sohi	G	Pas	44444	VP	6.035	1945	RAI	I	Eng	32332	SH
17.855	1315	RAI	I/AUT	Ger	33333	RH	17.735	1540	Tunis Radio	TUN	Ara	35444	MC	6.055	1940	Voice of Turkey	TUR	Eng	44444	FM
17.885	1310	Radio Kuwait	KWT	Ara	32232	RH	17.745	1528	RDP	POR	Por	25444	MC	6.065	1935	Radio Sweden	S	Ger	55555	RH
17.895	1310	Saudi Radio	ARS	Ara	55555	JP	17.770	1548	Channel Africa	AFS	Eng	45444	FM	6.100	1934	Int. R. of Serbia and Mont.	SCG/BIH	Eng	23322	GH
21.470	1305	BBC World Service	G/SEY	Eng	34553	RI	21.470	1508	BBC World Service	G/ASC	Eng	25344	MC	6.155	1940	ORF Radio Austria Int.	AUT	Ger	54444	RH
21.480	1305	Radio Netherlands	HOL/MDG	Dut	32222	RH	21.490	1515	BBC World Service	G/AFS	Eng	34423	VP	6.165	1910	Croatian Radio	HRV	Eng	44444	FM
21.570	1335	Radio Exterior De Espana	E	Spa	35333	SH	21.675	1500	Libyan radio	LYB/F	Ara	34322	RI	6.175	1947	Voice of Russia	RUS	Eng	43242	EM
21.695	1357	Libyan radio	LYB/F	Ara	25443	MC	21.700	1501	Radio Exterior De Espana	E	Spa	34333	RI	6.230	1900	Voice of Russia	RUS	Ger	55555	PP
21.700	1339	Radio Exterior De Espana	E	Spa	15443	MC	21.820	1507	Deutsche Welle	D	USA/MRA	24553	JP	7.105	1900	Voice of Russia	RUS	Eng	55444	DB
21.830	1330	RDP	POR	Por	25433	SH	5.765	1505	AFRTS (u.s.t.)	USA/MRA	D	24553	JP	7.210	1900	Radio Netherlands	HOL/MDG	Eng	34223	VP
1400-1500							1600-1700							2100-2200						
5.955	1455	Radio Netherlands	HOL	Dut	55555	FW	5.975	1605	BBC World Service	G/THA	Eng	12442	MC	7.140	1915	Radio Romania Int.	ROU	Ger	55545	VP
6.110	1449	Overcomer Ministry	USA	Eng	55545	GW	6.130	1639	Voice of Russia	RUS	Eng	34433	SH	7.145	1900	Deutsche Welle	D/FOR	Rus	45534	VP
6.140	1417	Deutsche Welle	D	Eng	55455	DB	6.170	1616	Deutsche Welle	D/CLN	Eng	23342	MC	7.210	1945	Radio Trans	ALB	Eng	34433	EM
6.155	1450	ORF Radio Austria Int.	AUT	Eng	44333	BC	7.125	1619	Voice of America	USA/THA	Eng	12531	MC	7.225	1900	Tunisian Radio	TUN	Ara	55545	VP
7.125	1456	Voice of America	USA/THA	Eng	34443	MC	7.160	1651	BBC World Service	G/SNG	Eng	13442	MC	7.235	1905	Radio Ukraine Int.	UKR	?	44344	PP
9.345	1426	Radio Netherlands	HOL	Eng	45344	EM	7.290	1600	Voice of Russia	RUS	Eng	45444	SH	7.235	1935	Radio Canada Int.	CAN/G	Fre	55555	VP
9.590	1435	Radio Australia	AUS	Eng	35444	FM	9.390	1606	Radio Pakistan	PAK	Eng	24422	SH	7.250	1915	Vatican Radio				

Scanner Base Verticals

- SUPERSCAN STICK I (WIDEBAND)**£29.95
 FREQ: 0-2000MHz LENGTH 100cm SOCKET SO239 £7.00 P&P
 RADIALS: 3 x 17cm
- SUPERSCAN STICK II (WIDEBAND)**.....£39.95
 FREQ: 0-2000MHz GAIN: 3.00dB OVER SSSI £7.00 P&P
 LENGTH: 150cm SOCKET: SO239 RADIALS: 3 x 50cm
 These two superb fibreglass external wideband antennas have capacitor loaded trapped coils to give maximum sensitivity to even the weakest of signals. No wonder they are best selling verticles!
- AR-30 (AIR BAND)**.....£39.95
 FREQ: CIVIL & MILITARY AIR GAIN: 3.0/6.0dB £7.00 P&P
 LENGTH: 100cm SOCKET: SO239 RADIALS: 3 x 17cm
- AR-50 (AIR BAND)**.....£49.95
 FREQ: CIVIL & MILITARY AIR GAIN: 4.5/7.0dB £7.00 P&P
 LENGTH: 150cm SOCKET: SO239 RADIALS: 3 x 50cm
 These dedicated fibreglass external antennas are pre-tuned for both air band frequencies. Get the gain and don't miss take off!
- X1-HF VERTICAL (DEDICATED HF)**.....£49.95
 FREQ:1-50MHz LENGTH: 200cm SOCKET: SO239 £7.00 P&P
 RADIALS: NONE
 This HF vertical antenna incorporates helical traps and is an ideal alternative to long wire.

Discone Base Antennas

- STANDARD DISCONE (WIDEBAND)**.....£29.95
 FREQ: 25-1300MHz LENGTH 100cm SOCKET: SO239 £7.00 P&P
 RADIALS: 16
- SUPER DISCONE (WIDEBAND)**.....£39.95
 FREQ: 25-2000MHz GAIN: 3.00dB OVER STANDARD £7.00 P&P
 LENGTH: 140cm SOCKET: SO239 RADIALS: 16
- HF DISCONE (WIDEBAND/HF SENSITIVE)**£49.95
 FREQ: 0.05-2000MHz LENGTH: 180cm SOCKET: SO239 £7.00 P&P
 RADIALS: 16
- ROYAL DISCONE 2000 (WIDEBAND - STAINLESS)**.....£49.95
 FREQ RX: 25-2000MHz FREQ TX: 50-52, 144-146, 430-440£7.00 P&P
 900-986, 1240-1325MHz LENGTH: 155cm GAIN: 4.5dB OVER
 STANDARD SOCKET: N TYPE RADIALS: 16
 The discone has been around for over 40 years and is generally recognized as the original and probably the best all round scanner antenna. Choose the best one for your station or call us for advice.

Beam Antennas

- MLP-32 (LOG PERIODIC)**.....£99.95
 FREQ: 100-1300MHz TX & RX.....£7.00 P&P
 GAIN: 11-13dB LENGTH 140cm
 SOCKET: N TYPE
- MLP-62 (LOG PERIODIC)**.....£169.95
 FREQ: 50-1300MHz TX & RX.....£7.00 P&P
 GAIN: 10-12dB LENGTH: 300cm
 SOCKET: N TYPE
 These two beam antennas are sold mainly to our military & commercial customers. With an SWR 2:1 or better over the whole frequency, for performance it just doesn't get better.
- AR300XL**.....£49.95
 Rotator for both antennas.....£7.00 P&P

Getting Rigged Up

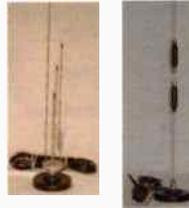
We have a massive stock of all mounting hardware products, brackets, poles, cables & connectors, etc. Phone, e-mail or check the web-site for details! Remember we can make up any cable leads. Fitted with connectors of your choice at your request.



- ROYAL DOUBLE DISCONE 2000** NORMAL PRICE
 FREQ RX: 25-2000MHz £59.95
 FREQ TX: 130-175/410-475MHz
 GAIN: 5.5dB
 LENGTH: 150cm
 SOCKET: N TYPE
- SALE PRICE**
£49.95

This antenna has a superior wideband coverage for receive with a low SWR match right across the VHF and UHF spectrum

Going Mobile



- G.SCAN II MOBILE (WIDEBAND)**.....£29.95
 TYPE: TWIN COIL FREQ: 25-2000MHz £7.00 P&P
 LENGTH: 65cm BASE MAGNETIC CABLE: 4m
 WITH BNC
- SKYSCAN MOBILE (WIDEBAND)**.....£19.95
 TYPE: 4 TUNED WHIPS FREQ: 25-2500MHz £7.00 P&P
 LENGTH: 65cm BASE MAGNETIC CABLE: 4m
 WITH BNC
 Don't lose those signals while on the move. Get high performance reception wherever whenever.

Portable Antennas



- SKYSCAN DESKTOP (INTERNAL/WIDEBAND)**.....£49.95
 TYPE: DISCONE STYLE FREQ: 25-2000MHz £7.00 P&P
 LENGTH: 90cm CABLE: 4m WITH BNC
- TRI-SCAN III DESKTOP (INTERNAL/WIDEBAND)**£39.95
 TYPE: TWIN COIL FREQ: 25-2000MHz £7.00 P&P
 LENGTH: 90cm CABLE: 4m WITH BNC
- SWP-2000 (GLASS MOUNT/WIDEBAND)**.....£29.95
 TYPE: SUCTION MOUNT FREQ: 25-2000MHz £7.00 P&P
 LENGTH: 55cm CABLE: 4m WITH BNC
- SWP-HF30 (GLASS MOUNT/DEDICATED HF)**£39.95
 TYPE: SUCTION MOUNT FREQ HF: 0.05-30MHz £7.00 P&P
 LENGTH: 80cm CABLE: 4m WITH BNC
- MAX-5 ACTIVE (INTERNAL/EXTERNAL/WIDEBAND)**£49.95
 TYPE: ACTIVE PRE-AMP FREQ: 25-1800MHz £7.00 P&P
 GAIN: 14dB LENGTH: 140cm CABLE: 4m WITH BNC
 Get the most from your scanner by using one of our portable antennas and enjoy great performance without the need to erect an external one.

Shortwave Wire Antennas



- MWA-HF MkII (EXTERNAL DELUXE HF)**.....£49.95
 ANTENNA) £7.00 P&P
 TYPE: WIRE BALUN MATCH FREQ: 0-40MHz
 LENGTH: 25m CABLE: 10m WITH PL259
- MD37-SKYWIRE (EXTERNAL STANDARD ..£39.95**
 HF ANTENNA) £7.00 P&P
 TYPE: WIRE BALUN MATCH FREQ: 0-40MHz
 LENGTH: 25cm CABLE: 10m WITH PL259
- LONG WIRE BALUN (ON ITS OWN)**£19.95
 Get the best from your HF receiver and get.....£2.00 P&P
 a long wire. Our own ferrite baluns give up
 to 2 "S" points greater signal than other
 similar baluns with a smooth match over 40MHz.

Hand-held Antennas

- MRW-100 (SUPER GAINER BNC)**£19.95
 FREQ: 25-1800MHz LENGTH: 40m FITTING: BNC £2.00 P&P
- MRW-210 (SUPER GAINER SMA)**.....£22.95
 FREQ: 25-1800MHz LENGTH: 40m FITTING: SMA £2.00 P&P



Going out? Don't miss out! Get a Super Gainer!

Something Extra



- TURNSTILE 137 (DEDICATED WEATHER SATELLITE)**.....£39.95
 FREQ: 137.5MHz LENGTH: 100cm SOCKET: SO239 £7.00 P&P
 RADIALS: 4
 For use with receiving weather satellite pictures.
- MRP-2000 (ACTIVE WIDEBAND PRE-AMP)**.....£49.95
 FREQ: 25-2000MHz GAIN: 14.0dB POWER: 9-15V £7.00 P&P
 CABLE: 1m BNC-BNC
- MRP-137 (ACTIVE WEATHER SAT PRE-AMP)**.....£44.95
 FREQ: 137.5MHz GAIN: 25.0dB POWER: 9-15V £7.00 P&P
 CABLE: 1m BNC-BNC



MHz	UTC	Service	Country	Lang	SINPO	SWL
11.655	1937	Radio Netherlands	HOL	Eng	35243	EM
11.665	1937	Deutsche Welle	D/POR	Eng	25343	MC
12.000	1920	Voice of America	USA/BOT	Fre	34233	VP
12.160	1905	WVCR	USA	Eng	44333	BC
13.605	1930	All India Radio	IND	Eng	35444	MC
13.640	1924	Voice of America	USA/MFC	Eng	25443	MC
13.780	1922	Deutsche Welle	D	Eng	45334	RH
15.400	1932	BBC World Service	G/ASC	Eng	44344	FM
17.810	1916	Radio Netherlands	HOL/ATN	Eng	15432	MC
17.830	1925	BBC World Service	G/ASC	Eng	34333	FM
2000-2100						
5.800	2040	Radio Bulgaria	BUL	Ger	55555	VP
5.915	2030	Radio Slovakia Int.	SVK	Fre	55455	VP
5.960	2000	China Radio Int.	CHN	Eng	55555	GG
5.960	2015	WVCR	USA	Eng	35343	FW
5.960	2021	China Radio Int.	CHN	Eng	55555	GW
6.015	2027	Bible Voice Broadcasting Net.	G/D	Eng	54243	EM
6.025	2006	Radio Budapest	HNG	Eng	23222	SH
6.040	2038	RAI	I	Eng	44243	EM
6.055	2010	Voice of Turkey	TUR	Eng	45555	FW
6.065	2032	Radio Sweden	S	Eng	34423	SH
6.110	2022	Voice of Islamic Rep. of Iran	IRN	Eng	32333	RH
6.145	2024	Voice of Russia	RUS	Eng	54444	FM
6.195	2030	BBC World Service	G	Eng	55555	GVY
6.235	2015	Voice of Russia	RUS	Eng	33333	TW
6.290	2014	Kol Israel	ISR	Eng	45423	SH
7.105	2034	Radio Belarus	BLR	Eng	43333	FM
7.130	2040	Radio Romania Int.	ROU	Eng	54545	VP
7.130	2040	Voice of Islamic Rep. of Iran	IRN	Spa	44333	FM
7.145	2040	Deutsche Welle	D/POR	Rus	55555	RH
7.155	2040	Voice of Turkey	TUR	Fre	55555	RH
7.180	2050	China Radio Int.	CHN	Ita	55545	VP
7.185	2035	Radio Tashkent Int.	UZB	Eng	33343	RH
7.190	2030	Tunisian Radio	TUN	Ara	44454	RH
7.205	2015	Voice of Turkey	TUR	Ger	55555	VP
7.205	2025	BBC World Service	G/AFS	Afr	42333	RH
7.255	2025	China Radio Int.	CHN	Rus	43333	RH
7.285	2000	China Radio Int.	CHN	Eng	43334	GG
7.290	2020	Voice of Russia	RUS	Eng	32333	RH
7.300	2015	Voice of Russia	RUS	Fre	55555	VP
7.320	2024	Voice of Islamic Rep. of Iran	IRN	Eng	43444	HB
7.330	2044	Voice of Russia	RUS	Eng	24443	MC
7.335	2010	China Radio Int.	CHN	Eng	44444	RH
7.345	2015	Radio Slovakia Int.	SVK	Fre	54344	VP
7.360	2015	Family Radio	USA/MDA	Eng	53444	BC
7.420	2045	Radio Sweden	S	Eng	34223	GW
7.450	2005	EFT 3	GRC	Gre	54454	RH
7.480	2005	R.Nacional de la RASD (W/Sahara)	Ara	32232	RH	
7.475	2045	Voice of Greece	GRC	Gre	55545	VP
7.490	2040	Radio Vlaanderen Int.	BEL	Eng	22122	EM
7.500	2005	Radio Bulgaria	BUL	Ger	44444	PP
7.550	2030	Radio Farida	CLN	Fre	55545	VP
9.280	2030	WVCR	USA/TWN	Chi	23422	VP
9.335	2035	Radio Farida	USA/CLN	Fre	45434	FM
9.375	2030	Voice of Greece	GRC	Gre	44232	VP
9.390	2015	Kol Israel	ISR	Eng	44434	VP
9.410	2000	BBC World Service	G/CYP	Eng	44334	GG
9.470	2005	Bible Voice Broadcasting Net.	G	Eng	43333	FM
9.485	2015	China Radio Int.	CHN	Eng	34334	PP
9.500	2030	Radio Australia	AUS	Eng	34223	PP
9.595	2015	Radio Exterior de Espana	E	Eng	55445	FM
9.600	2054	China Radio Int.	CHN/ASC	Eng	35544	FW
9.630	2000	Radio Exterior De Espana	E	Spa	55545	VP
9.680	2056	Radio Exterior De Espana	E	Eng	45344	GW
9.855	2005	Radio Kuwait	KWT	Ara	45544	FW
9.885	2007	Radio Netherlands	HOL	Eng	45444	EM
11.635	2055	Libyan radio	LYB/F	Ara	33343	RH
11.655	2055	Radio Netherlands	HOL/MDG	Eng	44444	RH
11.725	2050	Radio Canada Int.	CAN/S	Fre	44454	RH
11.750	2050	Family Radio	USA/D	Fre	44454	RH
11.775	2050	Voice of America	USA/STP	Fre	54454	RH
11.795	2045	Deutsche Welle	D	Ger	44444	RH
11.815	2024	Radio Brasil Central	B	Por	33343	FM
11.845	2045	Adventist World Radio	USA/AFS	Fre	33343	RH
11.855	2040	BBC World Service	G/ASC	Afr?	43444	RH
11.880	2025	Radio Australia	AUS	Eng	25444	FW
11.880	2039	RAI	I	Eng	24112	EM
11.890	2030	Deutsche Welle	D/CLN	Ara	43333	RH
11.930	2006	Radio Marti	USA	Spa	44444	FM
11.975	2010	Voice of America	USA/STP	Eng	25343	FW
12.090	2020	Voice of America	USA/BOT	Fre	33343	RH
12.085	2015	Radio Damascus	SYR	Eng	34343	FM
12.160	2024	WVCR	USA	Eng	25444	MC
13.710	2033	Voice of America	USA/BOT	Eng	35433	MC
13.780	2010	Deutsche Welle	D	Eng	54444	RH
15.205	2005	Deutsche Welle	D/FRW	Eng	43444	RH
15.265	2015	Adventist World Radio	USA	Eng	34333	GG
15.400	2005	BBC World Service	G/ASC	Eng	33343	RH
15.825	2011	WVCR	USA	Eng	15432	MC
17.830	2057	BBC World Service	G/ASC	Eng	15443	MC
7.490	2030	Radio Vlaanderen Int.	BEL	Eng	33333	TW
2100-2200						
5.850	2100	Radio Canada Int.	CAN/S	Eng	44444	GG
5.885	2110	Vatican Radio	CVA	Eng	34433	TW
5.930	2102	Radio Prague	CZE	Eng	45434	GW
5.930	2120	Radio Prague	CZE	Eng	34333	TW
5.960	2100	China Radio Int.	CHN	Eng	54444	SH
6.005	2100	Deutschland Radio, Berlin	D/POR	Ger	45544	VP
6.015	2131	Radio Romania Int.	ROU	Eng	44344	EM
6.035	2100	Voice of America	USA	Eng	22222	TW
6.055	2130	Radio Romania Int.	ROU	Eng	55444	EM
6.065	2100	Radio Sweden	S	Swe	44444	GG
6.235	2105	Voice of Russia	RUS	Eng	44333	VP
6.280	2125	Kol Israel	ISR	Heb	33333	TW
7.145	2130	Radio Romania Int.	ROU	Eng	44444	SH

MHz	UTC	Service	Country	Lang	SINPO	SWL
7.185	2133	Radio Tashkent Int.	UZB	Eng	33343	FM
7.190	2120	China Radio Int.	CHN	Eng	43232	MC
7.285	2100	China Radio Int.	CHN	Eng	55555	EF
7.300	2132	Voice of Russia	RUS	Eng	55555	GW
7.315	2120	Radio France Int.	F	Fre	55545	VP
7.330	2145	Voice of Russia	RUS	Eng	55545	VP
7.360	2102	Family Radio	USA/RUS	Eng	55555	FW
7.410	2115	All India Radio	IND	Eng	55545	VP
7.500	2100	Radio Bulgaria	BUL	Fre	55545	VP
9.410	2120	BBC World Service	G/CYP	Eng	54434	VP
9.420	2130	Voice of Greece	GRC	Gre	44434	VP
9.540	2149	Radio Romania Int.	ROU	Eng	44444	PH
9.600	2118	China Radio Int.	CHN	Eng	54243	EM
9.615	2115	Deutsche Welle	D	Eng	55555	FM
9.770	2116	Radio Canada Int.	CAN	Eng	55354	EM
9.780	2133	Voice of Islamic Rep. of Iran	IRN	Eng	24122	EM
9.780	2140	Radio France Int.	F	Fre	43343	PH
9.830	2125	Adventist World Radio	USA	Eng	35243	EM
9.855	2116	China Radio Int.	CHN	Eng	55354	EM
9.855	2135	Radio Kuwait	KWT	Ara	33343	PH
9.895	2135	Radio Netherlands	HOL/MDG	Dut	43333	RH
9.910	2115	All India Radio	IND	Eng	55555	VP
9.950	2122	All India Radio	IND	Eng	25222	EM
9.990	2137	Radio Cairo	EGY	Eng	55555	GW
11.855	2158	Radio Japan	J/ASC	Eng	15431	MC
13.610	2125	Radio Damascus	SYR	Eng	15222	EM
13.710	2122	Voice of America	USA/BOT	Eng	45444	MC

MHz	UTC	Service	Country	Lang	SINPO	SWL
2200-2300						
5.775	2204	IFRS	I	Eng	34232	EM
5.800	2235	Radio Bulgaria	BUL	Eng	54444	DB
5.810	2240	WVCR	USA	Ger	22232	VP
5.840	2200	Radio Ukraine Int.	UKR	Eng	45233	EM
5.885	2238	Vatican Radio	CVA	Ita	44444	TW
5.930	2215	Radio Prague	CZE	Eng	45555	FW
5.945	2255	ORF Radio Austria Int.	AUT	Ger	45544	SH
5.955	2209	Deutsche Welle	D	Rus	55445	DB
5.975	2219	BBC World Service	G	Eng	22222	EM
6.025	2224	Radio Budapest	HNG	Eng	45434	GW
6.065	2232	Radio Sweden	S	Eng	44444	FM
6.075	2207	Deutsche Welle	D	Ger	55555	DB
6.100	2206	Int. R of Serbia and Mont.	SCG/BIH	Eng	45544	DB
6.180	2203	Deutsche Welle	D/CLN	Eng	13442	MC
6.195	2220	BBC World Service	G	Eng	55555	FM
7.105	2215	Radio Belarus	BLR	Eng	22212	EM
7.120	2235	Radio Tirana	ALB	Eng	55445	DB
7.170	2247	China Radio Int.	CHN	Eng	43454	DB
7.210	2235	BBC World Service	G/CYP	Eng	45544	FW
7.210	2200	China Radio Int.	CHN	Spa	55444	DB
7.250	2230	China Radio Int.	CHN	Spa	54555	DB
7.410	2216	All India Radio	IND	Eng	45243	EM
7.500	2227	Radio Bulgaria	BUL	Eng	25444	MC
7.535	2207	WVCR	USA	Eng	45344	WB
7.535	2233	WVCR	USA	Eng	25444	MC
9.355	2200	Radio Taiwan Int.	TWN/USA	Eng	24122	EM
9.525	2200	China Radio Int.	CHN	Eng	55534	VP
9.605	2255	BBC World Service	G/???	Eng	34343	FM
9.660	2249	Radio Australia	AUS	Eng	44444	PH
9.900	2217	Radio Cairo	EGY	Eng	54344	DB
11.620	2209	All India Radio	IND	Eng	22222	PH
11.730	2212	Radio Vlaanderen Int.	BEL/ATN	Eng	35445	MC
2300-0000						
5.930	2302	Radio Prague	CZE	Fre	55555	DB
5.960	2300	Voice of Turkey	TUR	Eng	55555	EM
6.135	2305	Radio Romania Int.	ROU	Eng	45544	FW
6.150	2345	News Radio 538	SNG	Eng	43343	FM
6.180	2318	Radio Romania Int.	ROU	Eng	44444	EM
6.280	2307	Kol Israel	ISR	Heb	45544	FW
7.105	2319	Radio Romania Int.	ROU	Eng	44232	EM
7.115	2329	Radio Cairo	EGY	Eng	33333	PH
7.285	2324	Croatian Radio	HRV	?	33333	TW
7.345	2300	Radio Prague	CZE	Fre	55555	DB

DXers:-

BC	Bernard Curtis
DB	David Bullock
EF	Eddie Frost
EM	Eddie McKeown
ET	Edward Turnbull
FH	Francis Heame
FM	Freddy McGavin
FW	Fred Wilmschurst
GG	Gerald Guest
GW	Graham White
HB	Henry Brice
JP	John Parry
MC	Michael Casey
PP	Peter Pollard
RI	Rhoderick Illman
RH	Robert Hughes
SH	Sheila Hughes
SH	Simon Hockenull
TW	Thomas Williams
VP	Vic Prier

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

Signal Strength
5 excellent
4 good
3 fair
2 poor
1 barely audible

Interference
5 nil
4 slight
3 moderate
2 severe
1 extreme

Noise
5 nil
4 slight
3 moderate
2 severe
1 extreme

Propagation Disturbance
5 nil
4 slight
3 moderate
2 severe
1 extreme

Overall Merit
5 excellent
4 good
3 fair
2 poor
1 unusable

Equipment Used:

- Bernard Curtis - Realistic DX-390 + outdoor wire
- David Bullock - Sangean ATS-505 + whip
- Eddie Frost - Sony ICF-SW7600G or Realistic DX-394 + indoor antennas
- Eddie McKeown - Grundig YB400 + whip
- Edward Turnbull - Pacific PP102 + ferrite rod
- Francis Hearne - Sharp WQT370 or Yaesu FRG-7 Vega Selena + wire
- Fred Wilmschurst - JRC NRD-525 + Global AT-1000 ATU + indoor wire or Sony 2001D
- Freddy McGavin, Dublin - Roberts RC828 + indoor wire
- Geraint Gill - Grundig YB400 + whip
- Graham White - Icom IC-R2 + dipole
- Henry Brice - Roberts R9914
- John Parry, Cyprus
- Michael Casey - Roberts RC828 + CTU9 + 60m indoor loop or outdoor 75m inverted dipole
- Peter Pollard - Sony ICF-2001D + whip
- Rhoderick Illman - Kenwood R-5000 + wire or Sony AN1
- Robert Hughes - AOR AR7030 + RF Systems antenna
- Sheila Hughes - Panasonic DR48 or Sony ICF 7600DS + 16m outdoor wire or home-brew loop
- Simon Hockenull - Grundig YB400 + whip
- Thomas Williams - Grundig YB400 or YB206
- Vic Prier - Fairhaven RD500VX + Datong AD-270 or vertical

Bandscan

Europe

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Spare a thought for the good people of Gairloch in northwest Scotland, home to Two Lochs Radio, one of the smallest local commercial radio stations in the UK. The community-based programmes go out to a large but sparsely populated area on 106 and 106.6MHz f.m.

The January storms hit the region with great ferocity and all electrical power to the sites was lost for a couple of days. When power returned, the transmitters fired up and all seemed well.

Nevertheless, a visual inspection of the TX sites was thought prudent and although the masts were still standing, the equipment cabin that housed the transmitter and ancillary gear had been totally destroyed, exposing the electronics to the elements. Not only that, but the transmitter had been knocked over by the force of the 120mph winds and was almost lying on its side. Remarkably, the station remained on the air.

Two Lochs are now having to find the funds to build a stronger building that will protect their equipment from a similar fate in the future.



New Licence

A visit to the Ofcom website - www.ofcom.org.uk - reveals that a total of 19 applications have been received for the new f.m. radio licence for Manchester. Chrysalis, Virgin Radio and Capital Radio Group were among the major players vying for this lucrative outlet. With a potential of 1.3 million listeners, the successful applicant could expect to raise up to £20 million a year.

In contrast, just three budding broadcasters have applied to Ofcom for the new f.m. licence serving the Banbury area. Banbury FM, The Bear and Banbury 107.6 have all pledged to offer programming aimed at either the family market or the over 30s.

Finally, from Ofcom, the f.m. local commercial radio licence for Ashford, Kent was awarded to Local Ashford Radio Kent Ltd., which will broadcast as KM-FM Ashford.

Subscription-based satellite radio has been a success in the United States where folks seem happy enough to part with around ten dollars a month in return for over 100 themed, ad-free channels.

USA Service

Here in Europe, SES Global is reported to have held talks with Paris-based Alcatel about providing such a service. In the USA, two operators have carved up the market; Sirius and XM boast 4.4 million listeners between them. Having to share the business has driven up operating costs there, so SES/Alcatel hope to head up Europe's sole provider.

The system uses an intricate mechanism of satellite and ground-based fill-in repeaters to reach those signal black spots in built-up areas, tunnels, etc.

I'm all for it. So often I've switched on the car radio during a short journey, only to be greeted with only commercials, promos, inane banter - but no music. The thought of wall-to-wall, uninterrupted jazz, or 99 alternative genres, is somewhat alluring.

Ship For Sale

Want to buy an ex-offshore radio ship? Well, now you can. The MV *Communicator*, one time home to eighties offshore phenomenon Laser 558, is up for sale. Following a recent stint in the Orkneys, where the ship was used as a platform for RSL The Superstation 105.4, her owners have placed her on the market.



Built in 1954, the vessel was one of six similar ships used to carry cargo between Bergen, Stavanger and Oslo. Although four generators and the engine come with the sale, all require attention. The ship's 60m radio mast remains intact but no radio equipment is included. Offers over £25k.

It just so happens that Ipswich Local Radio, a consortium run by businessmen and radio experts, and one of those bidding for the new licence for Ipswich, Felixstowe and Woodbridge, proposes to broadcast from a radio ship anchored 6.4km offshore.

In a nostalgia-heavy interview, radio enthusiast Shaun Brown shares his thoughts: "The era of the pop pirates was just fantastic and everybody loved the music and the jingles and the romance of them being at sea and broadcasting in that way. I would love to recreate that era and atmosphere. There's something very magical about the thought of radio being broadcast from a ship".

The station would play all sixties music, interspersed with jingles similar to those used

during the era. Boat trips out to the ship are envisaged.

The licence estimates an audience of around 500,000, but satellite coverage is also being considered. Broadcasting dinosaur or filling a gap in the market? Time will tell. Whoever wins the bid, Suffolk's new station is expected to go on air in 2006.

Switch To Digital

Those of you considering buying a TV or video recorder in the near future may like to dwell on the fact that the switch to digital could start in as little as three years. The switchover will be on a per-region basis with viewers in Wales, the Border and West country ITV regions being the first to lose their analogue signals.

Although the government has said no firm decision had been made, the phased migration to digital would have to begin in 2008 in order to be completed by 2012, the official deadline. Digital terrestrial signals reach 73% of UK households, but a significant increase in coverage is not possible until analogue is shut down.

The proposed timetable reads as follows: 2008 - HTV Wales, Border, West Country; 2009 - Granada, HTV West, Grampian, Scottish TV; 2010 - Central, Yorkshire, Anglia; 2011 - Meridian, Carlton/LWT, TyneTeas, Ulster; 2012 - Channel.

Viewers in digital-only regions will have to connect all their TV sets to either Freeview, cable or satellite, requiring the purchase or rental of a set-top box and possibly an upgrade to their antenna. Each region is expected to take six months to convert, giving households time to make the switch.

The government is keen to protect the interests of vulnerable consumers, especially the elderly and socially disadvantaged, who may not want the extra channels or the cost of going digital. The imminent demise of analogue is one reason why you can now pick up a colour TV or video recorder for less than the price of a meal for two. *Bon appetit!*

From its state-of-the-art studios and launch facility in the Washington, DC area, XM Satellite Radio will beam up to 100 channels of digital quality music, news and entertainment directly from two powerful satellites to people from coast to coast in their cars and at home. A small antenna and AM/FM/XM car radio, home audio system or portable radio will receive the signal.

Off^{the} Record

- **Oscar** *clo* SWM Editorial offices
- **E-mail** *off.the.record@pwwpublishing.ltd.uk*

It's great to see that snail mail is still alive and kicking. **Nathan** in Peterborough has put pen to paper and says that he likes reading 'Off The Record', and enjoys listening round the bands for the type of signals and stations discussed in this column. He has good things to say about the electronic music of Valley Wave, the enjoyable programmes and audio quality of Radio Pandora and the blend of music and DX information on WMR.

Nathan also asks about the hoax station that I previously mentioned, all I can say is that a few people have spotted some clues. He goes on to mention that another weaker station has been heard sometimes on 9.290MHz after closedown of the transmissions from the powerful Latvian one, which hires out air-time to various other stations on that frequency and also that he has heard reports of a station operating in the Midlands area on 1593kHz m.w., though apparently only when it is not raining.

He goes on to praise Laser Hot Hits for their dedication in operating 24/7, and offers us a timely reminder of their outlet on the unusual frequency of 4.025MHz. During the last few months the congestion on 48m has been made worse by the appearance of a number of strong foreign broadcast stations that are (presumably) authorised in their respective countries. In the evenings, Nathan recommends a scan round the 1.6MHz band or perhaps a listen on 76m for the likes of the powerful signals of Radio Spaceman.

Turning to Ireland, Nathan congratulates the engineers of JRRI for putting out some good signals and mentions Reflections Europe, which broadcasts religious programmes on 3.910, 6.295 and 12.255MHz. He asks if perhaps they would hire out air time to the likes of him. I am not sure about that particular station Nathan, but I believe that some stations are interested in hearing from budding or established programme producers. It is just a case of asking around, and I know that any station you listen to will always be happy to hear from you, irrespective of whether or not you end up working for them.

Starpoint Radio

Starpoint Radio has recently begun broadcasting on the Sky Digital satellite platform on EPG channel number 913, which for the time being it shares with some other broadcasters. The times are Monday to Wednesday 2100 to 2400, Thursday and Friday 2100 to 0100 and also Saturday/Sunday midnight to 0200. The station hopes to expand hours in the near future.

Station owner **Carl Webster** started the station following his departure from Solar Radio, where he played a major part in the management for a number of years during a period when some people observed and commented that Solar was succeeding whilst others on the platform were not. Many will remember that a station called Starpoint operated very successfully as an f.m. pirate in London some years ago.

Digital Doubts

Looking in my E-mail inbox I see that **Andy** from Somerset has been in contact with some comments about digital radio. Experimenting with a DAB card on his computer he reports that the audio quality is not as good as you might expect, the sensitivity is poor, the inconvenience of an outdoor antenna is needed, and even then the programme output sometimes suffers from unpleasant glitches.

It seems that some folks are determined to drag us kicking and screaming into the digital age, and among free radio fans opinions seem to be divided. Experience is showing us that the benefits have been exaggerated and the drawbacks underestimated. I feel that there are strong arguments that we should be in no hurry to switch the medium of radio over to digital. It is essential also that any digital broadcasts do not interfere with and impinge upon the enjoyment of the millions of current analogue radio users. DRM broadcasters take note.

Forwards And Back

Spring is my favourite season. It brings us the beautiful flowers and warmer temperatures and we can look forward to the coming summer. We await with eager anticipation the monthly broadcasts of every hippie's favourite station Radio Kristel 1179 (which hibernates in winter).

I do however want to take a brief glimpse back as far as the holiday period to mention a couple of things. Stations of note on 48m were XTC, Radio Merlin and Island Radio, which at times was also announcing a m.w. frequency of 828kHz. Also on m.w. there were broadcasts from Enigma 846 and SRE on 819kHz.

Conditions on s.w. were poor on the whole right through the middle part of winter, with 6MHz disappointing compared to many previous years, and 3.9MHz closing in the evenings. As well as the weather, the propagation conditions usually change at this time of year, so here's hoping they change for the better.

Long Wave 279

Having emerged victorious from some lengthy and frustrating legal challenges and with a responsibility for large sums of investors' money, **Paul Rusling** has been keeping very secretive and quiet about the progress of his station, though he has indicated recently that there may be some news (or possibly even a radio signal to listen for) by June of this year. We have been assured that the aeronautical beacon on 277kHz (audible across much of South East England) will be moved to another frequency.

ABI Radio

There have been a number of reports from listeners along a stretch of the South coast of England of a station calling itself **Abi** (pronounced 'Abbey') Radio. It has been noted at various times with music and announcements in English on either 1395 or 1620kHz. There are also some more vague reports from the same area of what appears to be a different, as yet unidentified station on 576kHz.

Radio Xanadu

One area of the UK which for many years has had many excellent free radio stations is Merseyside. The talk in that fine area of the world at the moment is of a project called Radio Xanadu 997 FM, which features some presenter names that will be familiar to many local listeners, and promises to provide a rock and oldies format all weekend long. Great to know that people keep going with something they believe in, and good to know that there are parts of the country where (unlike London) the f.m. band is not monopolised by the dreadful urban brat youth brigade.

Anorak Gatherings

The Surrey Anoraks Society recently celebrated 20 years of regular get-togethers. The group meet for a drink and an informal chat about radio and other things on the first Tuesday of every month from about 2030 in the Home Cottage Pub just behind the railway station in Redhill. By road, this is at the intersection of the A23 and A25. An informative newsletter is often handed out, and all are welcome to attend, there's no charge. Contact me if you require more details, or if you have information of any other meetings taking place.

Connor Walsh BA graduate in Chinese, was the host of Reports from Developing Countries and producer of Voices From Other Lands, on China Radio International (CRI) in 2004. He tells us how a young short wave listener became a young international broadcaster.



Full Circle:

Working in China Radio International

Influential International Broadcasting

At the age of 12, I became a short wave listener and dreamed of working for a short wave broadcaster. When I was 18, I started learning Chinese and by the time I was 23 I joined China Radio International and one year later, I left.

The start of the story, perhaps, resonates with many of you. My father brought home an old valve radio from his childhood home and I played with it. Thus, I discovered there was such a thing as short wave. A new radio followed, and I became an avid QSL card collector. One of the stations I wrote to was CRI. Back then, in 1993, they were often heard, as I remember it, on the out of band, and poorly modulated, 6.950MHz. What made CRI stand out was the package of bits and pieces they sent back. Not just a QSL, but also notice of a competition and a newsletter, called *The Messenger*. Skip forward ten years to November 2003, and I wrote my first article for that same newsletter. How did I get there?

Well, that four page tabloid, in 1993 really got me thinking about China. I'm not saying it gave me a huge

insight into China, far from it, the articles, like the radio programmes, took a country that meant nothing to me and made it mysterious. CRI did its job, in that it made me fascinated with China, and so eventually I chose to do a degree in Chinese. And that's what I did, in the University of London. When I graduated, I was selected to represent the UK in a Chinese speaking contest called *The Chinese Bridge*. The main requirement of the contest was a three minute speech, and mine related the fuller version of what you have just read, under the title *China Radio International and I*. The prizes were presented by, among other people, the director of China Radio International **Mr Li Dan**. For whatever reason though, he didn't come over to talk to me, which was a surprise, not least because I was hoping for a chance to visit a real short wave radio station!

The Other Side Of The Radio

Just over a year later, the panic over SARS had died down, I was looking for a job in Beijing and CRI was hiring. So in October 2003, I became an employee of one of the loudest

radio stations on short wave. I got a job there by virtue of being a native speaker of English, and my job was comparatively unskilled, at least at the beginning. I was a polisher. That means a Chinese member of staff writes a story, and I check the quality of the English.

Foreigners are in the minority in CRI. English is the largest service, and there are between 10 and 15 foreigners there. Those are divided between the daily features, News & Reports, and the domestic service.

When I first went to CRI, in September 2003, I was warmly welcomed by the staff, Chinese and foreigner alike: I remember on my very first day, I was taken aback to hear two hugely familiar voices talking to each other in the newsroom; **Stuart Parkins** (host of *Learn Chinese Now*) and **Lin Shaowen** (Senior News Editor). I suppose I was even more taken aback because they were arguing, but still...

One of the most unmistakable voices in CRI at that time,

CRI Headquarters in the snow.



was the late **Jon Kennedy**. We were all shocked when he passed away on 15 July 2004, just a few weeks before he was due to move on to start his own voice-over business in China. Jon was ebullient in life, and a great pro to learn from. He had worked in London, Lebanon and in his native Australia, and was a great talker - he could talk to me about NHK's Radio Japan, to a Canadian about life in rural Newfoundland and to an editor about professionalism. He made *Real Time Beijing* his own, and the show hasn't really recovered since losing him. His voice was also unmistakable, and still appears in the occasional jingle on CRI and China National Radio. As far as I know, Jon was the first foreign full-time news reader at CRI English. Now there are about four.

Mainstay

News is a mainstay of the international output. This comes from three main news agencies. The Associated Press' APTN provides international news copy and audio, delivered via satellite. Their satellite TV feed is decoded centrally and distributed throughout the building on a CATV set-up. The

CRI Headquarters in Autumn.



audio is then recorded to MiniDisc from a TV, or to hard disk on a computer with built-in TV tuner card.

National and international news text is taken from Xinhua, the state news service. CRI has a direct connection to Xinhua's data, as well as rights to restricted-access Xinhua news websites. Finally, there is CRI itself. CRI has news bureaus all around the world, usually staffed by a representative of the appropriate language department and a representative of the CRI News Centre. This is not an insignificant network: As an example, I believe CRI has the only permanent foreign news bureau in Qatar.

The CRI service provides news copy and audio, in Chinese and the local language.

Wherever it comes from, when a news item arrives at the desk of a Chinese reporter, they write it into a broadcast story. Then it's put onto the editing system - a local computer network text sharing system, accessed via a web



Connor recording Reports from Developing Countries, in CRI's Studios.

browser. From there, a native-speaker news polisher reads and where necessary re-writes the news script. Then we'd repaste it onto the system, where it's checked by an editor. After that final check, a story goes in two directions: it's put on-line at **CRIenglish.com** by the web department, plus the bulletin editor and news reader together decide where it should go in the next broadcast rundown.

After about three months in CRI, they asked me to combine polishing news with reading news features at the weekends. This is generally a *Good Thing™*, because polishing, while a challenge at first, quickly becomes mind



above: Chinese Efficiency. An editing booth is installed in the Features Department of CRI's English service.

below: Radio news stories are written and polished in a corner of CRI English's large web department.



numbing, and the variety of studio work is gladly welcomed. Early in 2004, I became the presenter of *Reports from Developing Countries*, which at the time was a ten-minute long wrap of positive news from the developing world. It often featured reports from UN Radio in and the positive slant made it popular particularly with listeners in Africa. These reports were originally taken off cassette tapes posted from New York, but we subsequently moved to taking audio directly from the UN Radio website.

Reports From Developing Countries established me as someone who could work on-air. The result of that, was I was chosen to join the features team, where I was made producer of *Voices From Other Lands*. This is a straight interview style show, that meets non-nationals who come to China. It was listed by *Passport to World Band Radio 2004* in their 'Ten of the Best' shows on short wave... So, naturally I haven't dared buy this year's *Passport* to see how things might have changed!

One Man Operation

This was an entirely one-man operation. I researched the interviews (often with leads supplied by colleagues), did the interviews and produced and edited the show itself. *Voices*

From Other Lands goes out on Thursdays, so the final programme had to be checked by the Head of Features or one of the senior editors by mid-Wednesday. Once it got the all-clear, it was handed on to a Chinese assistant producer who put it onto the playout system. That demanded computer passwords, which were deemed unsuitable for foreigners to know...

In about five months, I only did two *Voices*' interviews in the studio. The editing was done in usually quite hectic studio sessions on Monday and Tuesday. Thursday, the day of broadcast, usually meant a day out and about in Beijing doing interviews.

All reporters and producers in CRI use basically the same kit, a consumer Sony MiniDisc recorder and Sony MS907 stereo microphone. Transport was usually a doddle, CRI can provide cars (with driver) to send you about the city, but the subway is also an option. While the station is in a comparatively under-developed part of western Beijing, it is right at an underground station. If you ever go to Beijing and would like to visit, just take Line One all the way out to the

Voices From Other Lands goes out on Thursdays, so the final programme had to be checked by the Head of Features or one of the senior editors by mid-Wednesday. Once it got the all-clear, it was handed on to a Chinese assistant producer who put it onto the playout system. That demanded computer passwords, which were deemed unsuitable for foreigners to know...

fourth last stop, climb the steps and there's the station! You can tell them I sent you!

Impressive Studios

CRI has a very impressive cluster of studios. There is a live studio, used for all the domestic f.m. service programmes, and *Real Time Beijing*, which is also carried on short wave and on WRN. Another studio is reserved for news production, and then there are two studios with recording booths for production. The control booths house another two editing workstations.

The mixing desks and microphones are all imported, coming from companies like Beyer Dynamic, Shure and Studer. The Dell computer workstations run all-Chinese software. A simple four-track editor, playout software and FTP file transfer are the mainstay.

CRI is broadcast on a plethora of short wave frequencies. There is a list on their website, but the somewhat strangled internal communication system in CRI means it is usually incomplete. These transmitters are fed by satellite, from an array of dishes pointing south west, and one heading east. No one could tell me specifically which dish was pointed at which satellite. The satellite feed also serves domestic relays

around China. These provide more than just the hour of news and features. CRI operates domestic services on both f.m. and medium wave. In Beijing, these are divided between an English language learning service, on 1008kHz running 1kW, a news loop on 846kHz with 10kW of r.f. and a music and station on 1251kHz and 91.5MHz f.m. The show *Real Time Beijing*, now heard on the international relays, was originally just on this local service.

Dream Come True

For me, going to work in CRI was a dream come true. As a young s.w.l., I had always dreamed of working in an international broadcaster, but I'm Irish and Ireland hasn't had one of those since the 1950s! Once Chinese had become a passion, I was unlikely to want to work outside China. So I had a more or less dream job, in my first full-time employment out of college. That's a pretty special situation to be in, and I knew it couldn't last forever. I did expect, though, to be there in 2008 when the Olympics are

domestically, all day in Beijing and Shanghai, and a lot of other cities, on f.m. and medium wave. This is because CRI's English service exists as much to serve English learners in China as listeners overseas. All this means CRI is subject to the same censorship restrictions as China National Radio and the local radio stations.

The foreigners who go to work in CRI, for the most part, know that there will be a lot of restrictions in what they can say. But most of us don't expect things to be just as restrictive as they turn out to be. Foreigners are treated separately from the Chinese staff, with separate accommodation, higher wages, no say in the system...the list of barriers goes on.

As a Chinese speaker I was one of the lucky ones: I could over-hear talk about what structural changes were being planned, and then ask for more information. But over half the foreign staff there don't speak very good Chinese, and are simply kept out of the loop. While this looks like merely a management problem, it did directly affect the programming: Foreigners could get into trouble, or fall from

The foreigners who go to work in CRI, for the most part, know that there will be a lot of restrictions in what they can say. But most of us don't expect things to be just as restrictive as they turn out to be. Foreigners are treated separately from the Chinese staff, with separate accommodation, higher wages, no say in the system...the list of barriers goes on and on.



Fergus Thompson reads News & Reports, as the audio editor inserts soundbites and reports.

CRI Headquarters showing the main tower, and the B block that supports the satellite uplink dishes. Not an antenna mast in sight!



favour, by breaking rules they were never told about.

There is also a less creative attitude to radio in China than in Europe, and once I knew I wanted to work in radio, there was no way to do it in China!

Great Buzz

As a short wave listener, it is still a great buzz to sit in a studio and understand just how there are people around the world listening to the words you are speaking. It's curious how the status of short wave listening, has created a sense of

held in Beijing. But now I'm back in Europe, looking for radio training and work.

My decision to leave CRI was largely because the opportunity to do something I was passionate about - radio - opened my eyes to the fact that I *could* do it. I wanted to learn about radio in an open, balanced and creative environment. China can't really provide these. CRI is an international broadcaster, but the station also broadcasts

community. Religion, politics, wealth and geographical distance would usually throw barriers between us, but s.w.l.s can associate with and understand each other, because of how we listen to the radio. While I worked in CRI, I even came across the names of listeners, familiar from reading *SWM* over the years! Now that I've started working in radio, maybe we'll come across each other somewhere else on the dial!

SWM

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short wave receivers, etc

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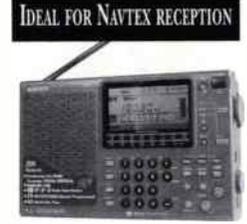
SANGEAN ATS-505



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Q-TEK SS-2000

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50MHz-2.6GHz and under 1.3m long

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Comments from John Griffiths
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An amazing vertical (glass fibre) colinear antenna. Quality construction with incredible performance. For the serious scanner enthusiast.

Freq range: 0.5-2GHz. PL-259 fitting (not supplied). Length 3m. Mast clamps supplied. (Gain up to 9dB is easily obtained). Reports have shown this to be an excellent performer!

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Can be used in reverse

30MHz (SO-239 fitting).

£64.95 P&P £4.50

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(Probably the best ATU around)

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PL-259 to PL-259 patch lead (0.6m) ..£5.99
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The MLB contains a special impedance matching transformer which converts any piece of wire between 6 and 20 metres long into a wide band receiving antenna. 100kHz-40MHz. Low noise - probably the best there is!

£42.95 POST £3.00

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Q-TEK STEALTH SR-60



Covers 0.2-50MHz. Superb, ready assembled wire antenna system. Not only is this end fed for ease of installation, it is also constructed from extremely high quality components. New 'plyweave' PVC coated wire makes this virtually invisible. Antenna length up to 20m. (Feeder supplied up to 10m).

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£189.95 DEL £11.00

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Professional active S/W antenna constructed for commercial use. Includes indoor (low noise controller). Ideal for the serious enthusiast. This antenna is currently in use by many embassies as well as military & governments monitoring stations.

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(20kHz-54MHz) **£359.95** DEL £15.00

The universal radio refuge for the enthusiast, or just a place to dump radio related 'junk'? Dennis Easterling reveals how to provision a dedicated monitoring post cum workshop.



The 'shack' is traditionally the place where transmitting radio amateurs operate, although it is a term now used by many short wave listeners or radio spectrum monitors and radio experimenters alike. It can be a dedicated room, attic or just a corner in the bedroom or lounge. Often an external building is used, such as a converted garden shed or garage. The essential requirements being that the premises are suitable for the equipment and comfortable for the occupant. Usually the shack serves not only as an operating area, but also as a simple laboratory or workshop, because that is where most of the material and equipment is kept.

Success & Safety

A good, well laid out shack promotes the success and safety of any project. The layout shown in Fig. 1 suggests an arrangement for bedroom or lounge, with a chest or small desk forming the operating position. A nearby built-in cupboard or wardrobe takes additional equipment and books, while a tea-trolley or small chest on castors can be pulled forth to provide a simple bench for testing and building light constructional projects.

In an upstairs room, antenna leads can enter from the loft through the cupboard, to be secured neatly out of sight until they emerge below the bottom of the door on their way to the operating position. Alternatively the leads can be concealed by curtain drapes.

A more ambitious arrangement uses a dedicated spare or box room, where surplus furniture can be utilised. A simple bench constructed from laminated board or redundant kitchen top material, is placed across a pair of chests or rests on battens secured to the wall. The operating bench should be as deep as possible, in order to give room for both equipment and useful desk space. Ideally, this should be at least 1m deep, but this is usually limited by the material used, such as kitchen tops, which are nominally 600mm. Additional depth can be arranged by spacing the top away from the back wall by about 75mm. This not only gives extra room for the rear projections of a TV or computer monitor, but allows surplus cable to drop down out of sight.

Although there may be less risk of electric shock with shacks inside the home, fire hazard could be lethal and so sensible precautions should be taken when arranging the electrical supplies. To avoid equipment, such as soldering irons, power supply units and equipment under test being left on by mistake, connect them via appropriate

The

Shack

multi-way sockets to a single and easily accessible switched outlet separate from that used by other items. This allows you to switch off unessential items without disturbing other equipment left on permanently, such as a reading lamp, computer or tape recorder.

My personal preference is an external building because it is convenient for heavy work, facilitates the fitting of antennas and is beyond the control of the head of household. It should be noted that my garage, although available for carrying out heavy work, is still used for its original purpose and to store garden tools. The best option was a garden shed, which is the usual type supplied as a kit for home assembly. It stands on paving stones laid on 100mm of gravel, arranged to slope very slightly so as to drain water away to open gravel behind the shed. This space also gives access for shed maintenance, and when running in various leads and feeders.

Never Big Enough

In time, no shed seems big enough, and so the largest one possible should be used, bearing in mind that the larger the shed, the greater the heating cost. Mine represents a typical example, measuring 2m wide by 2.4m long, with a door at one end and a 1.5m window in front. The window has three panes, and the centre one can be opened.

To improve heat insulation and support shelves and cables, the shed is lined with 12mm chipboard attached to the inner wall frames. The underside of the roof has a hardboard ceiling, although traditional ceiling board would be better. There is plastic sheeting above the hardboard and two layers of old carpet cover the floor. Finally, transparent plastic sheet inside the windows acts as double-glazing.

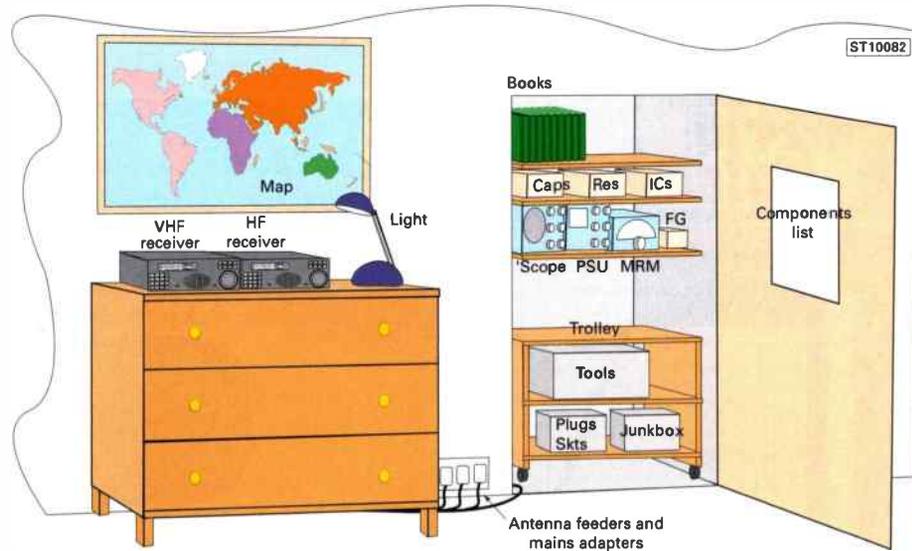
The interior plan is shown in Fig. 2, where it will be seen that an L shape bench, about 700mm from the floor to favour sitting, is taken under the window and across the short wall furthest from the door. The long portion, supported by a chest of drawers, is only eighteen inches deep and a little narrow, but serves for most light jobs. The shorter end is 900mm deep with shelves above and used as the operating position for radio equipment and computer. I like plenty of leg room, but there is still space beneath the bench for various items including the essential junk box. An old wall unit, 275mm deep, plus additional shelving, occupies the long side opposite the window, and serves as a bookcase and component store.

Electrical Supply & Heating

Arranging a mains electricity supply to the shed poses a problem, as it must conform with regulations, which requires either a dedicated 30A fuse in an existing consumer unit, or a separate fused consumer unit.

The wiring between the house and shed can be ordinary pvc sheathed 30A house wiring cable suspended on a catenary wire. Independent supports must be provided for runs longer than three metres and may not be extensions to a fence. The run must be at least 3.5m above the ground where pedestrians pass or 5.3m above driveways where vehicles pass. The Catenary must be multi-strand galvanised wire fitted with eyebolts at each end and properly tensioned. Alternatively, the supply may be run in a non-jointed length of 20mm diameter steel conduit having plastic bushes at each end to prevent the cable sheath from chafing. The minimum depth under paths or paving should be 450mm.

Out in the shed, the power cable must be terminated by a double pole switch and protected by a Residual Current Circuit Breaker (RCCD or RCD). This device cuts off the supply if leakage to earth exceeds 30mA and is beneficial in preventing injury or even death by electric shock (*I can*



personally confirm that they work to this end - Ed.) The RCCD earth terminal must be connected by 6mm single core cable to a dedicated copper spike driven into the earth by the shack.

If you take a look at Fig. 3, it will be seen that from the double pole switch, a feed is taken to three fused switch units mounted just inside the shed door. The first controls a fluorescent light over the window, the second serves the main equipment, and the third controls a 24-hour supply. Thus, each circuit has a defined role and is separately controlled with its own fuse, rated at 3A for the lamp and 13A for the others.

The main equipment circuit has two double outlets, one each side of the operating bench, with a single outlet reserved for a fan heater. The double outlets feed multi-way extension boxes secured to the wall liner and fitted with 13A fuses. An extension box is used for each group of equipment and all items plugged into them, including soldering irons, are fitted with 3A or 5A fuses.

The 24-hour supply feeds a twin outlet at bench level, supplying a video cassette recorder and timer, which are used for recording signals when the shed is un-manned. An outlet also supplies a 150W tubular heater mounted on the wall about 150mm below the computer bench, which operates continuously during winter months or in wet periods in the early spring and late autumn. A slot cut in the bench above the heater allows warm air to circulate, and is covered by a grill taken from some old electronic equipment to prevent small items or leads falling onto the heater. The heater not only keeps the equipment dry and in good condition, but maintains the shed at a comfortable temperature except in the very coldest weather, when it is supplemented by a portable fan heater used for an hour or two when the shed is first occupied.

Twin 2.5mm² with earth house wiring cable is used throughout the installation, and is surface mounted on the chipboard wall liner in the shed. It is held in place by flat 10mm plastic cable clips spaced approximately 250mm apart. To complete the installation, an additional independent earth spike, wired to a terminal block close to the antenna entry, is used for the radio equipment only.

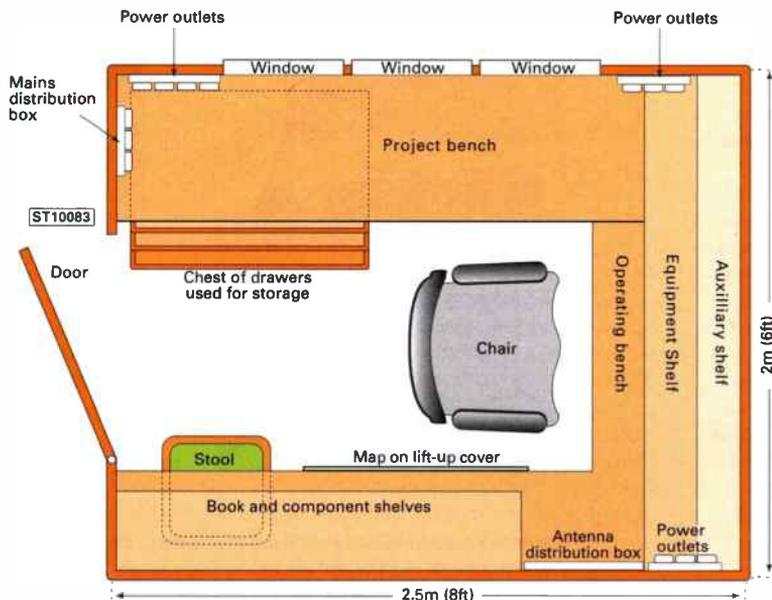
Keeping cool in the summer is also important. The shack is on the north side of the house and only gets direct summer sun in the late afternoon. An opened window provides adequate ventilation most of the year, otherwise working with the door open maintains a pleasant climate except in the hottest afternoons.

Security & Maintenance

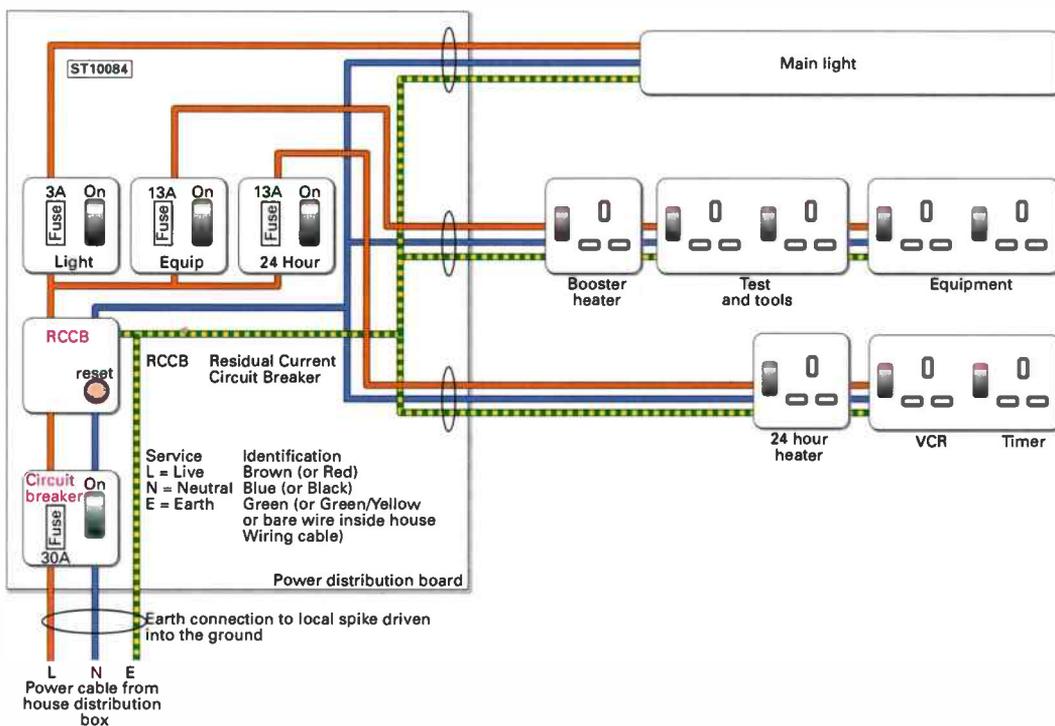
Security is a subject to be considered, as thieves have targeted garden sheds recently. It is true that the equipment in my own shack has very little value to a potential thief and the response of any specialist dealer offered such vintage or home constructed material is likely to be "thanks, but no thanks". However, the equipment provides many happy hours, with

● Fig. 1: An arrangement for bedroom or lounge based listening post.

● Fig. 2 (right): The interior plan of Dennis' 'Shack'.



● Fig. 3 (below): Suitable safe wiring for a radio outbuilding.



some items regarded as old friends. Theft or, even worse, vandalism would be very upsetting and so, without being unduly paranoid, it is worth taking some simple precautions.

Unfortunately, no premises can be made absolutely safe to dedicated and experienced thieves, but information encourages them to take that chance. The first line of defence is not to advertise, but this is not easy for radio enthusiasts who usually have specialised antenna systems on view. The visible part of my antenna system appears to go inside the house with the feeders clipped down the wall and disappearing from view behind the garage and shack. Fortunately, the shack is within an enclosed garden, and accessible only through the house or tall side gate, which is kept locked unless someone is working outside. Net curtains hung at the shack window make it hard to see inside, as well as improving heat insulation, diffusing the light and discouraging most flying insects. The result is that only family and close friends know about the shack and its contents.

The enclosed garden also discourages the opportunist thief who sees something of value by chance, and is immediately away with it. A good mortise lock on the door and effective

internal window fastener buys time and reduces the opportunity for theft. Screws, used to fix the external door hinges, have been replaced by nuts and bolts, with the nuts inside and locked by instant glue. Trying to unscrew the bolts from the outside simply results in the nuts turning without becoming loose. Fitting window bars, additional locks and alarms has been resisted so far, because this might make the shed more interesting to the thief, and like a prison to the occupant.

The maintenance of the shed is generally limited to a coat of wood preservative every couple of years after filling any knot holes. When felting the roof, joins are covered with bitumen compound sold for this purpose. The compound is also used to touch in roofing nails and make temporary repairs, although it is best to replace the felt as soon as possible after such repairs become necessary, as it is a relatively inexpensive operation compared with the value of equipment inside.

As most enthusiasts can spend many hours in the shack, personal comfort is important. An executive chair, fully adjustable with padded seat and arms, was purchased from a firm specialising in used office furniture for about £40, and is of much higher quality than the new computer seats sold for home use at similar prices. A kitchen stool stored under the bench is also available when additional height is required, or for the occasional visitor.

Maps

Maps add interest to listening and it is instructive to look up the location of a received station, whether it be a broadcaster, amateur, aircraft or radio beacon. Even with the vast array of on-line mapping data via the Internet, a World Atlas is a good start but, having toiled through the large expensive variety, with masses of figures on wheat and petroleum production, without finding the place I am looking for, I much prefer the cheaper schools atlas. Many contacts or transmitting stations are in the British Isles and this is when a road atlas can help pin-point a village or small town. An old one from the car serves, as it does not matter whether by-pass or road numbers are up-to-date. Provided there is sufficient space, a large wall map can enhance a shack and impress visitors. I chose a conventional political map printed on plastic sheet and available from public libraries or stores for about £3. The space problem was resolved by fixing it on a hinged flap covering some shelving.

Many radio hobbyists have a *Great Circle Map Of The World*, where their home country is at the centre. This can be useful when positioning directional antennas. I prefer to use a small globe, when it is possible to see the shortest distance between two points and appreciate why, for instance, aircraft flying to the UK from San Francisco or Japan find it quicker to cross the Arctic. My globe was a present from a thoughtful relative. Unfortunately, it is a little large for the shack and a smaller one, such as available from toy shops, would do as well.

SWM

Keep that noise down!

bhi's NEDSP1062-KBD Reviewed

Another way to beat noise from bhi. Kevin Nice looks at the NEDSP1062-KBD add-on that you fit into the speaker of your choice. A cost effective, quietening solution for your favourite external speaker.

If you've missed the fact that UK based bhi Ltd produce d.s.p. based noise reduction solutions, where have you been for the past two years or so? We've covered several of their offerings to date and the latest product to be produced by the Sussex based fans of quiet is the NEDSP1062-KBD.

By pure coincidence, I was looking for a speaker to go with my 4m ex-PMR transceiver for use in the car. So this review presented the ideal opportunity to try out the latest offering from bhi.



- The NEDSP1062KBD equipped SP31 sits atop the RA1792.
- A better view of the push button controls.



Two Versions

Marketing Director Graham Somerville kindly sent me both a bare unit ready to be fitted, just like you'd receive if you buy a NEDSP1062-KBD as well as a Kenwood external speaker with a NEDSP1062-KBD already fitted by bhi. This shows just how much space there is in a Kenwood SP31 external speaker and the small amount of space taken by the p.c.b. module. The NEDSP1062-KBD is based on the same d.s.p. processor as all the

other bhi noise reducing products, so my expectation of performance was high.

The p.c.b. of the unit supplied is similar to the NEDSP1061 that I installed in my Icom R8500 back in December 2003's SWM. The main functional difference is that the NEDSP1062-KBD features an audio amplifier that produces a healthy 3W into a 4Ω speaker. There are two versions of the amplified module available. One has all the connectors, switches and leads fitted and the NEDSP1062-KBD is the preferred option for one-off conversions. The other option is for a bare board version, which I guess is aimed at OEM and higher volume applications, such as a fleet of vehicle mounted radio for instance, this is called the NEDSP1062.

I was supplied with the former assembly, so only had to worry about location plus 'keyboard' and power socket holes in the case of my chosen speaker.

Installation

The kit supplied by bhi comes with an excellent *Installation and Operating Manual*, which is 40 pages thick! Needless to say, it's pretty comprehensive. There are a total of eight sections covering everything you need to know and more. All the mounting hardware required is supplied too. The installation process is not difficult if you are competent with a drill and soldering iron. Drilling templates are provided in the rear of the chunky A5 manual, as are full details of mechanical data. I'm particularly impressed by the coaxial power connector that has the mounting nut on the front of the assembly so that it can be fitted in its pre-wired state. I have to admit to not realising they were available. The nominal 13.8V power for the NEDSP1062 is provided via the supplied fused 1.8m flying lead, ideal for vehicle use or with the shack p.s.u. There is an optional 'wall wart' supply available from bhi.

In Use

Once fitted, the NEDSP1062-KBD operated in the same manner as the NEDSP1061 but it's controlled by two miniature push buttons. One of which allows the unit to be powered on and off, the other sets the mode of operation. There is also a tri-colour status l.e.d. to allow the user

to see the noise reducer's settings with a glance. Additionally, there is audio status indication provided via the provided piezo sounder.

Once set to the optimum level to suit your preference and requirements, then in my experience there is little need to use the controls again. The only likely reason, is to see how bad things can be with the unit bypassed, i.e. the audio going straight to the speaker with no

processing. The bypassing is achieved by the use of a relay in the audio path that completely switches the NEDSP1062 out of the circuit, this is invoked by using the power button.

Operation really couldn't be much simpler, but if you get into

difficulty getting to grips with the carousel style of function selection then there are no less than three flow charts to put you back on the straight and narrow. There are a further two trouble shooting charts at the rear just in case you run into problems with the install.

When picking the correct noise reduction level for your requirements, the easiest route is to use the two demonstration modes thoughtfully provided by bhi. These allow the automatic scrolling through the different levels of processing and the repeated switching on and off of the reduction processing.

The NEDSP1062 also provides the option of either eight or four levels of processing. The effectiveness of the noise reduction can be seen in the specifications - Table 1.

Specifications

Noise reduction levels vary from 9dB to 35dB with tone reduction ranging from 4dB to 65dB. The NEDSP1062, as with other bhi products, is designed for use with speech. They are not intended for operation with data or c.w. but may offer some improvement also they may make things worse.

The physical dimensions of the main p.c.b. are 36.5 x 49.6mm. The combined heat-sink and mounting bracket increase that to 64.4mm length. The overall height of the module is 34.2mm. As you can see it doesn't require much room. In fact the pre-installed unit in the SP31 looks rather lost.

My thanks to bhi Ltd for the loan of both the SP31 featuring the installed NEDSP1062-KBD and the bare module ready to fit into my own speaker. The NEDSP1062-KBD is available direct from bhi and most good radio dealers it is priced **£99.95 plus P&P**. You can contact bhi on: **0870 2407258** or **www.bhi-ltd.co.uk** **SWM**

4 Level	8 Level	Tone Reduction (dB)	Noise Reduction (dB)
	1	4	9
1	2	5	11
	3	6	13
2	4	8	14
	5	16	17
3	6	21	20
	7	25	24
4	8	65	35



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World Radio History

The Möbius Antenna

Rod Watson GOMKG looks at a revolutionary quantum leap in antenna technology. This miniature mathematical based phenomenon was the result of earlier rediscovered work from the 1800s.

While researching the origins of August Bank Holiday, I came across a reference to August Möbius a German mathematician (1790 - 1868), together with a cross reference to the work of one Lapri O'Lof (1902 - 1981) an Irish inventor, polymath and radio enthusiast. It seems that in 1935, while trying to contrive a wide frequency bandwidth antenna - or aerial conductor as it was then known - he came up with a most interesting design. The design was based upon a topological mathematical concept that he had been studying; the Möbius Strip or Band was conceived.

Captured Imagination

My imagination was captured. After much more personal research, including access to his personal diaries for the period, I can now share with you his story.

The Möbius Strip is a surface that has only one side and one edge, both of which are individually continuous, and therefore infinitely long. An ideal starting point, O'Lof thought, for an antenna of infinite length, to give an infinite bandwidth, which at the same time could be compact in size. Living as he did in (as he described it) "a modest semi-villa", there was very little space for a mast of any size to hold one end of a conventional 'long-wire' or 'inverted L' antenna, with the other end supported by the house. He would, he thought, make his Möbius antenna small, discrete and possibly disguised to fit in with the design of the garden. But disguised as what? He looked at his garden, this garden needs a central feature, he thought, how about a bird table? Yes, this would give the garden some degree of class without being ostentatious. I don't believe the welfare of the birds entered into this process. The standard requirement for a bird table requires space for the birds to feed without being attacked by the local feline population. That is, it should be elevated, and away from buildings or fences that could be used as a launching point for an attack by predators of any type; this is the same basic constructional requirement as that of an antenna mounting. So a bird table it would be.

Physical Properties

But what of the Möbius antenna, how would it be designed and constructed? Well, the conventional model of the Möbius strip is formed as follows. Take a strip of paper, say 300mm (12 inches) long and 25mm (1 inch) wide, make half a twist in it, bring the ends together and secure them with adhesive tape. The result is a form of twisted loop. If the



loop is then laid on a flat surface, with part of the paper flat, and a continuous pencil line drawn on the surface of the loop, it will be found that eventually the newly advancing pencil line will join the previously drawn one. The strip will be shown to have a continuous surface. Strange but true - the Möbius strip. But how does this translate into an antenna?

After due consideration, O'Lof had three major design problems to consider. How would the antenna be coupled to the radio? This seemed impossible when using the Möbius strip concept, as the whole basis of the antenna design requires the antenna to be an infinitely continuous conductor.

Secondly, what shape of conductor should be used for the 'active' element of the antenna? In the standard model of the Möbius strip, the cross-section is a rectangle - but when using the same principle with an antenna, what would be the correct ratio of width to thickness of that rectangle, and therefore the cross section of the 'active' element?

Lastly, what should be the overall size of the antenna? In the case of a normal antenna, the circumference of the 'loop', or its overall physical length is to some degree related to the frequency upon which the antenna operates. Theoretically this new antenna would be aperiodic (not frequency sensitive) so how physically big should it be?

Uncharted Territory

Here O'Loof was in uncharted territory. He consulted many of the learned books in his own small laboratory library, he searched them day and night for inspiration. He re-read the *Topological mathematical proofs of August Möbius*, and still didn't fully understand them. He read Scott-Taggart on *The Legal Aspects Of The Design Of Coils*. And finally, a newly published treatise on *Radio Wave Behaviour Under Extenuating Circumstances*, by the Oxford blue stocking, Professor Avril Prime. He now had the glimmer of an idea. His diary attests to this as follows:

"To solve these problems I had to think as a radio wave. What would the wave feel like, trapped on an infinite surface, with only the Ohmic resistance of the conductor gradually wearing it out? Well, I would want to escape, and quickly, while I still had some energy left. I wouldn't care how long the conductor was, or of its shape or its size".

Realm Of Metaphysics

O'Loof, now in the realm of metaphysics, felt relatively free of any previous technical constraint and immediately began experimenting. The prototype Möbius antenna was produced using what was to hand. This happened to be a strip of 12 s.w.g. copper sheet around 50mm wide and 2m long. This was bent to shape, and the ends neatly soldered together after inserting the half twist. The result was a 'loop' of nearly 600mm (2 feet) in diameter. Small by 1930s antenna standards, but if it could be made to work, who knows who may be interested in using it? The next step was how to mount it - the bird table! Although he would admit his woodworking skills were rudimentary, O'Loof came up with what he described in his diary as a "passable construction". The embryo Möbius antenna element was carefully positioned, and fixed, on the bird table upright, just below the top. Now for a method of connecting the antenna to the radio. The only way he could think of achieving this was to use loop coupling, which would not interfere with the continuous element of the Möbius design. He fashioned a loop with a diameter of 6 inches (15 cm) from some 8s.w.g. copper wire, to the ends of which he soldered a length of open wire feeder. He then carefully fixed the loop concentrically within the mounted Möbius element. Shaking with excitement he ran the feeder inside his laboratory and connected it to his prized receiver, an 'Irpal' 1 valve all-wave set, which he had lovingly and exactly constructed from a blueprint given free with the April 1935 edition of *Amateur Wireless Scientist*. He knew

the receiver worked like a dream. It would be the 'acid test'. O'Loof switched on, donned his S G Brown headphones, and waited for the single 1405 triode to heat up...

Nothing, not a sound, in fact there were no glowing heaters in the valve, nor signs of any life in his headphones. Begorrah! he thought, a flat battery. Sure enough, when he measured the voltage across the 2V accumulator that supplied the heater voltage, nothing. He would have to charge the accumulator before he could try the Möbius antenna. Despondently he placed the accumulator on charge. At this point, feeling tired after two days of continuous deep thought and activity, O'Loof retired to bed.

A Kind Gesture

Meanwhile, unbeknown to him, Mrs O'Loof, on returning from her daily shopping expedition and seeing the newly constructed, if slightly odd, bird table, decided she would put some food on it for the little feathered friends. A kind gesture she thought, even though she had never seen a bird table with a strange copper sculpture beneath it, not to mention one having twin wires leading away from it, but she was well used to O'Loof's eccentricities, and she didn't think the birds would mind either.

Testing the Möbius

O'Loof eventually awoke. He sprang out of bed in eager anticipation of testing the Möbius antenna. The now fully charged accumulator was hastily connected to the 'Irpal', and the headphones placed on the ears. He could see the 1405 valve heating up, and he just began to discern sounds coming from the headphones. But what strange sounds were these? Lots of different sounds, like he had never heard before, and getting louder as the valve heated up. Certainly not like any radio station he had ever encountered on the air, professional or amateur. This is a verbatim extract from his diary of that day.

"I was amazed by the confluence of tones and beats, wails and screams. Had I not been seated, I feel I may have lost my balance and fallen quite readily". They spoke so wonderfully in those days didn't they?

Adjusting the reaction and volume controls of his prized possession seemed to make no difference to the terrible sounds. He advanced the tuning control over every wavelength on every band of his all-wave set, the results were the same wherever he tuned. Then the answer struck him. The bird table was a bad choice for mounting the Möbius antenna, the result was not what he would have wished...birdies all the way up the (Möbius) band!

It just goes to show, not everything is as may seem at first, especially in April.

SWM



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- Analogue Tuner with Digital Frequency Readout
- Built-in Speaker and stereo Earphone Socket
- Stylish carrying pouch with belt loop
- Comprehensive operating manual
- Available in Metallic Pearl or Metallic Red

Dimensions: 23 W x 63 H x 11 D mm
Weight: 133g (4.7oz)
Power Source: 2 AA batteries (included)
Price: £24.95 plus £8 P&P

Full-size features in your palm or pocket

E100 AM/FM Shortwave radio

Imagine a radio packed with all the bells and whistles: digital tuning, AM, FM, Shortwave reception, and small enough to fit into your coat pocket. The E100 is a dream come true.

- Shortwave range: 1711-29.995 KHz.
- FM: 87.0 - 108.0MHz;
- Medium Wave: 520 - 1710 KHz
- Manual and Auto-Scan Tuning
- Direct Keypad Frequency Entry
- Manual/Auto Scan to scan the preset stations
- Fine-Tuning Control Knob
- 200 Random Programmable Memories
- Memory Page Customizing
- 9/10KHz step size selector (for worldwide Medium Wave (AM) reception)
- FM-Stereo/Signal Strength/Power Level Indicators
- Digital Clock
- Selectable 12/24 hour clock display format.
- Simultaneous display of frequency and clock
- Favourite Station Wake-Up.
- Programmable Alarm
- Programmable Sleep Timer (10 - 90min) functions
- LCD display light.
- Built in antennas for AM, FM and SW reception

Dimensions: 12.4 x 7.6 x 3 cm
Weight: 210g
Power Source: 2 AA batteries (included) or AC adaptor (not included)
Price: £59.95 plus £8 P&P

SHORTWAVE RADIOS



Intelligent features Strong performance

E10 AM/FM Shortwave radio

Imagine a radio that combines strong performance for fantastic reception and all of today's digital wizardry, bringing the world to your fingertips. The E10 is where intelligence meets performance.

- FM Frequency Range: 87 - 108 MHz
- Shortwave Range: 1711 - 29999KHz
- 9/10KHz step selector for Medium Wave (AM) reception
- 1/5KHz step for the display of Shortwave
- 550 Programmable Memories
- Memory Page Customization
- Direct Memory Access
- SW IF SET feature, shifts the i.f. to minimize interference
- Shortwave antenna trimmer
- ATS (AUTO TUNING SYSTEM) automatic memory storage of FM/MW stations
- Manual Tuning
- Auto Scan Tuning
- Direct Keypad Frequency Entry
- Digital Tuning Knob With Lock Feature
- Auto-Scan and manually scan stations stored into memory
- Fast/Slow tuning rate selection for manual tuning
- Sleep Function
- Two Turn-On Timers With Station Memory
- Snooze Function: 10 minutes, repeated three times.
- FM Stereo/Mono selection
- High/Low Tone Control
- LCD Backlight With User Control
- Key Lock
- 12/24 Hr Format selection
- System Set Codes
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Dimensions: 18.8 x 11.4 x 3.3 cm
Weight: 595g
Power Source: 4 x AA batteries (inc) or AC adaptor/charger (inc)
Price: £69.95 plus £8 P&P



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& capable
with
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sound**

High-performance AM/FM/Shortwave field radio

S350 AM/FM Shortwave radio

Opens the whole world for your listening pleasure! Its powerful FM, AM and shortwave receiver brings in far-flung stations that other radios simply can't hear. Precise tuning is assured by the two-speed slow-motion tuning dial and illuminated digital frequency readout, which also functions as a digital alarm clock. The generously-sized loudspeaker gives crystal-clear reproduction. Separate bass and treble controls tailor the sound to your individual taste. The S350 blends the best of yesterday and today. With the look of a retro field radio sporting a rugged body and military-style controls - the S350 also features today's innovations for excellent AM, FM, and SW reception. The external antenna input is ideal for enthusiasts. And features such as line-level output, RF gain, wide and narrow bandwidth filter controls put you in the command seat for tuning in to local and international news, music, and sports - wherever in the world you happen to be.

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- Digital frequency readout
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- Digital clock with selectable 12/24 hour format
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- Variable RF Gain Control
- Rotary volume control
- Variable, independent bass and treble control
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- Stereo/mono switch
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Weight: 1.6kg
Power source: 4 x D batteries (not included) or AC adapter (included)

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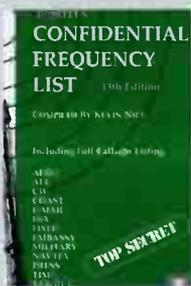
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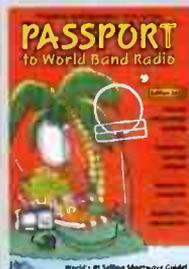
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Passport to World Band Radio 2005
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and a wealth of practical, how-to construction projects. This 20th edition is extensively revised and includes contributions from leading antenna experts. Many designs are the result of the latest advances in computer modelling. £32.00



Antenna Toolkit
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RSGB Yearbook
There are almost 500 pages in the 2005 Yearbook, eight more than last year, but only a

Airband

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AIR TRAFFIC CONTROL		£9.99	ATC9
AIRWAVES SELCAL - CIVIL & MILITARY DIRECTORY (Photavia)	.176	£11.95	AIRSEL
CALLSIGN 2005 (Photavia)	.2005	£10.95	CAL25
CIVIL AIRCRAFT MARKINGS 2005 (abc) Alan Wright	.368	7.99	CIVAIR
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very small handful are the same. Everything you need is covered within its pages: contact names, addresses, phone numbers, websites and E-mail addresses. A major new feature for this Yearbook is the RSGB Contesting Guide, which was formally published in RadCom. £16.95

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Your receiver is only as good as your antenna or so says the author of this book. It is a complete guide to high performance receiving antennas for long wave all the way to the upper end of the short wave spectrum. The designs aren't slightly modified amateur transmitting antennas but ones intended specifically for receiving purposes. £17.50



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An Introduction to Amateur Radio
Amateur radio can be a fascinating hobby that has attracted many people all around the world. It encompasses a wide range of subjects from the historical to the latest technology and from operating to construction. Perfect for the fledgling enthusiast. £4.99

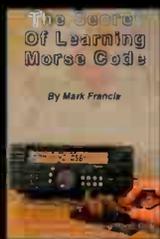


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The second course book in the R5GB's series, which is structured to progressively obtaining an Amateur Radio Licence, this book contains practical exercises, broken down into half-hour worksheets. The ideal companion book for all Amateur Radio Intermediate Licence students. £5.75



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Buying A Used Shortwave Receiver



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The Essential Guide To Scanning
Martin Peters



The Essential Guide To Scanning
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SHORT WAVE COMMUNICATIONS
By Martin Peters £11.95



Short Wave Communications
Amongst the subjects covered in this book are an introduction to radio communications, operating your radio, antennas, international band plans, marine bands, civil aviation, military operations, amateur and CB radio, international call signs as well as receivers past and present. £4.50

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Scanner Busters 3 guides you through the maze, showing you how to deal with trunking

Scanners 4 Scanning into the future
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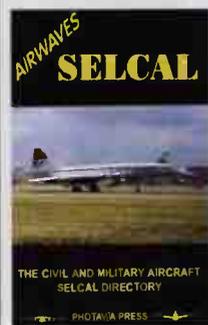
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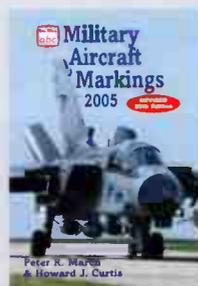
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Military Aircraft Markings 2005

This annual pocket favourite has been revised with a huge number of changes that have affected military serials over the past year. If you can see it or hear it, MAR 2004 will tell you who runs it or owns it! The accuracy of the contents can be relied on. **£7.99**



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disadvantages of analogue and digital type and then leads you through the many tests they can perform. **£4.99**

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This book sets out to produce the definitive history of pirate radio ships, with a comprehensive account from the earliest pirates in the 1930s to the present day. The text is illustrated with 230 black and white



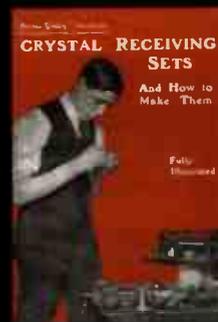
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The multimeter's capabilities are often overlooked by many owners, there's much they can do other than continuity testing! The book discusses how you can choose a meter, the advantages and

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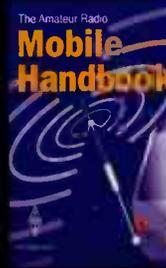
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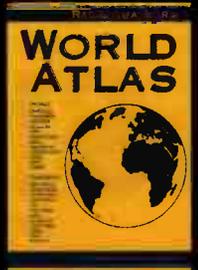
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In The Ed's Shack

This month, Kevin shares his recent experiences as he discovered the world of u.h.f. MilSat monitoring. Read on and learn what's needed and what it's possible to hear.

It's not that long ago that I was kindly invited to join an Internet Relay Chat (IRC) group which is focused on the monitoring of Satellites in particular u.h.f. military satellites. I've been intrigued with the subject for a while now and never really found the time to explore. Well it's some three months since that invite and here's what I've been up to during that period.

They're Up There

I was well aware that there is a constellation of geostationary satellites that are in use by military forces. I also knew that there were transponders that operate at u.h.f. frequencies. I had, sometime ago, acquired a Timestep low noise pre-amp to enable reception of the orbiting radio relays. But, for reasons I forget now, I never quite got around to connecting it up. My intention, when I ordered the LNA, was to connect my trusty discone to the input. I was assured that this would yield results. When I finally got around to setting up the antenna, a few hours after joining the #hearsat IRC channel this did prove to be the case.

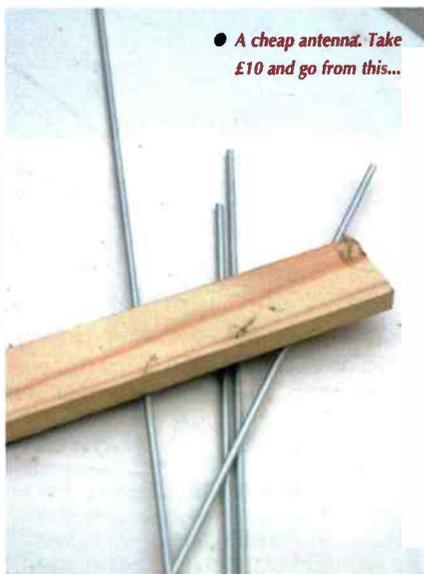
The first step in my journey of discovery, was to join the IRC channel. This requires some suitable software to provide the correct protocol to be able to access the IRC server network. An IRC client is called for. Time for some research. Since I spend most of my time sat in front of a Mac, an IRC client for that platform made sense. I set about searching and quickly came up with *ircle*.

This shareware program will run on both the older MacOS 9 and the current Unix like OSX. Registration is required after a 30 day evaluation period, the fee being 19 Euros.

The user interface provided by *ircle* is, I have subsequently learned, fairly typical of most IRC clients. With suitable software acquired, I was ready to plug in to the chat group.

Getting Familiar

With the information flowing from fellow monitors, I was in a position to very quickly become familiar with the block of spectrum in question. This was further aided by the use of the SDR-14 Software Defined Radio that



● A cheap antenna. Take £10 and go from this...



● ...to this in in about 90 minutes.

Better Antenna

It soon became apparent that, even though I had an effective low noise amplifier after my omni-directional antenna, I needed to improve my signal gathering arrangements. Many of my new monitoring companions

I reviewed last year in *SWM*. The way that the SDR helps is because it's possible to see, in almost real-time, activity on channels in a 150kHz window. So if for instance, I'm tuned into 261.8MHz, I can see everything that happening from 261.725 to 261.875MHz. If a carrier pops up, then I've the option of either retuning with a click or still listening to it but not retuning the radio with a similar click. This is dependant on the mode I select for the SDR-14's v.f.o. This is a really useful way to do things. But it's by no means essential to have this kind of set-up. Using something like the SDR-14 just makes the time spent more productive.

In fact some of the most experienced of the monitors on the #hearsat channel are using no more than hand-held scanners. MVT-7100s, AR8000s and AR8200s to name those I'm aware of. The important factors for this branch of the listening hobby are as usual; patience, tenacity, enthusiasm, effective antenna(s) and a keen inquisitive mind. Plus the essential methodical approach.

One of the early impressions I formed in my rapid learning process was that there are lots of non-official users. It seems that there are pirates located in Europe and many in Brazil. There are so many in Brazil that there is a major campaign by the US military to close down such activity. Personally, I reckon that since the satellites can be used to accurately pin-point a signal source on the ground, you've got to be pretty brave to pirate military hardware! Illegal use aside, there is much interesting activity around in this part of the radio spectrum!

have opted for helical antennas. I have the materials required to build one of these when I find the time, but their construction is a little more complicated than the antenna I've opted for in the interim.

I decided on a Yagi. A six element version, which is providing me with both directivity and gain that I estimate is about 10-12dBd.

Once I'd decided on the type of antenna, I had a look around for a design and discovered a wooden boom version that could be quickly constructed. The WA5VJB 'Cheap Yagi' proved to be the answer. For less than £10, I've an effective compact antenna that was easy to make with 'd.i.y. shed' materials. The WA5VJB antenna information that I found, was intended for use on the USA 222MHz amateur band. So I scaled the dimensions to provide a centre frequency of 260MHz. The dimensions I used for my 260MHz version are shown in **Table 1**.

I opted to use 4mm solid aluminium rod for the directors and reflector with a 4mm brass rod for the driven 'J' element. The brass material was chosen so that I could solder the feeder to it easily.

I happened to have some treated timber of suitable dimensions knocking about my workshop, so set about marking and drilling the holes for the elements to pass through the wooden boom. After a total build time of about one and a half hours it was antenna testing time.

Detective Work

With the Yagi installed and pointing at 16°E, home of the SICRAL satellite. Things livened up a lot. The beamwidth is pretty wide and I'm receiving usable signals from a good 90° arc.

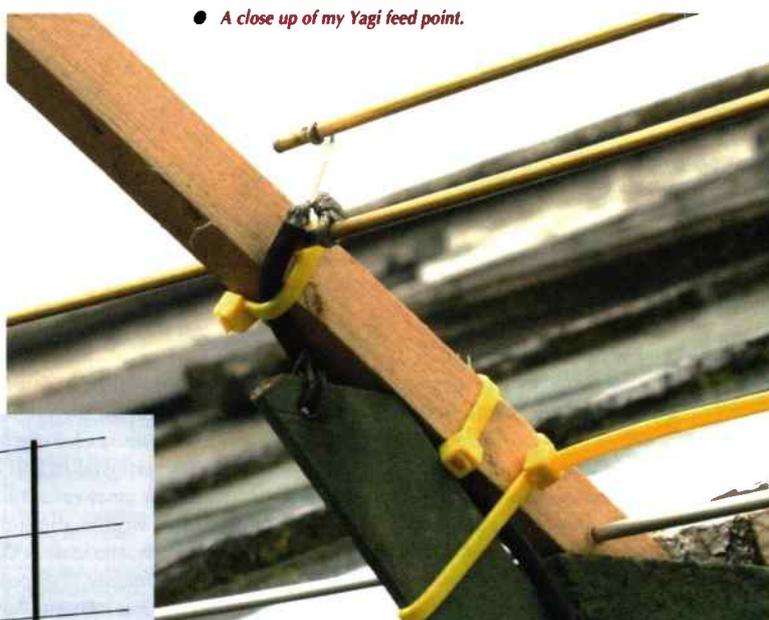
Then there was the weekend when some mystery MilAir traffic was heard all over Europe on 252.300MHz. It was obviously by the operational style and subject matter, plus the transmissions were a.m. not the usual f.m.

What was happening was that the signals were being picked up by the satellite's (in this case SICRAL) transponder on the uplink frequency, i.e. 254.300+41MHz, which is 296.300MHz then they were being downlinked via the transponder's output on the frequency we were listening too. The IRC channel came into its own here as several monitors were co-ordinating their activities. Most were recording the rapidly delivered audio too. With analysis of the voice traffic, key words and information were extracted and it was possible for the collective set of monitors to begin pinning down the source of the transmissions. At first it seemed odd that the accent couldn't be identified as it wasn't what we were expecting.

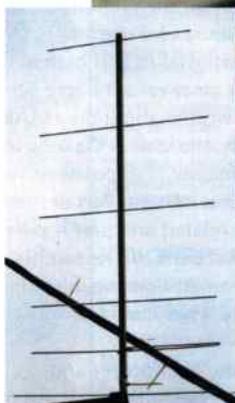
Because the SICRAL's intended users are NATO members this was forcing everyone to think in terms of these countries, plus the language being used was English. As time passed it became clear that the accents being heard were from the Indian continent. Locations were homed in on and finally even the QNH being passed for the area being flown was confirmed as correct for the proposed location. A splendid piece of radio detective work. It's this kind of activity that makes radio monitoring enjoyable. The use of Internet connected communications provides listeners with a mechanism just as powerful as the professionals. I was proud to have played a small part in that little exercise.

Rewarding

There's still much for me to do with this facet of the hobby. For instance from a constructional point of view, I want to



● A close up of my Yagi feed point.



build another low noise amplifier to use in conjunction with home constructed helical antennas. I plan to build a high-gain narrow beam-width helical so that I can start to be sure of which slot in the Clarke Belt the signals are coming from and then build up a picture of

frequencies versus position.

The past 12 weeks have proved to be very rewarding indeed. It doesn't have to cost much and you don't need much space.

Next time I'll list some of the satellites you might be able to hear and describe the construction of some antennas. *SWM*

Table 1: Cheap and easy 6-element Yagi dimensional detail.

Centre Freq 260MHz:

	Reflector	Driven	Dir 1	Dir 2	Dir 3	Dir 4
6 Element	569	531	523	510	510	455
Spacing	0.00	108	233	477	732	987

Boom 25 x 18 x 1200
All dimensions (mm)

Some useful URLs

www.uhf-satcom.com - Lots of Info.

www.time-step.com/inmarsatsystem2.htm - pre-amp and Yagi.

www.uhf-satcom.com/uhfsatcom/uhfpreamp.htm - Low Noise Amplifier.

www.geckos-haunt.org/hearsat/ - 252.300MHz MilAir Audio samples as mentioned in this article.

#hearsat channel formed on the ZIRC network - server details from www.zirc.org Once you connect to the ZIRC network, please register your nickname by issuing a /msg nickserv REGISTER . You will then receive an E-mail with an authentication step. When you connect to ZIRC in future, you should issue a /msg nickserv identify and you will be identified to the ZIRC network. This is an important step in case #hearsat needs to be closed to registered users only.

- **Ben Hogan**, *clo SWM Editorial Offices*
- **E-mail** ssb.utilis@pwpublishing.ltd.uk

How do illegal 'pirate' operators choose the frequencies that they use? I have often pondered the question and after having asked folk who have had to deal with these people, I have discovered the simplest of reasons. Apart from the pirate 6MHz operators who, it seems, have some sort of channel system, the short answer is that half the time the pirate communicators don't choose their frequencies. They are selected for them by the manufacturers of the radios that they use.

I am told that the inexpensive 'base' model Yaesu transceiver, the FT-840, is popular amongst illegal operators in Africa, South America and Eastern Europe. The set is a basic all mode amateur transceiver. When the set is initially turned on the frequency synthesiser defaults to pre-programmed frequencies on each band.

As an example, when the FT-840 is switched on in the 40m sector of the amateur bands, the radio is set to 7000kHz. Similarly on the 10MHz band the radio's default frequency is 10000kHz.

In South Asia these pirates like to have a drink and this is reflected in their transmissions with much hollering and snatches of music being heard. Often these people will move off their 'calling' frequency, but they don't go far away - l.s.b. or u.s.b. - they don't care.

I have found that identifying the 'default' frequencies for the more basic model of h.f. amateur transceivers has enabled me to capture some different, if not very enlightening, transmissions.

HAARP Project

Alaska is a mighty land that possesses more mountains than roads. In 1942 the US Army engineers blazed a trail from Canada into what was then the US Protectorate of Alaska. Built to enable troops to be deployed to the far west in order to counter the very real threat of invasion from the Japanese, the trail became the world famous Alaska Highway.

Over 2200km of wild country surround the Highway as it snakes right into the heart of the State. One hundred and ninety kilometres down the subsidiary Glenn Highway from the settlement of Tok (pronounced Toke) is the small village of Gakona. Nothing much ever happened

there until the small USA military facility just outside the village became the preferred location for the High-frequency Active Auroral Research Program (HAARP).

Technicians moved in and built a massive antenna array on a 33 acre site. Much has been written about the HAARP project. Basically, the staff at Gakona are transmitting extremely high powered radio signals into the ionosphere. Part of this work is defence related and part is purely science based. Recently the researchers at HAARP created an artificial visible aurora above the facility. I bet that was worth seeing.

Because of the high power and frequencies in use HAARP signals are often heard right here in the UK. I have monitored them on 3.2 and 5.8MHz and I understand that 3.3MHz has also been used. A variety of signals and tones can be heard.

Often the tones can be described as musical and tend to vary and rise in pitch. The tones are carefully chosen so as not to be harmonics of each other and the signals received on the higher frequencies are often being used in conjunction with experiments simultaneously taking place on 1-3kHz. These Extremely Low Frequency transmissions have been received at almost a thousand kilometres from Gakona.

If you have Internet access a variety of digital signal examples, including, HAARP, can be found at

www.wunclub.com/sounds/index.html

The staff at HAARP will QSL any in depth reception reports. The address is: **HAARP Gakona Facility, PO Box 271, Gakona, AK 99586, USA.** Contrary to the opinions of conspiracy theorists the transmissions are not concerned with mind control and alien spacecraft are not stored there.

Antenna Reception

If you live in a flat, apartment or a property that has no garden ground or there is a covenant that forbids the deployment of antennas it doesn't mean that you'll be unable to use radio to good effect. It just means that you'll have to be more discrete, careful or downright devious to get that signal into your set. For reception a thin wire antenna is as good as anything and small gauge wires can be hidden almost anywhere.

But for people who have to use antennas strung around the room (and we've all tried it at some time) I have come across an interesting alternative. In toy and trivia/gadget shops in Britain I have seen a large metal spring type toy. It is marketed as a 'Slinky' or similar and looks like an enormous coil spring. I'm not too sure what the original purpose of the thing is, but I have seen one in use as an internal antenna and it seemed to work very well indeed, pulling in signals effectively on many bands.

Having made sure that your 'Slinky' is manufactured from metal and not plastic, solder or other non-conducting material attach a length of insulated wire to one end of it and terminate that wire in a suitable plug or even just a crocodile clip if you are using a telescopic antenna on a portable type receiver. Then using some string, a plastic cable tie or something similar, suspend the other end from a high point in the room. The spring will uncoil. Hook it all up - it will work very well indeed. This is a viable indoor receiving antenna.

Of course, no indoor antenna will function as effectively as one deployed outside. As the spring collapses to a small package when not in use it will find favour with listeners who are obliged to spend time in hotel rooms and other temporary accommodation.

Awful Conditions

As we are now at the sunspot minimal and as we have experienced some truly awful h.f. conditions it cannot be too surprising that many of the 'captures' that monitors would normally hope to find are absent. On a personal basis I have found the last couple of months to be rather disappointing. Having said that there are the usual stations that one can normally capture. Kinloss is always there as is Camslant at Chesapeake on 5.696MHz u.s.b.

Other transmissions easily heard in the UK are the Italian stations on 7.598. They are usually on RTTY at 50 baud with a 170Hz shift. Having said that, voice traffic has been monitored on either sideband. The station callsign is IEA20 and is operated by the Italian Carabinieri. These guys are military personnel who perform police duties. They even have 'Community Carabinieri' these days. Imagine a heavily armed school crossing patrol and you get the idea.

The Italian Navy can also sometimes be monitored on 5.768, 6.734 and 8.026MHz u.s.b. The reason that I am picking on the Italians here is that whatever the band conditions, they can usually be heard. It's a power thing.

Finally, and nothing to do with the continentals, a frequency that has been in use in the last year or two for United States Air Force air-to-air communications 'in the clear' is 6.761MHz u.s.b. If running the h.f. radio on scan is your thing then this frequency may be of occasional interest. Personally, I never scan h.f. memories. I just hate to hear those relays rattling in the receiver.

Scanning

Scene

● **Dave Roberts** clo SWM Editorial Offices, Broadstone
● **E-mail** scanning@pwpublising.ltd.uk

Readers of SWM can always be relied upon to come up with the goods. In the February's 'Scanning Scene' I asked whether anyone had any information on the frequencies used by the Norwich SOS Bus that operates in the city on Friday and Saturday nights. The vehicle, manned by volunteer medics, is the first line of treatment for those of us that end up injured as a result of the weekend revels. Well, one kind reader who wishes to remain anonymous came up with the goods.

The Claret Coach can be heard on 166.7625MHz. The frequency is also used by a number of nightclubs operating in the city and the control function is handled by the security control at the Castle Mall Shopping Centre. This must give the security officers in the control room a considerable amount of extra work at the weekends and represents a considerable community service. The frequency apparently used to be the daytime 'Shop Watch' channel but its use during daylight is now only sporadic with the main 'Shop Watch' traffic being handled on 453.250MHz, (all f.m.).

In his play *Hay Fever* one of Noel Coward's characters correctly observed, "Very flat - Norfolk". His accurate description of the area's topography indicates that the coverage area of the transmissions from Norwich should be audible from a fair distance away.

As a postscript to last month's mention of the 'Wycombe Watch' system, it seems that their frequency may well be 453.700MHz output with input on 460.200MHz. Does anyone have any different information on this? The Octagon shopping centre appear to be running on 169.000MHz for their security staff - again all are f.m. If you are in that area and at the top of a hill, you may also hear Maidenhead Shopwatch on 453.475MHz with the input frequency from the hand-held radios being on 459.975MHz.

New FT-60

A dual-band hand-held scanner/transceiver for about £160. That's not bad. This one is the new FT-60 from Yaesu. Added to this the radio has receive coverage from 108-520MHz and from 700 to 999.990MHz, with a.m. reception being available on air bands.

Transmit coverage is on 2m and 70cm. Plus this baby is tough! The Yaesu name is now relegated to amateur radio products with the parent company Vertex Standard now using the VS logo on their land mobile and

airband product range. Standard Horizon is now the brand applied to their marine band radios.

This FT-60 is so well made that I spent time wading through their commercial land mobile catalogue seeking the commercial equivalent of the rig. I couldn't find it, but it is apparent that the FT-60's parentage is either commercial or military.

The belt clip is designed to attach the set to the trousers of someone who likes the rugged outdoor life. It weighs in at just over 370g and features all sorts of gadgetry, including something that Yaesu call Emergency Automatic Identification (EAID). This, when activated, will (according to the FT-60 publicity brochure) cause the radio to transmit your callsign and activate the microphone even if you become injured or incapable of movement for some reason. This feature could have lost me my amateur licence when I fell over in the pub the other month!

The FT-60 doesn't appear to have a cross band repeat function. Living in the UK I don't have a use for that particular facility in any case *but* some years ago I was living in a remote area of British Columbia in Canada. The area was heavily forested, mountainous and very very wild. For some perverse reason I felt that I really needed to monitor the Royal Canadian Mounted Police (RCMP).

Now, the RCMP ran two repeaters in the area. I could hear one of them on the AOR scanner, but I needed to copy the other one, on 139.500MHz f.m. (Despatch Repeater E), as well. Ingenuity and a certain amount of illegality was required...well this was a very remote area. For some years I have possessed a pair of old Standard C520 hand-held scanner/transceiver sets. When keypad modified they will receive and transmit happily outside the amateur bands. They can also be set to wideband receive only. This was how I configured one of them.

The v.h.f. side of the most worn out radio was set to the RCMP channel and the u.h.f.

half was tuned on an obscure u.h.f. seventy centimetre frequency. The u.h.f. power was set to 'low' (about half a watt) and the crossband repeat was turned on.

The acquisition of a 5Ah gel-cell battery plugged into the side power socket of the set and a solar panel to keep the cell topped up completed the hardware, which was mounted in a sealed tin ammo box with the solar panel and a 500mm stainless steel mag-mount antenna bunged on the top. Self-amalgamating tape and grease sealed it up. Then I carried it on my back through the bush to the top of the thousand foot hill behind the cabin. It was a warm summer's day and it darn near killed me. I was hiking with that thing on my back for about eighteen hours in all.

On returning to the relative comfort of the cabin, I programmed one of the scanner's channels to 431.3375MHz. It worked fine. The RCMP's despatch channel came rattling through on that AOR every time they hit the push to talk. Inadvertent transmissions on 431.3375MHz would not trigger the v.h.f. side of the C520 as the radio would only receive

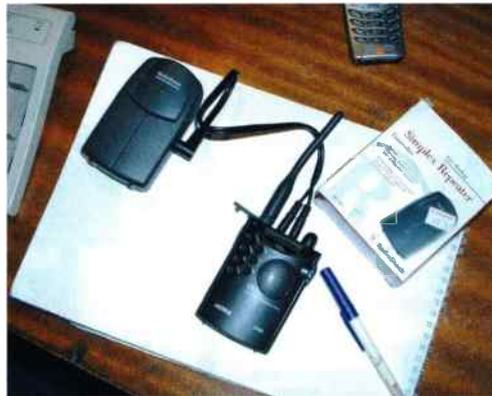
v.h.f. 'out of band' and not transmit. I was now able to monitor both of their main despatch channels and felt that my life was complete, well complete(ish) anyway!

This set up worked until the temperature dropped to about -15°C when the battery refused to play anymore, but it

healed up in the spring when the weather became warmer and it completed much more valuable monitoring service. It was eventually retrieved when I moved on.

Although this sort of behaviour is very frowned upon throughout the Western World, I wouldn't be surprised if someone, somewhere is doing the same thing. No-one in their right mind would think of doing this in the UK, but there are nutters around and I always search everywhere in the bands for unauthorised transmissions!

I have even heard the 'Parrott' repeaters in use on simplex short term hire channels right here in Britain (in the English midlands actually). If you are not familiar with these things they were sold by Radio Shack in the USA as a 'Simplex Repeater Controller'. Part number was 19-345. They cost about \$15. You simply plug one into the transceiver and it stores received audio and then places the transceiver into transmit mode and repeats the audio that it has heard. Running from either four AAA cells or a 6V d.c. supply they were very popular at one time among the illegal operators on CB radio. They are extremely tedious to listen to but clearly have serious applications as an 'in fill' unit. The picture is of one such unit plugged into a little Hora u.h.f. transceiver.



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A few Sporadic-E encounters and tropospheric enhancement mid-month meant a satisfying start to the New Year. The *Quadrantids* Meteor-Shower event in early January was disappointing and the lack of reports and comments confirmed this.

Reception Reports

Simon Hockenhill (Bristol) reports a successful January with three Sporadic-E openings (SP-E) observed, plus an Auroral-E event on the 19th due to sunspot 720, which threw out a few X-class flares. The 6m trace map indicates that the Southern Hemisphere is having a very lean time, particularly with Sporadic-E reception.

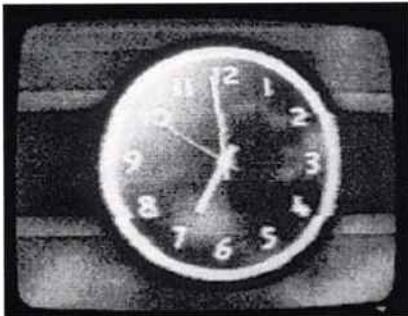


Fig. 1: The Dutch NED-3 Clock caption, snapped by Stephen Michie (Bristol).

Strange things have been happening in Band I for **Tom Crane** (Hawkwell) who detected a possible video carrier on 46.250MHz on the 13th at 0609. With no F2 around, it is unlikely to be Australia. There have been several reports of carriers around this frequency over the past year or so. Later, at 1640 that afternoon, a weak unidentified station with zero offset was present on R2 sporting a logo in the top-right of the screen. A Sporadic-E opening to Italy on the 19th at 2031 rewarded **Kevin Hughes** (Tamworth) with video and sound from RAI UNO on Channels A and B.

Tropospheric DX

A tropospheric enhancement occurred on the 15 and 16th with **Peter Barber** (Coventry) identifying Belgian stations RTBF-1 E8 and VRT TV1 E10 from the Wavre outlet. NED-1 E4 from Lopik was detected everyday throughout the month, mostly at noise-level.

Using a loft-mounted 8-element Group E antenna directed towards the south-east, **Brian Manley** (Welling) discovered many Benelux u.h.f. transmitters. Surprisingly, the Belgian RTBF-2 network was present on E64 from the Anderlues transmitter with all of 3kW e.r.p.

Reports are still coming in regarding the intense early December event. In a long E-mail, **Peter Barclay** (Sunderland) describes

exceptional eastern european reception on the 9th when at 1700 a mystery Polish-language signal was co-channelling with the Dutch local TV Drenthe on Channel E25/R25. Oddly, the sound-spacing was 5.5MHz rather than 6.5MHz, but the picture quality improved to reveal that it was the Polish TVP-2 network!

Two TVP-2 outlets use R25, namely Lebork (40kW) and Wroclaw (1000kW). The latter seems to be the most likely source of reception as back in March 2003, Peter received TVP-1 on R30 from the nearby Jelenia Gora transmitter. The 5.5MHz sound spacing remains a mystery however, unless Polish TV was being relayed from a Western European transmitter.

Towards midnight, more Polish stations

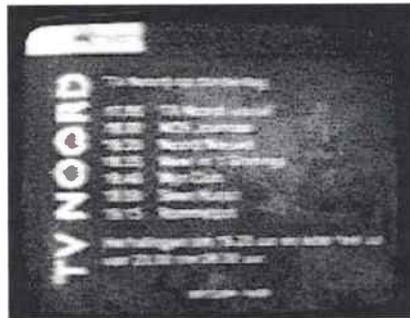


Fig. 2: Dutch regional text pages from TV Noord on Channel E36, received in Bristol.

appeared with TVP-1 on R21 and R32, plus TVP-2 on R49. Additionally, an unidentified eastern european signal was present on R29 but, unfortunately, attempts to resolve a picture were hampered due to very severe co-channelling caused by the presence of NDR already battling it out against the local ITV1 signal from Bilsdale. However, the sound was heard loud and clear - an American film with dialogue translated by a narrator. Comparison with the Polish transmissions revealed the programme content to be different, suggesting that the signal may have originated from the Czech Republic. It is certainly possible as in March 2003, Peter received CT-1 on R31 from Plzen.

By next morning, most of the Eastern European signals had disappeared, although TVP-2 on R30 remained buoyant from Szczecin. TVP-1 made a brief re-appearance on R32, along with the Swedish PM5534 test card on E9. By mid-morning, conditions began to deteriorate further. Sadly, by 1300, signals had completely faded.

Irish Stations

Ken Griffin (Éire) advises that Network 2 has now been renamed RTE-2. RTE-1 and RTE-2 display their initials in the top-left corner of the screen except during adverts. Test cards are no

longer shown and at closedown, Euronews is aired until the morning. The Irish-language network, TG4 (operated by RTE), also screens Euronews.

BBC Tests

Night-owls **Stephen Michie** and **Simon Hockenhill** (Bristol) both noticed BBC tests transmissions on 7 January 2005. The tests were as follows:-

From 0200 until 0300, BBC-2 displayed a 'pulse' colour-bar pattern bearing the identification BBC London TV Centre CAR with a digital test in the centre and at times, a flashing centre cross. Test Card "J" in 4:3 format followed, accompanied by a 440Hz tone. Between 0330 and 0430, BBC-1 carried similar tests to BBC-2 but with a 1kHz tone. Stephen wonders what these tests were for and whether other broadcasters, that no longer show test cards, carry out such special tests. Did anyone manage to record this special series of tests?

Welsh Switch-off

The analogue switch-off project in South Wales is well under way but if there are too many unresolved issues the switch-off of the Ferryside relay will not proceed as planned.



Fig. 3: The BBC Colour Test Card J. Did anyone record the special test transmission in January?

There are the inherent problems associated with DVB-T such as the unreliability of set-top box operation, e.g. locking up, pixilation, lip-sync delay, confusion over remote controls, etc. Elderly viewers are switching off their equipment at night for safety reasons, which means that the TV is in the analogue default mode when power is resumed.

To overcome the embarrassment of viewers unable to easily record with their existing video recorders, twin-tuner hard-drive PVRs (personal video recorders) have been supplied. This is a fine gesture and no doubt the project will be hailed a massive success, but it's hardly the real world, unless the rest of the UK is to be given free equipment upon digital conversion.

Keep On Writing!

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

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As is sometimes the way, no sooner were reports coming in saying that the recently launched *SICH-1M* oceanographic satellite had been seen tumbling in orbit, but reports of the first 137.40MHz transmissions being heard were posted. Satellite tumbling strongly implies that control of the satellite has either failed or is difficult, but the evidence of late January's sequence of transmissions was extremely encouraging. The overall situation has probably not changed: *SICH-1M*'s orbit is highly elliptical and the imaging payload was not intended to operate under these conditions. Unless a dramatic change can occur - and this remains unlikely - then the spacecraft's survival will be limited.

The National Space Agency of Ukraine (NSAU) published notes about *SICH-1M*'s first month in orbit. Somewhat surprisingly, they only acknowledged that the "Spacecraft was injected to elliptical orbit with the following parameters: apogee 644km, perigee 285km, orbital period 93.262 minutes, orbital inclination 82.57°. *SICH-1M* is operated by National Spacecraft Control and Test Centre of the National Space Agency of Ukraine", without actually pointing out that this orbit is far from ideal for the satellite. The remainder of the article implies that everything is as planned and that all the systems are fully operational. Hopefully they are, but with orbital decay likely within a few months, it seems unlikely that the equipment on board will be able to fulfill the missions.

The first transmission from *SICH-1M* was reported by **Peter Wakelin** in Britain on 29 January of the early morning pass. This was quickly confirmed by **Douglas Deans**, who pointed out that the actual transmission coincided with *SICH-1M* being at its apogee (between 598 to 614km). **David Taylor**



Fig. 1: Launch of *SICH-1M* - picture courtesy NSAU.

recorded and processed the data in Edinburgh and provided me with the copy for slotting into last month's column as a Stop Press image. With a flurry of observations and comments, it was realised that sunrise

was to the east in the images for these morning passes, and therefore the scan direction might be reversed - so images were re-processed.

Peter Wakelin kindly provided information about *SICH-1M*'s future orbital drift. He explained that as of early February, the "Argument of perigee is currently around 260° and decreasing about 3.6° per day, which means perigee occurs near the southern apex over Antarctica and well away from Earth's equatorial bulge". The rate of orbital decay, although low in early February, would be over the equator by the end of the month, "and decay will be more rapid". Perigee moves right round in about 102 days so this cyclical variation in decay rate will continue. "Perigee is the lowest part of the orbit where air density increases dramatically, especially when perigee is in sunlight. Peter adds: "I believe that, without intervention, it will remain in orbit at least until August".

Regarding the possibility of receiving transmissions, Peter notes: "With perigee well south it is high when above the control centre in Ukraine and in line-of-sight UK/Ukraine simultaneously. When perigee reaches Ukraine's latitude, transmissions, if any, are likely to be beyond the range of UK observers". My thanks to Peter for these notes.

A number of monitors including **Viktor Gavrish** recorded an early pass in late January showing the visible channel with the Alps clearly recognisable - see Fig. 3. From the Crimea, *SICH-1M* reaches higher elevations than those experienced by British monitors.

The following days brought more images from the early morning passes - but at very

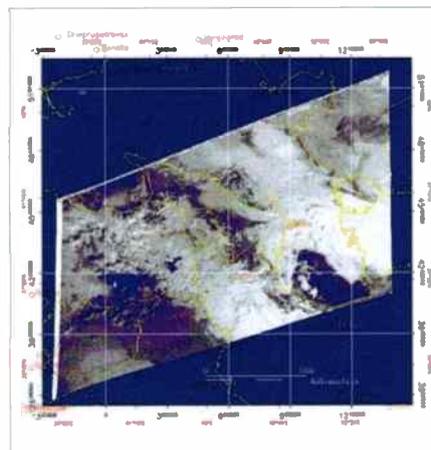


Fig. 2: *SICH-1M* image released by NSAU.

low elevations as seen from Britain. Consequently, some of the image data was noisy or broken. A significant observation was made by **Ian Deans** listening to the recorded sound from *SICH-1M*. He noted what sounded like a 'jump' in the signal, of the type that has sometimes been heard from NOAA satellites. This would make image synchronisation very difficult. Then the next surprise: **Douglas Deans** reported that the Monday morning *SICH-1M* pass included a visible-light transmission that was correctly orientated - it did not require reversing! On comparing *OKEAN-O* transmissions from some years ago, **Les Hamilton** commented: "The radar images, for instance, were transmitted correctly while the visible ones were reversed".

In early February it was reported that carrier tones (an unmodulated signal on 137.40MHz) were heard, with no following data. Les noted "This 'signal' sounded just like the lead-in - lead-out (tone) often present in old *OKEAN* and *SICH* recorded passes. In those days, the carrier switched on several seconds before the image data started, and often continued for a minute or more following the end of data transmission. Perhaps this was simply a preliminary test of the recording system prior to use?".

On 7 February Les also reported a significant development: data from the 0557 pass showed 'piano-key' telemetry. This is often associated with radar transmissions although there was no real evidence of that on this occasion. **Douglas Deans** was able to retrieve an image - see Fig. 4 - from the signal. This image shows the curious format called piano-key telemetry.

On-board Recordings

SICH-1M carries recording equipment, so it is possible that during any transmissions from the spacecraft, an image taken from some other part of the world could be received. *SICH* is definitely giving us an interesting period of WXSAT monitoring!

Russell Eberst is an expert satellite observer with over 40 years' experience, and has reported several visual *SICH-1M* observations. He noted 'steady' brightness on each occasion, implying a stable orientation.

Software Modifications For *SICH-1M*

Craig Anderson produced *WXtolmg 2.6.1 beta 17*, a program that decodes recorded sound files from WXSATS, as a quick response to the new characteristics of *SICH-1M* transmissions. **David Taylor** told me that his program *SatSignal* can already cope with *SICH-1M* data.



Fig. 3: *SICH-1M* early image from Viktor Gavrish.

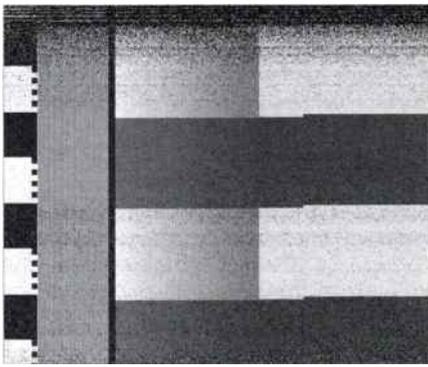


Fig. 4: SICH-1M 0659 7 February from Douglas Deans.

NOAA-N (NOAA-18 In Orbit)

The new NOAA weather satellite will transmit on the new APT frequencies - 137.100 or 137.9125MHz. Because there has been some uncertainty concerning exactly which frequency would be used by NOAA-18, I contacted **Darrell R. Robertson**, the Supervisor, Satellite Data Services Team, NOAA/NESDIS Direct Services Division for a definitive answer. Darrell kindly responded within an hour!

"As you likely know, NOAA-N (18) will be an afternoon (p.m.) satellite in cooperation with METOP-(a) as the morning (a.m.) satellite as part of the IJPS, a cooperative satellite agreement among NOAA and EUMETSAT. I discussed the frequency proposal with our program managers and they are inclined to keep with the current proposal for now. Historically, we operate the a.m. satellite in the lower frequency and the p.m. satellite in the higher frequency. This helps avoid frequency conflicts between our own satellites. We are aware of the potential interference problems in Europe. We have



Fig. 5: NOAA-17 1630 27 January showing ice forming on the Great Lakes - from Patrick Prokop.

selected these frequencies because we have primary use of them but we will monitor problem reports after launch.

If problems occur, then it will enable our frequency folks more time to work the problem. Additionally, we just confirmed that EUMETSAT will operate METOP on the lower frequency. If we change the p.m. satellite to the lower frequency and switch METOP to the higher frequency, then the problem will occur in the a.m. satellite when METOP launches".

NOAA-N Launch Latest

During testing of NOAA-N at Vandenberg Air Force Base, an out-of-specification frequency change was found to have occurred in one of the spacecraft's four S-Band transmitters (those in the 1700MHz band) N-18 STX transmitter #3. The drift of the centre frequency means that tracking stations on the ground would have difficulty locking on to the signal. When last measured in December 2004, the frequency was nominal. Ongoing tests will determine whether the whole unit has to be replaced - implying a significant delay.

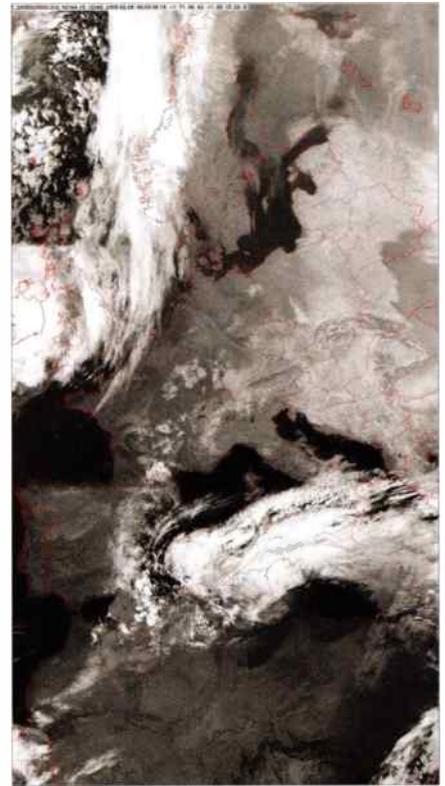


Fig. 6: NOAA-15 0613 9 February from David Oesch.

Freezing Great Lakes

The race is on to see which will freeze first: the northeastern offshoot of Lake Huron, Georgian Bay or Lake Erie. **Figure 5** from **Patrick Prokop** shows his NOAA-17 image of the five Great Lakes: left to right - Superior, Michigan, Huron, Erie and Ontario. Ice can be seen beginning to build up around the shores of each of the lakes, with snow on the ground across virtually the entire scene.

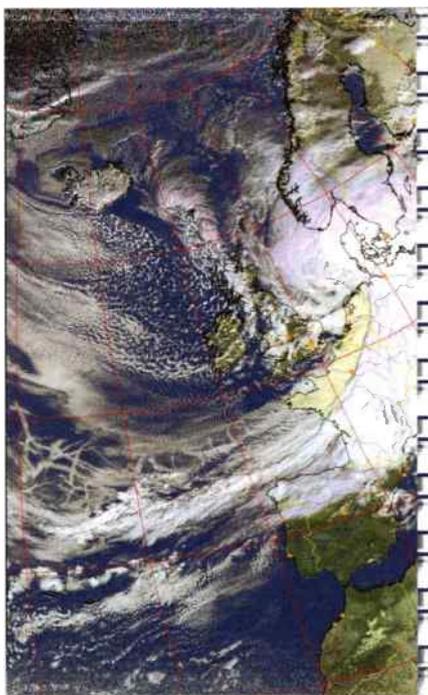


Fig. 7: NOAA-17 12 February 1142 from Brian Dudman.

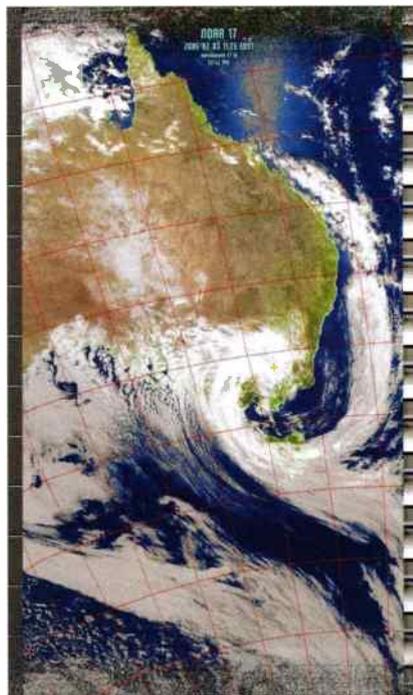


Fig. 8: NOAA-17 over eastern Australia on 3 February from David Knight.

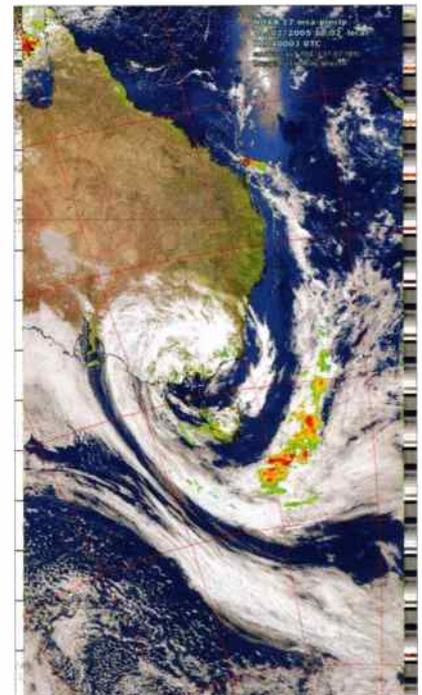


Fig. 9: NOAA-17 over eastern Australia on 4 February from Lindsay Vincent.



Fig. 10: NOAA-17 from Kevin Hughes.

Erie is the smallest of the Great Lakes in terms of volume, and is similar to Lake Ontario for smallest surface area. The small, shallow lake is often the first to freeze in winter, and the first to thaw in spring.

Patrick explains: "The satellite passed over the area around 1630UTC (1130 local time) Thursday 27 January. Snow covers the ground. Some ice can be seen forming in some of the Great Lakes".

Dr David Oesch works at the Remote Sensing Research Group at the university of Bern, and noted the extensive snowfall over eastern Europe in a high resolution image on 9 February - see Fig. 6.

A welcome post from long-time contact **Brian Dudman** of Harrow included Fig. 7 - with the query as to the nature of the trails so evident in this a.p.t. image from NOAA-17. These ships' trails were being seen on all the image formats, and were the subject of much discussion.

David Knight recorded a NOAA-17 pass over the eastern half of Australia - see Fig. 8. Their summer has produced the "Coldest February day on record" in Albury. David uses a RIG RX2 receiver fed by a home-made QFH (quadrifilar helix antenna). The following day **Lindsay Vincent** recorded the corresponding pass showing the system moving - see Fig. 9.

Meanwhile, back in Tamworth **Kevin Hughes** captured the scene of very high cloud coverage over Europe in late January - see Fig. 10.

From Around the World

Miami's Weather Satellite conference. In recent editions I have included brief summaries of some of the speakers at the Conference. NOAA has kindly provided a set of documents that were used by speakers for their presentations, so I have selected extracts from a few of these.

Gregory Withee - see Fig. 11 - is the Assistant Administrator for Satellite and Information Services, and gave a keynote address, essentially explaining NOAA's look forward to the next ten years in the NOAA satellite data dissemination plan. He pointed out that about 100 earth observing satellites will be launched during the next ten years, though he believed that there were few integrated plans to utilise their data. Gregory suggested that we should focus on utilising satellite data for the benefit of society.

The US was making a contribution to the Global Earth Observing System of Systems (GEOSS) in several areas (see website). NOAA's current plans included the



Fig. 11: Gregory Withee addresses the Conference.

continuation of GOES and NOAA weather satellites until at least 2020. He illustrated the timeline of GOES, NOAA, METOP and NPOESS constellations, showing those years during which each was in design and construction, the launch phase, in-orbit testing and operation, and orbit 'storage'. Storage after checkout should ensure continuity of operations for each constellation.

NOAA had estimated the world-wide usage of its satellites and believed that thousands of people were receiving one form or another of the various types of transmissions. There is an ongoing dialogue with users to improve access to NOAA satellites. Visit <http://iwgeo.ssc.nasa.gov/>

News From GEO

Francis Bell asks me to remind readers that the GEO Symposium has been booked at Leicester National Space Centre on 30 April, for an entrance fee of £12. Francis told me "Membership is running at over 500 in 30+ countries, four quality publications, a symposium at Leicester, three days demonstration at AMSAT in Guildford, rallies, attendance at Utrecht and four days with NOAA in Miami all supported by a talented management team. Our interest group, many of us as direct readout users with a curiosity for experimentation, has a wealth of information for receiving weather satellite

signals and can perhaps make contributions that commercial organisations and national meteorological office could not support. This philosophy is supported by our policy for the coming year when GEO will be developing further services to

members in the form of availability of reception hardware and software".

Francis adds "There are technical issues which our direct readout membership will need to address in the coming year. LRIT and in the UK possible r.f. pager transmissions which are within the 137MHz and may interfere with the reception of NOAA-18". As at press time no news had been received from RIG.

EUMETCast Take-up

I admit to being quite surprised by a recent comment that only about 7% of amateur WXSAT hobbyists have set-up equipment to receive EUMETCast. WEFAX - the low-resolution weather facsimile service from METEOSAT-7 - is scheduled to end in December. The replacement WXSAT METEOSAT-8 provides first class imagery via the EUMETCast downlink from HOTBIRD-6. I would be very interested to hear from any WXSAT hobbyist that has decided to not take up EUMETCast. The overall cost is not unreasonable for such a technical system and is so far below that which would have been required for a direct readout system that I presume cost is not the main reason.

Stop Press!

The faulty transmitter onboard NOAA-N is to be replaced. A new preliminary launch date has therefore been set for 11 May 2005.

Frequencies

a.p.t.

NOAA-12 and NOAA-15 transmit a.p.t. on 137.50MHz.
NOAA-17 transmit a.p.t. on 137.62MHz.
During overlap periods, NOAA-15's a.p.t. may be switched off.
NOAA-18 should transmit a.p.t. on 137.9125MHz once in orbit.

h.r.p.t.

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

WEFAX: METEOSAT-7 (geostationary) transmits WEFAX on 1691 and 1694.5MHz and Primary Data on 1691.0MHz 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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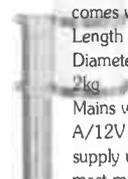
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3rd order IP	+38dBm typical PtdB = + 22dBm
Output impedance	50-75 ohms coaxial
Connector standards	N type connector at the antenna. BNC male connector to the receiver
Power supply	12V DC at 160mA DC. Power supply for 230V AC is delivered comes with 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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I have a sneaking suspicion that for many people the small or magnetic loop antenna belongs firmly in the 'Black Magic' box of antenna trickery. Talk of a radio signal's magnetic component, high Q , narrow bandwidth, and high voltages all serve to encourage them to walk on the other side of the antenna highway. But these antennas do have some useful features, not least of which is their very small size compared to the more conventional equivalents.

Having to tune the antenna each time the frequency of use is changed may be inconvenient, but the advantage of having a narrow bandwidth is the rejection of nearby signals, which, if they were to get past the receiver's front-end, could degrade its performance. The other big plus is directivity, allowing unwanted signals to be very effectively 'nulled' out. The high voltages only come into play when the antenna is used for transmitting, which I'll cover later.

A New Toy

I'll admit to, until recently, not having played with a magnetic loop myself, but there's plenty of anecdotal evidence that they're pretty effective devices. My interest was significantly aroused when I had occasion to accompany some chaps trying to do a bit of direction finding for an h.f. station.

The signals being received were pretty good for antennas only about 700mm across, but most impressive was the difference between the signal strength when the antenna was in line with the signal and when it was across its path. It was the direction finding potential of the antenna that set me on the way to putting one together.

Plumber's Delight

A favoured material for home-brew magnetic loop construction is good old 15mm copper pipe. Some designs use 135° bends to make octagonal antennas. I used 90° elbows to make a square, and made the sides 400mm long.

The only other significant component is a tuning capacitor. As the antenna is only intended for reception a poly-bloc variable was used. If transmission was intended an air spaced variety with wide gaps between the vanes would be essential.

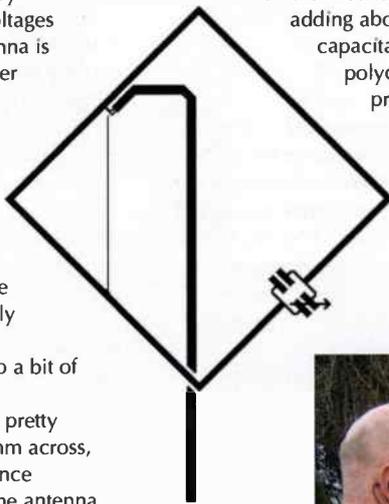
The r.f. voltages generated across the capacitor with even quite low transmitter outputs are enough to generate sparks across the gaps if they aren't wide enough. So, don't

even try transmitting through a magnetic loop antenna that has the sort of low voltage capacitor used here.

Having cut the 400mm lengths of pipe I assembled the loop with pre-soldered 90° joints, adding extra solder to ensure good connections. A 30mm gap for the capacitor was then cut in the middle of one side of the square. The capacitor was fixed to a piece of p.c.b., which had first been attached across the gap with self tapping screws before being soldered in place.

Coverage

The tuning range with the polycon variable capacitor, which, with both gangs used has a maximum value of 200pF, is about one MHz somewhere around 10MHz. The coverage I wanted of the 7MHz amateur band was achieved by adding about 390pF in fixed capacitance across the polycon, plus a 60pF pre-set for fine tuning. Experimentation is all, and different coverage and tuning range can be achieved by choosing the appropriate capacitance.



The basic layout of the magnetic loop antenna built by G4SLU.

Clive G4SLU received good signals on his home-brew magnetic loop antenna from his back garden QTH.



The antenna can be connected directly to 50Ω coaxial cable, with the outer connected to a point directly opposite the tuning capacitor, and the inner to a point half way along one of the other sides. I fixed a solder tag to the copper pipe and soldered the coaxial outer to that, to minimise the heat

applied to the coaxial braid when fixing it to the pipe. A self tapping screw holds the tinned inner of the coaxial in place. Its position could be adjusted for optimum matching, but in practice, especially as it's only for receiving, it probably isn't worth the effort.

In use, the magnetic loop is a very efficient antenna relative to its compact size. Ideal for use where space is at a premium, and with a degree of directivity that helps to isolate wanted signals from unwanted ones coming from other angles. As a measure of its performance, I was receiving stations as far away as Russia on my Kenwood TH-F7E with the antenna sat next to me on the settee of my ground floor living room in southern England.

Good signals were also being received when I used the set up in my back garden. I'd have gone out on the hills, but it was mighty parky that day, so I stayed at home!

Next Month

Next month I'll supply some specific details of the construction, so if you're interested, here's the shopping list:

- 1.6m 15mm copper pipe
- Four 90° solderable joints
- p.c.b. (single or double sided) approx 100 x 30mm.
- Small self tapping screws
- Cable ties
- Approx 1m white plastic drain pipe
- 200pF Polycon variable capacitor (Maplin FK78E or equivalent)
- Ceramic capacitor(s) - 390pF for coverage of 7MHz band
- 60pF trim capacitor
- 2m RG58 coaxial cable
- Plug to connect coaxial to receiver
- Knob

Spratly Island - Safer Today?

Between Vietnam and Borneo in the South China Sea is Spratly Island, on which half a dozen Philippine amateurs should be operating as DX0K until late April. It's worth remembering that disputes over the islands' sovereignty have been fierce at times.

In 1983 a boat carrying four German amateurs to the islands for a DXpedition was fired on by, it is thought, Vietnamese soldiers. Diethelm DJ4EI was killed in the attack and Gero DJ3NG died after nine days in a dingy. The next day the two remaining amateurs were rescued by a passing Japanese cargo vessel.

Listen out for John VE7JZ operating from Kaien Island until 30 April and Nicola I05NY operating as JT1Y from Mongolia, or as JT1Y/4 from the Gobi Desert, between 21 April and 10 May. Lastly, Jean-Marc F5SGI will be F5SGI/P as he operates from Batz Island from 30 April for a week.

● **Peter Bond** c/o Editorial Offices,
Broadstone

● **E-mail** skyhigh@pwpublishing.ltd.uk

A new piece of airspace was introduced on 20 January 2005 called the Northern Oceanic Transition Area, (NOTA). It is located off the northwest coast of Ireland and borders the Shannon FIR to the south and the Scottish FIR to the east. By an agreement between the UK and Ireland Aviation Authorities, it will take over the responsibility for this Oceanic entry area from Shanwick Oceanic. This is basically for the area between 54 North and 57 North. It will be operated by Shannon Control using the new frequencies of 122.975 and 125.875, (see the map on page 53).

AAC Callsigns

Last August saw the Army Air Corps restructure their aviation callsigns into a more logical progressive numerical sequence. This meant that 2 Regiment would use callsigns in the AAC 200 range, 4 Regiment would use the AAC 400 range, etc. Several readers have conducted some research into these callsigns to see if the full ranges in each block were in operation and also to see if specific blocks within each range were used by individual AAC squadrons.

I have waited some time before presenting this information as for several months it was rather sketchy on detailed information. The second listing shown below is the AAC callsign ranges that have been reported by our readers up to the end of January 2005, (some of the ranges appear to overlap). These figures are by no means complete, but they do start to give a guideline as to which AAC units use which callsign numeric ranges. The theoretical callsign allocations are shown in **Table 1**.

The range from AAC 001-099 appears to be a general allocation used by many Regiments and Squadrons. However, the

callsigns AAC 014-015 have been noted on several occasions in use by 8 Flight at Hereford. It is assumed that the range from AAC 100-199 are allocated to 1 Regiment at Gutersloh in Germany, but as yet there appears to have been no reports of 1 Regiment using these callsigns. There have however been a couple of unconfirmed reports of UK units using this range.

The callsign range AAC 600-699 may be allocated to the direct reporting units that are not attached to a primary Regiment. Once again there have been a few reports, (some unconfirmed), of callsigns in this range, shown in **Table 2**.

If anyone can add information to the listings I would like to hear from them. With thanks to **Carl C, Brian W, David and Photavia Press** for their help with this information.

Mildenhall/Fairford

Following up my comments last month regarding the summer closure of the USA military presence at Frankfurt Rhein-Main and the possible increase in transport movement at Mildenhall, (especially C-17s). My source now tells me that there may be a partial rethink on this plan and some of the movements may now route via Moron in Spain - watch this space!

In December the USA military also withdrew from their facility at the French Air Force base at Istres in the south of France. This was not only a forward operating location for KC-135s but also a transit base for several types, most notably U-2s. As a consequence of the withdrawal, one could speculate that Fairford may now see increased U-2 activity as it has all the facilities to accommodate this type, (including the new climate controlled B-2 hangers). This theory may possibly have been borne out as a flurry

of U-2 activity took place in late February, (flurry being the right word considering the snow around the UK during that week!).

DRAGON 21 arrived at Fairford on the 22 February, departing the next day as DRAGON 61. A short time after DRAGON 61 departed, DRAGON 51 was heard inbound to Fairford, departing with the same callsign later that day. DRAGON 31 was heard inbound on the 24 February as was DRAGON 25.

On the 25 February, DRAGON 63 departed Fairford at 0800 heading north with London Military on 254.275. He reported in on DRAGON OPS that he was "In the Green and that was it for him for the next 11.5 hours"! He was handed off to Scottish Mil on 259.725, "climbing FL600 and above" and could be clearly heard from my home on the south coast of England! Also on the 25th was DRAGON 65, (I am literally typing this live as I listen in), he climbed out of Fairford on 127.45, direct Glasgow. He was handed off to Scottish Military on 268.575, "climbing above FL600". It's rather good getting clear u.h.f. reception from over 800km away!

All of the aircraft were heard calling in on 379.475 which is DRAGON OPS at Fairford. So, not a bad couple of days for Fairford regulars, hopefully this will be the start of regular U-2 and possibly B-2 movements during 2005! If they are sending the U-2s back to the USA, will others follow eastbound to take their place?

Robin Hood Rides Again

Whilst it was sad to see the closure of RAF Finningley several years ago, it is very good news that the airfield is to be reborn as a substantial civil airport. Whilst I have seen several different descriptions of the actual title of the airfield it seems that the official title will be, Robin Hood Airport, Doncaster Sheffield.

From 5 March the airfield Air Traffic Zone will be active using just the Tower frequency

Table 1. Theoretical Allocations

AAC 001-099	Various	Various	Various	
AAC 100-199	1 Regiment	Lynx AH.7	Gutersloh	All Squadrons
AAC 200-299	2 Regiment	Various	Middle Wallop	All Squadrons
AAC 300-399	3 Regiment	Various	Wattisham	All Squadrons
AAC 400-499	4 Regiment	Gazelle/Lynx	Wattisham	All Squadrons
AAC 500-599	5 Regiment	Various	Aldergrove	All Squadrons
AAC 700-799	7 Regiment	Gazelle AH.1	Netheravon	All Squadrons
AAC 900-999	9 Regiment	Various	Dishforth	All Squadrons

Table 2. Reports

AAC 001-099	Various	Various	Various	
AAC 014-015	8 Flight	Gazelle AH.1	Hereford	Range noted so far
AAC 200-229	2 Regiment	Squirrel HT.2	Middle Wallop	670 Sqn
AAC 233-251	2 Regiment	Gazelle/Lynx	Middle Wallop	671 Sqn
AAC 280-292	2 Regiment	Apache AH.1	Middle Wallop	673 Sqn
AAC 300-353	3 Regiment	Lynx AH.7	Wattisham	Often 652 Sqn
AAC 351-381	3 Regiment	Gazelle AH.1	Wattisham	Often 663 Sqn
AAC 501	5 Regiment	Various	Aldergrove	Comm/Officer?
AAC 502-533	5 Regiment	Lynx AH.7	Aldergrove	Often 655 Sqn
AAC 538-579	5 Regiment	Hazelle AH.1	Aldergrove	Often 665 Sqn
AAC 582-599	5 Regiment	Islander AL.1	Aldergrove	Often 1 Flight
AAC 642-656	657 Sqn	Lynx AH.7	Odiham	Range noted to far?
AAC 676	667 Sqn	Gazelle/Lynx	Middle Wallop	Range noted so far?
AAC 700-750	7 Regiment	Gazelle AH.1	Netheravon	Often 658 Sqn
AAC 755-771	7 Regiment	Gazelle AH.1	Netheravon	Often 3 flight
AAC 775-790	7 Regiment	Gazelle AH.1	Netheravon	Often 6 flight
AAC 900-950	9 Regiment	Gazelle/Lynx	Dishforth	Often 672 Sqn
AAC 954-961	9 Regiment	Apache AH.1	Dishforth	656/664 Sqn
AAC 966-967 ?	9 Regiment	Gazelle/Lynx	Dishforth	672 Sqn?

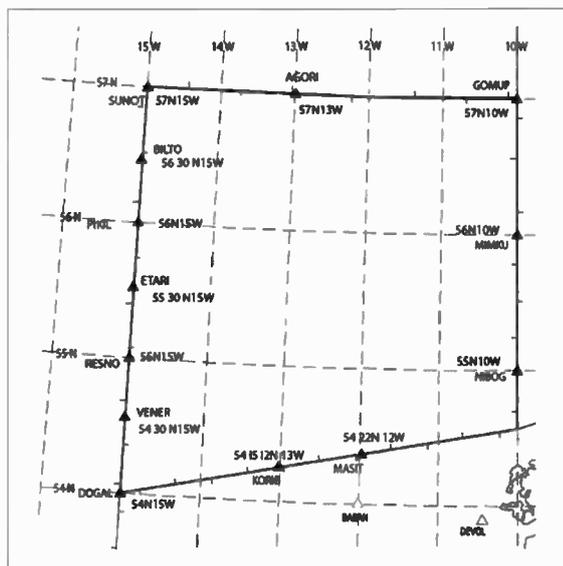
and as I write this in the last week of February it is currently planned for the airfield to become fully operational to Air Traffic on 16 March. Several airlines have already committed themselves to operating from the new airport, including Ryan Air, Thomas Cook and Thompsonfly.com. The first scheduled airline movements are expected to start from 28 April.

I must say it is good news to see a new venture of this type being put into operation, it must be the first airport of this type to be opened in the UK for many years. (I can't think of the last one?). It is good to see that some people still have the foresight to put faith and money into what is a major new project - I wish them success for the future. So a new source of listening opens up for the airband enthusiast. The AIRAC of 16 March gives the following information for the new Robin Hood airport:

ICAO Code	EGCN
Runway	02/20 (2891 Metres)
ATC Callsign	Doncaster Tower
Localizer/DME	110.95MHz (Ident 'IFNL')
Glidepath	330.65MHz (Ident 'IFNL')
NDB	338kHz (Ident 'FNY')
Approach	126.225
Radar	129.05
Tower	128.775
Fire (Ground)	121.6
ATIS	134.95

RIAT 2005

My local contact at Fairford tells me that there is a definite plan this year to produce aircraft of quality rather than quantity. After a steady decline from the heydays of the 1990s there is



an effort in place to increase the number of aircraft present from the former eastern block countries. An early participants list seems to compound this with already a number of interesting items appearing as follows: Estonian Air Force Antonov AN-2, Lithuanian Air Force Mil-8, Polish Air Force Antonov AN-26 plus two Sukhoi SU-22 Fitters, Romanian Air Force C-130B plus four Mig-21 Fishbeds, (also at the Waddington show if all goes to plan).

Also interesting to see an Italian Air Force Boeing 707 on the list, I would guess it must be the aircraft's swansong as it can't be too long before they are up for retirement. The first of their replacements, the new Italian AF Boeing 767s are due to be delivered later this year. If it is delivered, before Fairford, perhaps they could send a B767 to the RIAT as well? So, not a bad start for a February participants list, there is still a long way to go and of course the list will change but it does look promising.

If anyone from the RIAT reads this column, any chance of a Mig-25 Foxbat or a TU-22M Backfire - please?!

Snippets Of Info

Ron P E-mailed me asking about the callsign GUINNESS, which he had heard recently. I can answer this one as it is Hercules from the Lyneham Training Wing.

The new 8.33kHz London Control frequency 132.84 remains silent, (whenever I have listened).

On 22 February a new callsign was reported as COSMO 02, my correspondent suggests that it sounded like a RAF Harrier, any ideas?

An anonymous reader has reported 372.65 as a new Middle Wallop Air-to-Air frequency, possibly replacing 243.5, which hasn't been heard for some time. I am a bit dubious about this report as it is also the frequency for Yeovilton Tower and it seems very unlikely that they would allocate the same frequency to airfields so close together. Can anyone confirm it?

Landivisiau

A request last month from Rob M regarding the French Navy airfield at Landivisiau has brought two swift responses. My thanks go to Andy T and Martin who both sent me detailed replies. Their information is too detailed to include here but I have forwarded it to Rob. Briefly, it shows that photographs can be taken under both approaches although one is a bit distant, it is also possible to get good taxiing photos on the western end. If you are travelling abroad, use a bit of discretion don't forget my warning about the Gendarmes!

Propagation

Forecasts

- Jacques D'Avignon VE3VJA
- E-mail: Jacques@pwpublishing.ltd.uk

How to use the Propagation Charts

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

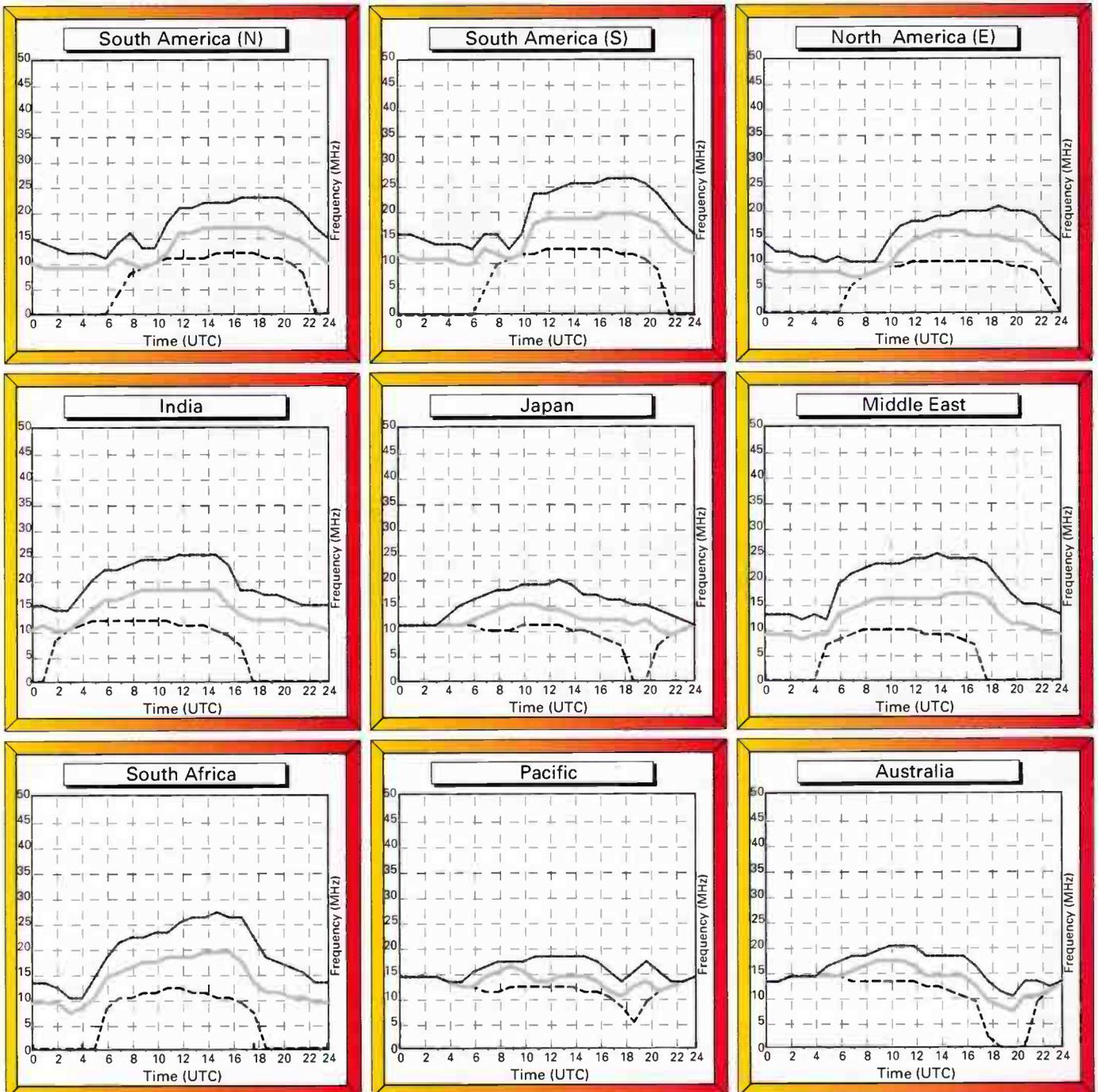
The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

Lastly, the upper dashed line represents the maximum usable frequency (MUF), a 50% probability of success for the path and time.

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

Good luck and happy listening.

April 2005
Circuits to London



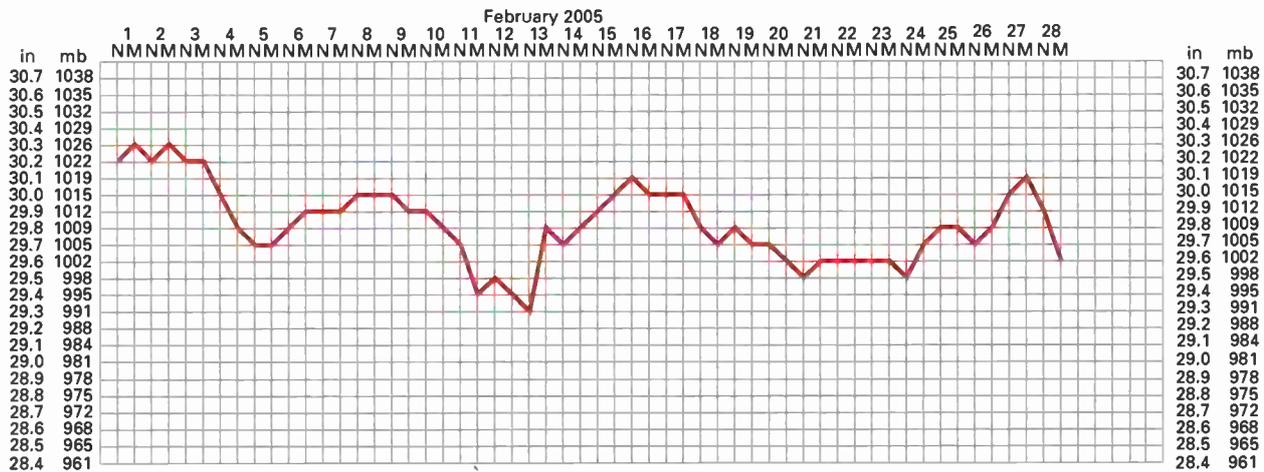
SK10085

Propagation

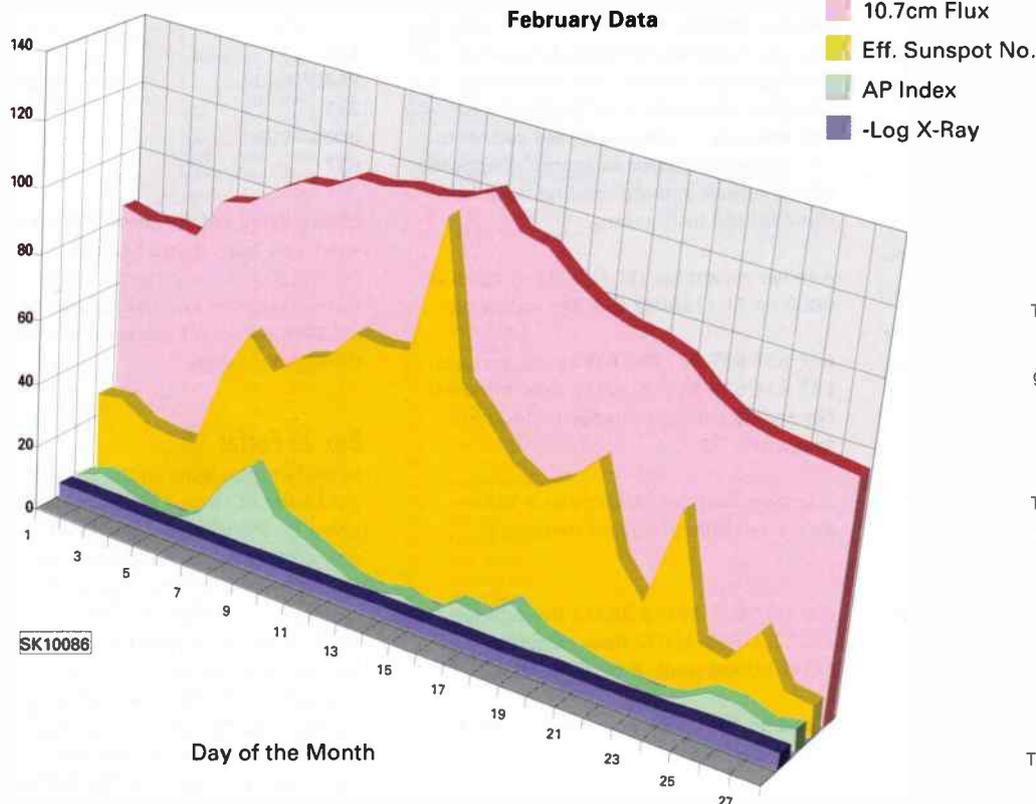
Extra

● **Kevin Nice** G3UNR, BRS95787,
SWM Editorial Offices, Broadstone
● **E-mail:** kevin.nice@pwpublishing.ltd.uk

Ron Ham's barometric pressure chart, taken at Storrington, W. Sussex, February 2005.



February Data



guide to the chart

The 10.7cm solar radio flux is used as an indicator of the general level of solar activity. The K and AP indices are measures of geomagnetic activity. The K index ranges from zero (very quiet) to nine (severely disturbed). K values of five or greater correspond to geomagnetic storm conditions that can relate to poor propagation conditions. The AP index ranges from 0 to 400. An AP of 30 is the threshold for geomagnetic storm conditions.

Attn' 123

● **Enigma** 17-21 Chapel Street, Bradford, West Yorkshire BD1 5DQ. **Fax:** (01274) 77004
● **E-mail** enigma@pwpublishing.ltd.uk

In our last column we mentioned the return of S25, which had ended its daily transmissions in 1998. A Russian ENIGMA 2000 member logged this station on 24 August 2003 (0755 on 7.651MHz) using an SN of 437 and again on 24 September 2004 (1540 on 8.025MHz, SN 245). A Dutch monitor then



logged the same station on Thursday 7 October 2004 at 0800 on 11.115MHz. The transmission was as follows:

0800: 637 637 637 58124 58124 (all repeated for four minutes)
0804: 637 637 637 59064 59064 (all repeated for four minutes, no ending)
No ending suggests change to another frequency - see later.

This format closely followed that used in the 1990s, the main difference being the much shorter duration - eight minutes as opposed to the earlier 40 minutes.

The 1990s operation was daily and always used the same Schedule Number (615). Its format was as follows - each section being repeated for ten minutes:-

Transmissions began at 0800 on 14.890MHz...
615 615 615 xbcy (where xbcy represents a non-random 5-fig. group)
615 615 615 xdefy xdefy
...then followed a quick change in frequency to 11.270MHz...
615 615 615 xghiy xghiy
615 615 615 xjkly xjkly
615 615 615 00000 (this ending sent once)

A distinctive feature of these transmissions is that the four 5-figure groups sent each day were non-random. For each daily transmission the first and last figures of these groups (x and y above) were selected from a fixed number of pairs, the same pair being used for each set of four groups. On the following day, another pair would be

used in the same way. As far as I can remember there were only around ten different pairs in use between 1994 and 1998. In the groups given above, the digits represented by abc def ghi jkl appeared to be completely random (0 to 9) were sometimes paired and rarely tripled. During this period, the same Schedule Number was used throughout because the schedule remained constant. However, before then, other SNs were used whose times and frequencies differed accordingly.

The station used the same voice as one of the S6 voices. Occasionally variants S25A and S25B would appear, and in these cases, transmissions would sometimes last for several hours. Briefly, S25A included stutter groups such as 11111, 22222 or 33333 in various sections. S25B, as well as stutter groups, included messages. These messages followed the same format as the normal Family I stations, such as S6. A rare variant was S25C, which only sent a single 5-figure group on 14.720MHz. Before 1994, other schedules had been used, and their schedule numbers differed accordingly.

S25 is classified as a control or non-message station. That is, it doesn't send the typical encrypted messages associated with most numbers stations, but sends short pieces of intelligence for purposes unknown. Such stations would appear to be directed to groups of agents as opposed to individuals and are sending them brief standardised instructions.

Another recent log (11 Oct 2004) again at 0800 on 11.115MHz sent the following:

637 637 637 34392 34392 (four minutes)
637 637 637 36912 36912 (four minutes)
No ending suggests change to another frequency.

...and on Tuesday 26 October a S25A appeared (same time and frequency):

637 637 637 38312 38312 (four minutes)
22222 37052 37052 (four minutes)
11111 00000 (sent once at 0808)

...and on Tuesday 2 November (same time and frequency):

637 637 637 30852 30852
44444 37062
44444 31572

11111 00000 (sent once at 0812)

After summer time ended, the station reappeared at 0900 (keeping to CEPT and the same frequencies, just as it did in the 1990s). Therefore, it uses the same SN:

637 637 637 30752 30752
22222 (0904z)
31632 (repeated four times)
11111 00000 (0908z)

7 December: 637-30752, 22222, 31362 rep, 11111 00000

9 December: 637-53924, 637-58204, 22222-50764, 22222-57824, 00000

It would appear that this return of S25 follows very similar rules as did its earlier incarnation. (Numbers stations in general are very conservative in their habits). Note that there could well be three or more schedules operating at present. The recent logs give three, and as expected, they all use different SNs.

Time	MHz
SN	
0755/0855	7.651
437	
1540/1640	8.025
245	
0800/0900	11.115
637	

Please listen out for these and let us know what you hear. If you hear no ending (ie. 00000) search for a continuation of the transmission on another frequency, say ± 2.5 MHz. (Signals are good to strong throughout Europe).

Box 25 Forfar

In reply to the letter in the January 2005 SWM, the PO Box 25, Forfar address was given on the website concerned - and by an ex-RSS worker. Another ex-RSS now living in Strathkinness, not far away, confirms this. Of course, the PO Box 25, Arkley complex address has been well known for some years. Maybe its coincidence that both addresses were so similar - maybe not! SCU3 Gilnahirk became a CSO station after the war, Hanslope was taken over by the newly-formed Diplomatic Wireless Service (which later became HMGCC) and is now known simply as FCO Hanslope.

Scanner

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- PC programming capability
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This month I'm going to continue the maritime theme with more details on the Automatic Information Systems (AIS). At the time of writing, the only readily available software I've been able to uncover is *Ship Plotter* by COAA. This has been designed with the enthusiast or small boat owner in mind, so is very reasonably priced. An added benefit of the design approach is the fact that the decoding is done using audio via the soundcard. That feature combined with a free availability of a demo version means that this program is very easy to try.

If you should decide this mode is for you then registration for unlimited usage is very reasonably priced at just 21 Euros plus VAT. Installation is a breeze and the 1MB download file includes a full self-extraction and installation routine. The latest version is v4.7 and this includes a number of useful enhancements to make the overall experience better. To get your review copy just follow this link: www.shipplotter.com/

To help you get going, there's a very useful FAQ on the *Ship Plotter* web page and I would recommend you read this before you start. There is also a Shipplotter user group, but it's tucked away in the Yahoo user groups and you have to sign-up - too much hassle and yet another password plus a source of spam, so not too keen on that route.

Getting Going

One of the most obvious improvements in the latest, 4.7 version, of the program is the inclusion of a very good signal monitor. I've shown a screen shot so you can see what I mean. The monitor provides a very clear view of the incoming signal and certainly helps make sure you have a signal getting through to the soundcard of the right level.

Getting the level right is really important as any overload results in hard clipping of the signal. This is a particularly nasty form of distortion that will certainly mess-up your attempts to resolve AIS data so it's vital to get the levels right.

On the receiver front the AIS signal presents a few challenges! The modulation system employed uses what's known as baseband signalling. That means it uses all the frequencies from d.c. through to around 9.6kHz - somewhat more than traditional commercial speech channels that are normally configured for 300Hz to 3kHz at best! In practice, the AIS signal has very little

content close to d.c. but you will need a receiver that can handle audio down to around 30Hz. This is still way outside the normal specification for a scanner so may present a particular problem.

The ideal solution is to take an audio feed direct from the discriminator stage of your receiver. Fortunately, this requirement pre-existed AIS as many pager signals also employed very low frequency elements. Because of this you will find details of how to extract a discriminator output in the various locations on the Internet. I did a quick look around and come up with the following.

www.discriminator.nl/index-en.html or www.mods.dk/ (for more information see next month's *SWM* - Ed.)

With the receiver ready to go, you can start looking for suitable AIS signals. The other important consideration for AIS work is your proximity to the coast! As AIS is transmitted in the v.h.f. maritime band (162MHz) the signals basically need a line-of-sight path. That doesn't necessarily mean you have to be able to see the ships but you will need a reasonably clear path between your antenna and the sea. The range of the AIS signals will rarely exceed 80km, so you need to be relatively close to the coast.

If your location is borderline, there are a

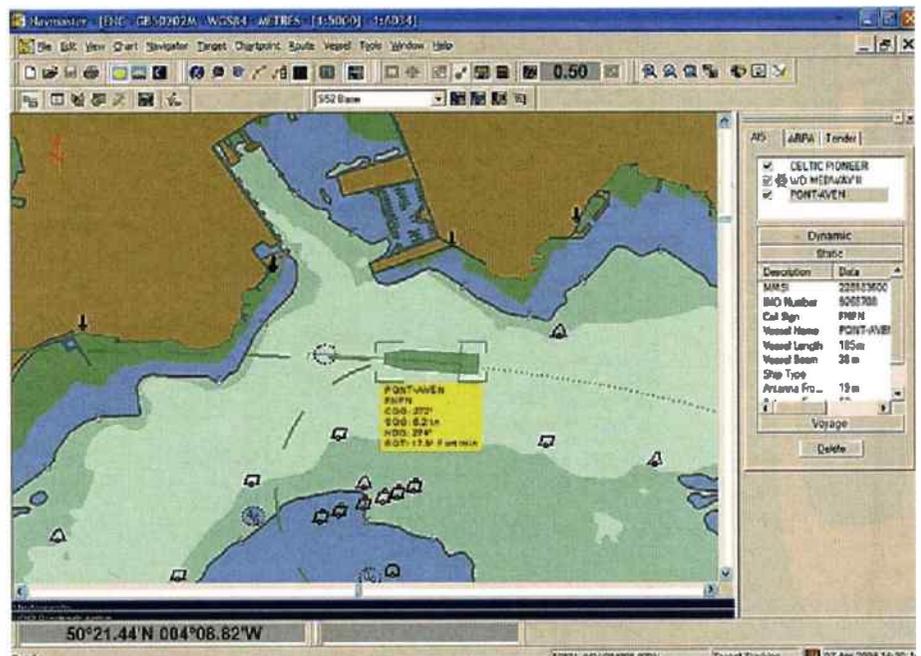
few things you can do to help. First is to get your antenna as high and as clear as you can. Second, you may want to consider using a beam antenna. These can provide significant forward gain and could be useful if you have a busy port or shipping lane that you want to monitor closely.

If you want to keep the costs down, you could try building your own antenna. There are lots of amateur designs around for the 145MHz amateur band and these usually include the formulae so you can modify for different frequencies. If the formula is not provided you can get by if you proportionately reduce all the antenna dimensions (145/162 i.e. 0.895).

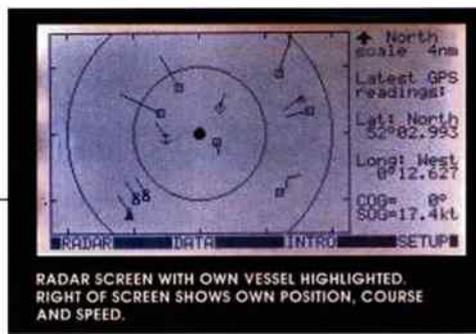
Having jumped through all the hoops and got your station ready to receive you need to be aware that tuning an AIS station is fairly critical so if everything seems to be in order but you still can't resolve messages try altering the tuning very slightly to see if things improve. Once you've found the 'sweet-spot' you'll be well away and can start enjoying monitoring the local activity.

Shipplotter Maps

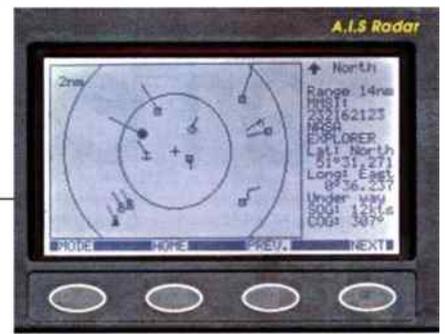
Once you've played with *Ship Plotter* for a while you will soon become frustrated by the limitations of the supplied map - don't panic! Thanks to some excellent work by Hal Mueller at Mobile Geographics you can build



Navmaster AIS - Commercial AIS software.



Nasa AIS display.



The New all-in-one AIS Receiver.

customised maps to cover your area in great detail. The first task is to visit Hal's website that can be found via the *Ship Plotter* site or by following this link:

www.sailwx.info/maps/shipplotter.phtml

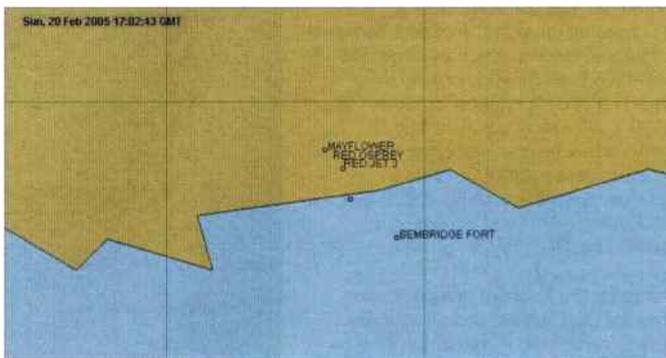
When you get there you will see a map showing North Africa and Southern Europe with a series of boxes showing the map coordinates. To build your own customised map you just enter your parameters into the boxes and click the Redraw map button to get the new map. Let me take you through drawing a map to cover the Solent and you will see just how easy it is. The first task is to set the Latitude and Longitude for the required area. For the Solent I've chosen 50.8°N and 1.3°W.

These are entered into the Latitude and Longitude boxes as decimal numbers but, because the Longitude reference is West it needs to be entered as a negative, i.e. -1.3. Once entered you can click Redraw to make sure you've entered the correct data. If all is well, you should get a new map centred on the Solent. This is still too large a map, so we need to zoom-in. This is done by changing

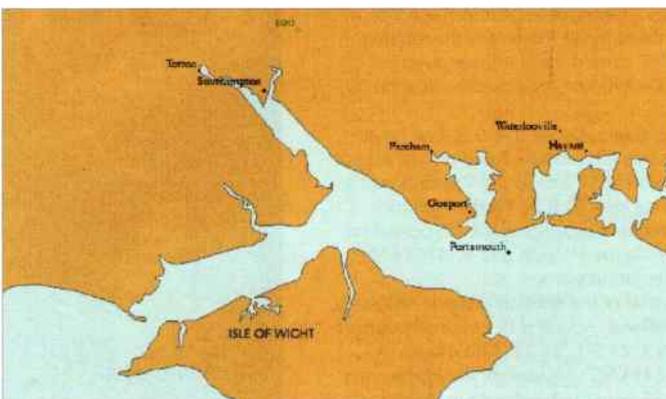
the map radius and a better setting would be 10 nautical miles as this will provide ideal coverage of Southampton and Portsmouth docks plus the approaches through the Solent.

If you have a large screen display you may also want to change the image size in pixels, but I would leave that for now. When you've finished adjusting the map you need to save the detail so you can use it in *Ship Plotter*. This is a two stage process, as you have to save the map image and the reference points separately. To save the image, right-click on the map and choose 'Save Picture As'. Choose a name for the file and save it as a BMP file and put it in the *Ship Plotter*. Charts folder. The next step is to save the coordinates - this is the text data that you'll find below the chart - usually starts something like this: Point00,xy,0,0,in,deg,50,57.97,N,1,44.27,W

Left-click and drag your mouse to select the coordinates and then copy to the clipboard (right-click, copy). Next open-up a simple text editor - *Notepad* is best. Paste the copied coordinates into *Notepad* and then save the file as *solent.clb* (you can obviously change the name to suit your map). The .clb file should also be saved in the *Ship Plotter*, Charts folder. With the map details safely stored away you can open *Ship Plotter* and try it out. Once the program is running, choose 'File Load map; and you should find your map in the list. Load it and you should be in business.



Navicon's Java Demo.



Customised map for Shipplotter.

their website you will see some of the products they're working on as well as an interesting Java demonstrator that can be downloaded and run from your desktop. The AIS demonstrator uses basic OpenSource mapping and plots current ship positions and details. It's an alternative (though not as detailed) to the AISLive Website I showed you last month. Here's the web address:

www.navicon.dk/web/uaisdemo.php?pageid=104

If you want to consider a more sophisticated software package than *Ship Plotter* you might like to take a look at *PC AIS Shiptracker* that's available from Dolphin Marine. The package costs £149 plus VAT but the only drawback is that it needs to be fed with a decoded AIS data stream. This would require a special AIS receiver and these tend to be pricey. If you want to take a look here's the website: www.dolphinmaritime.com/pcwin/wpcaishiptracker.htm

An alternative PC solution but with the same input limitations is the *Navmaster AIS Viewer* from PC Marine. I don't have a current price, but suspect it will be similar to the Dolphin product. Here's the website: www.pcmaritime.co.uk/comm/index.htm?/comm/charting/aisviewer.htm

AIS The Easy Way

If you want to get AIS with minimum effort you might like to consider the all new Nasa Marine Instruments AIS Radar Receiver, which is due for launch sometime this year.

The AIS Radar Receiver is a completely stand-alone receiver, AIS decoder and display system all in one neat package. As you can see from the pictures the Nasa instrument provides a simple radar-like display of ship activity. Although this is very attractive for leisure mariners, the only weakness for us is that it doesn't include any mapping so you can't see the coastline, just the ship activity. The price is likely to be around £259 so is pretty competitive when you compare it with other commercial offerings.

www.nasamarine.com

Commercial AIS

As you would imagine there's lots of commercial activity in the AIS field and one of the leaders in software development is Navicon in Germany. If you pay a visit to

AIS Finale

So far it's taken a lot of searching to find the information for this column but it looks as though the growing interest in AIS is likely to spark a number of new products over the coming months. If you hear of any new software or dedicated receivers please drop me a line with the details so I can pass it on.

Satellite

TV News

- **Roger Bunney** 35 Grayling Mead, Fishlake, Romsey, Hants SO51 7RU
- **E-mail:** rogerbunney@pmpublishing.ltd.uk

The greatest satellite activity recently has been due to the Iraqi elections. Election day itself was Sunday 30 January. Several days prior the broadcasters were setting up additional satellite uplinking equipment over several satellites.

APTN for example were using at least three circuit paths on different frequencies over *Eutelsat W1*, 10°E. Sunday presented numerous Iraqi feeds over *Eutelsat W2*, 16°E, *W1* 10°E, *W3A* 7°E and *Intelsat 10-02* 1°W. The EBU/Reuters circuits concentrated over 7°E, but the American networks opted for 1°W. 'ABC IRAQ MOBILE' were using the UKI flyaway terminal 'UKI-690' under the service id 'SCOPUS-NET-TE' (11.665GHz-V) though still maintaining their regular circuit 'ABC SCOPUS' (11.677GHz-V) and a 'SERVICE 1' were running footage over 11.671GHz-V - all these were using 525-line NTSC at symbol rate (SR) 4000 + Forward Error Correction (FEC) 3/4. 'NEWSLINK' were also prominent on 1°W @ 11.632GHz-V (3199+3/4) in 625-line PAL. Perhaps the most interesting feed appeared during the afternoon over *W2*, 16°E when 'KURDSAT SNG' appeared at 11.099GHz-H (5632+3/4).

One interesting news circuit noted 27 January, Don Murray of CBC, Canada transmitted an updating report back to Montreal over 10°E, 10.961GHz-V (4167+5/6).

Intelsat 801 is a quiet satellite at 31.5°E it carries various French national outside broadcast (OB) feeds for TF1 and sporting action Sky Sports and other UK networks. On 28 January a curious OB was received from an outside venue with a small tribe of dancing and chanting Red Indians from the wild west of America on open air stage. Other conventional pop acts followed later and it transpired to be a fund raiser in support of Tsunami relief. Interestingly the uplinking crew was not a French unit but 'UKI 364' with 'UK 914 - BT-TES 29' over 10.999-V (6109+3/4).

Littlehampton reader **Edmund Spicer** wasn't well at the end of last year. He's improving this year, we wish him well. Rainwater had entered his external DiSEqC switcher so currently one receiver is 'hard wired' to the *Hot Bird* slot @ 13°E though can also access another hot spot in the sky, the *Astra 1* at 19.2°E. There's much going on via these two if you know where to look. Israeli satellite uplink company 'R R SAT' have two frequencies active on 13°E, Edmund notes 11.013GHz-H (27500+3/4) carries broadcast TV programming - 'FEEDS' - switching on about 1700 with Middle Eastern content. 'R R SAT' also lease the 10.992GHz-V (same spec). *Astra* @ 19.2°E was the original 1989 slot for analogue Sky TV pre digital from 28.2°E. There are still both analogue and digital available over 19.2°E. With the excitement of the recent Saturn moon Titan landings. The European Space Agency (ESA) provided progress reports and updates over 10.823GHz-H and 12.552GHz-V (both 22000+5/6). The former frequency usually carries colour bars with an 'ASTRA' identification, so it's easy to find. Elsewhere on *Hot Bird* 11.221GHz-H (27500+3/4) is running transmitting 'OCCASIONAL 1' and 'OCCASIONAL 2' with the Spanish 'Telefonica' PM5544 test card preceding perhaps programming or feed carriage. 'GLOBECAST 1' and 'GLOBECAST 2' have also appeared on 13°E @ 12.597GHz-V (27500+3/4) with a blank screen, stay tuned.

A final note from Edmund and his successful reception of the Israeli *AMOS* satellite at 4°W. The two *Amos* satellites provide spot beam coverage into Israel - centred on Tel Aviv - and a second wider footprint centred on Budapest. The UK is well into the outer footprint contours of the Eurobeam footprint (Wirral 32dBW, East Kent 45dBW) though *Amos* can be found with careful tuning, signal levels tend to vary over

the day, subject to rain fade on a smaller dish (800mm in Sussex). There are many Russian programmes on the Eurobeam such as 1+1; OTV; TV KIEV; NBM; KNIB (Kiev), etc., the lowest bouquet being at 10.762GHz-H (23250+3/4) - check out the www.lyngsat.com or www.telesatellite.fr websites for channel details.

In early February the yachts in the *Vendee Globe Race* returning to the harbour at 'Les Sables D'Olonne', spread over several days. 'TF1 SNG1 LCI VIDEOMOBILE' were running pictures into French network TF1 from the marina @ 11.018GHz-V (6109+3/4). The only 'regular' signals carried over 801 seem to be German weather channel inserts, throughout the day and early evening, 10.993GHz-V (5632+3/4) they leave the air during downtime.

An old friend 'BT TES-42' reappeared on 18 January. 'TES-42' was one of the BT trucks permanently leased to GranadaMedia until last September when BT lost the satellite news contract to SISLink. [remember 'TES-43' and '8MBI' for Meridian, 'TES-41' for Harlech] Well, 'BT-TES-42 UKI-586' appeared one evening at 11.763GHz-H (13328+7/8) over *NSS-7* @ 21.5°W - nothing happened, the signal was there but no picture, it remained for over an hour and then switched off. One trans-Atlantic occasion however provided considerable glitter!

Noting 'GlobeCast' above, *Atlantic Bird-1* @ 12.5°W carries strong signal bouquet at 11.016GHz-H (20145+3/4). Late 2004 the bouquet went from a 3-ch to 5-ch bouquet and now the channel content seems to have established with channels 1, 2, and 3 running 625-line PAL and channels 4 & 5 with 525-line NTSC. Signals are strong, easily received in the UK with an 800mm dish. As previously reported, many of the regular customers on the *Eutelsat 2F3* satellite have moved away with the arrival of the on inclined *Eutelsat W3* satellite. Many settled on another inclined orbiting satellite, *Intelsat 603*, which is running up to 2.2° inclined. More recently some BBC regional feeders - such as news and magazine programme OBs have moved onto *Atlantic Bird 1* - check 11.015-11.120GHz either V or H with SRs typically 4194 or 8190 + 7/8 - most now use MPEG-4:2:2, which generally cannot be resolved other than with professional receivers (circa £2000) or with a Skystar computer receiver card. Meanwhile, check over the *Telecom 2D/AB-2* slot at 8°W for ITV feeds, not forgetting the *Intelsat 801* bird 31.5°W for occasional UK sports feeds.

January's relief effort for the Tsunami disaster sprang into action. **Roy Carman** (Dorking) viewed a Luftwaffe Airbus 310 loading with cargo and a large group of army specialist *en-route* to Indonesia from the Flughafen Bonn military airfield via a DFA newsfeed over *NSS-7*, 21.5°W - 11.579GHz-H (6111+3/4). Not seen in the UK, around the same period was a news package transmitted into Europe with Sri Lankans trying to identify the missing. *Europe*Star-1* @ 45°E carried these images over 11.575GHz-V (3200+3/4), the service identification 'SRI-LANKA_1'.

Groceries on the *International Space Station* have been running low since Christmas - Tesco do not accept on-line deliveries to the *ISS* - and so the Russians had to launch one of their rockets. **Rini de Weijz** (Holland) E-mailed several excellent pictures of the *ISS* operation to Roy, taken off-air via the 10.969GHz-V (4167+5/6) feeder over 10°E late January.

The war crimes trial of the Serbian dictator Milosovic still continues in Holland. Action is occasionally carried live over *Eutelsat W3*, 21.5°E, try 12.705GHz-H (4096+1/2) as 'B 92 HAAG'. Pictures of the Holocaust Memorial services 27 January Auschwitz in Poland were carried over *W3A*, 7°E on several frequencies.



Dan Rather reports live into NBC New York from Galle, Sri Lanka (45°E).



Evening approaches over Baghdad, election day (10°E).



Test card ex Los Angeles (10°E).



Red Indian pow-wow over French TV (31.5°W).



The Associated Press tuning logo (10°E).



John Locker has taken a photograph of the Astra 19.2E satellite fleet showing right hand - main fleet, left hand a possible drifting satellite from the fleet



Some of the equipment outboard from the Spanish Red Cross to the stricken areas of SE Asia.



January 26 10 24 04.JPG
The delivery of supplies to the ISS. Pic. - Rini de Weijz.

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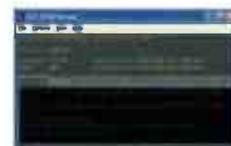
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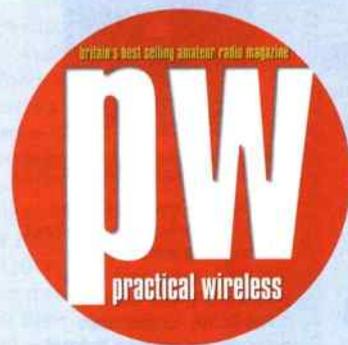
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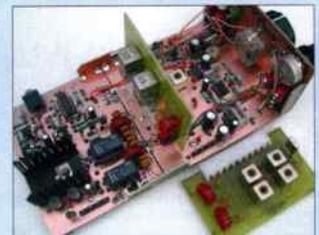
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