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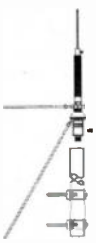

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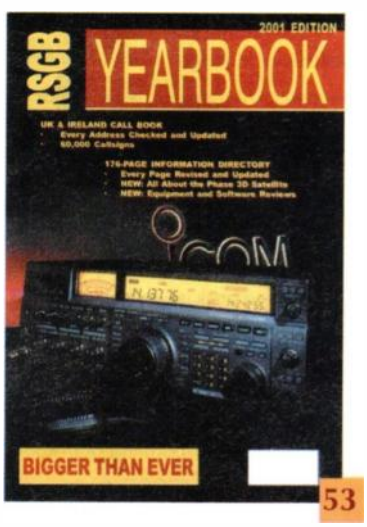

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Editorial

Editor	Steve Telenius-Lowe, G4JVG Tel: 01707 853300 Fax: 01707 645105 e-mail: rtoday@rsgb.org.uk
Technical Consultant	Chris Lorek, G4HCL e-mail: g4hcl@rsgb.org.uk

Production

Technical Illustrator	Bob Ryan, 2E1EKS
Cover Design	Suzanne Dunnett
Printer	Drogher Press, Christchurch, Dorset
Origination	JJ Typographics, Southend, Essex

Sales

Subscriptions	Call the One Stop Shop on Tel: 01707 853300 e-mail: sales@rsgb.org.uk
Advertising	Jan Forde Advertising Sales Executive Tel: 01707 851199 Fax: 01707 851206 e-mail: rtads@rsgb.org.uk
Advertising Production	Annie McVicar

Management

General Manager	Peter Kirby, G0TWW
Publications Manager	Mike Dennison, G3XDV
Commercial Manager	Mark Allgar

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Incorporating *Ham Radio Today*.

ISSN: 1466-0911

This is the last Editorial I will be writing for *Radio Today*, as this is the last-ever issue of the magazine. The sad news is that *Radio Today* is to cease publication with immediate effect. The reasons for this decision are spelt out in an official press release (carried in full on page 9) issued by the RSGB which owns the *Radio Today* title.

The problem was that, in the cut-and-thrust of modern commerce, stocking what will always be a minority-interest magazine was not of interest to bookstall wholesalers or retailers. We were receiving frequent reports that it was impossible to find *Radio Today* in any shop in, say, Bournemouth. We knew there were plenty of copies available in Luton, Cambridge or Newcastle - but that didn't help the potential reader in Bournemouth. In an ideal world we would have liked to have had a small number of copies - say just five or six - in every major newsagent outlet in the country, rather than a large number of copies in relatively few stores. But unfortunately this is not the way the magazine distribution business works.

So, pray forgive my self-indulgence while I take a look back on what I consider to be the highlights of the last 2 years and 10 months. Firstly, *Ham Radio Today* introduced the first free cover-mounted CD-ROMs on any UK radio magazine. The first one was in March 1998, and was so popular that we had three more, in July and October 1998, and March 1999. We have had competitions to win tickets for the Royal International Air Tattoo in 1998, 99 and 2000, through antennas such as the Cushcraft R6000 multi-band vertical and a Tonna 2m Yagi to the Arcam Alpha 10 digital radio tuner and a new Icom IC-746 base station transceiver, worth £1500.

The change in title from *Ham Radio Today* to *Radio Today* came in May 1999, to reflect the broader-than-just-amateur-radio content that the magazine already had. We increased the page count, first from 60 to 68, then, nine months later, increased it again, to 80 pages.

The *All in a Day's Work* series by Harry Leeming, G3LLL, was one of the most popular features and was elevated in status from an occasional feature to a regular monthly two-page column. *Broadcast Spectrum* was introduced to report on the rapidly-developing world of broadcast radio - digital, local radio and webcasting as well as good old shortwave.

Ham Radio Today was always famous for its PMR conversions and, despite some difficulty in finding suitable material, I was able to include a number of PMR conversion articles in *Radio Today* this year.

We were always proud of our reviews, with *(Ham) Radio Today* scoring numerous UK firsts and even the occasional world first. The 'user reviews' were popular, but the majority of readers prefer the 'full technical review' which our Technical Consultant, Chris Lorek, G4HCL, has made his own. I'm delighted to be able to report that Chris Lorek has agreed to continue reviewing equipment, in his inimitable no-nonsense way, but in the future they will appear in *RadCom* instead.

I will be taking over as editor of *RadCom* with effect from that magazine's November issue. I know many *Radio Today* readers are also RSGB members, so I will not be saying goodbye to them. However, if you are not already an RSGB member, there has never been a better time to join, with a special offer of three months free membership currently available - see page 5 for details.

For those *Radio Today* readers who are not members of the RSGB and who do not intend to join, I bid you farewell. I hope you have enjoyed reading *Radio Today* over the years and wish you and all readers good luck in your future radio interests.

Steve G4JVG

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1 new communications receiver FROM YAESU

Yaesu released a new LF to SHF communications receiver, the VR-5000, at the JA HamFair in Yokohama in August. The VR-5000 covers 0.1 - 2599.999MHz on LSB, USB, CW, AM-N, AM, W-AM, FM-N and WFM. The receiver is a 'desktop' size, 58Wx 95H x 240mm, and weighs 220g. The price in Japan is around £650. It is expected to be brought into the UK this autumn, and although no further details were available at the time of going to press we can expect to see the receiver for the first time at the Leicester show on 22 / 23 September.

2 german 10m single-band TRANSCEIVER

The new Albrecht AE485S is a German-made 10m multi-mode transceiver. Covering 28.0 - 29.7MHz with 25 watts power output on FM and SSB and 10 watts on AM, the transceiver has a programmable repeater shift and 100, 10 and 1kHz tuning steps. It is available at an introductory price of just £179.95. The Albrecht AE485S is available from ML&S Martin Lynch and Sons, 140-142 Northfield Avenue, Ealing, London W13 9SB; tel: 020 8 566 1120; Internet: www.hamradio.co.uk

3 qrp component company AT LEICESTER

Just too late for the September *Radio Today* came news that The QRP Component Company would be offering "all that is best in kits, keys and QRP" at the Leicester Show on 22 / 23 September. Kits by Howes, TenTec, Kanga and the new MFJ 'Cub' transceiver will be on display. Keys and keyers from Bencher, DK1WE, Kent, Logikey, Samson, Swedish Pump plus the TiCK keyer kits will be available for a 'test drive'. There'll be special deals on discontinued Howes and Wood & Douglas kits. The full range of AKD receivers, transceivers and filters will also e on display, including AKD's new active receive antenna. The QRP Component Company, tel: 01428 661501.

4 quartslab offering CREDIT CARD FACILITY

Ever since QuartSLab has been in business, they have only accepted payments by cheque or postal order from non-account customers. However, in response to frequent requests, especially from overseas customers, to pay for orders by credit card, this facility has now been introduced. QuartSLab is an excellent source for those hard-to-find crystals. Contacts QuartSLab Marketing Ltd, PO Box 19, Erith, Kent DA8 1LH; tel: 01322 330830; fax: 01322 334904; e-mail: sales@quartslab.demon.co.uk for details.

TRAD
TOP

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how to win THE CLUB 'FOXHUNT'

Forgive the jokey title - this is *serious* DF equipment! Doppler Systems Inc designs and manufactures radio direction finding equipment for amateur, commercial and government users. Fixed-site and mobile units are available for frequencies between 50 and 1000MHz. All Doppler Systems direction finders operate on the simulated Doppler principle, utilising a patented constant impedance, smoothly varying RF 'summing' unit for high sensitivity and high dynamic range. Three series, the 5900, 6000 and 6100, are currently offered. The new 5900 series is micro-processor controlled and accommodates signals up to 1000MHz. The main processing unit is contained in a low profile metal enclosure that connects to the receiver, the RF 'summer' and a remote display unit. The remote display is a miniaturised unit which presents the bearing in both an LED compass rose and digital format and the signal strength on a coloured LED bar graph. It also contains a loudspeaker, and it can be mounted on a car windscreen using a double pivoted mounting arm. The RF summer is housed in a separate sealed metal housing that is located near the antenna. Both fixed site and mobile antennas are available. All antennas use four monopole or dipole elements. For further details see the web site at www.dopsys.com or contact Doppler Systems' European Marketing Director, Mr Denis Egan, PO Box 2, Seaton, Devon EX12 2YS; tel / fax: 01297 625690; e-mail: dfden@aol.com

maplin MULTIMETER

The Maplin Pro 2 multimeter TE93 is a fully auto-ranging multimeter with the accuracy, quality and features demanded by professional engineers and serious hobbyists alike. In addition to the basic DMM functions (DC and AC volts, DC and AC current, ohms, diode test and continuity) it has additional features such as capacitance, frequency, duty cycle and min / max / average readings. The Pro 2 has a large digital display with an analogue bar graph and costs £79.99. For further information call the Maplin Electronics sale line on tel: 0870 264 6000 or visit the website at www.maplin.co.uk

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10m multimode MOBILE

Recent changes in the law have meant it is now possible for manufacturers to sell 10m monoband transceivers in this country. The 'President Lincoln' is a 10m single-band multi-mode transceiver. It covers 28 to 30MHz on SSB, CW, FM and AM, with 25 watts output on SSB and 10 watts on AM and FM. The Lincoln features a built-in SWR meter, 'S' meter, RF out meter, a separate jack for external S/RF meter, external speaker jack, scan facility, noise blanker / automatic noise limiter, SWR calibration knob and a 'roger beep' switch. Priced at just £225 the Lincoln is a very cost-effective way of getting going on the HF bands, either mobile or from a base station. The transceiver should become particularly popular at present, as we are at, or nearly at, the absolute peak of the current solar cycle, when the 10m band should provide the possibility of world-wide communications with relatively low power. The Lincoln is available from Nevada, Unit 1, Fitzherbert Spur, Farlington, Portsmouth PO6 1TT; tel: 023 9231 3090; fax: 023 9231 3091; e-mail: info@nevada.co.uk; Internet: www.nevada.co.uk

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scanning receiver SOFTWARE

Buytel is a small Dutch company that develops software for Icom and AOR scanning receivers. It has recently completed software for the Icom IC-R2 and also sells a programming kit containing software and an interface. Software is available for the AOR AR5000, AR8000, AR8200, AR8600 and Icom R2. PC interfaces are available for the AOR AR8200 and Icom R2 / R3 / R10 and Yaesu VR-500. At present Buytel sells directly to UK customers, but is looking for a UK dealer. For further details contact Gommert Buysen, PE1MTG, Buytel, PO Box 101, 4920 AC Made, The Netherlands; tel: +31 162 68 44 76; fax: +31 162 68 50 81; Internet: http://www.butel.nl

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Radio NEWS today

canadian national society lobbies for 5wpm morse

The Canadian national amateur radio society, Radio Amateurs of Canada (RAC), has asked Industry Canada - the Canadian equivalent of the RA - to discontinue that country's 12WPM Morse code requirement in favour of a 5WPM test. During the past year, RAC says it has consulted the Canadian amateur community on the issue, and its Board has concluded that a majority of Canadian amateurs support dropping the 12WPM test, although it does acknowledge that many are against the change. An RAC news bulletin said that: "A decision by Canada to drop the 12WPM test would be in harmony with what is happening in other parts of the world and would simplify the negotiation and implementation of reciprocal operating agreements." RAC President Kenneth Oelke, VE6AFO, has also requested that Industry Canada should consider 'beefing up' written tests to strengthen and expand the requirements for operator knowledge and skills in the areas of station set-up and operation, on-air procedures and operating practices, and to include more questions on modern modes of communication employed by radio amateurs. [*ARRL Letter.*]

biggest-ever uk dxpedition planned

The group that organised the UK's biggest-ever DXpedition to date - the 9M0C operation from the Spratly Islands in 1998 - is now planning to go one better. The group has formed the 'Five Star DXers Association', and is planning to operate from the Comoros, D68, in February 2001. The callsign D68C has already been assigned, and the plan is for an operation encompassing almost three weeks of operation, including three full weekends. There are two main objectives. Firstly, to provide the possibility for every amateur radio station in the world - even those running QRP or very simple antennas - to make at least one contact with D68. Secondly, to enable top DXers to put D68C in their logs on as many bands and modes as possible. The team expects to exceed its 9M0C total of 65,524 QSOs quite substantially. The date of the DXpedition has been chosen with propagation forecasts in mind, and should coincide closely with the expected sunspot peak. Good propagation to all major areas is expected on all bands from 160 to 10 metres. By operating over three weekends, the team expects to be able to work through the demand for the Comoros to the point where even the most modestly-equipped stations will have a good chance of contacts on several bands. Operation will take place on a minimum of six bands simultaneously and will use monoband directional antennas on all bands down to and including 80 metres, with an 85ft high Titanex V160 vertical on the water's edge for 'topband'.

The beach near the location for D68C next February, showing the excellent take-off towards Europe and North America.

wab launches new award book

The Worked All Britain (WAB) group, which this year is celebrating its 30th anniversary, is to launch its new awards book at the Leicester Amateur Radio and Computer Show on 22 / 23 September. Full details may be obtained from Sue Pearson, whose e-mail address is g0nlxsue@aol.com At this year's WAB AGM Brian Morris, G4KSQ, received the WAB Founders Trophy in recognition of his 20 years service on the WAB committee. WAB introduced the 'Sunrise 2000' award earlier this year to celebrate its 30th anniversary.

Brian Morris, G4KSQ, receiving the WAB Founders Trophy from Sue Pearson, G0NLX, with Kate Wragg, G0FEZ, assisting.

interested in propagation?

Gwyn Williams, G4FKH, the Vice-Chairman of the RSGB Propagation Studies Committee (PSC) is looking for volunteers to assist with an RSGB PSC project to monitor the NCDXF beacon chain. The project is expected to run for between one and two years. Interested parties please contact Gwyn Williams, G4FKH, by e-mail: Gwyn@g4fkh.demon.co.uk

psk31 vhf / uhf bandplans

With the increasing popularity of PSK31 and other similar emergent narrowband digital modes, the RSGB VHF Committee has recommended the following frequencies: on 6m - 50.385MHz, on 4m - 70.085MHz, on 2m - 144.085MHz, and on 70cm - 432.085MHz. These frequencies should be regarded as centres of activity, with operation plus or minus 5kHz.

good news for young radio amateurs

The following good news has been received from the Radiocommunications Agency: "Following recent discussions with the RSGB, it was agreed that the 14-year age restriction to obtain a Full Amateur Radio Licence should be completely removed. Previously, to be eligible you had to be 14 years of age or over or have held a Novice licence for at least a year. If you have obtained a pass in the RAE (and either the 5WPM or 12WPM Morse test for a Class A/B and A respectively), you may apply for a full licence. It is no longer a requirement to have held a Novice licence for a year if you are under 14. This initiative is part of the ongoing process to refine and improve access and facilities for amateurs. Both parties feel that (in view of the increasing technical and operational ability of youngsters today) this restriction is a particular anomaly which ought to be discarded, and recognising that those talented youngsters should be actively encouraged and nurtured. After all, if you are good and keen enough, you are old enough!"

radio today bids readers a fond farewell

As you will have noticed from our cover this month, *Radio Today* is to cease publication with immediate effect. A press release has been issued by RSGB Publications, which owns the *Radio Today* title. It says: "*Radio Today* - the news stand magazine of the Radio Society of Great Britain - is to close after the October 2000 edition. Since taking on *Radio Today* some two years ago, the RSGB has refocused and reshaped its strategy, and has achieved significant success in growing circulation. However, the increasing difficulties of getting the magazine wide exposure on the news stands has forced the Society to take the reluctant decision to close the magazine. Since 1998 the Society has had much success with the magazine. Advertising revenue and subscription income has increased to a healthy level and the editorial content under the editorship of Steve Telenius-Lowe, G4JVG, has received wide accolades from the amateur radio community. The Society's objective when purchasing the magazine from Nexus Publishing in early 1998 was to gain maximum exposure via the news stands for amateur radio and other hobby radio activities. This has not been achieved primarily because of the wholesale and retail magazine distribution policy within the UK which is now shifting almost entirely towards the high volume popular magazine market. Specialist magazines within the UK have come under increasing pressure, finding it extremely difficult to obtain news stand space. In view of this, the Council of the Radio Society of Great Britain has made the reluctant decision to withdraw from the news stands and to focus the Society's efforts on further improving and developing the RSGB house journal, *RadCom*, and to concentrate and support measures to promote amateur radio within schools. Funding allocated to *Radio Today* will now be diverted into new projects to support the growth of amateur radio in the UK." *Radio Today's* editor, Steve Telenius-Lowe, G4JVG, has been appointed editor of the RSGB's members' journal, *RadCom*, and takes over the reins with effect from the November issue. If you are not already an RSGB member and would like to start receiving *RadCom*, you are encouraged to join the Society. To make it as easy as possible to do so, we have arranged a very special offer, the details of which can be found on page 5 this month.

144MHz internet news

A 144MHz News Bulletin service run by Derek Gilbert, G0NFA, is available on the Internet. The service has been active for over 3 months and is becoming very popular. It gives information on current and forthcoming 144MHz expeditions and other news relating to 144MHz. Contributions for the 144MHz News Bulletin are always being sought, especially from those running a Special Event Station which is active on 2m. Input can be sent by e-mail to Derek at g0nfa@aol.com and the 144MHz News Bulletin itself can be read at http://members.aol.com/g0nfa/144news.html

december rae - it's time to register

If you're thinking of taking out an amateur radio licence, you will need to sit and pass the Radio Amateurs Examination (RAE), which is conducted twice a year by City & Guilds at venues throughout the country. Candidates wanting to sit the RAE on Monday 4 December should note that entries *must* be with City & Guilds by 1 November. Students who are part of an organised course will almost certainly be entered by their instructor, but external candidates should contact their local examination centre by mid-October at the latest, to give the centre time to process their entries and send them to the City & Guilds by 1 November. The RAE examination fee is £28.10, but late entries can carry a substantial surcharge. After December, the next available opportunity to sit the RAE will be in May 2001, although the RSGB is working closely with both City & Guilds and the Radiocommunications Agency to make examinations 'on demand' a reality - as already happens in the USA and with the RSGB Morse code tests here. If you are considering sitting the RAE, you may be interested in taking an RAE correspondence course. We have been informed of one run by Electrotec, which says it is the only organisation currently running a UK-wide correspondence course for the RAE with full telephone, fax and e-mail support. In the last eight years 668 students have taken the course, and in 1999 - 2000 all passed the exam. Full details of the courses are available at: http://www.enginehouse.clara.net/Course.htm Information packs can be sent by e-mail (request one from electrotec@enginehouse.clara.co.uk); by fax: 08702 848344; mobile phone direct fax: 07970 528983; or post: Electrotec, 19 Southwick Close, Paston, Peterborough PE4 7PP. Special arrangements are available to cater for disabled students. A list of RAE courses at colleges and radio clubs throughout the country was published on pages 11 and 12 of *Radio Today* last month. We have since been informed of one further course, run by Tony Skaife, G4XIV, at Huntington School in York. The course started on 12 September and takes place each Tuesday at 7.00 - 9.00pm. For details call the school on tel: 01904 752102 or e-mail: s.duff@huntington-ed.org.uk

no dx for us cb

In USA, the Federal Communications Commission (FCC, the USA's national radio regulatory and licensing administration) has denied a petition that would have amended their rules to permit DXing on the 11m Citizens' Band. The petition sought to amend the rule that prohibits communications or attempts to communicate with CB stations more than 250km away and to contact stations in other countries. The petition was filed by *Popular Communications* magazine Contributing Editor Alan Dixon, N3HOE. "Dixon's request is inconsistent with the purpose of the CB Radio Service and could fundamentally alter the nature of the service," the FCC said in turning town the petition. The FCC said CB operators generally supported the proposal and stated that the present rule was unenforceable. The ARRL commented in opposition to the petition. "The Amateur Radio Service is the proper forum for the desired long-distance communications sought by the Dixon petition," the League told the FCC. The National Association of Broadcasters also opposed the petition. It said that the restriction was necessary to deter CBers from operating at excessive power levels and that consumers must be protected from illegal CB transmissions that interfere with radio, TV and other consumer electronics. The FCC agreed with the ARRL and said it did not intend to create a service paralleling the Amateur Service when it authorised the Citizens Radio Service. "Amending the rules to permit long-distance and international communications would undermine the purpose of the CB Radio Service rules and compromise one of the core distinctions between the CB Radio Service and the Amateur Radio Service," the FCC concluded. [*ARRL Letter.*]

competition prize winner

Mark Caslin, G0FKH (right), being presented with a G3OJV '80-Plus-2' triband dipole antenna by Radio Today editor Steve Telenius-Lowe, G4JVG. Mark won the antenna, kindly donated by Waters & Stanton plc, in the July 2000 *Radio Today* competition, and travelled from Peterborough to RSGB headquarters in Potters Bar, Herts, to pick up his prize in person.

next morse campaign weekend soon

The next Morse Campaign weekend takes place at RSGB headquarters in Potters Bar, Herts, on 30 September / 1 October. There may still be a few places left by the time this is read. All enquiries should go to Fiorina or Catherine at RSGB HQ on tel: 01707 659015 or by e-mail to ar.dept@rsgb.org.uk A reminder that the idea of the Morse Campaign weekends is to provide intensive practice and the opportunity to take the RSGB 5WPM Morse code test in order to take out a Full Class A/B (or Novice Class A) licence. Candidates should already be at the stage where they can read all the Morse characters and prosigns.

Radio today

austin mitchell mp to be key speaker at cb forum

There should be a lively get-together at the Winter Gardens at Cleethorpes on 14 October when the British Citizens' Band Confederation (BCBC) holds a Hobby Radio Forum. The meeting is open to all: CBers, amateurs, SWLs, members and non-members, licensed or not. The key speaker will be Austin Mitchell MP for Grimsby and Cleethorpes, who was one of the champions of CB when it was first legalised by Parliament. Doors open at 9.30am, with the morning devoted to trade and socialising. An open forum is at 1.00pm and a full two hours will be reserved for discussion. Tickets (free of charge) are available from Regional Services, PO Box 5888, Melton Mowbray, Leicestershire LE13 0WR, or e-mail bigchris@ntlworld.com.

fingers crossed for p3d

The long-awaited launch of the Phase 3-D amateur satellite could now be imminent. AMSAT Germany's vice-president, DB2OS, has announced that the satellite should be launched around the end of October or beginning of November. It was delayed earlier this year when the Ariane 5 series of booster rocket launches was postponed while several critical components were checked, work that has now been completed. Arianespace has now cleared the Ariane 5 for launching. DB2OS says that Arianespace has also re-assigned its launch numbers, and Phase 3-D should fly on Ariane number 507. A 'pre-launch get-ready campaign' was scheduled at the European Space Agency launch facility in Kourou, French Guiana, to begin on 11 September. Assuming all goes well, the most sophisticated amateur radio satellite ever should finally be in orbit by the first week in November. Keep your fingers crossed! According to the July / August issue of *The AMSAT Journal*, AMSAT-NA President Keith Baker, KB1SF, commenting on yet another delay, said philosophically that, "It is better that they found the problem here on earth, when it can be corrected, than in space after launch."

rally cancelled

The MARS-Birmingham radio and computer rally, scheduled to be held on 12 November, has been cancelled due to building work at the proposed venue.

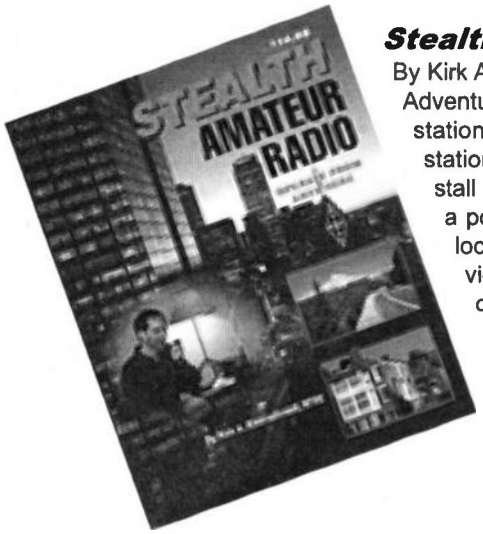
new website to help uk charities

The virtual doors of the Computers for Charities website have been opened to the public and Internet users all over the UK can now do their bit to provide deserving charities with IT services and equipment. The site, at www.computersforcharities.co.uk, was initially conceived and developed by *Computer Shopper* magazine, and is sponsored by Microsoft, AMD and Life Software. It is hoped that the site will eventually provide deserving causes with everything from hardware to application software and Internet access. "Since we started work on this initiative, it has become clear that the UK's IT community is keen to put something back into the community," says Mick Thorburn, publisher of *Computer Shopper*. "We believe that many charities, especially the smaller ones and those which are starting up, find that purchasing and setting up IT equipment eats into their precious budgets. We hope that this initiative will relieve a number of charitable organisations of their IT burden and allow them to do what they do best - helping others." The Computers for Charities site works in a very simple fashion. Each of the sponsors pledges to donate a minimum value of goods and services. This value then increases depending on the number of visitors which the site attracts. Only one click per visitor, per day is registered, but visitors can maximise their contribution by visiting the site and clicking the 'Donate' button on a daily basis. To date, the Computers for Charities campaign has received requests for equipment and services from 17 charitable organisations. Work has already begun on fulfilling these requests and it is hoped that details of the initial beneficiaries will be posted on the site soon. Charities which would like to benefit from this initiative can find details of how to apply on the site.

ntl wins australian digital broadcast contract

ntl has won the first fully outsourced digital terrestrial television broadcast contract in Australia from the Special Broadcasting Service Corporation (SBS). The contract involves the design, build, management and operation of transmission services for a 15-year period. Transmissions are scheduled to begin on 1 January 2001 in Sydney, Melbourne, Brisbane, Adelaide and Perth. SBS is the national Australian multicultural and multilingual broadcaster which is unique in the world. Its television service is broadcast nationwide to a potential audience of 17.5 million people and its radio service is broadcast to millions of Australians of diverse cultural background. SBS policy is that half of scheduled programming will be in languages other than English. This year the number of languages broadcast on SBS Television has risen to 60. Tom Bennie, Managing Director for ntl in Australia, said that "ntl is delighted to win this contract. SBS are already a major customer for analogue services and we are looking forward to working with them to meet this challenging deadline. It represents a huge investment in transmission infrastructure and we're leading the industry in Australia in developing full service solutions for digital transmission. . . The future of all broadcasting, be it television, datacasting or radio, is digital and ntl is here to help our customers into the new era."

ARRL PUBLICATIONS

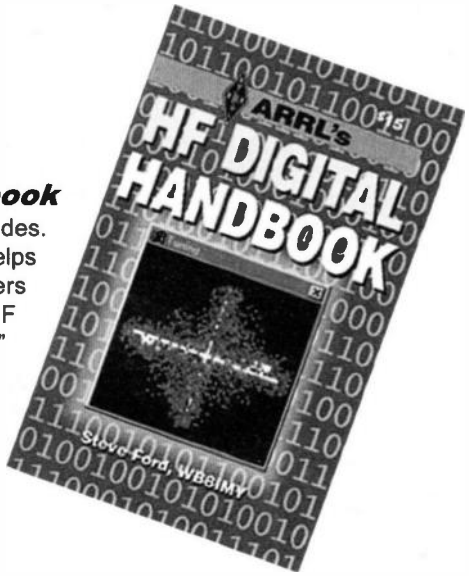


Stealth Amateur Radio—Operate from Anywhere

By Kirk A. Kleinschmidt, NT0Z

Adventure into the world of hidden stations and invisible antennas! Set up and operate a station without calling attention to yourself. Successfully operate a low power (QRP) station. Install safe antennas, including indoor antennas. Build invisible antennas. Install and operate a mobile station, to "get away" from radio-forbidden locations. Operate a portable station from a campground, motel room, picnic area, mountaintop or other location. Handle interference *from* your station to nearby consumer electronics devices as well as *to* your station from other nearby devices. Use this book and enjoy operating from just about anywhere!©1999

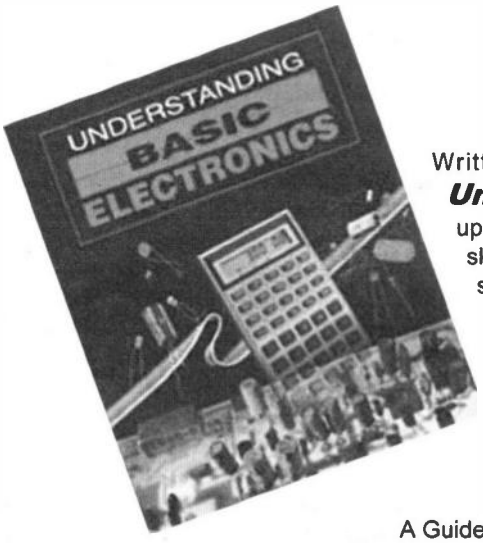
ONLY £12.99 + p&p



ARRL's HF Digital Handbook

The personal computer revolution has introduced many new digital operating modes. Inexpensive software and hardware make it easy to get started, and this book helps amateurs of all skill levels make sense of this alphabet soup of choices. Chapters cover building an HF digital station, digital modes such as PSK31 (the hot new HF digital mode!), PACTOR and PACTOR II, Clover, G-TOR, Hellschreiber (the "visual" digital mode), the HF/Internet email connection, and digital contesting. Includes loads of practical operating advice and valuable reference information!

ONLY £12.99 + p&p

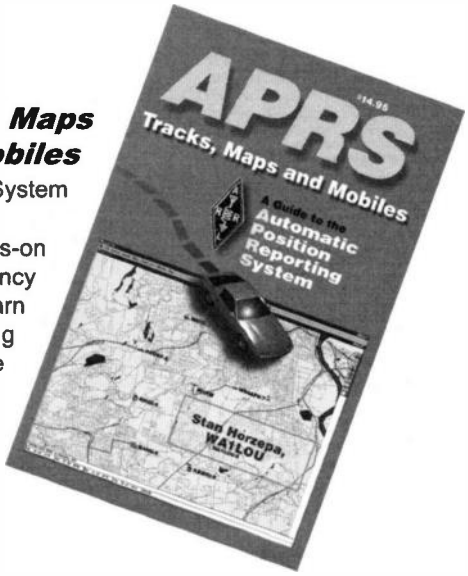


Written in an easy-to-understand style for electronics beginners, ***Understanding Basic Electronics*** is also for those who want to brush up on electronics principles. Loaded with illustrations, the book starts with math skills and progresses to dc and ac electronics principles. It concludes with clear, simple explanations of how components like diodes, transistors and integrated circuits work.1st edition, ©1992, 448 pages.

ONLY £17.99 + p&p

APRS Tracks, Maps & Mobiles

A Guide to the Automatic Position Reporting System



Experience the fastest growing Amateur Radio mode! With the help of this hands-on guide, you will learn how to use APRS to track anything that moves, including emergency vehicles and weather systems. Install and configure the latest APRS software. Learn how to add objects to APRS maps. It also covers hardware installation, navigating maps, tracking, sending and receiving messages and much more. Includes the most complete summary of commands for all APRS versions!

ONLY £12.99 + p&p

p&p £1.50 for 1 item - £2.95 for 2 or more

www.rsgb.org/shop

or Tel: 01707 659015

Setting up Your Own

Ian Poole, G3YWX, describes how to set up your own website using the minimum of software and then - just as importantly - how to increase the number of visitors your website receives

■ The Internet is growing at a phenomenal rate today. Every day thousands more people open accounts and are able to surf the net and send e-mail. However, most accounts come with several megabytes of web space and this often goes unused.

This was exactly the position I was in a year or more ago. It seemed a pity not to use the web space, but I did not want to spend a lot of time and money just to have a presence on the web. I was sure that despite all the hype in advertisements about how successful businesses can become simply by having a presence on the web, this would not be *totally* true. However, it seemed like a good opportunity to use the website to advertise my books and see exactly what the web had to offer.

Accordingly I set myself the challenge to use the software and hardware already on the computer and only buy anything that was absolutely essential. So would it be possible? I already had the computer with Word 97, CorelDraw 7, and a scanner that came with Micrografx Picture Publisher. In fact the whole of my website has been produced with these tools alone, except that I needed to obtain a copy of FTP to upload the pages on to the website from my computer.

Creating the website has been great fun, very interesting - and surprisingly easy. It has also been reasonably successful, currently receiving more than 10 to 20 visitors a day and some favourable feedback from those who have viewed it. It is certainly not the most technically advanced, and there is plenty of room for further development, but it has given me the presence on the web that I had set out to achieve.

Fig 1 is a screen shot showing a web browser with the front page of the website.

first steps

The first step in developing a website is to decide exactly what you want it to do. In my case it was an easy decision because I wanted to promote my books. However, to achieve this I needed to have some supporting material to attract people to the site. This took the form of articles and other features of interest. In other words, if you want people to visit your site you must have something that will interest them and attract them to the site in the first place, and then make them want to come back later.

It may be that you want to say something about yourself and put up some holiday snaps, and that is fine. However, there are many thousands of sites like these and they are really only of interest to friends and family, so don't expect lots of visitors to such a site.

The site could have an amateur radio flavour. You may want to detail some particular aspect of the hobby that interests you. It is best if it addresses an area that is of interest to a large number of other people as well. For example, one popular site gives details of modifications to ham equipment, others give news and information of general interest. It is best to think of what you would like to see on a website, and go back and visit several times. Take a look at a variety of websites and gain some ideas of the material that is provided and also how it is presented.

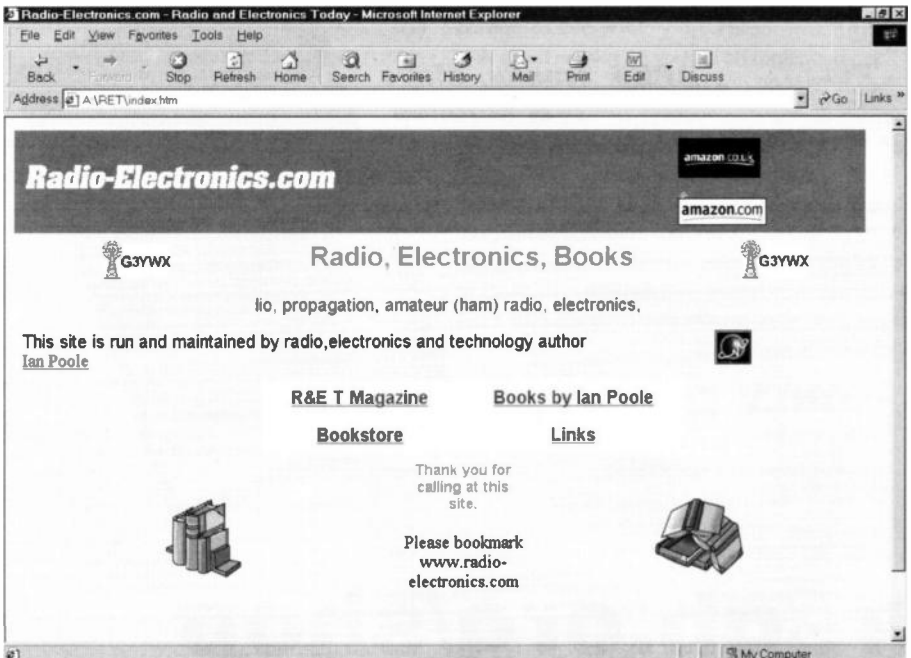


Fig 1: Web browser showing front page of Ian Poole's 'Radio-Electronics' website.

Once you have decided what the website is to contain you can move on to the next stage, which is to plan the structure.

structuring the site

Any thought that is put into planning the structure can save plenty of time later. Whilst it is possible to put all the files into one directory this soon becomes unmanageable. Also, if the site structure has to be changed, hyperlinks have to be remade if the location of the file is changed. This can be quite time consuming as I found out!

First, split the site down into the main areas. In my case I had the home page, and below this there were four main site areas: articles and items of interest, details of my books, details of other books, and links.

The home page was contained in the main folder. It is worth noting that the home page is generally called index.html or index.htm. This is the default name that browsers will look for when only the site address is given. In my case the site address is http://www.radio-electronics.com and when no file name is given the browser will still go to the home or index page.

Internet Website

Below this the other folders can be introduced as required, remembering that possibly no more than 10 - 20 files should be located in a given folder, otherwise keeping track of everything can start to become difficult.

Fig 2 is a diagrammatic representation of the typical structure of a website.

creating a page

Creating the first page can be very interesting. Slightly different techniques to those used in normal word processing applications are used but it is quite easy to get the hang of how to prepare a very attractive page.

First it is worth trying to create something for a page using whatever package you have. In the case of Word 97 this can be achieved quite easily. This is done in the File menu by selecting New, then Web Pages and finally Blank Web Page or one of the other options as required.

When entering text it will be seen that pressing the Return or Enter key gives a new paragraph, ie a clear line between one line of text and the next. Text can be printed on the next line by pressing Shift Enter instead.

At this stage it is worth noting that almost everyone who visits your page will see a slightly different version of it. To give an example, try changing the width on your browser and see how the way a page is displayed changes. Also, it is found that different browsers will display the page differently. The same page displayed on Internet Explorer and Netscape could look quite different. If possible it is worth taking a look a page on both types of browser to see if there are any major problems.

Formatting the page to look attractive is very important. However, at first sight it may appear that HTML does not have many facilities that allow a page to be formatted. This is not a problem because most of the page layout is achieved using one or more tables. The front page on my website is achieved using a single table. By merging cells or splitting them it is possible to achieve virtually everything that is required. However, to achieve this it is worth spending a while experimenting with a few ideas and planning the page out first.

Fig 3 shows how to create a new page in Word 97. All the different areas are cells in a table.

colour schemes

Colour within a website is very important. A good colour scheme can greatly enhance the look of a site. This is demonstrated especially by some of the professionally-prepared sites, whereas some look positively dreadful. Not only is it possible to choose the colour for the text, but it is also possible to insert a background. This may either be a plain colour or it may be a patterned background. Whilst some people like a very dark background this gives a very dark feel to the site and very few professional sites adopt this approach. On the contrary they tend to use light-coloured backgrounds, or even plain white. It is worth noting that if no background is chosen, a rather

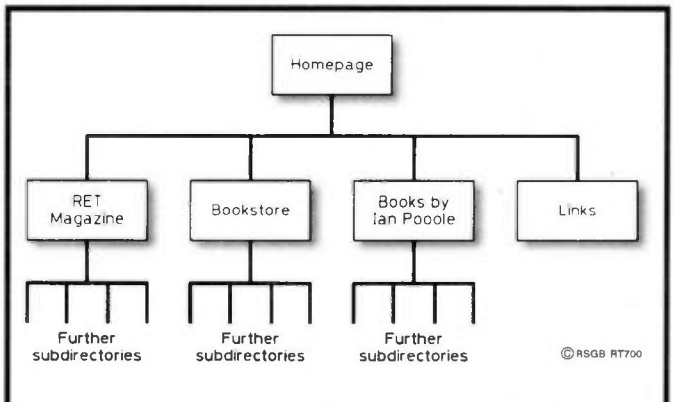


Fig 2: A diagrammatic representation of the website structure.

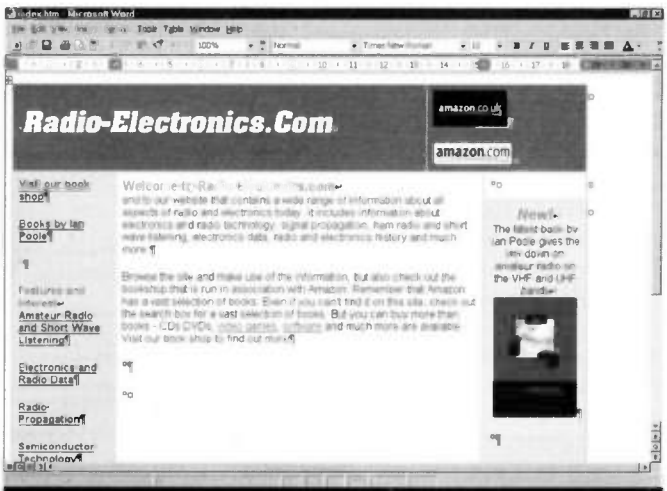


Fig 3: Creating a new page in Word 97. All the different areas are cells in a table.

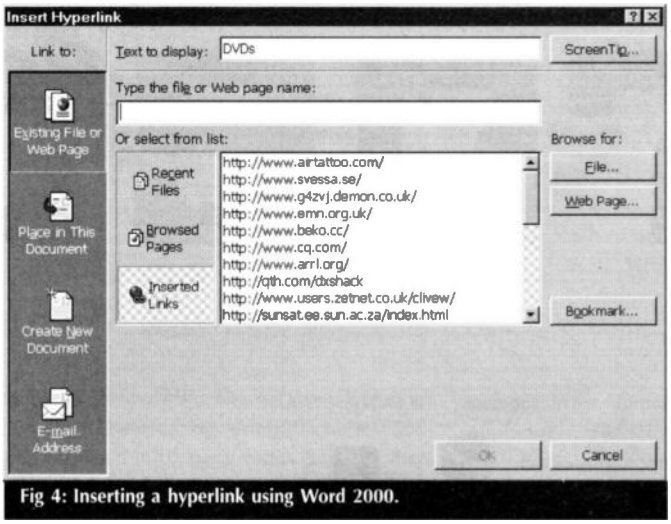


Fig 4: Inserting a hyperlink using Word 2000.

Global / US	
AltaVista	www.altavista.com
Ask Jeeves	www.askjeeves.com
Deja News	www.dejanews.com
Excite	www.excite.com
HotBot	www.hotbot.com
Infoseek	www.infoseek.com
Lycos	www.lycos.com
MS Network	www.msn.com
Search.com	www.search.com
Web Crawler	www.webcrawler.com
Yahoo	www.yahoo.com
UK Search Engines	
Alta Vista (UK)	www.altavista.co.uk
AOL Netfind	www.netfind.co.uk
Ask Jeeves	www.ask.co.uk
Lycos	www.lycos.co.uk
England Online	www.england-online.co.uk
Excite	www.excite.co.uk
UK Plus	www.ukplus.co.uk
UK Max	www.ukmax.co.uk
European	
Euroferret	www.euroferret.com (now webtop.com)
Euroseek	www.euroseek.com

Table 1: Some useful Search Engines.

boring grey appears as the default.

In Word the background is chosen by clicking on Format and then Background. For my site I chose a light green, although I would have liked to make it a bit lighter. For the future I am planning a white background with a light green strip down the side to house navigation links. Many sites these days are opting for a white background rather than having a colour or pattern for the background.

It is also worth noting that some visitors to your site may only have a limited number of colours. This may result in some of your colour choices looking rather different to the way you intended. This is particularly true when dark colours are used. Often the text can disappear, as it fades into the background.

Another point worth noting is that most people expect hyper links to appear in blue. Although it is possible to change this, it makes the way your site can be used more intuitive and will help people visiting it.

inserting hyperlinks

Inserting links to another page is achieved very simply. In Word 97 this is achieved by selecting the text (or the image) from which the hyper link should launch. Then on the 'standard' toolbar select the insert hyperlink icon. Once here there are a number of options. It is possible to enter the address of the hyper link directly. This has to be done if the destination is in another site.

However, if the link is internal to the website it is possible to browse and find the required page. In this mode ensure that the "Use relative path for hyperlink" is selected and then the link will be preserved when the website is uploaded.

Rather than selecting the 'insert hyperlink' icon, it is also possible to 'right click' on the selected item and use the hyperlink function.

Fig 4 is a screen shot showing a hyperlink being inserted, in this case when using Word 2000.

Editing links is also very easy. This is simply a matter of 'right clicking' over the hyper link and then selecting "edit hyperlink".

inserting pictures

Websites make great use of images. In fact it is necessary to use a reasonable number of images to make the site interesting. However, this needs to be done carefully because pictures can be large and take a long time to download.

Images are stored in two main formats, namely as jpeg or gif files. If a page containing a number of images takes too long to download visitors will soon move on. To reduce the size of the image and hence the download time both jpeg and gif formats compress the image. Although there is a loss of definition, it is normally quite adequate for the requirements of a web page. As a rough guide a small image may be around 4 or 5kb (kilobytes), whereas a larger one should not be much more than 20kb. Naturally there will be exceptions to this and the download time for the whole page should be taken into account.

Once an image is saved in its final format it can easily be entered into the page. In Word this is simply done by selecting Insert and then Image and From File. It is possible to alter the size of the image simply by clicking over the image and then dragging the corner to the required

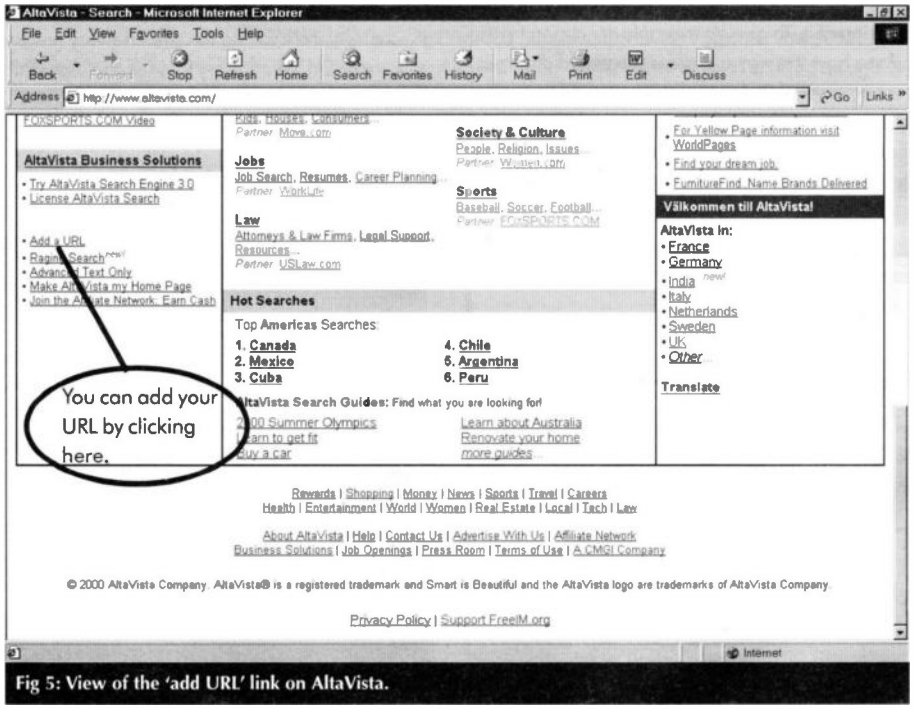


Fig 5: View of the 'add URL' link on AltaVista.

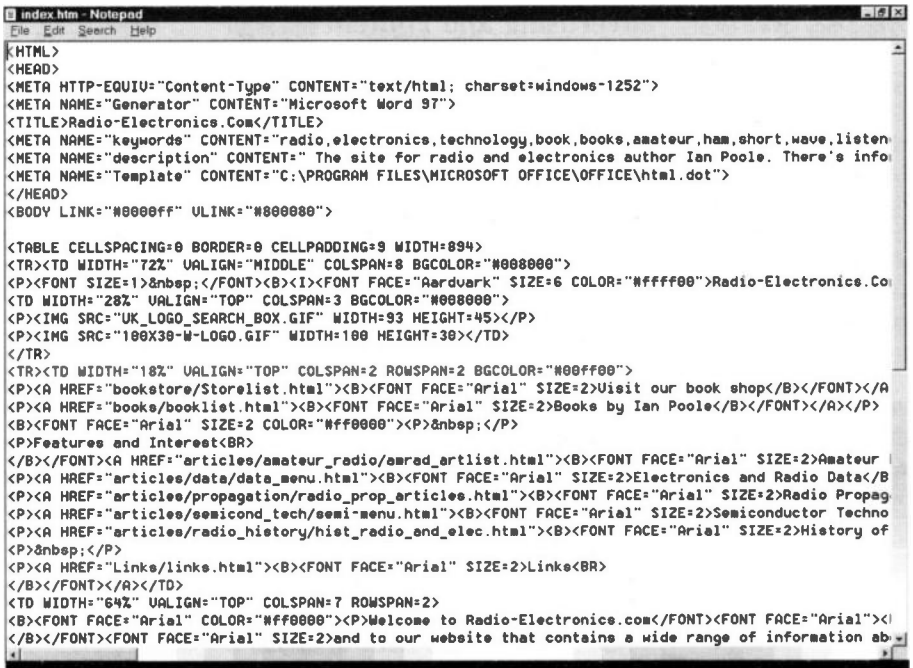


Fig 6: View in Notepad of Radio-Electronics.com front page in html. Note that each line ends with the following two characters: ">

size. However, be aware that if the image has to be reduced in size the file size will remain the same. It is better the match the size of the original image to the size required in the page.

scrolling text

It is important to have a home page that looks lively and attractive. One of the ways of achieving this is to add some moving text. Here text will move across a window, and once complete, it will start at the beginning again. This is easily achieved using the scrolling text option found under the insert menu. Simply select the required options in the options box and insert the text as required.

Whilst this feature should not be used too often, it does provide a useful way of providing a bit more life to a page. However, don't make too much use of it by having it on several pages otherwise it will become a bit tedious and in fact very few of the major sites use this technique these days.

general rules

One of the main requirements for any site is that the home page should be attractive and interesting. If not, people will not explore it any further.

Once the website has been set up, it should be thoroughly tested locally on your computer. This will ensure that all the pages look correct and all the links within the site are correct. Those to external sites are not so easy to check and accordingly care should be taken to make sure they are right. The level of confidence in the site will be reduced if links do not work and people will be less likely to re-visit the site.

Once the site has been tested the next stage is to upload it to the Internet Service Provider's (ISP's) site where it can be viewed by all. This is far easier than it might seem at first sight. It is necessary to obtain a copy of an FTP or file transfer protocol program. Suitable software will be available from the ISP. There are a number of different programs that can be used and obtained relatively easily. Each one will have its own graphical interface, but they all operate by transferring the information from your computer to the live website.

Once the files have been transferred take a look at it via the Internet to check there are no problems. Then you can tell all your friends about it.

attracting visitors and increasing traffic

Generating a website is only part of the work involved in making a successful site. Attracting visitors is equally important and can often take about as much time as actually creating it. However, it is very rewarding to see the number of visitors rise as a result of the work that is put in.

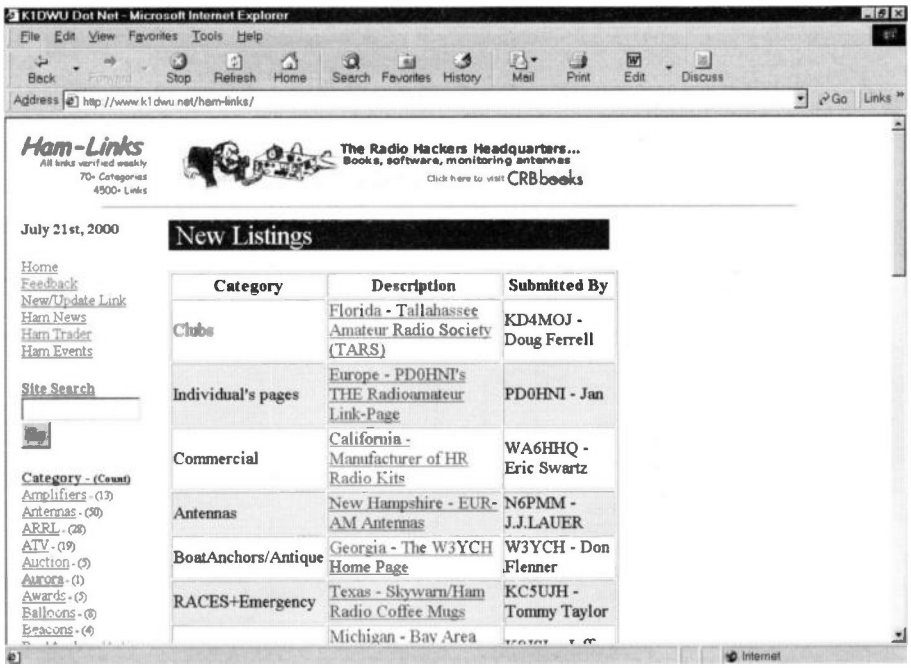
There are a number of ways of attracting visitors. Search engines are naturally a very good way of gaining visitors. Exchanging links is another method, as are the so-called 'webrings', although they do tie you in to keeping the banner on your front page. Another method is to add your URL to advertising. Football players even have URLs on their shirts now! Finally make sure that your visitors bookmark the site and keep returning to it.

search engines

There are many search engines available to users of the web today (see Table 1). Many of the large sites receive most of the hits as a result of people using these search engines and finding the site that way.

The most popular engines are almost undoubtedly AltaVista and Yahoo, but there are many other very large and well used engines like HotBot, Excite and many others. In addition to this there is a growing number of smaller search engines that are appearing. Also to keep up with the mushrooming number of websites many of the large organisations are having their own UK search engines. For example there are now altavista.co.uk and yahoo.co.uk Sometimes you can have more success registering with these sites as they don't have as many pages to catalogue. I have found UK Plus particularly good. Also, some websites offer a pay service for registering - only for the commercial sites.

Registering sites is very easy. Simply search for the "Add URL" hyperlink that appears generally at the bottom of the home page of most search



engines. However, on some it may be hidden away and may take a bit of searching out.

Fig 5 shows the 'add URL' link on the AltaVista search engine. Once in there, you may only be required to fill in the URL of your site, but be prepared to give a short summary of the site. It is worth having this prepared beforehand so that you can make sure you give a concise summary of exactly what is in the site. It may appear as the description for your site in the search results. Others require information such as your e-mail address.

The main challenge with search engines is to achieve a rating that is as high as possible. Often many thousands of matches will be found, and most people don't search beyond the first hundred at the most. There are a number of ways of improving your rating on search engines. One is to use the 'meta tags'.

These tags do not appear when the page is displayed, but many search engines use these to look at the content of the site. There are two types of meta tag that the search engines look for as shown. The first are the keywords. These should be key words that might be typed in by people searching for your site. Those words earliest in the list are generally ranked higher. Be careful though, repetition of keywords often results in the site having a lower ranking.

Fig 6 is a view in Notepad of the Radio-Electronics.com front page in html. Note that each line ends with the two characters "\>

The second type of meta tag that the search engines use is the content. Carefully choose what you put in this as it might appear in the description of the site as displayed by the search engine.

Beyond the meta tags, the homepage will generally have a description of the site. This should describe the site and might be very similar to the meta tag description, and of course it should represent the content of the site. The 'web spiders' that look at the site are quite meticulous and if they believe the meta tags or descriptions do not represent the site they will down grade it. This is intended to stop 'spamming', whereby people put in plenty of keywords and description just to attract visitors.

links

Another popular way of bringing additional traffic is to exchange links with people. Many are willing to do this and it can bring additional traffic. However, beware not to have too many, because they can become difficult to maintain. I believe I have about sufficient!

Despite this, there are a number of sites that maintain very comprehensive lists of amateur sites. The two major British sites are those belonging to G4NJH and G7KPF. There are a number of American sites as well, the major one is that of K1DWU with his site www.k1dwu.net (see Fig 7).

advertising and content

Many commercial sites advertise their URLs. All their business correspondence has their site address on it and in addition to this they advertise their URLs wherever possible. In fact it is quite common now to see web addresses appearing at the bottom of newspaper adverts, television adverts and almost anywhere that advertising is seen.

Whilst these options are not open to the average person who is setting up their first website, it is worth bearing in mind just how much importance the large organisations place on spreading the news about their website. It pays off as well, because some of the really large website receive a phenomenal number of hits each day.

The number of people visiting a site will grow if people want to return to and visit again. The larger sites have many ways in which they entice people to come back. Some have chat zones, others have an interesting function that the site can offer, but for most of us the content itself will be the best way in which we can bring people back on to the site. The content should be interesting and appeal to a wide variety of people, and if at all possible it should consist of material that cannot be found elsewhere.

Another way of keeping the interest of people is to keep a page or two that has up to date information - but beware: it must be updated regularly, otherwise it will give the impression that the whole site is poorly maintained.

Pictures and diagrams should be used as best they can, and think of imaginative ways of presenting the text. This all brings life to the site, making it more appealing and so increasing the likelihood that people will visit again.

tracking

Whilst there are many ways of increasing the number of hits, it is necessary to have some idea of how successful they are. It is very useful to know how many people are visiting the site, and possibly other details about them as well. Many sites that use domain names will have a variety of information available to them: how many visits have been made to each page; where they have come from; what search engines have been used; what they searched for; and many other details. This is all very useful and helps you to fashion the site in the best way. Even for anyone using free webspace, this type of information is almost invaluable.

There are a number of ways that the site can be tracked. The basic way is to use a simple hit counter. This increments by one each time the page is accessed. These counters are not normally very accurate and tend to read quite high. Often one visitor may increment the counter several times as they move back to the page where the counter is located. The cache in the computer should prevent this happening, but experience indicates that a simple hit counter does tend to read high. Nevertheless it is still very useful, and you can watch the number of hits rise as the site becomes more popular.

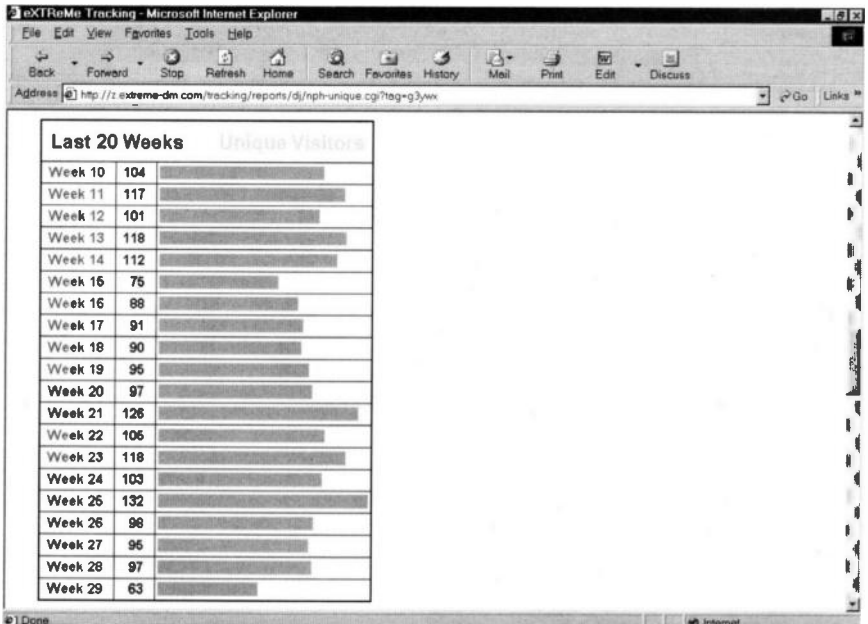


Fig 8: Tracking info from extreme-dm.com

Suitable hit counters are available from a variety of sources. Many web page creation packages like FrontPage provide them. Alternatively one can be obtained from a variety of site including www.beseen.com

For more accurate tracking and much better information a full tracker can be obtained. One free tracker can be obtained from www.extreme-dm.com This gives excellent tracking information, although you do have to be careful how you incorporate it into the page. The html code should be pasted in using notepad. If Word, FrontPage or a number of other packages are used, these tend to corrupt the code and it won't work. However, when it does work it is extremely good. Tracking information from extreme-dm.com is shown in Fig 8.

final thoughts

Building up an effective website can be a great challenge, but when it is there and many people are visiting your site it does give a great sense of achievement. Fortunately a good site can be created without spending vast sums of money on new software, but it does take time and effort.

RF/GSM Engineers

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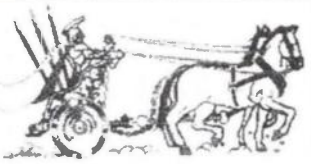

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letters

letter of the month

beware different types of pmr rigs

There are a number of Philips FM1100 / FM1200 units [see PMR conversion article in September 2000 *Radio Today - Ed*] which have been installed by large company fleets and that are now coming on to the UK surplus market. They are usually fitted with the simpler display head (LCD). The units you show in your picture are fitted with the trunking head. Most units fitted with the trunking head in the UK will have been operated under a trunking system similar to our Band III system, MPT 1324 (I think! I cannot remember all these numbers!)

These units have a totally different control PCB which will need to be changed before the radio will operate in normal amateur mode (at least in my experience, I have converted one by doing this change). As these were mainly fitted as 'Systems Radios' it is possible that most radios fitted with the keypad display head will be of this type.

The best units for UK hams to buy would be the ones with the simpler display head (buttons top and bottom of the display but no numeric keypad), but then you only get channel number readout, not frequency.

There is also a 70 MHz version (known as Low Band PMR) which will easily convert to the 70MHz amateur band, if you have access to someone who can program the EEPROM.

They certainly do make a nice rig, with I believe better performance than a lot of modern amateur rigs, even if they do not have all the clever features.

I hope that this may save a few amateurs being caught out by buying Band III versions at rallies.

Alan Melia, G3NYK

in defence of the 10MHz oscilloscope

In defence of the 10MHz oscilloscope (see 'QRP Corner' *Radio Today* August 2000), I would like to point out that using a Telequipment S54A and applying a 3 volt p-p (terminated in 50 ohms) sinewave at 1MHz as reference on the 0.5V/cm range, a 10Mhz signal indicated 2.3V p-p (-2.3dB), a 28 MHz signal 0.5V p-p (-16dB) and a 50Mhz 0.2V p-p (-23dB). Gain measurements do not require a definitive value of I/P or O/P voltage.

Although triggering the display is difficult at these upper frequencies, any distortion at either peaks or intermediate value will show up as a brightening of the trace.

A simple power meter (using two resistors, one capacitor, one diode and a 500μA meter) can be used to determine the power between 2 and 50mW (2 - 17dBm), -1dB at 28MHz and -3dB at 50MHz. Lower values can be read using a wideband RF amplifier to feed the power meter although care must be taken not to overload the amplifiers otherwise the output will be distorted. Higher levels can be reduced by a switched attenuator or a -20 or -30dB coupler.

Finally, although agreeing with Sheldon Hands advice to "Go for the maximum bandwidth you can afford" a 3, 5 or 10MHz 'scope is ideal for use with an add-on spectrum analyser. I must add that I also have a 40MHz 'scope!

Thanks for your interesting column. QRP is fun.

Ian Munro, GM4GVK

pa problems

I feel compelled to write to you about the way I was treated at the Elvaston rally on 11 June. I went to the rally with a friend of mine in his car. As there were only the two of us we did not make any special arrangements for meeting up again, but just relied on our handhelds for communication, as they have never let us down in the past. You guessed it, my handheld's battery went flat, so after spending quite some time looking for my friend, without success, I went to the PA tent and explained what had happened.

But, no, the dragon that spoke to me said the PA was only for emergency use. Very annoyed, I went on my way, and one kind radio ham let me use his handheld so I was able to meet up with my friend and return to his car.

In the meantime the 'emergency' PA system was used repeatedly to put out calls for a Novice contest and some information regarding amateur radio over the Internet. The stupidest thing they did was to give out the registration number of a car and tell the owner to return to it as he had left the window open and there were valuable goods on the seat. I wonder if he was lucky and the goods were still there when he got to the car?

Name and address supplied

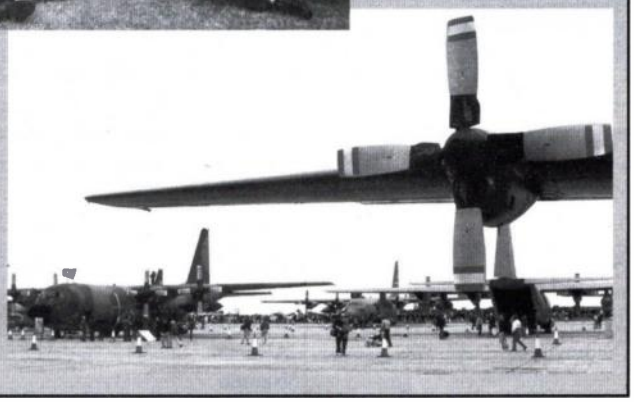
double standards

Why oh why are there such restrictions placed on amateur radio antennas in this country? It seems you can't throw a bit of 'wet string' into the air these days without the local council sending round a Planning Officer, but cellular telephone companies manage to put up 80-ft towers without much trouble. Maybe it's a simple case of 'money talks', bit it seems like the most appalling case of double standards to me.

Name and address supplied

fun at riat

Here is a copy of a photograph of our group at the Royal International Air Tattoo at RAF Cottesmore. We're taking a rest and leaning up against the Village building. Our group consisted of myself; my friend Stuart and his son Sam; Joe and his Dominic and Paul. The photo was taken by Stuart, who used the second prize ticket from *Radio Today*. He holds a fixed-wing PPL [Private Pilot's Licence - *Ed*] and is working hard to get a helicopter PPL. The photo shows, from left to right, myself, blinking at just the wrong time (as usual); Paul, a PPL; Joe's son Dominic; Sam, who is Stuart's son and is into helicopters in a big way; Joe, another fixed-wing PPL. He is also into ham radio and his callsign in G0LET.



Despite the damp weather and low cloud base we did have a good time. 'Smile of the day' was when the crews started up the APUs in the DC10 tankers to let the visitors warm themselves in the exhaust from the APUs.

'Display of the day' for me was a beautiful aerobatic display by a lovely Douglas 4 engined airliner (DC4 or DC7). It was great to see such a large aircraft manoeuvring so gracefully.

Thanks again for the tickets.

Ian Brothwell, G4EAN

trouble with an ft-401

The March *All in a Day's Work* article on the TC205 ceramic capacitor may have answered part of my problem on a Yaesu FT-401B I just purchased at a hamfest here in North Carolina, USA.

I hear very faint signals on 20 and 40 metres and nothing on 10, 15 and 80m. Also, the tube closest to the band selector and RF gain knob does not glow. I have ordered a 6BA6 replacement and an instruction manual. Harry Leeming mentioned slight adjustment of the capacitor. Once I have replaced the tube how much

of an adjustment should I make to the TC205?

Thanks for your help.

Russell French,
Black Mountain, NC, USA.

Harry Leeming, G3LLL, responds: *"If the rig is working at all on receive the trimmer is probably OK, so it sounds like your idea of a faulty valve is the correct one. Normally when the trimmer is short circuit a slight turn of a few degrees, and then back again will temporarily cure the trouble. If this does happen the trimmer should of course be replaced, and a series isolation capacitor fitted to make a permanent cure. The best of luck: "they don't make them like that any more".*

thank you and goodbye from vhf / uhf message

Well, that's it then! You have my October copy (sadly the last one) but I would like to add a few bits if possible:

Thanks to all who have supported the column and magazine whilst I have been involved with it over the last 10 years, especially Sheila and Chris Lorek, who in the early days worked night and day to get things out on time. It's been fun over the years meeting lots of newcomers to VHF / UHF and watching their progress up the ladder of challenges.

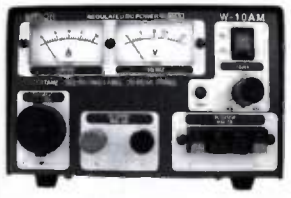
A big thank you to all of you out there.

Geoff Brown, G4ICD

PSUs

■ Every radio shack needs a 12V DC power supply unit (PSU). Once upon a time, it was an easy choice - there weren't that many on the market and those that were available were much of a muchness: typically a fixed voltage of nominally 13.8V at around 20A. These days there is a bewildering variety of PSUs on the market: fixed or variable voltage, 'traditional' transformer linear PSUs or switch mode, 5A, 20A, 30A or even 40A or more. Which one to buy? We can't answer that question, but comparing all these side by side should help you to make up your mind!

Make	Watson	Watson	Microset
Model number	W-3A	W-5A	PT-105A
Output voltage	13.8V fixed	13.8V fixed	13.5V fixed
Output current	2A continuous, 3A 50% duty cycle, 5A surge	3A continuous, 5A 50% duty cycle, 7A surge	5 - 6A
Linear / switch mode	Linear	Linear	Linear
Size	140 x 88 x 170mm	140 x 88 x 170mm	110 x 170 x 80
Weight	2.2kg	3.0kg	2.5kg
Outputs			
Metering	No meters	No meters	No meters
Safety features	Over-current protection	Over-current protection	
Other features			
Price	£22.95	£29.95	£34.95
			

Make	Watson	Microset	Microset
Model number	W-10AM	PT-107A	PT-1012
Output voltage	0 - 15V	13.5V fixed	13.5V fixed
Output current	7A continuous, 10A 50% duty cycle, 12A surge	7 - 8A	12A continuous
Linear / switch mode	Linear	Linear	Linear
Size	183 x 120 x 240mm	110 x 170 x 80	185 x 112 x 260
Weight	5.5kg	2.5kg	5.0kg
Outputs	Multiple outputs inc cigar lighter		Four outputs inc cigar lighter socket
Metering	Twin meters	No metering	No metering
Safety features	Over-current protection		
Other features			
Price	£59.95	£64.95	£85.95
			

Compared

Make	Watson	Samlex	Inac
Model number	W-25AM	SEC-1223	FC-36A
Output voltage	0 - 15V	13.8V DC (fixed)	9 - 15V
Output current	20A continuous, 25A 50% duty cycle, 30A surge	23A continuous, 25A peak	30A continuous, 36A max
Linear / switch mode	Linear	Switch mode	Linear
Size	240 x 150 x 230mm	57 x 177 x 190mm	200 x 100 x 320
Weight	8.2kg	1.45kg	8.5kg
Outputs	Multiple outputs inc cigar lighter		
Metering	Twin meters	No meters	Dual digital meters measuring voltage, current and power
Safety features	Over-current protection	Over current and over voltage protection	Short circuit protection
Other features	Fan cooled	Thermo-switch fan Internal heat sink Detachable 13A UK power cord	Keypad control Built-in loudspeaker
Price	£89.95	£89.95	£99.95

Make	Diamond	Microset	Watson
Model number	GZV-2500	PM110B	W-30AM
Output voltage	1 - 15V DC	13.5V fixed	0 - 15V
Output current	25A continuous	10A	25A continuous, 30A 50% duty cycle, 35A surge
Linear / switch mode	Switch mode	Linear	Linear
Size	210 x 110 x 220mm	190 x 225 x 185	240 x 150 x 230mm
Weight	2.5kg	?kg	8.6kg
Outputs	Multiple, inc cigar lighter		Multiple outputs inc cigar lighter
Metering	Single meter	No meters	Twin meters
Safety features	Built-in cooling fan		Over-current protection Fan cooled
Other features		Built-in frame for transceiver (see picture) Built-in loudspeaker	
Price	£119.95	£119.95	£119.95

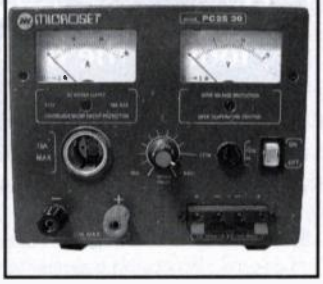
...Yet more PSUs

Make	Microset	Microset	Microset
Model number	PT-114A	PT-120	PC-120
Output voltage	13.5V fixed	13.5V fixed	8 - 15V
Output current	10 - 12A load, 14A max	20A max	20A
Linear / switch mode	Linear	Linear	Linear
Size	110 x 185 x 260	130 x 200 x 290	130 x 200 x 290
Weight	5.6kg	7.8kg	7.8kg
Outputs			
Metering	No metering	No metering	Single meter (switchable)
Safety features		Short circuit and over-voltage protection.	
Other features	Uninterruptible Power Supply (UPS): inc interface for external emergency battery. Charges battery at 2 - 4A.		
Price	£125.95	£129.95	£129.95

Make	Microset	Diamond	Diamond
Model number	SP-135	GSV-3000	GZV-4000
Output voltage	13.5V fixed	1 - 15V DC	5 - 15V DC
Output current	35A. 40A max.	30A continuous	40A continuous
Linear / switch mode	Switch mode	Linear	Switch mode
Size	135 x 180 x 315	250 x 150 x 240mm	210 x 110 x 300mm
Weight	9.3kg	9kg	3.5kg
Outputs		Multiple, inc cigar lighter	Multiple, inc cigar lighter
Metering	No meters	Twin meters	Single meter
Safety features	Short circuit and over-voltage protection.	Built-in cooling fan	Built-in cooling fan
Other features			
Price	£145.95	£149.95	£159.95

Compared

Make	Microset	Microset	Microset
Model number	PT-135	PC-30	PC-2S30
Output voltage	13.5V fixed	5 - 15V	5 - 15V
Output current	35A max	30A	30A
Linear / switch mode	Linear	Linear	Linear
Size	170 x 200 x 330	170 x 185 x 260	170 x 185 x 260
Weight	9.0kg	9.0kg	9.1kg
Outputs		Five outputs inc cigar lighter socket	Five outputs inc cigar lighter socket
Metering	No meters	Single V/A meter switchable	Twin V/A meters
Safety features	Short circuit and over-voltage protection.	Over-voltage, short circuit and lightning storm protection.	Over-voltage, short circuit and lightning storm protection.
Other features			
Price	£169.95	£174.95	£189.95



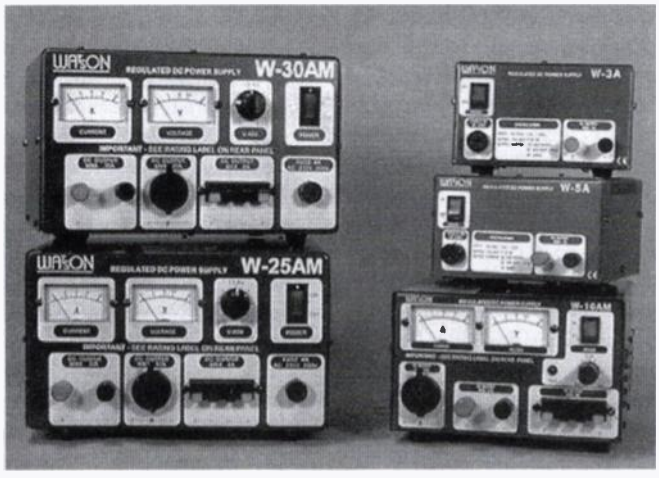
additional information

All the power supplies listed here are available from Waters & Stanton plc, 22 Main Road, Hockley, Essex SS5 4QS; tel: 01702 206835; fax: 01702 205843; e-mail: sales@wsplc.com Most are also available from other amateur radio dealers throughout the country.

Other power supplies available include the DPS-1020 25A 9 - 15V switch-mode power supply at £79.95 from Haydon Communications (tel: 01708 862524); and a series of seven Inac PSUs smaller than the FC-36 listed here. They start with the FA-10 13.8V 10A PSU at £49.95, also from Waters & Stanton plc.

All details are published in good faith, but no responsibility can be taken for inaccurate information. In particular, please note that where no information is listed against 'Safety features', or 'Other features', this does not necessarily mean that these fatures are not built into the equipment, just that no information on them was available when compiling the listing.

Don't be misled by the fact that all the photographs of the power supplies are printed at approximately the same size: the photo below of some of the Watson range of power supplies gives a good indication of their comparative sizes.



Note that generally switch mode power supplies are smaller and lighter for the same power output than their linear ('conventional' designs using transformers) counterparts. The disadvantage is that in some cases switch mode PSUs can generate unwanted spurious noise which can be picked up by the receiver, although this is far less of a problem with the modern design of power supply than it has been in the past.

Thanks to Waters & Stanton plc for their help in compiling this listing.

Austr Schools

How would you expect your children get a decent education if your closest neighbour was a hundred miles away and the closest school another hundred? This is the reality for thousands of parents living in the outback of Australia. Once again, radio comes to the rescue! Steve Ireland, VK6VZ / G3ZZD, takes a look at the background that makes the School of the Air a necessity, and the technology which makes it possible.

■ Australia is a very large country, populated by a relatively small number of people. Occupying a similar land area to the United States of America, we have a population substantially smaller than that of the United Kingdom.

The reason for our small population is that Australia is the driest continent on earth and the vast majority of our interior is classified as desert. Most of us live in or near to large cities, which are widely spaced apart . I live just outside Perth, the state capital of Western Australia - some 2200km by air away from its nearest counterpart, Adelaide.

What this means is that communications can be difficult, especially if you live well outside the state capitals of Sydney (New South Wales), Melbourne (Victoria), Brisbane (Queensland), Adelaide (South Australia), Hobart (Tasmania) and Perth. Even in the year 2000 there are still plenty of small settlements in the vast 'red heart' of Australia that the telephone has barely touched - and in the current climate of privatisation / deregulation of the telecommunications industry and consequent chasing of big profits, if the phone line ain't reached you yet, it probably never will.

This has meant that radio has been a vital part of Australian life for a long time - and is likely to remain so. As a result, some unique institutions centred around radio have come into being, such as the Royal Flying Doctor Service (see March 1999 *Ham Radio Today*) and the Schools of the Air.

These two services share something of a common history, linked by the engineering work of 'Alf' Traeger, professional engineer and radio amateur VK5AX. Without Traeger there would have been no RFDS or School of the Air, as he provided the technical ideas which shaped both.

Just over 70 years ago, Alf Traeger established an Australia-wide radio communications network which formed the backbone of the fledgling RFDS and later of the School of the Air - and still exists today.

In 1944, a young woman named Adelaide Miethke [1] visited the dry dusty central Australian town of Alice Springs, as part of a delegation that was looking at the work of the RFDS. Adelaide Miethke was planning a revolution of her own - not dissimilar to the one planned by RFDS founder the Reverend John Flynn and Traeger some 18 years previously when they carried out their first radio experiments in the outback.

expanding network

By 1944 the RFDS's HF radio communications network established by Traeger had grown to over 200 wireless 'outposts', with new bases being established in Western Australia and at Broken Hill and Alice Springs. This network, allowing people who lived in extreme isolation on cattle and sheep farms hundreds of kilometres from the nearest town direct access to medical advice and services, was then undergoing a technological revolution that radically increased its ease of use.

Lead-acid batteries were becoming available in the outback, enabling Traeger to replace the old bicycle pedal generators that powered the transceivers' thermionic valves with 'vibrator' type power supplies, made in his new Marryatville factory. This meant that the transceivers were no longer dependent on a strong pair of legs and could be used easily used by anyone, even small children - which perfectly suited Adelaide Miethke's dream of providing education to children living in the outback via radio.

Miethke saw that the children living on isolated farms were often very shy and starved of social contact outside of their families. She believed that the RFDS radio transceiver on the farm could be used as both a teaching aid -

alia's of the Air

enabling farm children to participate in special lessons conducted by trained teachers - and as a means for them to communicate with other students in a similar position.

an original idea

Children living in isolated settlements had been educated through written correspondence since the 1920s, but the idea of using radio for oral lessons was completely original. Miethke convinced the South Australian Education Department about the practicality of her vision of a 'School of the Air', and subsequently the idea was taken up enthusiastically.

As Traeger set out to upgrade all the radio transceiver sets in the RFDS network with vibrator units, educationalists in South Australia - under whose jurisdiction the wide brown spaces of Alice Springs and the central Australian outback fell - were working on turning Miethke's dream into a reality. Experimental lessons were carried out during 1950, with the 'Alice Springs School of the Air' officially opening on 8 June 1951.

At this time, there were three 30-minute on-air teaching sessions per week, on Monday, Wednesday and Friday, starting at 10.00am. Teachers took turns in presenting the lessons, transmitted 'live' over the Alice Springs RFDS base station. These included the telling of stories, the building-up of students knowledge of different words and what could be termed 'social studies'.

The lessons were scripted by the teachers and then rehearsed, before the final live transmission. Although initially a one-way broadcast from the school to the students, they quickly became a two-way medium, with call-back sessions known as 'Trouble Corner' being given at the end of the lesson so students could ask teachers questions about on-air lessons and correspondence work.

Soon other 'Schools of the Air' started in other Australian states, all of them using the Flying Doctor HF radio network to reach students who were working on correspondence lessons originating from cities far away. The late Reverend Fred McKay, who worked with Traeger in the early days of the RFDS, said [2] that providing the technical basis for the start of the Schools of the Air was one of Traeger's greatest satisfactions.

The Alice Springs School of the Air studio. On the left-hand side of the picture, there is a self portrait of the artist and entertainer Rolf Harris.

the pendulum swings

The Alice Springs School of the Air (SOTA) blossomed during the 1950s, whilst at the same time Alfred Traeger grew his 'Traeger Transceiver' business and continued to provide radios to the RFDS HF radio network.

However, the school's work continued to be mainly a support mechanism for the work of the South Australian Correspondence School (SACS). The SACS material was produced at its premises in Adelaide and all course work carried out by students in the central Australian outback was sent back there for marking. In contrast, the Alice Springs SOTA was essentially limited to providing a regular 20-minute lesson to each school grade.

Although this service was effective, there was a growing belief that the correspondence school material was impersonal and actually compounded the feelings of isolation felt by the outback students and their 'home supervisors' (often their mother). With the incredible isolation of some of the properties lived on by students, there were long delays in sending and receiving lessons. Criticisms were also made that the correspondence lessons did not make sufficient allowance for differences between individual student's abilities or interests.

In 1974, the Alice Springs SOTA cut its links with the SACS and became completely autonomous, taking over what had become known as 'distance education' for the entire Central Australian region. The school's enrolment of students immediately doubled and for the first time in its history all of them had access to a radio transceiver and could use them to participate in lessons.

The Alice Springs School of the Air transmitting site. The HF antenna is a simple parallel multi-band dipole, about 15 metres above ground.

However, as the fickle pendulum of fate was swinging to the good for the Alice Springs SOTA, it was going the other way for Alf Traeger and his Traeger Transceiver company.

Traeger had reached the common retirement age of 65 in 1960, but had only semi-retired, still enjoying a considerable involvement with Traeger Transceivers Pty Ltd. In 1970, the Electric Instrument and Lighting Company (EILCO), via its Codan radio communications subsidiary, won the Australian Commonwealth Government-funded contract to modernise all the RFDS base stations with Single Sideband (SSB) transmitting and receiving equipment. EILCO had also agreed to manufacture around 1200 SSB transceivers for use by the 'outpost' stations which made up the RFDS / School of the Air radio network.

This meant that there was little work left for Traeger Transceivers to do and in 1974, the company closed down. Before it did, Traeger and his employees built and donated 20 SSB transceivers to needy people in the bush. Shortly after, Traeger was diagnosed with cancer.

Alf Traeger died on 1 August 1980, aged 85, after losing a long and hard-fought battle with the disease. The news of his death was broadcast over the RFDS network - by then made up of an amazing 6000 'outpost' transceivers.

the schools of the air today

All of the Schools of the Air operating today in Australia, with the exception of the one in Katherine in the Northern Territory, started out using the RFDS facilities. However, now the vast majority operate from their own, using their own radio frequencies and broadcasting equipment. Although some students now have fax and e-mail links with the schools, two-way HF radio is still an essential means of problem solving and providing daily communications between teaching staff, pupils and their parents.

Those of you who have Internet access may enjoy visiting the web sites of the various Australian Schools of the Air - see Table 1 - and looking through some of the associated web pages and documents. One particularly interesting document to browse through is the parent prospectus / handbook published by the Katherine SOTA.

This has sections on radio lessons and the type of radio equipment required (either a Codan model 6924 or 7727 HF transceiver) and includes instructions on installing a suitable 'long wire' antenna.

The section on acceptable standards of behaviour of pupils during 'on-air' lessons is particularly fascinating - and brings a whole new meaning to QRM! Rule 7 states: "There have been one or two examples in the past of children interfering with lessons of other grades [of pupils]. This is not only impolite, it is disruptive to the other children. Radio transceivers will be withdrawn if a child interferes with others lessons."

There is even an 'on-air' parents association for those whose children are schooled at the various Australian Schools of the Air. The 'Isolated Children's Parents Association' represents children at both local, state and federal level - and enables 'parent messages' to be transmitted and received over the radio for a 10-minute period on two days each week.

Another interesting spin on what is carried out on-air by the Schools of the Air is the Mount Isa 'Guides of the Air'. Every Thursday evening, the Mount Isa Girl Guides of the Air meet without leaving home - on HF using their school radios! The girl guide group leader comes on the air from the Mount Isa SOTA studio and runs the meeting - and also helps to organise events during the year when at least some of her charges can meet physically.

Alice Springs SOTA operates an interesting radio variation on the school daily assembly. Each morning at 7.50am, just before school starts, it broadcasts a series of messages over its HF network to keep parents / home supervisors informed of the day-to-day happenings at the school. This is also an opportunity for the parents to pass messages on to the teachers, notify the school if their children will not be 'on the air', or to request more

Australian State or Territory	School Location	Web address
Northern Territory	Katherine	http://www.ksa.nt.edu.au
	Alice Springs	http://www.assoa.nt.edu.au
Western Australia	Derby	http://www.side.wa.edu.au/schools/sota/sota_kim.html
	Port Hedland	http://www.side.wa.edu.au/schools/sota/sota_phd.html
	Carnarvon	http://www.side.wa.edu.au/schools/sota/sota_car.html
	Meekathara	http://www.side.wa.edu.au/schools/sota/sota_mee.html
	Kalgoorlie	http://www.side.wa.edu.au/schools/sota/sota_kal.html
South Australia	Port Augusta	http://oac/schools.sa.edu/sota/
Queenland	Cairns	http://www.cairnssde.qld.edu.au
	Mount Isa	http://www.mtisasde.qld.edu.au
	Charters Towers	http://www.charttowesde.qld.edu.au
	Longreach	http://www.longreacsde.qld.edu.au
	Charleville	http://www.charlevisde.qld.edu.au
New South Wales	Tibooburra	N/A
	Broken Hill	N/A
	Dubbo	N/A

Table 1: Schools of the Air within Australia, and their web sites.

the vibrating wonder

In these days of solid state HF radio transceivers, powered directly from 12V lead-acid batteries, it is difficult to imagine - for those under the age of 40 anyway - what a marvel the now almost forgotten vibrator units were for radio communications.

The thermionic valves used in radio equipment of the time required a low DC voltage for their 'heater' supplies (usually in the order of 2 - 12V), but a high DC voltage for their actual amplification / oscillation processes (usually in the order of 150 - 300V). The job of the vibrator unit, powered from a 6V or 12V battery, was to produce the high DC voltage required by the transceiver's valves, with the battery directly supplying the valve heater voltage.

The vibrator unit consisted of a large iron-cored transformer, wound with primary and (much larger) secondary windings. The primary winding and the core formed an electro-magnet, powered by the battery. With the battery connected to the primary winding, the electro-magnet acted on a flexible steel 'trembler reed', with metal contacts that broke / interrupted the battery supply to the primary.

As the reed vibrated, the continuous 'making' and 'breaking' of the trembler reed's contacts varied the amount of current passing through the primary winding, with the resulting 'pulsing' DC current resembling an alternating current (AC) and thus being capable of being stepped up in voltage by the large transformer secondary. The resulting high voltage AC current (actually a 'pulsating' high voltage DC current) was then rectified and filtered to give a high voltage DC current for the thermionic valves.

Traeger built a superior kind of vibrator for the portable Flying Doctor transceivers that were also used in the original School of the Air installations, known as a synchronous or 'self-rectifying' vibrator. This used two reeds, operating in tandem, but with separate sets of contact points.

The second set of contact points was wired in such a way that it reconverted the pulsating high voltage DC current of the transformer secondary back into DC - but retained the high voltage. Fig 1 shows the circuit diagram of a self-rectifying vibrator power supply [3].

Traeger used the mechanical vibrator units in his transceivers until 1959, when he moved to solid state (semi-conductor) units. These still used the vibrator principle, but substituted power transistors for its mechanical basis.

A teacher on the air at the Mt Isa (Queensland) School of the Air.

teaching materials, etc.

Although on-air lessons occur daily at the Schools of the Air, children are usually given at least one 10-minute on-air time slot each week for a private lesson or tutorial, in order to address their particular problems or needs.

However, going to school 'on-air' all the time is not the ideal condition for learning and Schools of the Air arrange for their teachers and pupils to meet as often as possible - at least once a year. Sometimes pupils will visit the school premises and on other occasions teachers will visit them in their homes, to get to know the children properly and to check their work and the place where they study.

School by radio is all very well, but it is hard to beat the personal touch. However, thanks to Alf Traeger, VK5AX, and Adelaide Miethke, radio has enabled many thousands of Australian children to have a high quality education which otherwise would have been denied them.

references

[1] The Alice Springs School Of The Air Internet site at: http://www.assoa.nt.edu.au

[2] *Traeger the Pedal Radio Man* by Fred McKay, Boolarong Press, Queensland, Australia.

[3] *Radio Communication Handbook* (fourth edition) published by the Radio Society of Great Britain, September 1968.

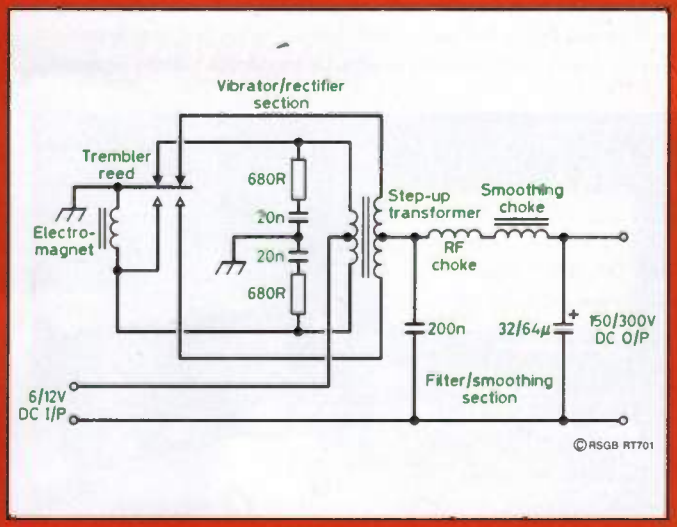


Fig 1: Circuit diagram of a self-rectifying 'synchronous' vibrator, as used by Alf Traeger VK5AX to replace the pedal generators and dry batteries used by his early transceivers and make them easier to use for RFDS and School of the Air purposes.

'The Life That I Have'

Violette Szabo was the British agent who parachuted into occupied immortalised in the film *Carve Her Name with Pride*. A museum com has recently opened in Herefordshire. Derek Bradford, G3LCK, des demonstration of WWII radio equipment which was organised for

During WWII 'wireless communication' was mainly through the medium of Morse code telegraphy and amplitude modulated telephony. Some RTTY and frequency modulated telephony began to appear as the hostilities went on. In any event, a huge amount of traffic was passed in Morse code as figure and / or letter coded 'blocks'. Of course the Axis powers put great reliance on the Enigma coding machine to generate these blocks. The Morse key launched these between stations and also into the ears of the Allied monitoring services and thence to the code-breakers at Bletchley Park - but that is another story that has received much coverage in recent years.

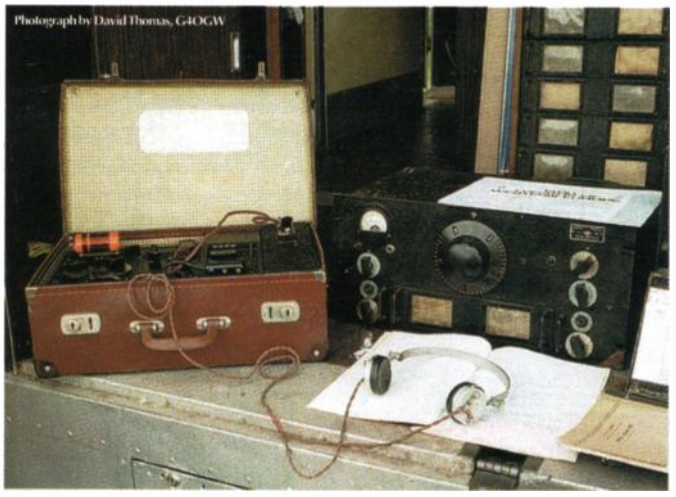
special operations executive

Less coverage has, seemingly, been afforded to the exploits of the telegraphists of the agencies concerned with communications to and from the agents of, for example, the Special Operations Executive (SOE). Among the best known of these agents was Violette Szabo. She was the subject of the film *Carve Her Name with Pride*. This brave and resourceful young woman was the daughter of a French mother and English father who was born in London. So why, you may ask, is there a museum dedicated to her memory at a house in the village of Wormelow, near Hereford?

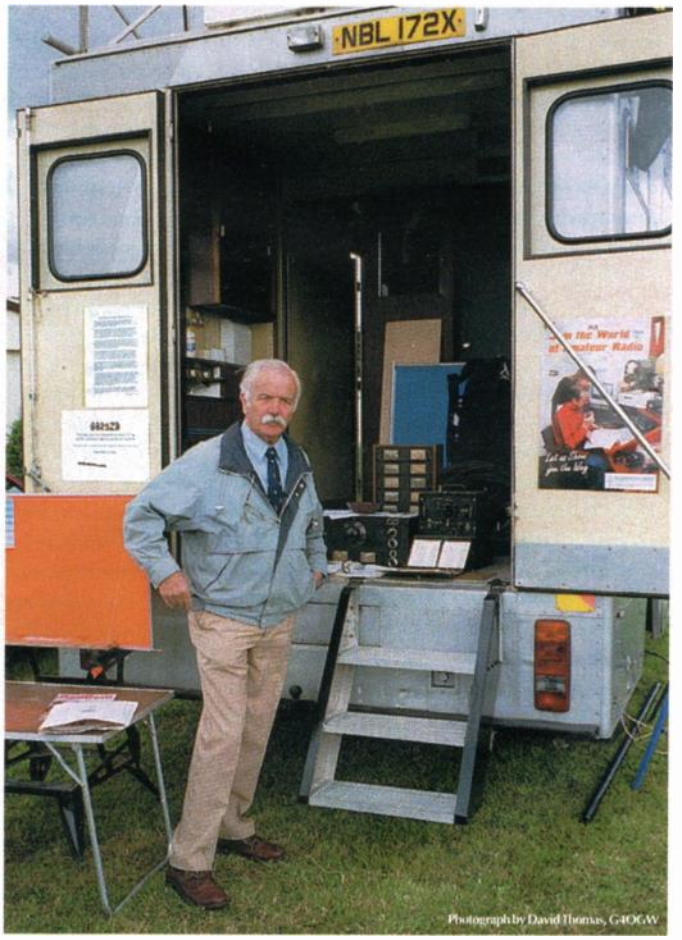
The answer to this was to be found on 24 June this year. The house is called *Cartref* and was the home of Violette's aunt and uncle. She spent holidays there before WWII, and her leave periods there during those troubled times. The house and an adjoining area of land presently belong to Miss Rosemary Rigby. This lady has worked with great zeal and devotion to raise both awareness and funds required to launch the Violette Szabo Museum.

When I heard about this, and that there was to be an 'official opening' event on 24 June, I offered to put on a special event station to add some celebration of the telegraphic component of the special agent's endeavours. This was gladly accepted. Thanks to the efficient RSGB special callsign procedure, the call GB2SZB was issued. Then ensued the customary 'lobbying' of local sources of help.

This was willingly forthcoming from a number of sources. In terms of operators, Ursula Sadler, VP2MT / G0IHM (herself an HQ radio telegraphist during WWII); Tony Rosskilly, G3ZRY; Bob Bowden, G3IXZ, and myself gladly presented themselves. The decision was taken to use CW only, on the



Close-up of the B2 spy suitcase radio and HRO receiver which were on display at the opening of the Violette Szabo Museum. The B2 set was used by agents such as Violette while 'in the field', whilst the HRO was among the receivers used by the HQ stations back home.



Author Derek Bradford, G3LCK, 'stands guard' over the B2 spy suitcase radio and the HRO receiver.

- Violette Szabo

France during WWII and who was nemorating Violette's life and work ribes the special event station and the museum's opening ceremony

basis that that was the mode employed by SOE.

'What to operate' was resolved when the Hereford Amateur Radio Society very kindly agreed to the loan of the club's excellent rig. A bit of 'snipping and soldering' brought about a ladder-line centre-fed wire. 'Where to put the station' was dealt with when Roy Hill, G0IMV, readily agreed to the loan of a most excellent vehicle that came complete with a 30ft pump-up mast, comfortable operating 'room' and, yes, even a kitchen! Ray also provided a public-address system for the function.

wwII receivers

Phil Sanders, M1END, of the local Raynet group came along to put up a tent to contain a small static display of an HRO receiver, a complete B2 suitcase radio and other items. Sadly, this was damaged whilst being put up when a savage little gust of wind seemed to fill it with a desire to engage in aeronautics, hence a somewhat curtailed display was put on the tailgate of Ray's vehicle. Thanks to David Thomas, G4OGW, for the excellent photographs.

Friday evening saw a brisk effort to get all this equipment on-site and up and running. Even the aerial tuned up satisfactorily, and a short spell of operation collected a number of contacts with Royal Signals Amateur Radio Society (RSARS) members. The RSARS had given us the number F210 for use in contacts with fellow members.

On opening the station early on the morning of 14 June on 14MHz several VK6 stations were raised, pleasing for 80 - 100W RF to a wire aerial only 30ft (maximum) above ground. Even the rather close by 11kV overhead powerline seemed silent. Then after a short spell of time conditions simply folded up. Swift QSYs to 80 and 40 metres revealed a near total absence of stations. Even the arrival of Ursula (a member of FOC, the First-Class CW Operators' Club), G3ZRJ (another very competent telegraphist) and G3IXZ failed to increase the QSO rate significantly. The ionosphere had simply 'gone on leave' to all intents and purposes. Then, as if to emphasise the problems, a power failure occurred that lasted quite a while. Was it RF getting into the sophisticated earth


The Ross Gazette

Local paper *The Ross Gazette* covered the opening of the museum on its front page.

violette szabo - an heroic life

During WWII over half of the total strength of the First Aid Nursing Yeomanry (FANY) was devoted to the work of the Special Operations Executive (SOE). One of FANY's members was the fiery Violette Szabo (née Violette Reine Elizabeth Bushell) (*'Louise'*) who was the half-French daughter of a Brixton motor-car dealer and was said to be the best shot in the SOE. Her husband Etienne Szabo (an Officer of the Free French Forces) was killed at El Alamein shortly after their daughter, Tanya (Tania in some reports) was born.

Devastated by the death of her husband, Violette willingly volunteered for duty in France. On her first mission she was teamed with Philippe Liéwer, (*'Clément'*) a former correspondent of the Havas news agency. They went by Lysander to a spot near Paris and her task was to make a study of Resistance possibilities in the Rouen area, a task which she completed notwithstanding having to explain her movements to French police who had arrested her.

She was freed and made her way back to Paris and requested a pick up - the story is told that she shopped on the *Avenue des Champs-Élysées* for presents for her daughter to be given to her on arrival in England! Her second para drop into France took place on 10 June near Limoges immediately after the Normandy landings and whilst giving covering fire to a French Maquis leader (*'Anastasie'*) she fought in a gun battle (using a Sten gun) with Germans until her ammunition was exhausted.

She was incarcerated in Ravensbrück and after horrifying experiences was (with others) shot in 1945. One of the survivors of this infamous camp described her as outstanding amongst the thousands of women there. She was posthumously awarded her George Cross in 1946 and it was received from the King by her four-year old daughter.

Leo Marks, who was the head of the Codes Section of the SOE, spoke of Violette almost with awe and devotes to her parts of his memoirs *Between Silk and Cyanide - The Story of SOE's Code War, 1941 - 1945* (HarperCollins). The connection between Marks, Violette and the now famous and touching poem *The Life That I Have* is fully detailed in the book. Such poems were used as ciphers by agents, and Marks elected to use original poems rather than established ones, thus allowing less chance of decoding by the enemy.

A plaque was erected on 26 June 1988 (on what would have been Violette's 67th birthday) on the outer wall of *Cartref* in the presence of Peter Lee (of the Special Forces Club) and the then MP for Hereford, Sir Colin Shepherd. The inscription reads: *This plaque is placed as an evergreen tribute to VIOLETTE SZABO, GC, British secret agent born 26 June 1921, executed by the Gestapo at Ravensbrück during 1945, in deep appreciation of her outstanding courage in England's hour of need. Violette spent many happy holidays here at "Cartref" with her Aunt and Uncle Mr & Mrs H Lucas and family. RIP Violette. "Carve Her Name with Pride". Rosemary E Rigby, 1988"*

(Biography from RSARS web site at www.rsars.org.uk/museums.htm)

wireless communications in 'special operations'

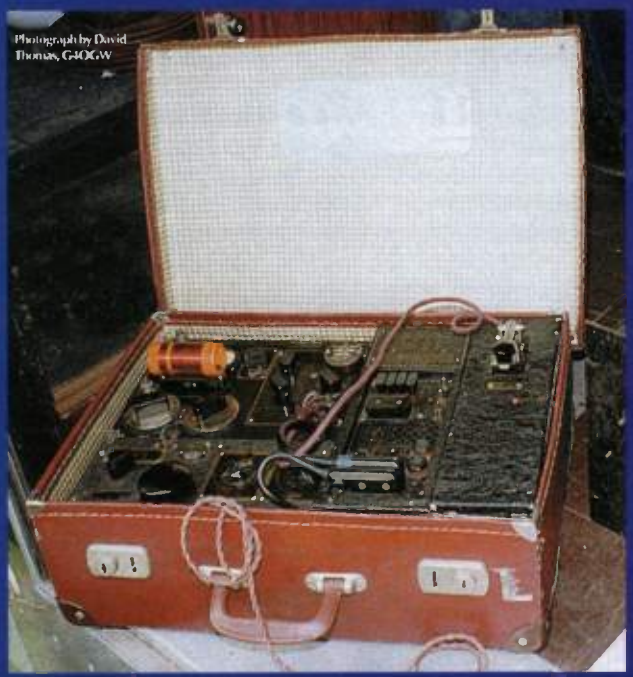
The difficulties of WWII brought the need for rapid and precise communications between intelligence agents and their headquarters. Essential communications took place between the European mainland and Great Britain, and of course elsewhere in the war zone.

Sixty years ago, radio technology was far enough advanced to give the agents a transmitter and receiver that, using Morse code, would allow this to be portable. Typical of the equipment used by the agents was the B2 'suitcase radio'. This used six valves, two in the transmitter and four in the receiver. A power supply was included that could drive the set from AC or DC mains at a variety of supply voltages and also from 6V or 12V batteries.

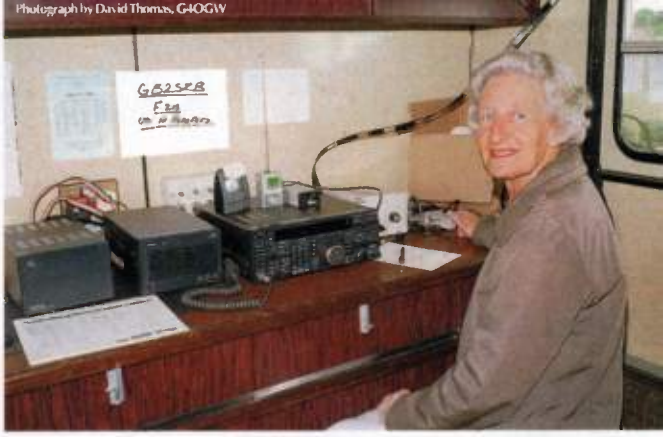
The B2 could be used with simple aerials of the 'bit of wire hung up in a tree or threaded around a loft' variety. The transmitter crystal controlled and the receiver was quite sensitive and selective by the standards of 60 years ago.

To ensure reliable two-way communications, the receivers at the headquarters were the best available and included the Marconi CR-100, the American National HRO, and the RCA AR88D. These were state of the art in the 1940s. They were set on to the correct frequency by using the Bendix Corporation BC221 wavemeter. The transmitters were of very high power, which couple with superb aerials for both the transmitter and receiver gave a good chance of making contact.

The tremendous risks taken by the agents in using his or her radio cannot be overemphasised. The enemy had very good direction-finding and monitoring systems. 'Firing up' a transmitter in enemy territory may be likened to switching on a powerful spotlight in a darkened theatre and hoping it won't be noticed by onlookers! The consequences for the agent were very serious and sometimes fatal.



The B2 'suitcase radio', as used by Violette Szabo during WWII. An example of this set is on permanent display at the RSGB National Amateur Radio Museum at Potters Bar.



Ursula Sadler, who holds the Montserratian and UK callsigns of VP2MT and G0IHM, was one of the operators of the GB2SZB special event station. Ursula was an HQ radio telegraphist operator during WWII.

leakage system on the vehicle – or was it the load imposed by all those tec urns on the same circuit?

Two WWII operators from SOE, Messrs Guiet and Maloubier were present among a host of other dignitaries including Violette's daughter, Tania Szabo the actress Virginia McKenna, who played Violette in the film, and Sir Pete and Lady de la Billiere. The two radio operators were happy to meet an old friend - the B2 rig.

Bob Maloubier mentioned that the unwelcome arrival of enemy troops a the front door had caused the 'donation' of equipment – minus crystals and code books – to the enemy by his rather precipitant departure through a rear window. Too close for comfort indeed!

The actual opening ceremony of the museum was attended by between 1000 and 1500 people. It was a memorable and most moving function tha received press and TV coverage in its own right.

Those involved with GB2SZB feel that, despite the dreadful radio condi tions, we were able to add a useful contribution to this memorial to a mos remarkable young woman.

special event stations

Putting on a special event station such as the one described here by Dere Bradford, G3LCK, can be a time-consuming, but highly rewarding, activity

For some useful guidance on how to organise your own special even station, see the new *Amatuer Radio Operating Manual*, edited by Ra Eckersley, G4FTJ, which was reviewed in the September 2000 *Radio To day*. It costs £24.99 and is available from *Radio Today* Sales - see *Boo Browser* on pages 76 &77 for details of how to order.

The former television outside broadcast van - complete with 30ft telescopic mast - provided the home for the GB2SZB station at Wormelow.

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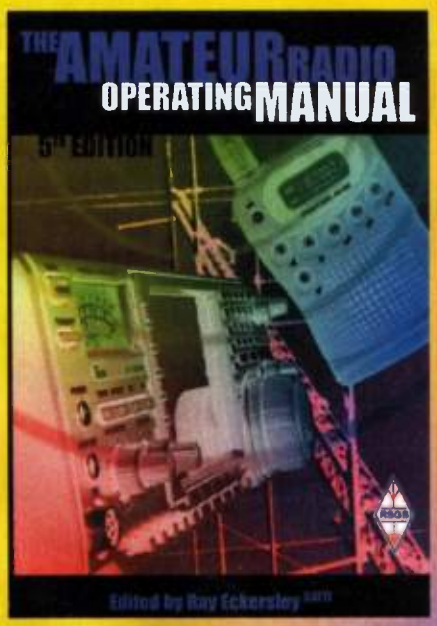

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Radio Today 2000

■ *As this is the last-ever issue of Radio Today, here's a comprehensive index of Volume 18, Nos 1 - 10. If you've missed any articles that take your fancy, back issues are still available from RSGB Sales - see page 78 for details of how to order. In the unlikely case of the issue you want being sold out, there is a photo-copy service available - details are also on page 78. Photo-copies are also available of any issue of Ham Radio Today or Radio Today from January 1991 onwards.*

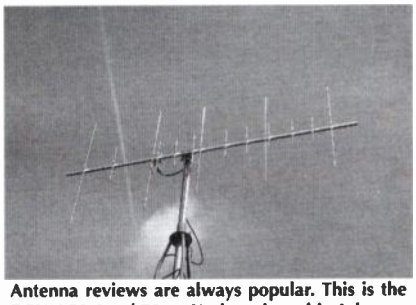
The Icom IC-756PRO, reviewed in April.

transmitting equipment (transceiver / transmitter / amplifier) reviews

Three reviews for the price of one! The Yaesu FT-100, Icom IC-706MkIIG, and the Alinco DX-70 compared (January 2000).

receiving equipment (receivers / scanners) reviews

equipment (accessories / antenna / hardware) reviews



Antenna reviews are always popular. This is the DBY2759 2m / 70cm Yagi, reviewed in July.

pmr conversions

construction

miscellaneous

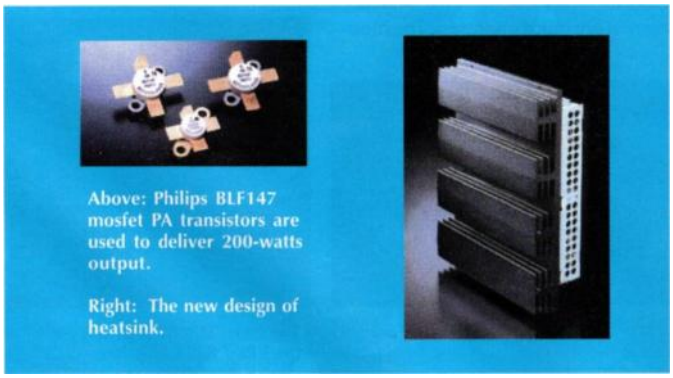
radiotoday 'coffee table' (book reviews)

Yaesu's new FT-1000MP Mark-V HF Transceiver: First Impressions

Yaesu's top-of-the-range HF transceiver, the FT-1000MP, has just been further improved with the introduction of the FT-1000MP Mark-V. UK stock is expected by the time this is read. Meanwhile, here's a report by Chip Margelli, K7JA, of Yaesu USA on what the new transceiver does

At the Dayton Hamvention in May, Yaesu stunned the marketplace with its introduction of the then top-secret FT-1000MP Mark-V 'elite-class' HF transceiver. Surely the best-kept secret in amateur radio for a long time, the FT-1000MP Mark-V stole the show at Dayton. Production started very soon after the Hamvention, so customers did not suffer the frustration of waiting for 'vapourware'.

Now that the FT-1000MP Mark-V is in the marketplace and available for sale (although quantities are not yet meeting the demand), let's take a look at the high points of this latest member of the FT-1000 family.



Above: Philips BLF147 mosfet PA transistors are used to deliver 200-watts output.

Right: The new design of heatsink.

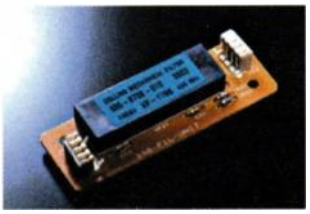
power output 200 watts

Users have said again and again that they didn't want Yaesu to say good-bye to the 200-watt power level of the FT-1000D, and they haven't! The FT-1000MP Mark-V utilises a pair of Philips BLF147 mosfet PA transistors in a 30-Volt push-pull configuration.

The internal automatic antenna tuner from the FT-1000MP was beefed up to handle the additional power, and Yaesu came up with a unique 'T' configuration heat sink, so as to dissipate heat effectively.

class-a pa operation

Perhaps the most exciting development in the FT-1000MP Mark-V is the incorporation of Class-A PA operation. The FT-1000MP Mark-V is the first commercially-designed amateur transceiver to operate in this mode.



10-pole Collins SSB mechanical filter.

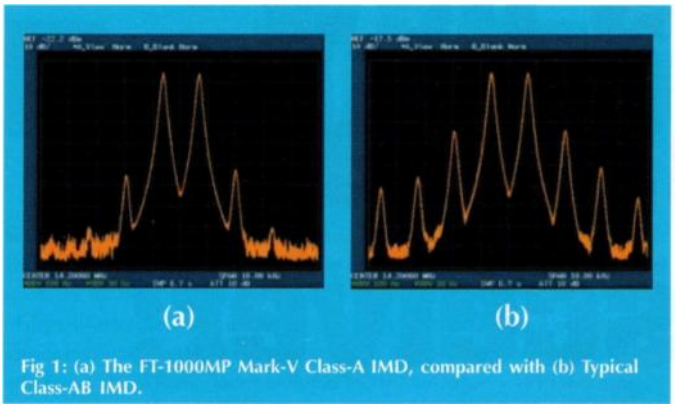


Fig 1: (a) The FT-1000MP Mark-V Class-A IMD, compared with (b) Typical Class-AB IMD.

When engaged by the Class A switch on the front panel, the PA bias is changed dramatically. Power output is lowered to 75 watts, with the additional power supply capability being directed towards the high bias current, which contributes directly to the astounding signal purity of this product's transmitter.

How astounding? Third-order intermodulation, which typically might be -30dB to -35dB in a typical SSB transmitter, is reduced to a typical value of -50dB or better on the FT-1000MP Mark-V. Higher-order intermodulation, which causes splatter on the bands, is even better: where a typical SSB transmitter might have fifth-order IMD suppressed by 50dB, the typical value for the FT-1000MP Mark-V is more like -80dB. See Fig 1. The IMD of the FT-1000MP Mark-V when operating in Class-A is shown in Fig 1 (a), compared with 'typical' IMD of a transceiver operating in the conventional Class-AB in Fig 1 (b). The SSB waveform of the FT-1000MP Mark-V is truly beautiful, and it should contribute directly to the reduction of splatter on the amateur bands.

'vrf' front-end preselector filter

Answering the call for even more protection of the receiver front end, Yaesu's engineers have brought back an 'old friend' in receiver design: the preselector. Known as the 'VRF' (Variable RF Front-end filter) in the FT-1000MP Mark-V, the preselector operates on the 160 to 20 metre bands, putting an adjustable high-Q filter ahead of all transistor amplifiers and diode bandpass filter switching networks. The VRF is easy to adjust: you just peak the background noise (just like on your old FT-101 or FT-901DM - remember?) and you're set. The VRF in the FT-1000MP Mark-V, unlike the slug-tuned units on much earlier models, utilises high-quality relays for selection of fixed components, and it includes 31 tuning memories per band, for quick QSY.

The VRF provides unmatched protection against second-order receiver intermodulation, where (for example) two 7MHz broadcast stations can mix to show up on 20 metres, or two medium wave stations can mix together to show up on 160 metres. For DXpeditions that find themselves operating from an island with big shortwave broadcast stations, a preselector can make the difference between 'no problem' operation and 'can't hear anything' operation.

If you're operating on 40m CW, and are having trouble from a local neighbour on 40m SSB, you can also 'cheat' the system by deliberately detuning the VRF downwards in frequency (for example, for a centre frequency of about 6850kHz). This will place the frequencies around 7100kHz

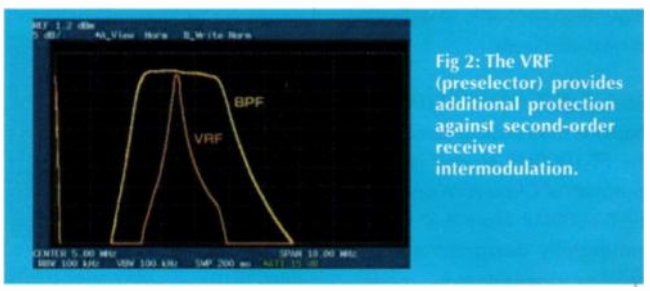


Fig 2: The VRF (preselector) provides additional protection against second-order receiver intermodulation.

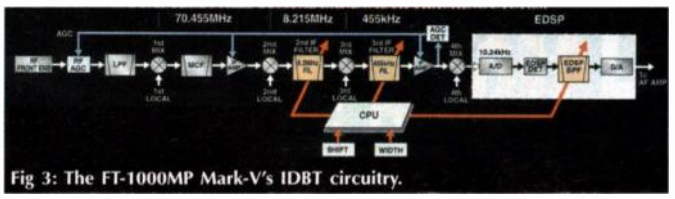


Fig 3: The FT-1000MP Mark-V's IDBT circuitry.

well down the skirts of the filter, affording considerable protection against interference from the other station. The principle of operation is shown in Fig 2.

One initial report from 4W6 (East Timor) indicates that the VRF is working as intended, and we feel that this winter's low-band operating season in Europe will be very exciting, thanks to the VRF on the FT-1000MP Mark-V.

idbt: interlocked digital bandwidth tracking

The popularity of the original FT-1000MP's Enhanced Digital Signal Processing (EDSP) system was not fully appreciated by all users, because its flexibility can lead to some confusion in the set-up process. So Yaesu used the power of the transceiver's microprocessor to simplify the adjustment of the EDSP. The result is the IDBT feature, whereby (on SSB) the bandwidth of the EDSP's bandpass filter is automatically 'slaved' to match the filter passband as set by the cascaded analogue IF filters.

In a nutshell, wherever you have set the bandwidth in the main IF (using the two 2.4kHz or 2.0kHz filters), and accounting for any adjustments of the IF Shift and Width controls, the IDBT overlays the DSP filter to match the shape of the IF filter passband. This dramatically extends the skirt selectivity under crowded conditions, and it eliminates the possibility of 'pumping' of the AGC, which can occur if you use a DSP bandwidth that is much narrower than the IF filter passband.

Making this circuitry even more effective is the new 10-pole Collins mechanical SSB filter, with much improved skirt selectivity, along with legendary Collins purity of signal reproduction. It's marvellous how 'tight' this receiver seems, compared with other receivers.

If you outfit the FT-1000MP Mark-V with the two optional 2.0kHz IF filters, the IDBT *really* comes into its own, producing a crisp-but-clean-sounding reproduction of the incoming voice signal, not some muddled, over-filtered sound that could give you a headache quickly.

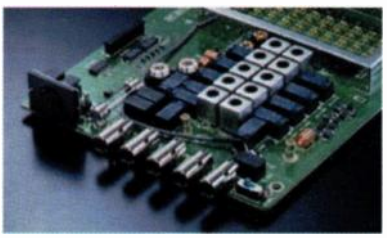
There's nothing to adjust with the IDBT - that's the point. You just turn it on, and the DSP is automatically adjusted for you. Of course, the other 'Contour' settings from the original FT-1000MP are all available on the Mark-V version; they're found just to the left of the Mode switches, to the left of the main tuning dial.

On CW, the IDBT is disabled, as the DSP is capable of bandwidths down to 60Hz, well beyond the capabilities of analogue IF filters. During extremely weak-signal CW work, using the ultra-narrow CW bandpass filter can make signals literally appear out of the background noise.

enhanced ergonomics

The very popular 'Shuttle Jog' tuning ring, first introduced on the FT-1000MP, now has added two functions to ease in operation. The On / Off switches for the VRF and IDBT features have been positioned on the Shuttle Jog, so you don't need to move your hand away when activating or de-activating these features.

In general, the front-panel ergonomics are much improved. The most-



The VRF circuitry uses high-Q components to protect the receiver front end.

The New 'Shuttle Jog' ring with the VRF / IDBT switches.

- Built-in TCXO-4 high stability reference oscillator (±0.5PPM at 25° C)
- DSP noise reduction with push-button access
- Selectable DSP modulation / demodulation - ultra quiet!
- Dual in-band receive (similar to the FT-1000MP), with no AGC interaction
- DSP microphone equaliser and RF speech processor
- Easy-access 'split' operation, using combination switch / LEDs
- Two TX / RX antenna ports, plus RX-only antenna port (eg for Beverage receive antenna)
- Three RF preamplifier modes plus IPO (by-passes preamps)
- RF gain control, now concentric with main AF gain control
- High-Q 45kHz IF notch filter (may be used at same time as DSP notch)
- Dual-mode (wide / narrow) IF noise blanker
- Synchronous AM detection for reduced fading
- CW full QSK - truncation-free at up to 60WPM
- Built-in electronic keyer
- CW spot switch for precise zero-beat alignment
- CW pitch control, adjustable over 300 - 1050Hz
- CW reverse sideband selection (with easy access!)
- High-resolution Direct Digital Synthesis (tuning steps down to 0.625Hz)
- VFO 'Channel' selector (allows tuning in 1kHz / 5kHz etc steps)
- Direct keypad frequency entry and twin-stacked VFO registers
- Easy-to-use feature customisation menu ('set and forget')
- 99 'normal' memories plus five 'quick' memories and nine 'band limit' memories
- Versatile scanning capability
- Easy digital-mode interfacing
- General coverage reception: 100kHz - 30MHz
- Two headphone jacks: one each 0.25in and 3.5mm
- Two key jacks
- Built-in VOX
- Built-in RS-232C level converter for easy computer interfacing

Table 1: Summary of main features in the new Yaesu FT-1000MP Mark-V.

used knobs on the panel ('Shift', 'Width', 'Notch', and 'Clar') are much larger in the case of the FT-1000MP Mark-V and filter access is quicker, thanks to the new 'NOR', 'NAR1' and 'NAR2' selection switches.

Other 'neat', new, or improved features are shown in Table 1 above.

here in the uk

Production samples of the Yaesu FT-1000MP Mark-V should start arriving in the UK by early September and were expected to cost around the £2800-mark. You will be able to see the transceiver for yourself at the Leicester Amateur Radio and Computer Show at Donington on 22 / 23 September, or, if you can't wait, contact your favourite amateur radio dealer for details of availability and exact pricing.

At the giant JA Hamfair in Yokohama in August, Yaesu introduced a new 200-watt output 6m transverter to operate with the FT-1000MP Mark-V. There was no information on UK availability or pricing at the time of going to press.

Above and right: the first FT-1000MP Mark-V in the UK attracted a lot of attention when first shown. It is seen here sitting on top of the earlier FT-1000MP model.

The RSGB International HF and

Left: The magnificent Beaumont Conference Centre.
Above: Delegates listening attentively in one of the smaller lecture rooms

■ It is that time of year again, when devotees of the HF bands, together with their long-suffering partners, flock to the Windsor area for the RSGB International HF Convention. For the purpose of this convention the term HF embraces frequencies from 9kHz up to and including the 50MHz band.

Whether an avid DXer, 'ragchewer', antenna designer, propagation expert or casual user, this is the opportunity to meet your friends, to attend presentations given by internationally-acclaimed experts in their particular fields, and to generally have a good time over the course of the weekend.

The year 2000 also brings the International Islands on the Air (IOTA) Convention back to the UK and the opportunity has again been taken to combine both events into a weekend not to be missed. This has, in turn attracted a large number of overseas visitors and at the time of writing visitors from the Channel Islands, Cyprus, Finland, Ireland, Italy, Japan, Portugal, Spain and the United States had already confirmed their attendance. There are many more that have promised to attend.

not just for dxers

Contrary to rumours that this is purely a gathering of DXers, presentations arranged for the IOTA stream include an update on the international programme, the new RSGB *IOTA Directory 2000*, and recent operations from Ghana, Myanmar, the Kenyan Wasini Island and East Timor.

An alternative stream for those who have a more hands-on approach includes presentations on loop antennas, linear amplifiers, stacked arrays, antenna modelling and backyard antennas.

Additionally, amongst others, there are fora for DX Cluster aficionados, LF gurus, HF contesters, and - for those newly interested in HF - 'Starting in HF DXing'. Other attractions include a presentation on 100 Years of Amateur Radio, propagation, a DXCC update, the M2000A operation and 6 metres.

DON'T MISS IT!

internationally acclaimed

Amongst those attending this year is Martti Laine, OH2BH. Martti, well known for his pioneering work from those countries previously unfriendly to the Amateur Service, was recently named 'Amateur of the Year' at the Dayton HamVention held in the USA earlier this year.

Then of course there are the social events. The bar will be open for most of the weekend, but why not take the opportunity to attend the IOTA supper on the Friday evening or the 'DX Dinner' on the Saturday. Both of these events are very well subscribed to and places are limited, so you should book prior to the event.

Take the opportunity to operate the Convention station MB2HFC. To our knowledge this is the first time this prefix will have been aired and it should prove popular amongst prefix chasers. Then of course there is DXCC card checking, RSGB Morse code tests and RSGB committee stands.

All in all it is hoped that most tastes have been catered for. Even if there is nothing that catches your fancy there is always the chance of winning a top Yaesu HF mobile transceiver donated by Convention co-sponsor Yaesu (UK), one of many prizes donated by our many supporting organisations.

When is it ? 13 - 15 October at the Beaumont Conference Centre, located at Old Windsor in Berkshire. If you wish to stay overnight, particularly if you are attending the IOTA supper on Friday and / or the DX Dinner on Saturday, you can do so - tel: 01707 659015 to book your place or access http:/www.rsgb.org/news/hf2000 Alternatively, just turn up on the day - entrance is just £5.00 per day, and for this you get entrance to all the lectures. Hot and cold lunches are available and there is a bar on site.

DAY VISITORS WELCOME

Only £5 for all day

Some Convention packages still available - see www.rsgb.org/hfc2000 for details

IOTA Convention - HF2000

Lecture Programme

Saturday 14 October 2000

Main Conference Hall - IOTA Stream

1015 Opening: 9G5MD, Abokwa Expedition (AF-084), Gabon Expedition (AF-new), Ken Frankcom, G3OCA
1115 Coffee
1130 IOTA Directory 2000
1200 Questions and Answers
1230 Lunch
1330 XZ0A, Myanmar Expedition (AS-144), Steve Wilson, G3VMW
1415 5Z4WI, Wasini Island (AF-067), Phil Whitchurch, G3SWH
1500 Presentations and Announcements, inc IOTA Convention 2001
1520 4W6EB, East Timor (OC-148), Jose de Sa, CT1EEB
1545 Tea
1600 TBA

Orchid Room

1015 Small HF Loop Antennas, Professor Mike Underhill, G3LHZ
1115 Coffee
1130 HF Linear Amplifiers, Ross Clare, GW3NWS
1230 Lunch
1430 HF Contests Trophy Presentation, Justin Snow, G4TSH
1545 Tea
1600 Backyard Antennas, Peter Dodd, G3LDO

Jasmine Room

1015 73KHz - Achievements, Mike Dennison, G3XDV
1115 Coffee
1130 LF Portable Expedition Forum, Dave Pick, G3YXM
1230 Lunch
1330 LF Forum, John Gould, G3WKL
1500 DX Cluster Forum - Meet the SysOps, UKCWG
1545 Tea
1600 SD User Forum, Paul O'Kane, EI5DI

Doors open 9.00am Saturday and Sunday.
Programme subject to change without notice

Sunday 15 October 2000

Main Conference Hall

0945 DXCC Update,Wayne Mills, N7NG
1045 Coffee
1100 Propagation at and following the Solar Maximum, Gywn Williams, G4FKH
1200 HF Stacked Arrays (inc antenna modelling), Jay Terleski, WX0B
1245 Lunch
1330 HF Stacked Arrays - questions and answers, Jay Terleski, WX0B
1430 TX0DX, Chesterfield Island, Martti Lane, OH2BH and Wayne Mills, N7NG
1545 Tea
1600 Raffle

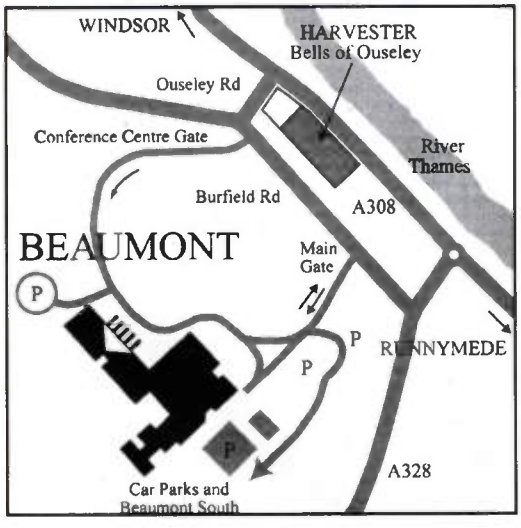
Orchid Room

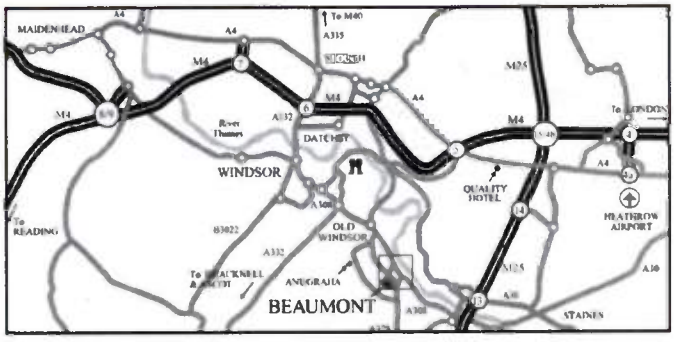
0945 100 Years of Amateur Radio, Ian Poole, G3YWX
1045 Coffee
1100 6 Metres, including 3A2K operation, Geoff Brown, G4ICD (ex-GJ4ICD), and Kari Leino, OH2BC
1200 Clipperton DXpedition, John Kennon, N7CQQ
1245 Lunch
1330 ZD9ZM, Tristan da Cunha, Bob Henderson, G3ZEM/5B4AGN
1430 -
1545 Tea

Jasmine Room

0945 Starting in HF DXing Forum, Don Field, G3XTT
1045 Coffee
1100 IOTA Forum
1245 Lunch
1330 M2000A, Bob Treacher, BRS32525, and Dave Lawley, G4BUO
1430 -
1545 Tea

Finding your way to the Beaumont . . .





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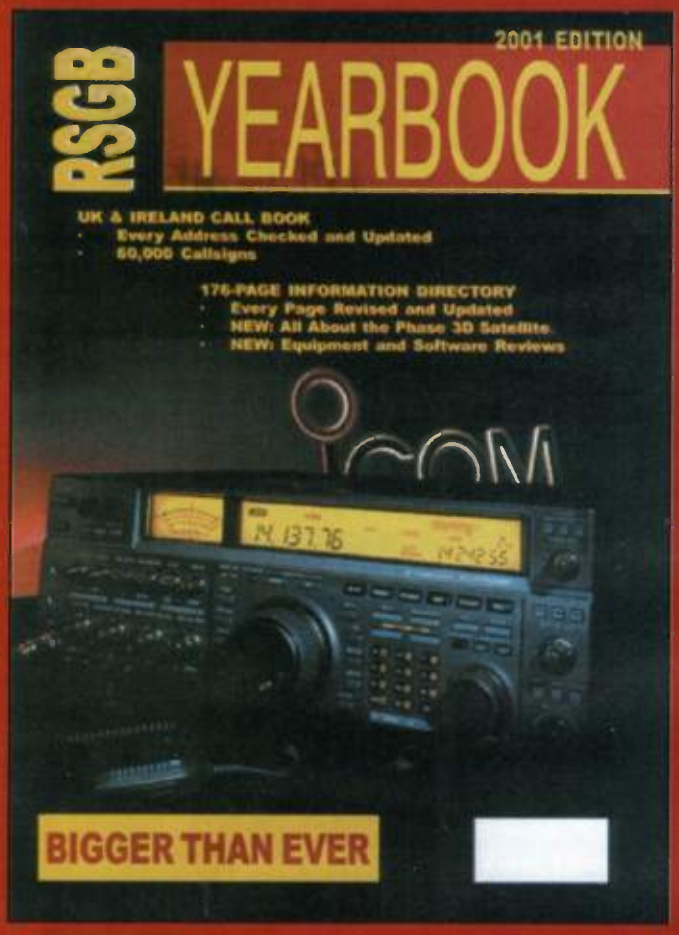

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Coffee Table

RSGB Yearbook 2001

edited by Mike Dennison, G3XDV

Every year the *RSGB Yearbook* just keeps on getting bigger and bigger. This year is no exception and the *Yearbook 2001*, at 464 pages, is the biggest and best yet. Contrary to popular opinion, only a handful of pages are identical to last year, making it well worthwhile buying the book every year.

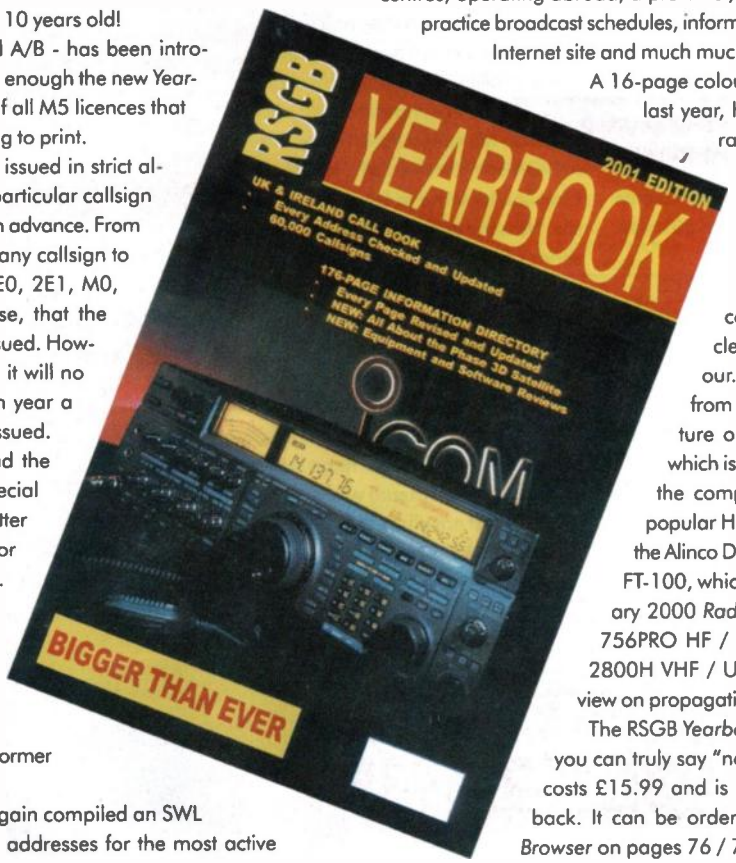
The *RSGB Yearbook* can be divided quite neatly into two sections. The biggest, at just under 300 pages, is the callsign listing. The *Yearbook* incorporates not only the RSGB's callbook, but is also the official callbook of the IRTS, listing all current EI licensees. The callsign listings section in the *Yearbook* (and on the *CallSeeker 2001* CD-ROM, which is also available) is based on the official callsign database provided by POCM Radio Licensing Centre. Other callsign listings published in books and on CD-ROMs are not as up to date, and some are known to include addresses of a few UK stations that are more than 10 years old!

A new class of licence - the Full A/B - has been introduced since last year, and naturally enough the new *Yearbook* reflects this, with two pages of all M5 licences that had been issued at the time of going to print.

Until April 2000, callsigns were issued in strict alphabetical sequence, although a particular callsign could be reserved up to six months in advance. From 1 April this year, the RA permitted any callsign to be issued in the current series (2E0, 2E1, M0, M1 and M5), providing, of course, that the callsign had not been previously issued. However, this does mean that in future it will no longer be possible to say in which year a callsign is likely to have been first issued.

RSGB members have again had the opportunity to include a free 'special entry' against their callsign, no matter whether their address is published or if they prefer to be 'details withheld'. Up to 252 characters of information could be put in and those who have taken advantage of this have included their telephone numbers, e-mail addresses, club membership, likes and dislikes and former or additional overseas callsigns.

Bob Treacher, BRS32525, has again compiled an SWL listing, with the postal and e-mail addresses for the most active listeners. New this year is a listing of the holders of the special short contest calls (eg M5A) which can be heard during the major international HF and VHF / UHF contests throughout the year.



information directory

The other section of the *Yearbook* is the information directory, which was updated as of 1 August [more recent updates will be published throughout the year on the RSGB Internet site at www.rsgb.org - *Ed*].

The information directory section is 176 pages, and contains essential amateur radio information, including band plans, beacon lists, lists of affiliated radio societies throughout the country with their officials, RSGB HF, VHF / UHF and ARDF contest information and blank contest stationery, RAE centres, operating abroad, a prefix list, GB2RS news and GB2CW Morse practice broadcast schedules, information on the ever-expanding RSGB Internet site and much much more.

A 16-page colour section contains a review of the last year, how the RSGB improved amateur radio in 1999 - 2000, amateur satellites, amateur TV, and repeaters, including new colour maps of the UK's 2m and 70cm repeater network.

This year there is a new section, consisting of reprints of topical articles and which also appears in colour. Most of the articles are reprinted from *Radio Today* and they include a feature on the AMSAT Phase 3-D satellite which is due to be launched very soon now, the comparative review of the three very popular HF / VHF 'mini-mobile' transceivers, the Alinco DX-70, Icom IC-706MkIIG and Yaesu FT-100, which originally appeared in the January 2000 *Radio Today*, reviews of the Icom IC-756PRO HF / 6m transceiver and the Icom IC-2800H VHF / UHF mobile transceiver, plus a review on propagation prediction software.

The RSGB *Yearbook* is one of those books of which you can truly say "no shack should be without one". It costs £15.99 and is published by the RSGB in paperback. It can be ordered from RSGB Sales - see *Book Browser* on pages 76 / 77 for details of how to order.

net communication

Jeremy Boot, G4NJH, on radar and classic / military radio sites on the Internet

I have touched once or twice before on the subject of old, or vintage, radio, and I must confess it is a fascinating subject. A story in *QNews*, the excellent weekly news bulletin of the Queensland division of the Wireless Institute of Australia, the WIA, made me think recently of the development of radio. With their permission, I will abridge the story and then look at some Internet links on old / military radio.

Qnews Australia:	http://www.wiaq.powerup.com.au/qnews/upload/qnews.htm
DSTO:	http://www.dsto.defence.gov.au/
Australia Nat Archives:	http://www.naa.gov.au/research/ factshet/FS126.html
Doppler Radar:	http://cimss.ssec.wisc.edu/oakfield/radar.htm
Royal Signals ARS:	http://www.rsars.org.uk
RAF Hendon Museum:	http://www2.rafmuseum.org.uk/ indexHendon.cfm
WB6FZH:	http://members.aol.com/tcsopr/
PA0PCR Louis Meulstee:	http://home.wxs.nl/~meuls003/home.html
US Early Radio History:	http://www.ipass.net/~whitetho/
G4NJH Pages:	go.to/g4njh

URLs for Internet sites mentioned in this article.

It seems that the Ministry of Defence had floated the idea that radio might be used to develop some sort of 'death ray' for defence use. This was in 1935 and in February of the same year a report was published entitled *The Radio Detection of Aircraft by Radio Methods*. Shortly afterwards, using the BBC's shortwave transmitter at Daventry, a Heyford bomber was detected at ranges up to eight miles and height of up to 6000ft.

Early radar transmitters were mounted on four wooden towers with four smaller ones for receiving. Thus was born the Chain Home System established up and down the country. Later, in the 40s, new equipment was developed known as Plan Position Indicator (PPI) with much improved performance and a display beam as a rotating line, much as modern radar does today. Targets could now be seen clearly in two dimensions. Motorised aerials which rotated constantly gave a continuous reading and multiple targets could be tracked on a single display up to about 50 miles.

some radar / military pages

So much for the résumé. What pages can we find for further reading? Well try the (Australian Government) Defence Science and Technology Organisation (DSTO) pages for up to date defence information. But this is mostly modern and highly technical stuff. Some potted history of WWII in particular can be found on the Australian National Archives factsheets which allow you to see early government documents. You can read factsheets on German use of radar, encryption and development in Australia.

You would expect the Royal Signals ARS page to be a mine of information, and it is. There is a short gallery of past equipment and good links to other sites. One of them is to the Royal Air Force Museum at Hendon. A very smart site but it misses the opportunity to put more of its archives, sound and video media on-line.

amateur-based pages

Inevitably, for Old and Military Radio, we go to WB6FZH's pages: "Share my interest in this radio equipment and it's tube-type technology in a world gone mad with solid state and digital electronics!" (ironic, then, that it needs the Internet to do so!) There is military equipment here, and many links to other sites dealing with WWII or before. Huge detail on the specs of the radios covered (eg the AN/GRC-9 HF AM / CW / MCW of USN 1943). One link took me to Louis Meulstee's, PA0PCR, site. He is the author of *Wireless for the Warrior*, a series of books devoted to the technical history and development of British Army radio communication. Ah, this is more like it. You can read the volumes on-line. I loved this site. It is a super source of information without being overwhelming to the non-expert. Now I understand what the 'Wireless Set No . . . ' are and there are excellent photos too. The power of these huge heavy sets (compared with now I mean) was often so low: 0.5 to 10 watts. But not all: Wireless Set No 3 (for use in a vehicle) was a colossal 400W. Described as: "medium range communication between Corps and Division and Line of Communication. Frequency range 1.3 - 3.4MHz. MO control. RF output 400W." Dated from 1934.

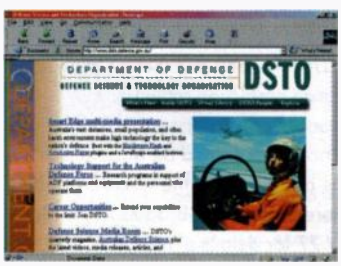
us early radio

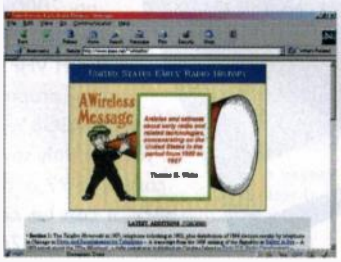
Off the military link, but irresistible, to the US Early Radio History Page which gives details of domestic sets from as early as the 19th century. In a fascinating essay by Thomas White, we learn of a telephone entertainment service. Why am I thinking of the Internet 80 years later? "The most advanced and long-lived was the Telefon Hírmondó, set up by inventor Tivadar Puskás in Budapest, Hungary, which began operation in 1893." And that "the Electrophone service was free - at least for some jolly chaps recuperating in a London hospital, as reported in (the article) British Wounded Hear London's Favorites via Telephone, which appeared in the August, 1917 The Electrical Experimenter." Frequent links on the pages will tell you more. Once you start delving here, you won't stop.

glorious valves

WWI saw the confiscation of the few domestic wireless sets there were in Europe and across the Atlantic, but straight after, public broadcasters came on the scene, our own BBC included of course.

Still from the Thomas White article I have just quoted: "The inefficient design of the original Audion (valve device 1907) meant it was initially of little value to radio, and it was hardly ever used, especially in light of its high cost and short life. In fact, in the 1909 edition of Operator's Wireless Telegraph and Telephone Handbook, Victor H Laughter's review of the Audion, stated "it is doubtful if it will ever come into wide use, owing to the difficulty in manufacture and short life". . . it often glowed an enchanting blue or violet when in use, varying in intensity in response to strong signals. And then the filament would burn out." Happy days.





SCANNERS INTERNATIONAL

Steve Trevett tunes in to the Red Arrows

■ The Red Arrows appear at plenty of locations around the UK, supporting a variety of special events throughout the year as well as summer air shows. The frequency they use for inter-pilot communication is 243.450MHz using AM. I remember a live nationally-broadcast TV programme covering an air show some years ago, where they re-broadcast this audio, from an off-air receiver, during the Red Arrows display part of the show. More recently, I'm told that typical comments are simple phrases like "turning left now", "smoke off now" etc.

'Red 1' apparently has a rather distinctive voice, although (probably due to the increased G-forces) manoeuvre commands can take a unique speech pitch. Red 1 co-ordinates the main formation, and Red 6 co-ordinates the synchro pair when they are active.

At the Royal International Air Tattoo at RAF Cottesmore in Rutland over the weekend of 22 / 23 July, the audio of the Red Arrows radio communications was retransmitted over the event's RSL radio station, *Harrier FM*, on 87.7MHz for everyone to listen to.

concerts on your scanner?

A regional newspaper recently carried a report on 'bootlegging' of music concerts. It said that the bootleggers took advantage of a system designed to help those who are hard of hearing at the venue, and 'tapped off' the locally-transmitted audio on to a recorder. Rather than being a radio transmission, this was most likely the inductive loop principle used in theatres, cinemas etc, where the audio is fed to a large wire loop, which is designed to be able to be inductively coupled to a pickup loop in an amplified hearing aid.

There are several professional systems available for this, or you can make your own for use at home. Build an induction coil of around 2.5mH (or you can buy one off the shelf from places like Maplin), linked to an audio amplifier for reception within the immediate vicinity of the multi-turn wire loop around your room that's linked to the speaker output of your audio amplifier. Watch the impedance rating of your amplifier as otherwise you could blow the output transistors: you may need to use a suitable matching audio transformer.

But budding bootleggers should be aware that the audio quality isn't always what could be described as hi-fi, naturally enough it's also only in mono rather than stereo. But this 'loop' principle is well documented and interesting to try if you're an experimenter!

withdrawal symptoms?

As this is, unfortunately, the last *Scanners International* column in *Radio Today*, to save readers having withdrawal symptoms here's a few ideas for those with Internet capability (and remember you can usually nip down and browse the web quite freely at your local library rather than needing to have Internet facilities at home).

For UK-based scanner information and frequency updates, take a look at the Professional Radio Monitoring Association (PROMA) web site, which as I write this was just updated with files on recent air shows plus emergency service VHF frequencies. You'll find it at www.geocities.com/siliconvalley/station/6670 Unfortunately, the 'Eavesdroppers' signal decode site which I've mentioned in the past has now shut down permanently. Ian at Eavesdropper says, "Many thanks to all and I hope you continue to enjoy the hobby for as long as it lasts!"

For topical day-to-day information with an opportunity to 'join in', EuroScanner (ESL) is an Internet e-mail mailing list specifically for people with a genuine interest in all facets of scanners. The prime discussion focus of the list generally encompasses matters relating to scanning in the VHF, UHF and microwave spectrum, although from time to time (eg search and rescue activities, military exercises or Richard Branson's global balloon flights) HF topics may also feature. List members come from all walks of life and many feature a professional involvement in radio at various levels. To join Euroscanner, you simply need to send an e-mail to: euroscanner-join@user.itconsult.co.uk with no 'Subject' and no 'Body text' - just a blank e-mail. An e-mail will be sent back to you automatically asking you to confirm your intention to join.

If you'd like to take a listen to live scanner activity on the web, take a look at http://www.stationdirectory.com which carries a number of links for scanners as well as music and news. Live Birmingham Airport air traffic control was reported to have been featured a short while ago at this site.

And for plenty of live police scanner audio sites (predominantly US-based) point your browser at http://www.angelfire.com/tx4/tt/scanner/policescanner.html for an alternative insight to scanner action!

Finally, if the above hasn't already given you a few ideas, you can visit the link site of the 'Top 50 Scanner Sites' at http://new.topsitelists.com/bestsites/k4lyp/topsites.html which gives you one-click links to plenty of sites around the world, including a selection around the UK and Europe.

Happy scanning!

Please remember that you should check your country's law before tuning in, as many services require authority from the sender of the transmissions. In the UK, the RA's free information leaflet *Receive Only Radio - Scanners etc. (RA169)* gives further information. Neither the columnist nor the magazine's publishers wish or intend to incite illegal reception.

hf happ

Martin Atherton, G3ZAY, looks forward to this month's RSGB International HF and IOTA Convention at Windsor, and gives some tips for cracking that mega pile-up

The countdown is running for the HF and IOTA Convention at the Beaumont Centre in Windsor on the weekend of 13 - 15 October. There is a great line-up of speakers and international guests so this is a 'must' for everyone interested in HF activity. Check the organisers' web site at http://www.g3wkl.freeserve.co.uk/conv/prog.htm for latest details and make your reservations on the RSGB web site. DXpedition speakers will include G3OCA on the 9G5MD Abokwa Island expedition in Ghana, G3VMW on the ambitious XZ0A Myanmar expedition, G3SWH on the 5Z4WI Wasini Island trip, CT1EEB on East Timor activity, G3ZEM on his visit to Tristan da Cunha, N7CQQ on the Clipperton Island expedition, and world-famous DXer Martti Laine, OH2BH, on the TX0DX Chesterfield Island activity. Come and meet some of the world's greatest DXers, share their enthusiasm and experiences, and hear what goes into putting a rare spot on the air.

Summer conditions in July and August were reasonably good, with some loud signals coming in from the Far East and Oceania on all the HF bands during the entire day, and North America audible for much of the evening and night. A number of IOTA operations in Alaska were putting in great signals on 14MHz around 0500UTC in the mornings and I worked KH5/KH6ND on Palmyra Island at 1300UTC on 14MHz when the band appeared otherwise almost dead. It was also a good time to work stations in southern Africa on the LF bands as they had fewer thunderstorms and lower noise levels during their winter and could actually hear us calling them without deafening static making life difficult.

The DXpedition to Tromelin Island (FR/T) in early August livened things up enormously with three or four stations running simultaneously and giving everyone the opportunity to work this rare island near Madagascar on all bands from 1.8 to 50MHz.

DX conditions during September / October at sunspot maximum should once again be as good as they get - though the higher bands will tend to close at some stage during the night. Lower daylight absorption levels than mid-summer should produce even stronger signals on HF and give us a chance to hear some of the low power stations or those with inferior antennas. And don't forget that mid-September is the traditional time for working New Zealand on 1.8MHz, so why not put up an antenna and see what you can hear at the peaks around our sunset and sunrise?

political dxing

Last month I mentioned the importance of keeping an eye on political developments and shortly afterwards the story of the British Indian Ocean Territory came up on the radio. This territory is a collection of atolls and islands in the middle of the Indian Ocean which used to be home to a few thousand 'Ilois' ('islanders' in Creole French), before the British government deported them to make way for the huge US military base on Diego Garcia.

The islanders still want to return home and are bringing a court case in the UK. If they do make it back, they plan to build up a tourist business and the Salomon Islands, which is one of the rarer IOTA island groups, may be back on the air. Interestingly, a Radio 4 programme on the topic interviewed Jacky, 3B8CF, an active HF DXer today who witnessed the original deportations while he was posted to the islands from Mauritius.

The DXCC entity of the Chagos Archipelago is almost continuously on the air - listen for the VQ9 prefix - thanks to US military personnel stationed on Diego Garcia. But in recent years nobody has ventured north to the abandoned ghost villages on the Salomons.

Agalega Island in the Indian Ocean, which will be home to the 3B6RF DXpedition in October.

iota expeditions

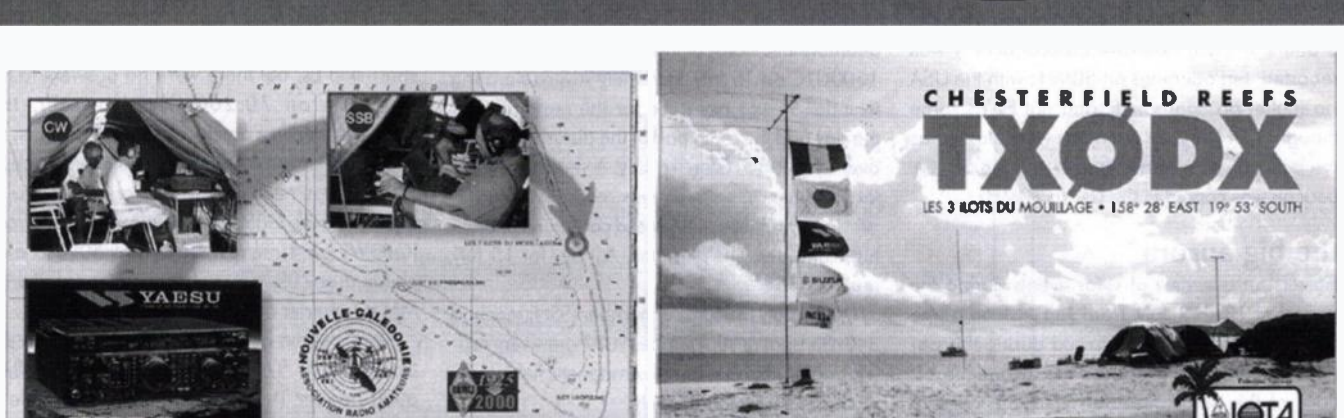
The TS7N activity from Tunisia's Kerkenah Islands (AF-073) is scheduled to take place between 15 and 30 November. A team of 12 German amateurs, plus JH4RHF, I2DLS and IT9ESZ will operate on all bands (6 metres included) and modes. They will participate in the CQ WW DX CW Contest (Multi-Single). QSL via DL6BCF (Britt Koester, Putzstr 9, 45144 Essen, Germany). The web site for the operation is at http://qsy.to/ts7n/

Ken Pendarvis, AD6KA, will be active as 5R8GQ from Madagascar (AF-013) for one month starting on or around 26 August so he should still be there when you read this. He plans to operate SSB (mainly), CW, PSK31, and RTTY on 10 - 40 metres (maybe some 80 and 160 metres). He is also planning a side trip to Nosy Be (AF-057) for a few days. QSL direct ("with green stamp - No IRCs!") to AD6KA. Check his web site at http://www.qsl.net/ad6ka/ad6ka/Page_1x.html

Gerard, F2JD, will leave for Martinique one month later than thought. He should be there for four months starting early September.

Western DX Cluster Group members Bill, G3WNI; Tom, G0PSE; and Doug, G0WMW, will be active as GB0SM from the Isles of Scilly (EU-011) between 30 September and 7 October. They will operate on 10 - 160 metres and possibly 6 metres on CW, SSB and probably RTTY. QSL via G3WNI either direct or through the bureau (bureau cards can be requested at

openings



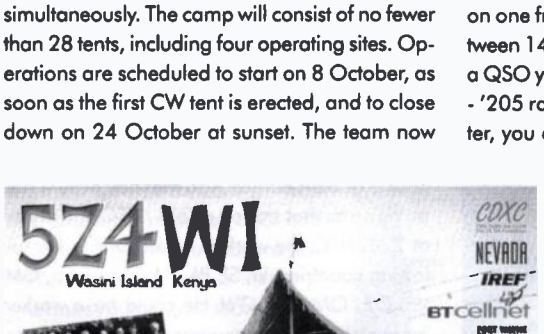
The reverse (left) and front of the TX0DX QSL card from the Chesterfield Islands, off New Caledonia in Oceania. Come to the HF Convention on 13 - 15 October to hear first-hand about this operation from top DXer Martti Laine, OH2BH.

g0pse@qsl.net).

Wil, DJ7AA; Manfred, DK1BT; and Tina, DL6MYL, will operate as HO1A from Contadora Island (NA-072), Panama, between 16 September and 1 October. They will concentrate on CW and RTTY and on the low and WARC bands and will participate in the CQ / RJ WW DX RTTY Contest (23 - 24 September). QSL via DL6MYL. The home page for the expedition is at http://www.qsl.net/ho1a/

The all-band all-mode 3B6RF DXpedition to Agalega Island (see photo opposite, bottom left) will feature six 1kW stations, one 6 m station, and one station for satellite communication on the air simultaneously. The camp will consist of no fewer than 28 tents, including four operating sites. Operations are scheduled to start on 8 October, as soon as the first CW tent is erected, and to close down on 24 October at sunset. The team now includes a new member (Rafal, SP6TPM) but Willy, HB9AHL, had to withdraw for professional reasons. Full information on the DXpedition can be found at http://www.agalega2000.ch/

The IOTA operation from Hon Tam Island (AS-new) scheduled for July / August was postponed, but members of the Vietnam ARC including Hiroo, JA2EZD / 3W2B, plan to visit it "in the coming months".



Phil Whitchurch, G3SWH, will be at the HF Convention to give a talk on the IOTA operation from Wasini Island in Kenya.

pile-up practice

The spate of DXpeditions recently has given everyone the opportunity to practice the art of cracking a 'pile-up'. Typically a DX station will transmit on one frequency - say 14195kHz and listen between 14200 and 14205 or 14210kHz. To make a QSO you can just select a frequency in the '200 - '205 range and call at random - or, much better, you can quickly flick the VFO button, select the alternate VFO, and try to find the exact locations of the stations being worked. If you hear that G3ZAY has just been called, and then identify him giving a report on 14204, you will stand a good chance of success if you make your next call on 14204 also.

If you don't get through and you hear instead someone else being called by the DX station, then flick the VFO switch again and see if the other guy is also on 14204 or another frequency in the range. Some DXpedition operators will continue with a single frequency in the range for quite a long time whilst others will move their receiver dial slightly up or down after each QSO. If you can spot the pattern you are at least 10 times more likely to make a QSO than if you call at random. And be alert for the DX station which deliberately misleads you and listens outside his announced range - he may even have a special frequency for his friends and will probably work you as well if you are clever enough to find it! Although the above comments have used SSB frequencies as examples, the principle is just the same on CW.

language practice

HF amateur radio is a great opportunity for language practice. Apart from getting you ready for the next trip to Ibiza it can also improve your DX scores. DX stations often don't give their calls very frequently during a QSO so it helps if you can identify what language they are speaking or maybe what accent they have when using English. For example, I was looking for a rare Indonesian island during July and was able to track it down quickly when I found a station near the 21260kHz IOTA meeting frequency who was speaking English with a very distinct Indonesian intonation. And of course as I have mentioned in the past, some DX stations announce their listening frequency in a language other than English, so it helps at least to know your numbers in a range of different languages. Sometimes also you may find that foreign language phonetics can help to crack a pile-up - practice your callsign in say Russian and see what happens.

73 from Galina Troika Zina Anna Igrek.

VHF/UHF MESS

■ July was another bumper month of VHF / UHF activity. 70MHz cross-band activity was reported from USA; there was very good Sporadic E on 4, 6 and 2 metres, extensive auroral activity was reported, big openings on 50MHz with the USA via multi-hop Sporadic E (and not F2 as some thought), 144MHz Es openings were classed as the best for many years, and finally the 5B4CY beacon was copied in the UK on 70MHz.

the big aurora

Here is an overview of solar events during the period of 13 - 17 July, from Jan Alstead of the DXLC: "Lots of flaring occurred during this period. Region 9077 produced the second largest flare of this solar cycle, an X5.7/3B event at 1024UTC on 14 July. Strong type II and IV sweeps were recorded. The flare occurred while the region was near the central meridian and the resulting halo coronal mass ejection was extremely impressive and fast (estimated at above 2000km/s).The flare was also a huge proton producing event which quickly contaminated most space-based solar instruments, particularly ACE measurements were rendered useless. The above 100MeV proton flux peaked at 408 pfu on 14 July while the above 10MeV peaked at an extremely high value of 24000 pfu at 1230UTC on 15 July. The transit time for the CME was an astonishingly short 28 hours as the most intense geomagnetic storm of this solar cycle began near 1500UTC on 15 July. Extremely severe storming (K index 9) was observed for the remainder of the day and the main part of the disturbance was over by 0600UTC on 16 July. A very strong polar cap absorption event was recorded on earth and totally ruined radio-based communication at high latitudes. The planetary A index for 15 July reached 152".

During July the sunspot number (SSN) reached 343! Sunspot group number 9087 grew very rapidly and exhibited a complex magnetic field, making X-class solar flares likely.

There were many reports on the aurora in July. Many reported that it was even better than the last one back in April. Mat, G7FBD (IO81), from Bristol commented that this time many European stations were active. His best contacts on the 15th was DK8ZB at 2225 and DL2GBT at 2230UTC (55 to JN49KW and 58 to JN48CU respectively). I presume Mat worked the stations on 50MHz, as his e-mail did not state the band, though he also goes on to say that there were no visible signs of the aurora in Bristol, mainly due to the full moon.

Left: Phil Taylor, GJ6BUK, and right Phil, GJ4CBQ, who called into see your scribe for a quick drink and chat. Both Phils are overhauling the GB3GJ repeater in Jersey and repositioning it at the GJ3DVC club headquarters in St Ouens, Jersey.

70MHz news

Mike, GU6AJE, is now active on 4 metres. He heard the GB3ANG beacon in Angus, Scotland, for over an hour on the morning of 11 July via short-skip Es, but there were no answers to his CQ calls on 70.200MHz. However, the *PacketCluster* was overloaded with 6m spots, so keep a look out for Mike especially during the Es season if you need GU confirming.

Dave Court, G3SDL / EI3IO, is now active from IO63WF on 4 metres. Dave runs 50W to a 4-element at 70ft AGL using a CB transceiver to MM transverter and 'home-brew' amplifier.

Here's some news from Bill, WA3RA, on the Icom T81A/E: "I recently acquired an Icom T-81A quad-bander. This handheld rig can be made to play on 4m very easily, using the popular mod posted at most of the mod sites. I measured almost 5 watts to a dummy load (naturally, we don't have the band here for transmitting), and the receiver hears better on 4 than it does on 6m! I've added a 4-element Yagi (horizontal) to my station, and can frequently hear beacons using my IC-736 with a homebrew receive converter. Perhaps we can have a cross-band FM contact if conditions are right?" Bill will be listening on 28.445 and 50.110MHZ and I have advised him on the cross-band frequency.

Steve, M0BPQ, reported that during the 50MHz opening on 11 July 5B4CY was 599 in IO91 on 50.499MHz. A quick QSY to 70MHz brought a very weak signal from 5B4CY on 70.114MHz. Did anybody else hear this beacon on 4 metres?

50MHz news

Firstly, GW7SMV is claiming the first GW contact with Monaco, 3A2, at 1734UTC on 1 July, any challenges please? The QSL information for 3A2MW is: Franco Lucioni, PO Box 2, 98000 Monaco, Monaco.

On 2 July David, G3FPQ, heard VK6JK calling CQ at 0950UTC and G4CBW heard him a couple of days earlier. Also that day 8P9JM had an opening that started at 2111UTC and ended at 2242UTC. He worked 66 stations in the following countries: W, SP, PA, P4, DL, G, S5, GM, VE, OZ, OM, SM, GW. He could have worked more stations if grid squares were omitted in reports! Signals were very weak, much QSB and many stations were calling out of turn which made it tough going.

Jimmy VP2V/W6JKV reported that by 5 July he had 500 QSOs to date. Countries included VP2V, KP2, KP4, ZF, C6, YV, W, VE, EA, F, CT, G, GU, SP, OZ, ON, DL, PA, S5, EI and UJ.

Emil, W3EP, reported on the 10 July 6-metre

GAGE

Geoff Brown, G4ICD, with news of the big aurora and the best 144MHz Sporadic E opening for many years

opening between North America and Europe. He says this was "one of the best in a long while". US stations as far west as the states of Wisconsin, Minnesota, South Dakota, and Texas worked into Western Europe. On the European side, Poland seemed to be as far east as any US station worked. Emil had 81 QSOs with EI, G, GW, F, ON, PA, DL, SP, OK and OM. OM was a country number 112 for Emil (the USA lads are catching us up at last!)

Speculation by many that this was an F2 opening is doubtful and it was more than likely chordal or multi-hop Es. The reason why many people thought it was an F2 opening was the high solar figures. But although 28MHz was open, 21MHz was *not*, which in my opinion indicates Sporadic E. However, whatever mode it was, who cares as long as the contacts are made?!

7P8AA in Lesotho is now active on 50MHz. Keep a look out for him during the equinox period this autumn.

Finally for 50MHz this month, Norman Vincent, G3NVO (IO91), reported working ZS6AVP on 16 July. There were numerous other reports but sadly we have run out of space this month.

50MHz expedition news

Gerard, F2VX, President of the Clipperton DX Club, reports that their Bhutan project is now "on the road". They will fly from Paris to Thimphu on 1 September and return on the 15th. The team consists of: Alain, F6ANA; Denis (YL), F6HWU; Alain, F5LMJ; Vincent, F5MBO (also known as G0LMX); Christian, FH/TU5AX; and Gerard, F2VX. They will travel with five transceivers: two Kenwood TS-50s, two Icom IC-706s and one Yaesu FT-757 and they will be active on 50MHz.

The Kingman Reef / Palmyra DX Group will operate from Kingman Reef in early October 2000. Operation will be for approximately 12 days in early October and will include two full weekends. Six stations are planned with amplifiers and Yagis on the higher bands and a Titanex and Battle Creek Special on the low bands. They will also operate 6 metres, RTTY and satellite. Current team members are NI6T, N4XP, N4BQW, KH7U, NH6UY, K4UEE, WB4JTT, K3VN, DJ9ZB, AA7A, OH2BU, WA1S, and RA3AUU. Additional team members will be added for a total of 16 operators.

Jon, N0JK, informs us that he is considering a 6m DXpedition to Guadeloupe (FG) in the Caribbean this autumn, perhaps during the second or third week in November.

In a press release by Bob Henderson, 5B4AGN (also known as G3ZEM), he states plans for his operation from Tristan da Cunha in September 2000 are now well advanced. Antennas and associated cabling etc are being despatched from the UK to rendezvous with the MV *SA Agulhas* at Cape Town, South Africa. All travel arrangements have been finalised, and Bob and his wife Karen will depart from Cape Town on 31 August with a scheduled arrival at Tristan da Cunha on 4 September. If on schedule, ZD9ZM should hit the airwaves on 5 September and depart on 25 September. Activity will be on 160 - 6 metres mostly on CW, with limited amount of RTTY. QSL is via William G McDowell, K4CIA, 13208 Norwood Road, Raleigh, NC 27614-9134, USA.

Chris, G3WOS, reports that he is now the proud owner of a shiny new callsign, ZD8SIX. Chris has booked his RAF flight to Ascension on Monday 30 October and should be active within a few days of arriving there. For those of you who missed ZD8MB during the last cycle this is your only chance of working ZD8, as there are no other permits / operators active on 50MHz. Chris has also announced that he will re-visit the Falkland Islands next March as VP8BDL.

144MHz Es

There were a few Sporadic E (Es) openings in July on 144MHz.

G4LOH (IO94) reported UT8AL in KO61 who was 59 on 11 July at 1806UTC. Also worked was RA3LW (KO54). G1AAR (JO00) worked YL3AG in KO26 also on 11 July. Pascal, F6EAS, located in Normandy worked ES5AAM in KO38 also on the same day.

moonbounce

Peter, G3LTF, reports: "In the May SW I operated on 432MHz for one pass only and worked on the 6 May S52CW, I5TDJ, F6HYE, G4ALH and JR4AEP. On 10 May (Wednesday) I was on looking for W7QX and W7SZ on 1296MHz, they had bad weather in Arizona and were not active, but I did work G4CCH, OZ6OL, K2DH and DF4PV, which is not bad for a midweek session. On 11 May I added IK2MMB. On 19 May we had a very pleasant visit by Jerry, W7QX, and his wife. We ran up my G4COM NF measurement system to compare his W7CNK pre-amp with mine: his was slightly better. We had a good chat about everything to do with EME. On 30 May I worked OX2K for initial number 154 on 1296MHz. I believe I was their first QSO. At the time they were not too strong, but later, on 3 June, I worked them on SSB with a much better signal. On 31 May I worked the OX expedition on 432 for initial number 351. In the June SW on 1296MHz, I worked G4CCH on SSB - Howard had a great signal with his new dish, W7SZ, WA8WZG, LU8EDR for initial number 155, and W7QX. Heard were VE6TA, OK1CA and SM2CEW. Also heard was F5IQA, I'm not sure if he is a new station? I had a sked with DD1XF on 2320, but we didn't make it although we were both hearing echoes. Possibly my frequency was a bit out. This was a pity as he is sadly going QRT on EME".

Finally, please note that my VHF / UHF web site has changed location. It can now be found at: http://web.libertysurf.co.uk/geoff.brown/index.html

Geoff's, G7RMG, antenna system. Geoff is active on 50, 144 and 432MHz from Stoke Wake which is west of Blandford Forum in Dorset.

Contests

This month we look in detail at 'the big one': the *CQ* World Wide DX phone contest

■ October is the month of 'the big one' - the CQ World Wide (CQWW) DX phone contest (the comparable CW event is in November).

This month we concentrate almost entirely on this event, but brief details of other contests during the month of October are given in Table 1.

Many non-contesters often assume, quite wrongly, that in order to compete in this contest you need illegal levels of power and massive beam antennas on giant sky-scraping towers. Certainly it is true that in order to compete with the highest-scoring stations in the world, you do need a top station yourself. But amateur radio contesting, at this level at least, is like the Olympic Games (highly topical at present!): people compete quite happily in, say, running or swimming races at all sorts of levels without ever dreaming that they are likely to win an Olympic medal. But this doesn't stop them enjoying their competition at a lower level. And it's exactly the same in CQWW. Even with a superb station, someone in the UK would have great difficulty in competing with stations in North Africa or the Caribbean. It is, however, possible to be the highest-scoring station in *Europe* from the British Isles, and indeed, we have some superb contesters here, such as Rob Cummings, GI0KOW; Andrew Williamson, GI0NWG; and Steve Cole, GW4BLE, who have achieved exactly this. There is also the major multi-operator, multi-transmitter station M6T organised by the Martlesham Radio Society in East Anglia, which has won the European multi-multi section.

Even at the European level, though, competition is extremely intense, so it is, arguably, even more fun to compete against other similarly-equipped stations in the British Isles, perhaps competing with a neighbouring group in the next county, or just against your own score from the previous year.

set a target

There are a number of different sections in the CQWW contests, including 'low power' (100 watts) and QRP, so if you don't have a high-power linear amplifier you are only competing against others running the same power level.

Single operators can also take part on a single band, allowing them to put up a competitive antenna for one band, without having to worry about having any antenna at all for the other five bands.

If you do want to compete with 'the big boys', but are not lucky enough to live in a house with no neighbours (or TVI), it is still possible to take part by forming a group with some other enthusiasts and operating from a location - possibly portable - where it *is* possible to run the full legal limit to a beam antenna.

Very few operators are able to - or even would want to! - stay on the air virtually without a break for 48 hours, so it can be much more fun to compete as part of a multi-operator group so that you can take it in turns to do the operating.

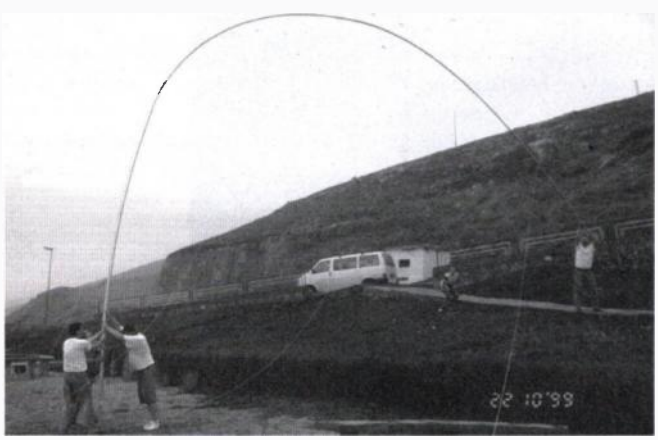
With a group of, say, half a dozen operators it is likely that all members of the group will be able to supply some equipment or expertise. For a multi-operator set-up, one or two transceivers, one or two linear amplifiers, at least one triband beam and one multi-band antenna, plus one or two PCs for logging, is the sort of equipment count required. It's therefore unlikely that any one individual will be able to provide everything that's necessary; another good reason for doing it as part of a group.

It's important to set yourself a target before the contest starts. This could be simply to make 100 QSOs, or to work 50 different countries, or perhaps to be the highest-scoring station in your particular category in England, or Scotland.

contest dxpeditions

It's true that stations located in the Channel Islands, Isle of Man, Northern Ireland, or the Republic of Ireland have an advantage over those taking part from England or Scotland, because of the rarity of their callsigns. Because each DXCC entity is a Multiplier on each band, stations competing in CQWW will want to make at least one QSO on each band with a station in each country. If you happen to be the *only* station active in the contest from, say, Jersey, and there are, say, 200 stations active in the contest from England, you are likely to have 200 times as many stations wanting to call you than if you were operating from England! It is therefore obviously much easier to make high QSO totals from such locations. For this reason individuals and especially groups often mount DXpeditions especially for the contest.

One such group is the Bavarian Contest Club, which set new world records in the multi-operator, multi-transmitter section of both the CQWW phone and CW contests in 1999 when operating as CN8WW from Morocco. This year they will be repeating both operations. Tom Platz, DL4MCF, says, "there is a very good chance to work CN on all bands from 160 - 10m, for which we kindly ask you. Please work us again, even if you worked us in the past and now have received your QSL card. There will be a new picture QSL card for the upcoming activities. Work us on five or six bands and receive a special QSL card to honour your high performance. Before and after the con-



This may look disastrous, but don't panic! The Titanex 85ft-long 160m vertical is *meant* to bend like this. Almost miraculously, it straightens itself out and requires only one or two sets of guys.

What a beautiful site! The CN8WW 40m 2-element beam on a trailer tower right on the sea. This picture and the one left are from the Bavarian Contest Club's excellent web site of their 1999 Moroccan contest expeditions.

test we will operate as 5C8M on CW, SSB and RTTY on 6m and also on the WARC bands. More information about the DXpedition is on our homepage at http://www.dl6fbl.de/cn8ww/ QSL cards for CN8WW and 5C8M go via DL6FBL (bureau or direct): Bernd Och, Christian-Wirth-Str 18, D-36043 Fulda, Germany."

last year's uk results

The official scores of the UK and Ireland entries in last year's CQWW phone contest are given in Table 2 below. You can use these to set yourself a target for this year's event, both in terms of numbers of contacts and numbers of multipliers to be worked. Thanks to Roger Western, G3SXW, for making these scores available.

HF EVENTS			
1 October	0700-1900UTC	RSGB 21 / 28MHz SSB Contest	RS, serial number, district code
15 October	0700-1900UTC	RSGB 21 / 28MHz CW Contest	RST, serial number, district code
28 / 29 October	0000-2400UTC	*CQ* World Wide DX phone Contest	RS, CQ zone (NB: UK is Zone 14)
VHF / UHF / SHF EVENTS			
7 October	1400-2200UTC	RSGB 1.3GHz Trophy Contest	
7 October	1400-2200UTC	RSGB 2.3GHz Trophy Contest	
7 / 8 October	1400-1400UTC	IARU 432MHz - 248GHz Contest	
12 October	2000-2230 local	RSGB 1.3GHz Cumulative Contest	First of five sessions
12 October	2000-2230 local	RSGB 2.3GHz Cumulative Contest	First of five sessions
16 October	2000-2230 local	RSGB 432MHz Cumulative Contest	First of five sessions
20 October	2000-2230 local	RSGB 144MHz UK Cumulatives	Fifth and final session
22 October	0900-1300UTC	RSGB 50MHz Contest	
27 October	2000-2230 local	RSGB 1.3GHz Cumulative Contest	Second of five sessions
27 October	2000-2230 local	RSGB 2.3GHz Cumulative Contest	Second of five sessions
31 October	2000-2230 local	RSGB 432MHz Cumulative Contest	Second of five sessions

Table 1: Contest calendar for October 2000.

Call	Category	Points	QSOs	Zones	Countries
ENGLAND					
M5D	A	3,625,020	3285	132	408
G3UFY	"	277,984	486	64	174
G4KIU	"	48,880	304	30	100
G4OJH	28	490,620	1381	37	119
M4R (op G4AXX)	21	319,431	1065	33	114
G4WPD	"	180,918	667	32	106
G3NLY	14	968,064	2640	39	153
G3TVU/M	"	42,622	248	25	76
*G3VAO	A	1,015,644	1230	100	352
*G4IIY	"	707,940	677	100	337
*G3LOJ	"	205,646	495	57	202
*G0VBD	"	189,392	451	49	129
*G6QQ	"	173,019	480	56	175
*G4NXG/M	"	122,070	296	62	133
*G3JKY	"	114,848	379	47	147
*M0BWY	"	89,920	318	43	117
*G3RSD	"	37,180	188	32	98
*G0KDS	28	179,928	639	31	105
*G4PCI	"	170,856	577	27	99
*G0NWY	"	146,673	498	28	101
*G0KXL	"	29,484	147	27	90
*M0BJL	21	199,206	764	33	120
*G0ATG	"	49,622	327	23	63
*G0VQR	"	10,150	107	14	44
*G0JJQ	14	16,958	212	12	49
*G3XWZ	1.8	8,427	37	4	21
IRELAND					
EI8IC	A	1,515,746	1803	85	312
EI4DW	"	1,233,728	1687	72	224
*EI4CF	A	345,402	561	73	206
JERSEY					
*GJ0NYG/P	28	340,900 1078	31	109	
NORTHERN IRELAND					
GI0KOW	A	10,457,664	6375	155	589
*GI0KVQ	A	297,075	651	58	175
*GI0OUM	"	121,680	416	49	146

Call	Category	Points	QSOs	Zones	Countries
SCOTLAND					
GM0F (op GM4AFF)	A	3,347,180	3145	127	453
GM3BCL	"	931,952	1240	81	233
GM3RTJ	"	78,240	246	46	117
GM0EGI	21	255,204	1000	29	110
*GM0FET	A	595,800	1001	70	230
*MM0BQI	"	321,433	587	72	257
*GM4HQF	"	297,088	693	51	160
*GM0FQV	28	360,472	979	35	129
WALES					
GW4BLE	A	6,657,018	4608	136	457
GW0RYT	"	377,720	769	63	203
*GW3JXN	A	1,437,678	1721	97	314
*GW3NJW	"	279,972	517	63	189
*GW3KJN	"	22,330	124	27	50
QRP					
GM4ELV	A	35,072	246	33	104
GW0VSW	A	14,065	105	27	70
2U0ARE	28	17,024	135	16	48
ASSISTED ENGLAND					
G3TMA	A	1,029,990	1072	97	320
MULTI SINGLE ENGLAND					
M1P		8,106,700	4715	148	592
GB3RS		3,450,664	2945	130	472
G3B		2,455,225	2088	117	428
G1Y		2,066,134	2206	90	316
M2H		1,558,152	2238	76	230
M2G		1,120,290	1664	78	243
G4WAC		121,794	373	48	111
M5W		49,742	235	32	87
G0EYO		33,988	171	32	84
M4T		13,446	132	25	58
G0RAF		8,232	110	14	42
GUERNSEY					
MU0BKA		5,370,750	4105	143	539
MULTI MULTI ENGLAND					
M6T		29,338,624	14,655	188	836

Table 2: UK and Ireland scores in the October 1999 CQWW phone contest. 'A' = 'All Bands' and an asterisk* before the callsign indicates the 'Low Power' (100 watts) section. 'Assisted' indicates that assistance was received from the *DX Cluster*.

Spectrum Broadcast

Martin Peters asks if 'webcasting' will eventually replace conventional radio broadcasting

■ It's that time of year again. The Radio Authority has just published its free pocket booklet covering independent radio in the UK. In it you find station details including frequencies, on-air and licence expiry dates and, wait for it, a fold-out colour map. The new digital multiplexes are also given space and there's advice on how you can improve your radio reception. Get yours by calling tel: 020 7887 4299, leaving your name and address after the tone.

worldspace

Remember Worldspace? That's the Washington DC-based company that broadcasts direct from satellite, to portable - and now, so it would seem, mobile - receivers, mainly in the third world. There will be a total of three satellites in the Worldspace fleet - Afristar and Asiastar, already in orbit, and Ameristar, slated for launch next year.

Reception is impressive, delivering FM-like quality to a 'boom-box' and a small flat-plate antenna with a clear view of the sky. Take up on the receivers, though, despite a recent price reduction, has been disappointingly low. In countries where the daily wage can amount to no more than a dollar a day I guess it's really not that surprising.

With a view to creating a viable service to users on the move, Worldspace has come up with a wheeze which uses the time-diversity system of signal recovery. The satellite transmits two identical signals, one delayed by 4.32 seconds with respect to the other. The car's on-board receiver normally listens to the delayed version, storing the earlier transmission in its memory. When a signal interruption occurs due to an obstacle - bridge, trees etc - the receiver seamlessly switches to the stored version and the programme continues - uninterrupted. Ground-mounted terrestrial repeaters will fill the gaps, in underpasses and the like, where the satellite's signal may be lost for longer periods.

around the radio & tv world

The United States is looking to launch a new international television service to replace VOA-TV and WorldNet. If you've ever watched either of these two scintillating channels this can't come a day too soon.

Closer to home ITN has launched a 24-hour a day rolling news service (see screen shot above). A direct competitor to BBC News 24 and Sky News, the ITN News Channel is available, free-to-air, via Astra 2 at 28° east. As this is a joint venture between ITN and the cable operator NTL, expect to see it piped to homes all over the south of England.

To Ireland, where RTE has expanded its evening radio programming for refugees. Named Radio One World, the service, in addition to the long-standing Albanian strand, now includes segments for the Nigerian, Vietnamese, Algerian, Polish, Bosnian, Romanian, Indian and Chinese communities. Listen out for this on 1278 and 612kHz, Monday to Friday at 1800 - 2000UTC.

A couple of stations you may wish to listen out for. Voice of the Mediterranean, based in Malta but hiring transmitters in Italy and Russia, broadcasts in English each day bar Sunday from 0600 - 0630UTC on 7150kHz and again between 1900 - 2000 (except Friday) on 12060kHz. The station is part funded by the Libyan government so an interesting slant on the news is a distinct possibility. Their website, www.vom-malta.org.mt has more.

On to Radio Netherlands. This major international broadcaster delivers a potent signal to the UK and the best time to listen is 1030 - 1230UTC on 6045 and 9860kHz. Failing that, give mediumwave 1512kHz at 2030 - 2230UTC a try. *Media Network*, Radio Netherlands' excellent DX programme, goes out each Thursday at 1130 and 2100UTC respectively. www.rnw.nl is their entertaining, regularly updated, website.

it's radio, jim, but not as we know it . . .

Santa Monica, and Los Angeles-based music station KACD-FM plans to become the first station in the world to relinquish radio transmissions in favour of webcasting, relaunching as 1031.com (see above). Check out www.worldclassrock.com to have a listen.

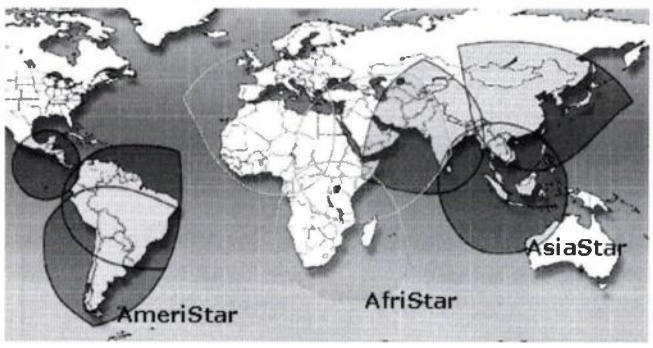
Is this the start of things to come? Does radio as we know it have a future? It seems that, in the next few years, we'll be able to do almost anything on our mobile 'phones.

At a recent EU-sponsored meeting in Belgium, delegates discussed the role of radio broadcasting in a world where telecommunications via personal handsets is set to become king. Some speakers even thought that traditional radio broadcasting had had its day, dismissing it as "audio content" that could easily be provided on the 'phone networks.

As if to underline the trend, BBC World Service in Spanish has just become available, on-demand, to mobile 'phone users in some parts of South America. So it looks like the future is, in fact, with us and that it very well may be, as they say, Orange.

Finally, clocks in Moscow city centre have been reading the wrong time. Why? Well apparently Moscow's street clocks pick up their time from the 261kHz longwave transmissions broadcast by Radio Russia. It would appear that they have not being paying their bills recently and, as a result, the transmitter has been closed down.

As you read this, the nights will have drawn in significantly (boo!), the kids are back and settled at school (hurrah!) and Christmas biscuits are on the supermarket shelves - what a dreadful thought. Have a good month.



The Worldspace control room (left) and three main coverage areas (far left).

Chris Lorek, G4HCL, looks at new PSK31 software now available

data

connectio connec ic conne tior cor ection onnection

■ The hottest new mode on amateur radio currently is undoubtedly PSK31, even though it's now been around for a few years. New software for this popular mode is coming along thick and fast, and the latest offering is DXPSK. It's available as freeware from F6GQK, the current version as I write this being version 1.2a with on-line help, although a further update may well be available soon. You can download a copy from http://members.aol.com/chramade/dxpsk.htm

Regarding other PSK31 software, of which you've a choice of plenty, the 'classic' for a soundcard is PSK31 from Peter Martinez, G3PLX, which is now up to version 1.08. This 'few frills' software works extremely well, I've used it myself for some time, although my current favourite is DigiPan. You'll see a review of DigiPan elsewhere in this month's issue of *Radio Today*.

software upgrade for the dsp-599zx

There's a new version of firmware, V5.0, for the Timewave DSP-599zx multimode data controller. If you bought your unit any time this year the upgrade is free, just contact your dealer. I'm told future units will have this upgrade ready-installed and you'll find a sticker on the box to identify this.

Version 5.0 adds new PSK 31 filters, SSTV filters, and a PC / RADIO mode which is used to connect the soundcard audio in and out along with PTT to your radio. It now uses improved noise reduction algorithms for better clarity and wider bandwidth for SWL and broadcast listeners. CW operators (yes, CW *is* amateur radio's first digital mode!) get two new tools, 'CW Spotlight' for isolating the signal you want to work, and 'Binaural CW' to help in copying signals. There's also a CW oscillator mode which you can use either for practice or as a tool to check out TNCs and keyers.

ui-view help

If PSK31 is the hottest new mode, then APRS (Automatic Position Reporting System) is certainly the hottest new use on packet radio. This lets you see graphically on your PC screen the location and status of other stations. Some commercially-available radios, such as the latest handheld and mobile rigs from Kenwood, now include built-in capabilities for APRS as standard.

Many packet-active amateurs in the UK are currently either using, or thinking of using, UI-View, which is an APRS-compatible piece of software written by the author of WinPack, Roger, G4IDE.

Now Andy, G7OCW@GB7PMB has recently created a web site with the aim of getting amateurs up and going very quickly with UI-View. Take a look at http://welcome.to/uiview and you'll quickly see how to get started without too many pitfalls!

uk packet news

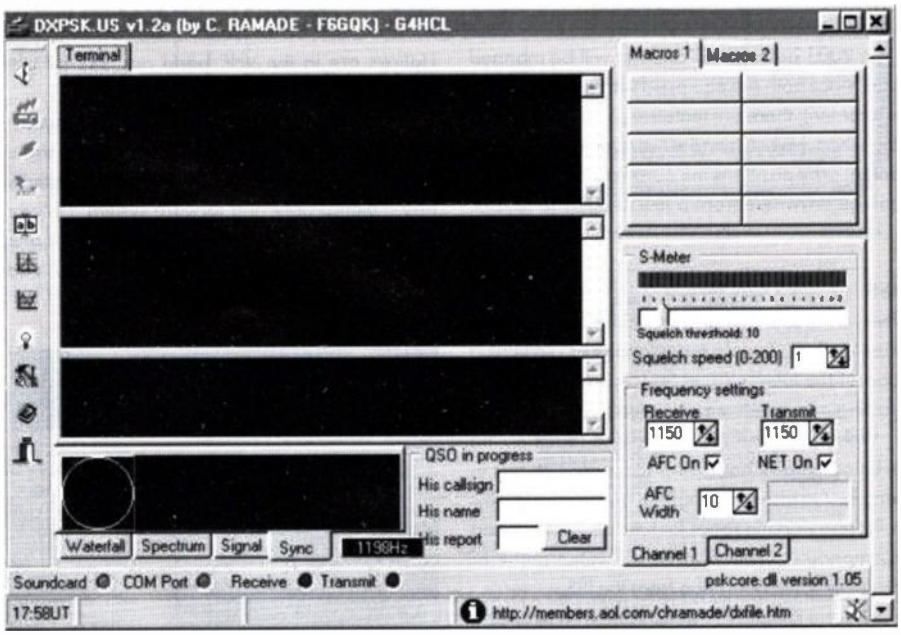
In the Midlands, Maxpak (the Midlands AX25 Packet User Group) tell me that the Elvaston Castle rally was, as usual, a complete success. This is one of the biggest and best mobile rallies in Europe, and it's rare that I miss it, but unfortunately circumstances this year caused me to be elsewhere. This year, Maxpak had an outside pitch for the first time and they were very pleased with the result, being inundated with visitors finding out about packet radio.

Their chairman, Joe, G4VYA, tells me "Those people who say packet radio is dead should have been with us all day to see how silly that statement is." It's true that the Internet is providing us with a challenge, but we need to make good use of all forms of communication which are available to us, packet and other data modes certainly being included.

At Maxpak's July members' meeting, Andy, G7OCW (yes, the same Andy as above), gave an introductory talk on how UI-View has progressed since it became available. This was followed by Peter, G6GUH, who talked about his UI-View weather station and then gave a demonstration of his mobile GPS system by driving around the area, while the assembled audience all watched his movements on the projected 2.1m wide video image at the meeting!

As we're now within the grasp of nights getting longer, it's worth looking out for similar gatherings at your local packet group's meeting place. If you're in the Midlands area, contact the very active Maxpak group by sending a packet message to Ron, G6LRD @ GB7MAX, call him on tel: 01922 684496 if you're not yet on packet, or take a look at their web site at www.maxpak.f9.co.uk Along with many other groups they'll also be having a stand at this year's Leicester Show so while you're there, do say 'hello'.

I also plan to attending this year's Leicester Show, and the organisers have roped me into giving a lecture at the show. It's currently scheduled for the Friday afternoon of the show from 2.00pm - 3.00pm (which I'm told by the organisers is a prime time!) so why not pop along there as well? I look forwarding to meeting you!



Screen shot of the new DXPSK software for PSK31 which is available as freeware from F6GQK. It can be downloaded from the Internet at http://members.aol.com/chramade/dxpsk.htm

satellite rendezvous

Richard Limebear, G3RWL, with the latest AMSAT-UK news

■ The Phase 3-D satellite now has its own amateur radio licence: the callsign is DP0WH and it is initially valid until 2005. As was the practice with previous P3-spacecraft, the callsign will not regularly be used by the satellite, to stress P3D's multinational character. The callsign was chosen in conjunction with the issuing authority to commemorate the significant contributions of Werner Haas (WH), who sadly did not live to see the launch of the satellite.

mir

MirCorp's board of directors recently approved permanently manned operation of Mir, beginning next year. The schedule of privately-financed MirCorp flights begins with the launch of an unmanned resupply spacecraft to Mir this autumn, followed by long-duration missions with cosmonauts late this year and in 2001. I understand that new Mir crews will be trained in the operation of the packet and SSTV amateur radio gear.

One of the Progress cargo rockets going to Mir next year is planned to carry a small amateur radio satellite named Kollibri which will have a life span of four to six months and will be launched from the Progress rocket after it is in a Mir orbit. It is equipped with telemetry equipment, a digital voice recorder and solar panels.

In 2001 both the ISS and Mir will be manned and, since both are equipped with amateur radio equipment, there are tentative plans to set up radio schedules between the two. Depending on the actual orbit positions the durations of radio links can be anywhere from a few minutes to several hours.

iss

Two weeks after being successfully launched, the Russian-built Zvezda module took its place as a part of the International Space Station after executing a completely automated docking.

With three modules now joined together, the orbiting outpost has grown to nearly 120 feet in length. Zvezda adds sleeping quarters, a galley, toilet and working space for future astronauts and cosmonauts. It will also be the initial home of amateur radio operation from the ISS.

A recent Russian Progress resupply mission and two Shuttle flights scheduled for September and October will ready the Space Station for the arrival of the first crew who will begin living and working on board in November.

With the docking of Zvezda, the next phase in the development and installation of the ham radio gear on ISS is the launch and installation of the initial, Phase 1, amateur radio station. This is currently scheduled to occur on STS-106. The initial station will include 2m and 70cm handheld radios, TNC, a specially-developed headset, signal adapter module, specially-developed power adapters and the interconnecting cabling. The antenna systems that the Italian / Russian / US team has developed for the Service Module are ready but cannot be installed until later next year. In the meantime, the ARISS international team has received permission to use the Zarya antennas on 2 metres.

new saudi and malaysian sats

The first amateur radio satellites from Saudi Arabia have been sent to the Baikonur launch site. Built by the Space Research Institute in Riyadh, they were originally set for launch on 25 August but postponed at least two weeks due to a problem with the Dneper rocket.

The satellites will be capable of 9k6 digital store and forward operation (Packsat Broadcast Protocol compatible) as well as FM. SaudiSat-1A is on 437.075 and SaudiSat-1B is on 436.775MHz. Uplinks are in the VHF band and will be announced after commissioning.

Surrey's TiungSat-1, the first Malaysian amateur satellite, was due to be launched on the same flight. The payloads are Earth Imaging Systems and a digital store and forward system. Uplinks are on 144.460, 145.850 and 145.860MHz and downlinks on 437.300, 437.325, 437.350, and 437.375MHz.

Zvezda's solar arrays are deployed and immediately begin to follow the sun.

amsat-uk colloquium report

For those of you who didn't get to this year's AMSAT-UK Colloquium, the event was up to its usual high standard, albeit with a slightly lower attendance than last year. Delegates from 14 countries were addressed by 22 different speakers on subjects from the simple to the deeply complex.

Other features included a firing of SSTL's rocket thruster, a demonstration of 2400MHz reception from SSTL's minisat UO-36, an IARU forum, and guided tours around Surrey's impressive ground command facility.

This year's event was planned to have a lot about P3D - and we weren't disappointed. Apart from several items of hardware being discussed, we were also told that the new provisional date for P3D's flight into orbit was 31 October. The launch campaign should start on 11 September.

There were other talks as well: the one about satellites-on-a-chip (including solid-fuelled microthrusters) met with such interest and acclamation that the speaker (on UoS academic staff) has promised an article for *Oscar News*. The leader of the University of Bristol's Project HAND told us about their progress. He also happens to be the President of the British Interplanetary Society so we had a separate talk about that as well.

Each of the beginners' sessions (general, analogue, digital) had between 15 and 20 attendees. Organisation of these was delegated to G7HIA and W2RS who produced a good programme. Of particular interest were the live demonstrations via UO-14 and AO-27 which netted almost 20 contacts in about eight countries using just a handheld and an Arrow antenna. There was special interest in the transatlantic contacts.

We finished up with a talk about SSTL's future plans - including lunar and interplanetary missions. Next year's event will probably take place over the same weekend, the last one in July (27th to 29th in 2001). With P3D hopefully in orbit by then we have high hopes that attendance (and membership of AMSAT-UK) will pick up once again.

final final

Thanks to everyone who has commented on the column in previous issues. Satellite news can also be found in *RadCom* under the editorship of my fellow AMSAT-UK Committee member Dennis, G0FCL.

qrp corner

Dick Pascoe, G0BPS, looks forward to the G-QRP Club's 'Mini-Convention' in Rochdale

■ Without doubt the highlight of the QRP calendar is the annual gathering at the QRP Mini-Convention held each year at Rochdale in Lancashire. The date for your diary is Saturday 28 October at St Aidan's Church Hall in Sudden, Rochdale. Here are some directions: as you come off the M62 and enter Rochdale turn left at the first roundabout, left again at the second, and at the third, next to Tesco's, go straight over. St Aidan's Church will be seen on your right. The church hall is situated attached to and behind the church. Parking is no problem with lots of street parking within a few hundred yards.

The doors open at 10.00am and the admission is £1. There is always a large social area where you can sit and chat, show off your latest project or enjoy the lunch of meat pie and mushy peas, accompanied by pickled red cabbage, of course [ugh! - you're meant to be encouraging people to go, not stay away, Dick! - *Ed*].

The series of lectures always takes place in the church itself with speakers on subjects of interest to QRPers. There is the traditional 'bring and buy', a huge selection of good quality 'junk' piled high and sold cheaply. Kit traders such as Kanga Products and the QRP Component Company are there. Components are also available at great prices from JAB Electronics.

try it and see

One of the things I love doing is playing with antennas; I spend hours with lengths of wire trying out different configurations to find what is best at my locality. Those that just tell us that the "G5RV is best" fail to take into account the difference between locations. What may well work extremely well at your house may not at mine. Different ground, trees and other obstructions change how things work. There is only one way to find out how good an antenna is at 'your' location, and that is to try it.

I am another of those that believe in the 'KISS' principle (Keep It Simple, Stupid). The simplest is often, but not always, the best. One method I have used to test my antennas is the field strength meter as shown in Fig 1. It can be built into a small box.

It will be seen that the component count is low and that there is no power supplied to the unit! In use, RF is coupled to the unit from the unit's antenna and into D1 and D2. These are used as a voltage doubler. The developed voltage is then 'seen' across the two resistors, one of which is the sensitivity control. The generated voltage is fed to the meter and the relative strengths can then be measured and compared.

Transmitter power and the distance from the main antenna must be carefully measured of course to ensure correct correlation. The cost of the unit should not exceed a couple of pounds.

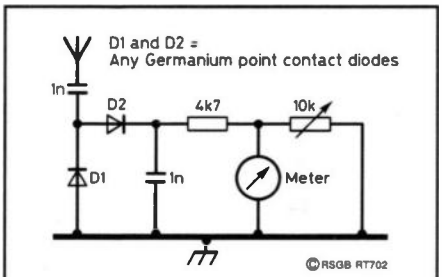


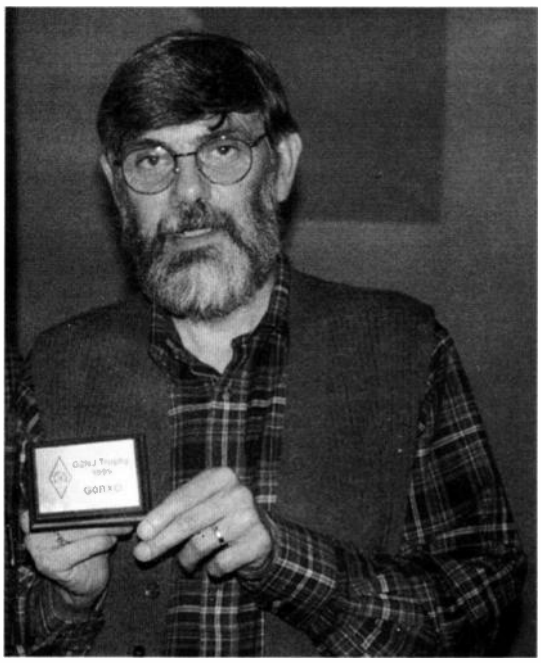
Fig 1: 'KISS' field strength meter circuit for testing antennas.

a simple circuit

Another circuit I like is the 'Twin T Audio Oscillator' from N2CX (see Fig 2) taken from a copy of the ARCI's *QRP Quarterly*. This can be built 'ugly style' or a PCB can be made. As shown it should give an output of about 500Hz. Don't bother with an on / off switch - instead use the battery clip. Again this unit should cost less than a pound. A small box would make it easy to store but not change its use.

Connectors can be used, or just a couple of fly leads, one with a croc clip for the ground and the other to a piece of resistor leg off-cut.

Since this is the last *Radio Today* 'QRP Corner' here's an early reminder that Christmas is not *that* far off and the G-QRP Club's 'Winter Sports' event will take place as usual between Christmas Day and New Year's Day.



Left: Rev George Dobbs, G3RJV, organiser of the Rochadale QRP 'mini-convention' and stalwart of the G-QRP Club.

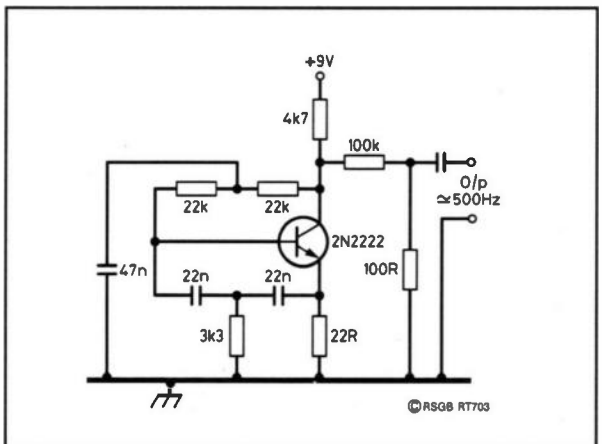


Fig 2: 'Twin T' audio oscillator by N2CX, with an output of around 500Hz.

All IN A DAY'S WORK

In this, the final 'All in a Day's Work', Harry Leeming, G3LLL, gives us a most useful piece of advice - how *not* to 'blow up' your rig - plus an important safety warning

■ Most commercial amateur radio equipment is fairly reliable, but even so the shortcomings of both operators and designers between them cause an awful lot of damage and expense. The former through lack of knowledge, patience, or experience, whilst the latter sometimes seem to build 'kamikaze' features into their designs.

Have you got the correct fuse fitted? Right, knock off reading this, and go and check.

In my experience 95% of the cases of burnt-out mains transformers would never have happened if the correct fuse had been fitted. Beware that in some cases the value of fuse marked on the rear of equipment is for 110 volt operation: 230 volt operation usually requires just over half of this.

In general, mains-operated transceivers rated at around 100 watts output should be fitted with a quick-blow fuse rated at not more than 3 amps; if a smaller fuse will work, fit that. Second-hand equipment frequently has the wrong fuse in, so do check now! If you find anything of interest like silver paper or a fuse 10 times too big or a nail, do drop me an e-mail and we will have a laugh together.

Secondly, don't switch on in the transmit mode. Radio transmitters are only designed to operate into the correct load, and being run into the wrong load unknowingly can lead to expensive trouble. Normal practice with many 'careful' people is to set their controls at minimum before switching on. Just to upset them, many older Yaesu valve rigs have a 'click' position on the VOX gain knob, so that with the control turned fully anti-clockwise the rig is switched to send! Not to know about this when putting into use a second-hand unit can result in extensive damage.

When switching on a strange rig for the first time, the best bet is to make sure that it is set at SSB, so that a carrier cannot be produced. With a valve rig if possible disable the valve heaters (you pull an 11-pin plug out from the rear with Yaesu equipment to do this). Once you have the equipment performing on receive, and have found how to operate it, you can then reactivate the heaters and carefully go through the tune-up process.

MOX switches, especially those with a large easy-to-operate lever action, can be a real danger especially if children (or duster fanatics) are around. I have noted on equipment brought in for repair, that some owners have wisely disconnected their MOX switch to prevent accidents.

Try not to leave an outdoor antenna connected when the rig is not in use. I must confess that I rubbed my hands in glee when I was in the retail trade at the sound of thunder. I could nearly always guarantee that it would bring me a few repairs, and when I was in luck a sale of some new equipment!

DC out sockets. I've mentioned this before, but the '12 volt out' socket on the back of a rig can cause devastation. If you really must use one of these for convenience, for goodness sake fit a half amp fuse. A short or an overload on one of these sockets can do hundreds of pounds worth of damage.

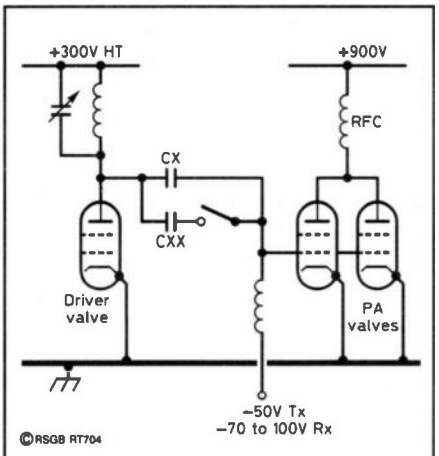


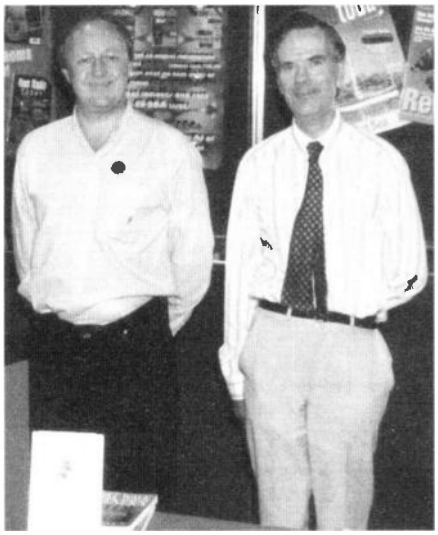
Fig 1: Simplified circuit of PA and driver stages, typical of most older Yaesu and Trio / Kenwood valve rigs. Some rigs, eg early FT-101s, switch in 'CXX' on 160m. This can also fail, blowing PA valves every time this band is selected.

unlucky for some

Is C13 really unlucky? An e-mail the other day asked advice about preventative maintenance on the FT-101E and "Do I really need to replace C13?"

Well, "I've said it before and I'll say it again" (those who are too young to remember Mike Yarwood's impersonations of the then Prime Minister Harold Wilson, ask your mum or dad about that phrase) - C13 on the old series of FT-101 / FT-101E rigs and its equivalent in other valve rigs really is the cause of some very expensive trouble. The question is not if these parts will go short circuit, but when?

Fig 1 shows a simplified circuit of the PA and driver stages, which is pretty typical of all Yaesu and Trio / Kenwood valve rigs. Note the capacitor marked 'CX', this has the fatal 'C13' designation on the early FT-101 series, and is the part that causes all the trouble. The PA valves have a negative bias voltage of about -50V on their controls grids to hold down the PA current, while the



Harry Leeming, G3LLL, is seen here (right) with Chris Lorek, G4HCL, representing *Radio Today* at an amateur radio exhibition.

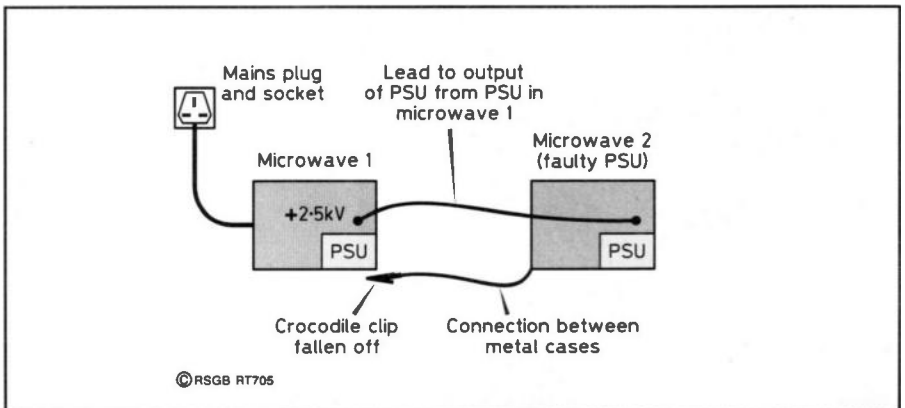


Fig 2: Two microwave ovens, one with a faulty PSU. If the 'crock clip' is disconnected for any reason, the cabinet of Unit 2 would be 2500 volts above earth and above the cabinet of Unit 1.

anode of the driver valve has about +300 volts on it. The capacitor's job is to couple the RF drive from the driver anode to the PA valves' grids, whilst not allowing any DC voltage to leak through. If CX does leak, some of the positive voltage from the anode will be passed to the PA valves' grids. This causes a tremendous increase of PA current, and typically this burns out the valves - prior to blowing a fuse.

The worst thing that can happen is that the owner then fits a new pair of valves. These, being new, take even *more* current than the old ones and typically do so much damage that the rig is a 'write off', especially if the fuse is a shade on the large side.

Never replace PA valves without checking that the negative grid bias voltage is correct first. This is usually around -50 to -55V in the transmit mode and -70 to -100V when switched to receive. Check this voltage on all bands, as sometimes extra parts can be switched in on the lower frequencies.

The 80 or 100pF capacitors fitted in this position to the FT-101, 901 and 902 have in my experience at least a 50% failure rate once they are over 20 years old, so, yes, do replace them.

I fit 3kV disc ceramics just to be on the safe side, and measure a few until I find one that is exactly the same value as the one I have removed. Doing this avoids having to do extensive driver stage alignment which is needed if the original and the replacement parts happen to be at the opposite end of their tolerance ratings. As an alternative, where the capacitor is still OK, connecting a 10,000pF 3000 volt disc ceramic capacitor in series with the original item does not upset the alignment, and provides protection, preventing damage occurring if the original item should go short.

All valve rigs are very susceptible to the breakdown of this capacitor, and I would recommend that at least a series protection capacitor is incorporated as standard practice.

ft-290 dc plugs

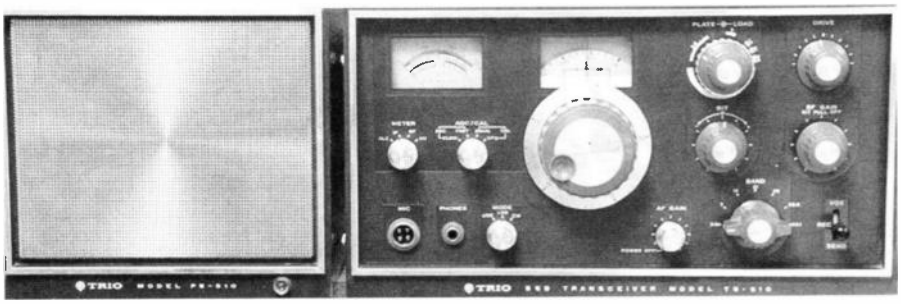
The plug used to connect an external 12 volt DC supply to these rigs looks innocent enough, but incorporates traps for the unaware. First, and most important, note that the *centre* pin is *negative*, and the *outer* one is *positive*. Yaesu use the same plug, but wired the *opposite* way round to feed DC to some other pieces of equipment! To get the DC lead for your HF ATU crossed with that for your FT-290 can be very expensive.

Next, note that there are at least three different sizes of plug which look almost identical and all of which fit the FT-290 mechanically. When the plug is inserted it should operate a switch and automatically disconnect the internal batteries. Fit the wrong plug and with it half in, the external DC supply will be put straight across the nicads. There have been quite a few cases of rigs getting extremely hot or even catching fire under these circumstances.

It happened to my rig but luckily I was in the room at the time. It is even possible for the above to happen when the correct plug is fitted if the socket becomes worn. I now play safe and remove one nicad whenever I use my rig on an external supply.

ft-290mkI telescopic whip

It is not generally realised that when the whip is not in use it is still part of the PA tuned circuit. If you snap your whip don't just remove it and use an external antenna, or you will probably blow the PA transistor. Either leave the bottom part of the whip telescoped inside the rig to form the necessary capacitor, or obtain a replacement (but don't ask me, I don't know of a source of supply!)



The Trio TS-510 is one of a number of older commercial transceivers using a separate power supply which incorporates multiple earth connections in the wire linking the transceiver with the PSU.

a warning to us all

A few years ago a customer told me about a horrific accident involving the proprietor of a microwave service clinic, who had been found dead at his workbench.

When it was explained to me how the unfortunate person had been electrocuted, I realised with horror how the same kind of accident could so easily happen to a radio ham.

Piecing the story together it would seem that two microwaves were in for repair, one having a faulty PSU. To get this going temporarily a connection was made to the other unit, as shown in Fig 2. A good safe connection was made for the 2.5kV rail, and for an earth return the two chassis were linked with a temporary lead using crock clips. At sometime in the proceedings the earth lead dropped off and the engineer tried to clip it back on. Habitually we think of earth leads as being safe, but in this case with the lead detached, there was 2500 volts difference between the two chassis. When he found out it was too late.

What has this got to do with amateur radio? The situation is similar to that appertaining when a valve linear amplifier or HF rig is used with a separate PSU. Look at Fig 3, which shows a 'home-brew' high-power linear amplifier with a separate PSU. If for any reason the wire linking the two chassis drops off, there will be 2.5kV difference in voltage between the two cabinets. Touch them both at the same time and you are in big trouble.

The PSU is grounded by its mains lead but the chassis of the linear will be 2.5kV above ground. If, however, the linear should happen to be connected to an earthed rig, everything would work, as this would provide an earth return, until some unfortunate person tried to unscrew the PL-259 plug. Anyone holding the plug in one hand and the cabinet of the linear with the other would almost certainly be killed!

With the older commercial HF rigs such as the FT-200, HW-100, or TS-510 (which all use separate PSUs), the makers have provided protection against this eventuality by incorporating multiple earth connections in the link wire.

When a DIY PSU and connections are used with a linear or a rig beware, and be absolutely sure that there is no way in which the chassis connection can be detached, without the high voltage being also detached. If at all in doubt wire a permanent thick lead between the two cabinets, you just cannot be too sure.

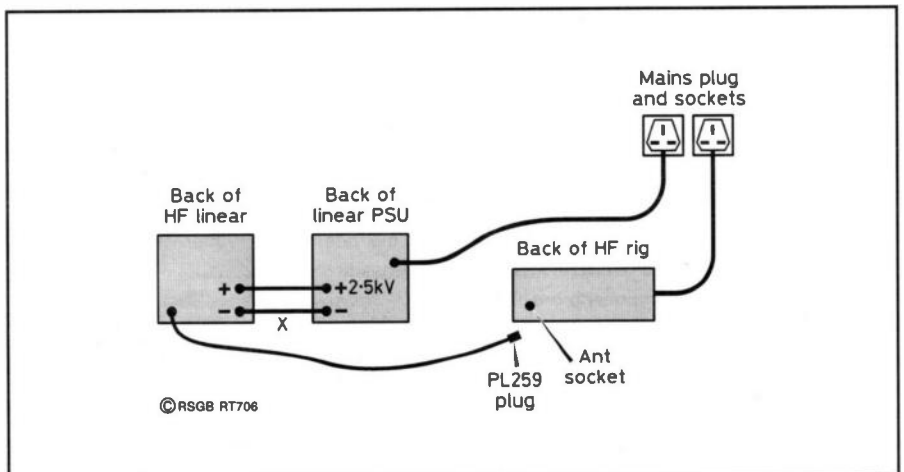


Fig 3: If the lead marked 'X' becomes disconnected, the PL-259 plug and the metal case of the linear will have 2500 volts on them.

THE HELP FILES

ALL HOBBIES HAVE THEIR OWN JARGON, AND AMATEUR RADIO IS NO EXCEPTION. THE HELP FILES IS DESIGNED TO HELP BEGINNERS UNDERSTAND SOME OF THE TERMS AND UNUSUAL 'AMATEUR RADIOESE' USED IN RADIO TODAY. WE HOPE YOU FIND IT USEFUL.

THE HELP FILES

■ In this, the final *Help Files*, we take a look at the sometimes bewildering variety of abbreviations that are used in amateur radio. Some of them are used throughout the radio and electronics industry, others are peculiar to the amateur radio hobby. You will find them scattered throughout this issue of *Radio Today* - and in all other amateur radio and / or radio-electronics publications.

73 An abbreviation, originally used by Morse telegraphists, but now used also on speech modes, and meaning 'Best regards'.

A Amp, the unit of electrical current.

AC Alternating Current, eg mains electricity is at 220 volts, AC.

AF Audio Frequency, as opposed to RF (see below).

AGC Automatic Gain Control.

AM Amplitude Modulation, one of a number of forms of modulation used for speech and music.

APRS Automatic Position Reporting System, a new use for packet radio whereby data 'packets' can show (on a computer screen) an amateur station's location on a map. Particularly useful when operating mobile.

Browser Computer software to enable the user to view Internet web pages. The two best known are *Internet Explorer* and *Netscape Navigator*.

CW Abbreviation for 'Continuous Wave', but these days almost always used to mean Morse code.

dB Decibel.

DC Direct Current (as opposed to AC, see above), eg a car battery is approximately 12 volts DC.

DSP Digital Signal Processing, usually used for removing interference from received signals by using digital technology to produce notch filters or noise reduction circuits.

DX Originally a Morse code abbreviation meaning 'long distance', DX now means any long distance radio contact, or a contact which is otherwise 'rare' or unusual. Hence 'DXer', a person who enjoys 'DXing' - making long-distance contacts as opposed to local ones; 'DXpedition', an expedition specifically to activate a rare or unusual location.

Es Sporadic E, a type of propagation found on the higher-frequency HF bands and lower VHF bands, where reflections from the E-layer of the ionosphere provide longer distance communications than the norm. It occurs only sporadically, hence the name, and its occurrence cannot be predicted, although it does happen in well-defined seasons. In the Northern Hemisphere this is usually between mid-May and the end of August.

FM Frequency Modulation, one of a number of forms of modulation used for speech and music transmission.

FTP File Transfer Protocol, a method of sending computer files, usually over the telephone network, for example when uploading an Internet page to a web site.

HF High Frequency, the part of the radio spectrum between 3 and 30MHz (see also VHF and UHF).

hyperlink A link in an Internet page which, when 'clicked', will take the viewer to another page, either elsewhere on the same site, or to a completely different site anywhere in the world.

I/P Input.

IF Intermediate Frequency.

IMD Intermodulation Distortion.

IO91 an example of an IARU Locator 'square', in this case the one that covers most of London and part of the home counties. Each 'square', as designated by two letters and two digits, covers 2 degrees of longitude and 1 degree of latitude.

ISP Internet Service Provider, the company which provides your Internet service, eg BT Internet, Virgin, Freeserve etc.

kHz Kilohertz, one thousand cycles (of a radio wave) per second.

LED Light Emitting Diode.

MCWModulated Continuous Wave (see CW above). MCW consists of a continuous carrier wave on which is audio modulation of a single tone which carries the Morse code information.

MHz Megahertz, one million cycles (of a radio wave) per second, equivalent to 1000kHz (see kHz above).

MOX Manually Operated Transmit (see VOX below).

O/P Output.

PA Can have two meanings: Public Address and Power Amplifier. Usually the meaning is obvious from the context!

PCB Printed Circuit Board, a board on which the connections between the components are printed on to the board rather than using wires to link the components.

PMR Private Mobile Radio, the service used by taxi firms, the RAC etc for communications between a 'base' station and a number of mobiles.

PMR-446 A new service on 446MHz which is completely licence-free. It can be used by anyone who purchases PMR-446-approved, low-power, handheld transceivers. The range is from a hundred metres or so up to about 3km between two well-sited stations.

PPM Parts Per Million. Also Peak Programme Meter, a 'volume' meter used by the BBC.

PSK31 A new type of digital transmission mode developed by Peter Martinez, G3PLX.

PSU Power Supply Unit, typically a 'black box' which converts 220 volts AC to 12 volts DC to enable battery-powered equipment to be run from mains electricity, but can be any voltage input and output.

QRP One of many 'Q Codes', originally used by Morse telegraphists, but now used on both Morse and speech modes. In amateur radio terms QRP means low power transmission, eg 5 watts or less.

QSK Another Q Code, see above, meaning 'break in' on Morse code. When the Morse key is used the transmitter automatically goes to transmit. 'Full QSK' means that the transceiver reverts to receive not just at the end of every passage, but even between every character of the Morse signal. If both operators use Full QSK it is possible to have a two-way 'conversation' on Morse code.

QSO A two-way radio contact.

QSY Change of frequency.

RF Radio Frequency, as opposed to AF (see above).

RTTY Radio Teletype, a type of data transmission mode. Originally used between two large teleprinter machines, RTTY signals can now be sent and received using the processing power of a PC instead.

SMA A type of small antenna connector used on handheld transceivers or scanners.

'Spam' Junk mail received via e-mail.

SSB Single Sideband, a type of modulation used especially for speech communications.

UHF Ultra High Frequency, the part of the radio spectrum between 300 and 3000MHz (see also HF and VHF).

URL Universal Resource Locator, or, more simply, the 'address' of an Internet web site. Usually begins with "www. ..."

VFO Variable Frequency Oscillator

VHF Very High Frequency, the part of the radio spectrum between 30 and 300MHz (see also HF and UHF).

VOX Voice Operated Transmit (see MOX above). Using a VOX circuit a transmitter or transceiver can be automatically switched to transmit when speaking into the microphone, reverting to receive when the speech is finished.

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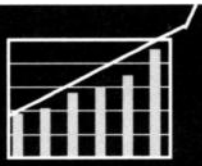

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✪✪✪✪✪ for sale ✪✪✪✪✪

ICOM 746, BM20 desk mic, IC-PS85 PSU, mint, £1050 ono. Yaesu FT-847 HF / 6 / 4 / 2 / 70 mint, £950 ono. Wanted: Kenwood TS-870. Swap for either radio. For Sale: Alinco DJGY H/T £150 ono. Mike, tel: 01226 742911, e-mail MrHardy@lineone.net (Yorkshire).

CTCSS TX/RX modules Sigtek with circuit and info £7. Tel: 01525 630259 or e-mail davidt@mebo2.freeserve.co.uk (Bedford).

IRISH READERS note: Trident TR2400 handheld scanner, all mode 100kHz - 2060MHz. CW, SSB, AM, NFM, WFM, preamp, discone antenna £250. Yaesu FRG-8800 receiver plus matching ATU, PWO £300. Joe, tel: 018364434 (Republic of Ireland).

TOKYO HX240 transverter, 2m to HF bands. Boxed with manual. Very good condition £100 plus P&P. Phone Brian, GW4DLC, tel: 01745 827493 (Abergele).

GARMIN GPS3 scrolling map 500 memory waypoints, track back etc antenna and power accurate to 10m around world £200 ono. Garmin GPS45 multi track sat systems reverse routes all manuals, £75. Contact Dave, M1ELV, tel: 01262 674463 or 07710 444921 (Yorkshire).

YAESU FT-290MK2 2m multimode, perfect condition, hardly used, with mic, battery case, manual and five element beam antenna plus original rubber antenna. Buyer collects or pays P&P. Looks like new. Bargain at £250. Phone Simon, G1UGO, tel: 0117 924 8719 (Bristol).

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BUCKMASTER 3 Morse code audio CD set, 5WPM, 13WPM, 20WPM, new, not used £10 inc P&P. Kevin, G7SVF, tel: 01983 296924 or e-mail g7svf@qsl.net (Isle of Wight).

ALTRON SM-30WM tilt-over mast with HF rotator. AE pole. 5-ele 6m beam. 10-ele 2m beam, £80 the lot. Also 100W 6m linear amplifier by Microwave Modules, £40. 01707 267445 (Hatfield). E-mail: george@hatfield11.fsnet.co.uk

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COLLINS R-390 rcvr. Washed, revalved, realigned, refurbished front. Comtek 4-square switching unit. Four 36ft/44ft verticals. Butternut HF-4B minibeam, unused. Palomar rcvr noise bridge. B&W hi-power ATU. Daiwa hi-power ATU. Mans for all items, everything must go, offers invited. 0118 969 3284 (Reading). E-mail: 101764.2735@compuserve.com

ICOM IC-746 with all filters leads and software for computer to work the Icom 746. Ill health forces sale, vgc, boxed, £750 for quick sale. 0114 245 4579 (Sheffield). E-mail: dave@g7wgx.freeserve.co.uk

SILENT key equipment sale. Kenwood TS-950SDX HF tcvr with 3 CW filters, Kenwood SM-230 station monitor, Kenwood SP-950 speakers, c/w mans and original packaging, exc cond, £2100 ono. Also Farnell 830/10 stabilised power supply and IC-3100 rcvr with man. 0113 258 5044 (Leeds).

TWO metre VHF linear amp, the 'Explorer' made by Heatherlite (now Linear Amp UK), 10W input, 350W PEP output using 4CX250B valve. Perfect cond, orig box, man, £150. Buyer collects or carriage at cost. George, M5ACN. Not QTHR. 01707 657494 (Herts).

YAESU FT-847, as new, boxed, hardly used, £900. PK-232MBX, boxed, as new, £60. Motorola MC-2100 70cm English Dutch channels, £70. 01502 732108 (Lowestoft).

45ft telescopic Versatower tilt-over, with ground post, £200 ono. Already dismantled, buyer collects. G4ANP, QTHR. 01302 811280 (Doncaster). E-mail: mvys03487@cableinet.co.uk

ALL Kenwood, TS-750D boxed with man, as new cond, with fist and desk mic, £600 ovno. Low pass filter, £15. G5RV + G2DYM ant switch, £30. Multyterm TNC with software, all mode, £75. Kent electronic keyer, £30. Vibroplex key (as new), £150. All are subject to very close offers. Ken, M1DDA, QTHR. 01438 233365 (Stevenage).

COLLECTORS items: Marconi sig gen circa 1940, type TF144G, weighs 40kg, £30. HRO rcvr type MX, £35. Buyer collects. G8ZEI. 01246 413741 (Dronfield).

CUSHCRAFT R-6000 20-6m vertical, no radials, good cond, 18 months old, £150. G3PJK, QTHR. 0161 654 6160 (Manchester).

DRAKE L-4B linear, PSU, 2 x 3-500, h/book, vgc, £600. Clark SQT9M/HP mast, retracted 1.96m, h/book, original guys, stakes, spare seals,

£160. 01823 680778 (Hemyock, Devon). E-mail: g3wni@bigfoot.com

DRAKE R-8E inc UHF, L/S, service man. Lowe HF-150 with PSU. Yaesu FT-102 tcvr. Linstead S7 power supply, 2 x 25V outputs. MFJ-948, 300W ATU. ERA Microreader. Revco RS-2000 AM-FM auto scanner. Sensible offers. 01392 861033 (Silverton).

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KENWOOD MC60 desk mic. Must be mint condition and realistic price please. Mike, tel: 0191 389 2822 or 07980 137617 any time (Durham).

COPY OF circuit diagram and a few pages of manual for Yaesu FT23 / 73R. Will pay £10. Steve, tel: 01225 329404 (Bath).

HAS ANYONE got a dead or scrap Yaesu FT-726R for spares, or knows of someone who has, please? Clive Powis, 28 Kington Gardens, Chelmsley Wood.

FOR FT-707: narrow CW filter type number XF8.9HCN Yaesu part number H1102019 or equivalent. Might consider 8.9HC. GI8AYZ, tel: 02892 665034 or e-mail ian.gi8ayz@virgin.net (N Ireland).

PHILIPS / PYE PMRs, accessories, spare bits, software, manuals, anything! Specifically PFX, PRP70, MX296, FM1000, PR710 etc. Please do not scrap but donate to Philips Vintage PMR Collection. We pay postage. WHY? Tel: 00 31 43 6014470 or e-mail: pe1csi@amsat.org (Netherlands).

DATONG ACTIVE antenna complete or just the interface / preamp. Tel: 01269 871382 (Llanelli).

Classified Advertisements

Please note that since this is the last issue of *Radio Today*, no further Classified Ads can be accepted for publication. If you wish to place a Classified Ad in *Radio Communication (RadCom)*, please contact Jan Forde, tel: 01707 851199; fax: 01707 851206, or e-mail: adsales@rsgb.org.uk

FOR SALE

QUALITY PRE-USED EQUIPMENT. The UK's largest stock. Special service and consideration for purchase of deceased amateur equipment. Essex Amateur Radio Services. Tel: 01268 752522.

ALUMINIUM TUBE. Heavy-duty (scaffold) tube approx dimensions 20ft long 2" diameter11/64 (4.5mm) wall thickness. 20' and 10' lengths available @ £1.80 + VAT per ft. CWO. Rusper Hire (Crawley) 01293 871621 office hours only.

THE RF KIT CATALOGUE. Send 2 x 2nd class stamps or browse www.rf-kits.demon.co.uk Hands Electronics, Tegryn, Llanfrynach, Dyfed SA35 0BL; tel: 01239 698427.

6146W GE £29 PAIR. 12BY7A Jap £13. Crossed pointer ATU with dummy load, £69. Post £2.25 order. Hundreds of other items ex-Holdings. Send SASE or e-mail harry@g3lll.freeserve.co.ukfor a list. Harry Leeming, G3LLL, 3A Wilson Grove, Heysham, Morecambe LA3 2PQ, Tel: 0790 1932763. Callers by appointment only.

PC-AMIGA SSTV-PACKET. Tx/Rx interfaces from £28.50. SAE leaflets. £1 demo disk. Peter Lockwood, G8SLB. 36 Davington Road, Degenham, Essex, RM8 2LR. 020 8595 0823.

QSL CARDS. Gloss or tinted cards. SAE for samples to Twrog Press, Penybont, Gellilydan, Blaenau Ffestiniog, Gwynedd LL41 4EP.

QSL CARDS -low cost, quick delivery, superior designs, quality guaranteed, personal designs our speciality. SASE for samples. The Standfast Press, 5 South Drive, Inskip, Preston,PR4 0OT.

ESSEX AMATEUR RADIO SERVICES. New and used amateur radio equipment bought and sold. PX welcome. All warranted and serviced. 8.00am to 9.00pm. Ring Alan, tel: 01268 752522. 4 Northern Avenue, Benfleet, Essex SS7 7SN.

PROGRAMMED PROMS FOR PMR EQUIPMENT. SAE for details to Atlanta Communications, PO Box 5, Chatteris, Cambridgeshire PE16 6JT.

COMPUTER SOFTWARE & HARDWARE

SHACKLOG 5.1 - probably the most popular UK written and UK supported logging software. £32.00. With IOTA add-ons £42.50. SASE + disk for demo copy. Alan Jubb, G3PMR, 30 West Street, Gt Gransden, Sandy SG19 3AU. Tel: 01767 677913; e-mail: www.shacklog.co.uk

SD - EI5DI's CONTEST LOGGERS. HF £25.00. VHF £25.00. Both £39.00. Paul O'Kane, 36 Coolkill, Dublin 18. Tel: 00 353 1295 3668. www.ei5di.com

MISCELLANEOUS

CALL IN ON THE 'GOOD NEWS' CHRISTIAN NETS! Every Sunday at 8am on 3747kHz and 2pm around 7047kHz and 144.205MHz sharing Christian fellowship over the air. Info from WACRAL, 51 Alma Road, Brixham, South Devon TQ5 8QR; tel: 01803 854504.

VIDEO TAPE CONVERSION to and from all modes NTSC, SECAM, PAL-N, PAL-M. Digital processing. fastand economic service. Also 'cine' conversions. G4WMP. Tel: 01932 846139.

HOLIDAY ACCOMMODATION

BED & BREAKFAST / FOOD. Scotland, north coast. GM0EXN QTHR. Cliff top HF available. Tel: 01847 851774, e-mail: accommodation@ btinternet.com Website: www.btinternet.com/~bandb.farnorth

CRICCIETH, NORTH WALES. Bed and breakfast. Seaview all rooms. Pennyfarthing 01766-522744, e-mail: pennyfarthing@psilink. co.uk

NORTH WALES, CARAVAN, BUNK HOUSE, CAMPING. Elevated site. Use of shack and beam antenna. Open all year. Rural setting. 'Tynrhos', Mynytho, Pwllheli LL53 7PS, tel: 01758 740712.

COURSES

CITY & GUILDS RADIO AMATEURS EXAM. Pass your exam the easy way with an RRC home study course. For details write or phone THE RAPID RESULTS COLLEGE, Tuition House, London SW19 4DS; tel: 0181 947 2211.

Aberdeen ARS
6 Oct junk sale. 13 Oct building competition. 20 Oct building competition winner talk. 27 Oct on air. Robert, 01224 896142.

Appledore &DARC
7.30pm 3rd Mon of month at the Appledore Football Club room. 16 Oct radio quiz. Brian Jewell, 01237 473251.

Aylesbury Vale RS
8.00pm on 1st Wed of month at Hardwick Village Hall, 3 miles north of Aylesbury on A413. 4 Oct surplus equipment sale. Roger, G3MEH, 01442 826651.

Bangor &DARS
8.00pm, 1st Wed, Clandeboye Lodge Hotel, Bangor, Co Down. 4 Oct radio past and present, an entertaining review of amateur radio's history. Mike Stevenson, GI4XSF, 028 4277 2383.

Barking Radio & Electronics Society
New venue: Parkside Community Centre. No details of meetings supplied: contact Bill, G0IQK, 020 84784758.

Barry ARS
Tues at Sully Sports & Leisure Club, South Road, Sully CF64 5SP. 3 Oct on air, planning meeting for CQWW. 10 Oct quiz night, Glyn, GW0ANA. 17 Oct on air, Morse practice. 24 Oct on air, final planning for CQWW. 28/29 Oct CQWW DX phone contest as GW8K. 31 Oct on air and contest debrief. Richard Montimore, GW4BVJ, 01656 658830.

Blackmore Vale ARS
7.30pm Tues at Shaftesbury Club for Young People, Coppice Street, Shaftesbury, Dorset. 26 Sep Morse practice, shack night. Tony Marriott, G0GFL, 01258 860741.

Bracknell ARC
2nd Wed of month at Coopers Hill Youth & Community Centre, Crowthorne Road North, Bracknell. 11 Oct return of the HF antenna. Details: Baugh@compuserve.com

Braintree &DARS
8.00pm 1st & 3rd Mons, Braintree Hockey Club. 16 Oct 'homebrew' kits, David, M1CZY. 20-22 Oct JOTA. Keith Farthing, M0CLO, 01376 347736.

Bristol RSGB Group
7.15 for 7.30pm last Mon of the month at Avon Combined Services Club, 31 St Pauls Rd, Clifton, Bristol 8. 30 Oct an evening with top CW DXer Roger Western, G3SXW (possible alternative venue). Details: Martyn Phillips, G3RFX, 0117 973 6419, g3rfx@cs.com

Bromsgrove ARS
Lickey End Social Club, Alcester Rd, Burscot, Bromsgrove. 10 Oct talk TBA. 24 Oct quiz night. B Taylor, G0TPG, 01527 542266.

Chelmsford ARS
1st Tue of month. 3 Oct AGM & talk on packet radio by Clive Ward, G1EUC. Charles Shelton, G0GJS, 01245 256654.

Cheltenham ARA
7.45 for 8.00pm 1st Fri of month at Prestbury Library, The Burgage, Prestbury, Cheltenham. 6 Oct sale of surplus equipment. John Clayton, G4PDQ, 01242 242336.

Chesham &DARS
8.15pm Wed at The White Hill Centre, Chesham. 27 Sep on air. P Blakeney, G8BLB, 01494 784811.

Cheshunt &DARC
8.00pm Weds at the Church Room, Church Lane, Wormley, Herts. 4 Oct members' forum. 11 Oct recent developments in fire science, Stan Ames, G4OAV. 18 Oct on air. David, M1DGS, 01920 463746.

Chester &DARS
8.00pm 1st, 3rd & 4th Tues. 3 Oct flying as a hobby, Geoff, G0OXA. 17 Oct air traffic control, Dave, G4JMF. 24 Oct surplus sale. Bob, G4CMI, 01244 378699.

Chichester &DARC
7.30pm 1st & 3rd Tue of month at St Pancras Hall, St Pancras, Chichester. 3 Oct the triode, John, G3IJS. 17 Oct climatic oscillations, John Crosby. Graham Swann, G0WSD, 01243 788292.

Cockenzie & Port Seton ARC
has 'normal club nights' on first Fri of month at the Thorntree Inn, High Street, Cockenzie, from 1900 'till late'. 6 Oct normal club night. 20 Oct video night. Bob Glasgow, 01875 811723.

Coventry ARS
8.00pm Fris at Binley Church Hall, Brinklow Road, Coventry. 6 Oct AGM. 13 Oct night at the dogs. 20 Oct outdoor activity. 27 on air, Novice class, Morse practice. John, G8SEQ, tel: 024 76273190.

Cray Valley RS
8.00pm 1st & 3rd Thus of month at Progress Hall, Admiral Seymore Road, Eltham, London SE9. 5 Oct surplus sale. 19 Oct GSM mobile phones, Andy, M0BXT. Bob Treacher, BRS32525, 020 82657735 (after 8.00pm and weekends).

Crowborough &DARS
8.00pm 4th Thu of month at Plough & Horses, Walshes Rd, Jarvis Brook, Crowborough. 26 Oct charity quiz. Margaret, G6UIF, 01892 663666.

Crystal Palace &DRC
All Saints Parish Rooms, Upper Norwood, SE19 (junction Beulah Hill & Church Rd) 4 Oct transverter project, construction class, computing and Internet. 21 Oct microwave aerial table, D Atter, G3GRO. Bob Burns G3OOU, BCCMBurns@cs.com

Denby Dale (Pie Hall) ARS
8.00pm Weds at the Pie Hall, Denby Dale. 4 Oct AGM. 11 Oct surplus sale. Tony, G4LLZ, 01484 664360.

Derby &DARS
Weds. 4 Oct junk sale. 18 Oct quiz night. Martin Shardlow, G3SZJ, 01332 556875.

Dorking &DRS
7.30pm, usually 4th Tues at the Friends Meeting House, South St, Dorking (opposite the Spotted Dog). 24 Oct TBA. John Greenwell, G3AEZ, 01306 631236.

Dover Radio Club
7.30pm for 8.00pm Weds during term time at Dover Grammar School for Boys, Astor Ave, Dover. 27 Sep 'watches', Chris, 2E1HWT. Jim, M1BKI, no contact details provided.

Echelford ARS
7.00 for 7.30pm 2nd & 4th Thu at The Hall, St Martins Court, Kingston Crescent, Ashford, Middx. 28 Sep EMC update, Robin Hewes, G3TDR. Robin Hewes, G3TDR, 01784 456513.

Edgware &DRS
8.00pm 2nd & 4th Thus at Watling Community Centre, 145 Orange Hill Rd, Burnt Oak, Edgware. 12 Oct summer activities round table discussion. 26 Oct quiz MCd by Tony, G0IGP. David Wilkins, G5HY, 01923 655284 days / 0181 954 9180 evenings.

Exmouth ARC
1st & 3rd Wed of month. 8 Oct construction competition. 18 Oct radio communications, Alec, G8GON. Alec Jefford, G8GON, 01395 264872.

Fareham &DARC
7.30pm Weds at Portchester Community Centre. 4 Oct circuits and components part 6. 11 Oct on air. 18 Oct video night. 25 Oct practical demonstration: using a CRO in fault-finding. Andrew Sinclair, G0AMS, 01329 235397.

Farnborough &DARS
11 Oct construction evening. 25 Oct batteries, Chris, M1EBL. Norman, G0VYR, 01483 835320.

Felixstowe &DARS
8.00pm at Orwell Park School, Nacton, Ipswich. 2 Oct talk by Andy, G4PIQ. 16 Oct fish & chip supper, Victoria Inn, Felixstowe Ferry, names to Robin, G0VQS. 30 Oct robot wars, John Willoughby. Paul Whiting, G4YQC, 01473 642595.

Gloucester AR&ES
Mons. 2 Oct clandestine radio part 1. 9 Oct clandestine radio part 2. 16 Oct Morse 5WPM. 23 Oct the mysterious 128 set. 30 Oct WWII DF techniques. Tony Martin, 01452 618930 (office hours).

Goole R&ES
7.30pm Fris at various venues: 6 Oct contest discussion at Barnes Wallis Inn. 13 Oct HF on air at Lionel Winder Ltd, Selby. 20 Oct build your own computer part 3, Dennis, G0FBR, at Courtyard Centre, Goole. 27 Oct telegraphy night at Courtyard Centre, Goole. Richard, G0GLZ, 07867 862169.

Great Yarmouth RC
Bradwell Community Centre, Church Lane, Bradwell. 13 Oct operating evening. 27 Oct grid dip osc demo. Tony, G3NHU, 01493 721173.

Grimsby ARS
Cromwell Road, Grimsby. 5 Oct AGM. 19 Oct annual junk sale. Brian, G4DXB, no contact details supplied.

Guildford &DRS
7.30 for 8.00pm at Guildford Model Engineers Club House, Stoke Park, Guildford. 22 Sep old timers' reunion. 13 Oct CW & RTTY evening. 27 Oct QRP transceiver built by club member, Denis, G3OLM. Tim Dabbs, G7JYQ, 020 8399 5125 or t.dabbs@kingston.ac.uk

Hambleton ARS
7.30pm at the Mencap Centre, Northallerton. 20 Sep talk TBA. 4 Oct on air. 18 Oct talk TBA. John Hampson, G0VXH, 01845 537547, e-mail: jonham@breathemail.net

Hastings Electronics &RC
7.30pm on 3rd Wed of month at West Hill Community Centre, Croft Road, Hastings. 27 Sep deep space photography. 21 Oct JOTA event at St Peters Church Hall, Parkstone Rd, Hastings. Doug Mepham, G4ERA, 01424 812350.

Hoddesdon Radio Club
8.00pm alternate Tues at Conservative Club, Rye Road, Hoddesdon, Herts. 26 Sep CW and open forum evening. 10 Oct bumper junk sale. 20 Oct annual dinner. 24 Oct on air. Don Platt, G3JNJ, 0208 292 3678.

Horndean &DARC
7.30pm 1st & 4th Tue of month at Lovedean Village Hall, 160 Lovedean Lane, Lovedean, Hants. The 1st Tue is usually a social evening. 3 Oct club social evening. 24 Oct AGM. Stuart Swain, G0FYX, 01705 472846.

Hornsea ARC
Weds, The Mill, Attick Road, Hornsea. 20 Sep interclub quiz. 27 Sep 'foxhunt'. 4 Oct Yorkshire snapshots, G4UOZ. 11 Oct rally preparations. 18 Oct activity. 25 Oct museum pieces, G4IGY. John Thompson, G0TPS, 01964 562258.

Horsham ARC
8.00pm on 1st Thu of month at Guide Hall, Denne Road, Horsham, West Sussex. 5 Oct junk sale. David Miller, G4JHI, 01403 750228, e-mail: david@g4jhi.co.uk Internet: http://www.harc.co.uk

Hull & DARS
22 Sep quiz. 20 Oct build your own house, G0VVP. Jonathon, G7DBL, 01482 493425 or 07867 880402.

Itchen Valley ARC
2nd & 4th Fri. 22 Sep computer upgrading, Mark, G1TOT. 13 Oct the story of the *SS Great Britain*, part 1, Doug, G4BEQ. 21/22 Oct JOTA at 15th Chandlers Ford Scouts, Otterbourne. 27 Oct DFing with Clive, G4ODM. Pete, M0CFQ, 023 80345052.

Keighley ARS
8.00pm Thus at Ingrow Cricket Club, Hainworth Lane, Keighley. Morse, RAE & Novice courses arranged: all visitors welcome. 21 Sep talk by Ian Dewhurst, MBE. 28 Sep club auction, used equipment sale. 5 Oct on air. 19 Oct Northern heights quiz (pie & peas). 26 Oct tTalk by Peter Hut (Morse examiner). Ian, M1BGY, 01274 723951; e-mail: publicity@keighleyars.freeserve.co.uk

Kidderminster &DARS
8.00pm first Tue of month at Sutton Arms, Sutton Park Road, Kidderminster, Worcs. 3 Oct surplus sale. Geoff, G0RJP, 01299 888826.

Leicester Radio Society
Mons. 25 Sep amateur TV, Adam, G0ORY. 2 Oct on air. 16 Oct quarterly meeting. 23 Oct on air. 30 Oct lecture TBA. A T Wann, G0TNI, 0116 2630947.

Leiston ARC
7.45pm 1st Tue on month at Leiston Town Athletic Association, Victory Rd, Leiston. 20 Sep quiz against Ipswich Radio Club. 3 Oct surface-mounted devices, Ian, G0OZS. John Rabson, G3PAI, 01394 460298; fax: 01394 420795; e-mail: word.factory@zetnet.co.uk

Lincoln Short Wave Club
7.45pm Weds at Railway Sports & Social Club, Ropewalk, Lincoln. 20 Sep resuscitation, St Johns Ambulance. 4 Oct G5FZ on air. 18 Oct surplus equipment sale. Sam, G4IFD, 01726 832999.

Lothians Radio Society
7.45pm on 2nd & 4th Weds of month at Orwell Lodge Hotel, Colinton Road, Edinburgh. 27 Sep president's address (antenna design software demo) and programme introduction, Brian Howie, GM4DIJ. 11 Oct analysis of Morse sending, Geoff Walsh, GM4FH. 25 Oct surplus equipment sale. Brian Howie, GM4DIJ, 0131 3342247.

Loughborough &DARC
7.30pm Mons at Science Lab, Hind Leys Community College, Forest St, Shepshed, & Tues as follows: 26 Sep RSGB past, present & future, Geoff Dover, G4AFJ. 3 Oct three transistor construction competition update, Ian, G8SNF. 10 Oct AGM. 17 Oct on air evening, DX on any band. 24 Oct Lake Electronics, Alan Lake. 31 Oct calibration night, bring your gear to be checked. Chris, G1ETZ, 01509 504319.

Loughton & Epping Forest ARS
Alternate Fridays. 22 Sep visit by North London RLO. 6 Oct HF on air. 20 Oct RSGB video. Mark Litchman, G0TOC, 07803 023501.

Maidstone AR & TS
22 Sep toroid antennas, Prof R Jennison, G2AJV. Colin, G0POS, 01634 379140.

Maidstone YMCA ARS
22 Sep RAE operating procedures. 29 Sep RAE course. 6 Oct RAE DC theory. 13 Oct RAE AC theory. 20 Oct RAE reactance and impedance. 27 Oct RAE resonance. John, G0RHO, 01622 832259.

Maxpak
Midlands AX25 Packet Radio Users Group, 8.00pm at Perton Community Centre, Perton, nr Wolverhampton. Club web site www.maxpak.f9.co.uk 2 Oct by committee. Ron Taylor, G6LRD, 01922 684496.

Mercian ARS
23 Oct across the Pacific with Expedition Raleigh, John Layton, G4AAL. Arnold, G3FZW, 01543 262495.

Mid Cheshire ARS
8.00pm Weds at Cotebrook Village Hall on A49 north of Tarporley. 20 Sep AGM. Mike, G6GAK, 01606 784795.

Mid-Warwickshire ARS
26 Sep Morse evening for club members. 10 Oct 2001 programme planning meeting. 24 Oct steam trains 3, Mick Jerome. Bernard, M1AUK, 01926 420913.

Morecambe Bay ARS
26 Sep QRP, George Dobbs, G3RJV. 24 Oct advances in camera technology over the last two years. Brian, G0RDH, 01524 424522

National Space Centre ARS
New society working in partnership with National Space Centre, a Millennium Landmark Project, in Leicester. Details at www.nsc-ars.fsnet.co.uk or from Secretary John Heath, G7HIA.

Newbury &DARS
7.30pm on 4th Wed at Memorial Hall, Upper Bucklebury, nr Newbury. 27 Sep APRS, Neil Savon, G0SVN. 25 Oct TBA. Ian Trusson, G3RVM, 01635 826019, g3rvm@compuserve.com

Norfolk ARC
7.00 for 8.00pm Weds at Ugly Bug Public House, Colton. Informal evenings, including night on air, construction QRP, & Morse practice, on 1st, 3rd & 5th Weds, plus: 20 Sep video The Secret Life of Radio and World at Their Fingertips. 27 Sep / 11

Oct on air, construction, Morse practice. 18 Oct nostalgia evening, bring your most treasured (radio related) possession, Peter, G3ASQ. 25 Oct on air, construction, Morse practice. John Wadman, G0VZD, 01953 604769.

North Bristol ARC
29 Sep setting up your ATV station, Shaun, G8VPG, Paul, G8YMM. 6 Oct Kenwood evening, David Wilkins, G5HY. 20 Oct quiz night. 27 Oct scratch and kit built display. David, G0GHM, 01275 790448.

Oldham ARC
8.30pm at Moorside Conservative Club, 633 Ripponden Road, Moorside, Oldham. RAE course Thursdays; new course started in Sep. Mike, M1CVL, 01706 367454.

Oxford &DARS
Grove House Club, Grove Street, Summertown, Oxford. 28 Sep talk by Radiocommunications Agency. Dave, G3BLS, 01865 247311.

Paisley (YMCA) ARC
7.30pm 2nd Wed at YMCA, 5 New St, Paisley. 20 Sep ohms, watts and aerials, GM3UWX. 4 Oct how to drive a valve linear, GM3CIX. 18 Oct confessions of an MM5, MM5TGW. Jim, GM3UWX, 01505 862817.

Preston ARS
7.00pm at the Lonsdale Sports and Social Club, Fulwood Hall Lane, off Watling Street Road, Fulwood, Preston. Every Thu Novice RAE classes (7.00pm), Morse classes (8.00pm). 21 Sep surplus equipment sale. Mark, G1PIE, 01257 414026.

Radio Society of Harrow
8.00pm Fris at Harrow Arts Centre, Uxbridge Rd, Hatch End, Middx. 24 Sep GB2DHH at Mosquito Aircraft Museum, London Colney. 29 Sep magazine and book exchange. 6 Oct German evening, try out German food, wine and radio contacts. 20 Oct Hungarian evening, David, G0CAG, will attempt to repeat his triumph of last year. 21 Oct GB2DHH at Mosquito Museum, London Colney. Jim Ballard, G0AOT, 01895 476933 (evenings / weekends), 0171 278 6421 (day).

RAF Waddington ARC
7.30pm Thus at Pyewipe Inn, Saxilby Road Lincoln. CW Lessons weekly. Contests monthly. Bob, G3VCA / G0RAF, 01522 528708.

Reading &DARC
8.00pm 2nd Thu at the Pavilion, Woodford Park, Woodley, Reading. www.radarc.org 12 Oct *Practical Wireless* origins, past, present and future, Rob Mannion, G3XFD. Pete Milton, G8FRC, 0118 969 5697.

Salop ARS
21 Sep quiz against Newtown club. 28 Sep calibration night. 12 Oct AGM. Fred Hall, G3NSY, 01743 790457.

Shefford &DARS
8.00pm Thus at St Michael's Church Hall, Ampthill Rd, Shefford, Beds. 21 Sep rig alignment & 12.5kHz trimming: bring in that old tranceiver. 28 Sep Mobile DF hunt, start 8.00pm at the clubhouse. 5 Oct TBA. 12 Oct CQWW planning. 19 Oct grand junk sale. 26 Oct TBA. 28/29 Oct CQWW contest: your chance to work the world. Mike Carrington, G8BEG, 01462 816738.

South Bristol ARC
7.30pm Weds at Whitchurch Folkhouse Association, Bridge Farm House, East Dundry Road, Whitchurch, Bristol. 4 Oct CW practice. 11 Oct cables & connectors master class. 18 Oct VHF workshop for newcomers. 25 Oct on air. Len Baker, G4RZY, 01275 834282 (24 hr answerphone).

South Notts ARC
7.00pm Weds at Fairhgm Community College, Farnborough Rd, Clifton, Nottingham. 4 Oct Kanga Products, John Fletcher, G4EDX. 11 Oct on air. 18 Oct open forum, members only. 25 Oct on air. Details 01509 672846.

Stockport RS
2nd & 4th Weds. 27 Sep data modes activity night. 11 Oct 'The G0HAL Lecture', 'And now for something completely different', by Andrew Paterson, G0HAL. 25 Oct construction competition and slide / video show. David Simcock, M1ANT, 0161 285 0017.

Surrey Radio Contact Club
7.30pm 1st & 3rd Mon of month at Terra Nova meeting hall, The Waldrons, Waddon, Croydon, Surrey. 2 Oct autumn surplus equipment sale. 16 Oct fix it and advice clinic. Berni, G8TB, 020 86607515.

Swansea ARS
23 Sep coach trip to Leicester Show. Roger Williams, GW4HSH, 01792 404422.

Telford &DARS
8.00pm Weds at Community Centre, Bank Road, Dawley, Telford. 20 Sep the story of television, Tony, M0AMP. 27 Sep using the right component, a committee presentation. 4 Oct on air. Mike Street, G3JKX, 01952 299677.

Thornton Cleveleys ARS
Meets Mons at Frank Townend Community Centre, Beach Road, Cleveleys. 25 Sep computer programs for amateur radio, Charles, G4FWM. 2 Oct AGM. 9 Oct video evening. 16 Oct on air. 23 Oct flight simulators, Ian, G0KMT. 30 Oct talk by Colin, G0EPY. Jack Duddington, G4BFH, jack@duddingt.u-net.com or 8 The Grove, Thornton Cleveleys, Lancs FY5 2JD.

Trowbridge &DARC
8.00pm 1st & 3rd Wed of month (3rd Weds usually 'natter nights') at Southwick Village Hall, Southwick, on A361 Trowbridge / Frome road. 4 Oct cellular GPRS network and mobile Internet services, Jan Verduyn, G0BBL. Ian Carter, G0GRI, 01225 864698 (evenings / weekends).

Vale of the White Horse ARS
8.00pm 1st Tue at The Fox, Steventon. 3 Oct AGM. Ian White, G3SEK, 01235 531559.

Verulam ARC
Mondays (note change of day), 7.30 for 8.00pm at RAF Association HQ, New Kent Rd, St Albans. 25 Sep the Mosquito, Walter Craine. 23 Oct professional EMC and the amateur, Dickie Marshall, G3SBA. Walter Craine, G3PMF, 01923 262180.

Wakefield &DRS
8.00pm Tues at Community Centre, Prospect Rd, Ossett, West Yorks. Novice and RAE tuition. Well-equipped station, library, and licensed bar. 26 Sep on air. 3 Oct VLF cave radio. 10 Oct cameras. 17 Oct on air. 24 Oct brewery visit. 31 Oct games night. John Carter, G7JTH, 01924 251822, John@G0MJZ.freeserve.co.uk

Waterside (New Forest) ARS
3 Oct IARU, Ian Hubball. 17 Oct practical construction, on air. Details from Tony, G0LKG, tel: 023 80841794.

Welwyn Hatfield ARC
8.30pm 1st and 3rd Monday of the month (exc Bank Holidays) at the Royal Naval Association, Black Fan Road, Welwyn Garden City. 9 Oct communal junk sale with SWIG group to be held at the Hyde Club, Welwyn Garden City. Club website www.wharc.org.uk or contact Dean Jackson, 07968 119975.

Weston-Super-Mare RS
7.30 for 8.00pm 1st & 3rd Mon at Woodspring Inn, High St, Worle, Weston-super-Mare. 2 Oct quiz, Andy Giles. 16 Oct workshop. Doug, G0WMW, 01934 629160.

West Somerset ARC
7.30pm 1st Tue of month in Room GB7, Gibbs Block, West Somerset Community College, Minehead. 3 Oct spectrum analysis in action. Alan Elliott, M0AOJ, 01643 707207.

Wolverhampton ARS
8.15pm Tues at Wolverhampton Electricity Sports and Social Club, St Mark's Road, Chapel Ash, Wolverhampton. 26 Oct AGM. Joy Smith, 01902 751936, joy@g4bte.freeserve.co.uk

Worthing &DARC
Weds. 27 Sep construction contest. 4 Oct discussion evening. 11 Oct direction finding. 18 Oct AGM. 25 Oct discussion. Roy, G4GPX, 01903 753893.

Yeovil ARC
7.00pm Thus at the Red Cross Centre, Grove Avenue, Yeovil. 21 Sep simple transmitter, Rob, G3MYM. 28 Sep on air. George, G3ICO, 01935 425669.

York ARS

8.00pm Fris at Guppys Enterprise Club, Nunnery Lane, York. Visitors are most welcome. 20 Oct annual dinner. 21 Oct Maths 2000 special event station. Keith, G3WVO, 01904 422084.

York RC

8.00pm Thus at Bisopthorpe Social Club. 28 Sep Morse tuition, G0WUY. 5 Oct Morse tuition, G4XIV. 12 Oct AGM, John, G4FUO. 19 Oct pie and peas evening, Andy, G0VYS. 26 Oct Morse tuition, G0WUY & G4XIV. Tony Skaife, G4XIV, 01904 330502.

National and International Groups

Amateur Radio Caravan and Camping Club (ARCC)

For further details please contact the Hon Sec, Mrs Norma Jackson, 41 Creswell Farm Drive, Stafford ST16 1PG.

British Amateur Radio Teledata Group (BARTG)

has a quarterly magazine, *Datacom*, and holds an HF RTTY contest each year. For more details about the group contact Membership Secretary Bill McGill, G0DXB, 14 Farquahar Road, Maltby, Rotherham, S Yorks S66 7PD, tel: 01709 814010 (Tue, Thu & Fri, 7.00pm to 9.00pm. Sat / Sun before 9.00pm), or via GB7WRG. Internet: http://www.bartg.demon.co.uk

British Amateur Television Club (BATC)

produces a quarterly magazine, *CQ-TV*, and holds its own rally each year. BATC has an Internet site at http://www.batc.org.uk For details contact: Dave Lawton, G0ANO, Grenehurst, Pinewood Road, High Wycombe, Bucks HP12 4DD.

British Citizens' Band Confederation (BCBC)

is the national voice of Citizens' Band radio in the UK, set up by CBers, and run by CBers, to protect the interests of CBers. The group has its own newsletter, *Infomat*, and holds regular meetings with the RA to protect the privileges of the CB licence. Full membership, open to those with a current CB licence, is £6. For details, contact Sydney Perrin, The Secretary, PO Box 5826, Basildon, Essex SS16 5FQ or see the BCBC web site at http://www.bcbc.u-net.com/

British DX Club (BDXC)

a national organisation for broadcast band listeners. Covers international SW, MW and UK domestic radio news. Monthly bulletin *Communication*, audio Tape Circle, local meetings. Details: BDXC Secretary, 126 Bargery Road, Catford, London SE6 2LR; e-mail: editor@bdxc.org.uk; website: www.bdxc.org.uk

CDXC (Chiltern DX Club) - the UK DX Foundation

membership is open to all amateurs and SWLs who have worked (or heard) more than 100 DXCC entities. It is the UK's first and largest grouping of amateurs interested in HF DX / contesting. It produces an excellent quarterly magazine, *CDXC Digest*, and holds occasional social events. Internet site: http://www.cdxc.org.uk For prospectus and further details please contact the Secretary, Shaun Jarvis, M0BJL, 11 Charnwood Way, Langley, Southampton SO45 1ZL; e-mail: m0bjl@btinternet.com

Eddystone User Group

Founded in 1990, the Eddystone User Group is a non-profit-making society of collectors and users of Eddystone radios, which have been made in England since 1923. Bi-monthly newsletter of hints, tips, features and technical advice. Details from Graeme Wormald, G3GGL, 15 Sabrina Drive, Bewdley, Worcs DY12 2RJ; tel: 01299 403372.

G-QRP Club

publishes a quarterly journal, *SPRAT*, devoted to low power communication, and holds regular get-togethers at their rally stands throughout the country. For membership details, contact their Secretary, Rev G Dobbs, St Aiden's Vicarage, 498 Manchester Road, Rochdale, Lancs OL11 3HE; tel: 01706 31812 or see their web site at http://www.btinternet.com/~g4wif/gqrp.htm

International Short Wave League (ISWL)

who, as well as running an international QSL bureau for amateurs and SWLs, has a monthly magazine (*Monitor*) and regular get-togethers at their rally stands plus on-air nets on HF and VHF. For more details send an A4 sized SAE to: ISWL HQ, 267 Pelham Road, Immingham DN40 1JU. Internet: http://www.aber.ac.uk/~srj5/iswl.htm

Irish Radio Transmitters Society (IRTS)

publishes regular newsletters giving details of local activities, and the yearly IRTS Callbook. They also have a video library. For further details of IRTS, contact the Secretary (2000-01): John Corless EI7IQ, e-mail: ei7iq@eircom.net For book sales contact Peter Grant EI4HX, ei4hxperimental@eircom.net.

Medium Wave Circle

is the organisation for the enthusiast with a particular interest in DXing on the Long and Medium Wave bands. The Circle publishes a monthly magazine, Medium Wave News, which is now in its 46th year of publication. An information leaflet about membership and the services provided for members is available by sending an SASE to the Secretary, 59 Moat Lane, Luton LU3 1UU, or by e-mail: contact@mwcircle.org The Circle has a web page at www.mwcircle.org

Radio Amateurs' Emergency Network

National Registered Charity No. 1047725, can be contacted at Hunters Moon, Newton-le-Willows, Bedale, N Yorks DL8 1SX. 24hr emergency national contact line: 0141 621 2121; Raynet supplies: 01369 708760 or raynetsupplies@latheron.demon.co.uk; Internet web site: http://www.sgi.leeds.ac.uk/raynet/; packet BBS: GB7NRC.

Radio Amateur Invalid and Blind Club (RAIBC)

is a registered charity which raises money for radio / computer equipment, and audio cassette courses for home study, for blind, deaf and disabled amateurs. The club attends rallies throughout the year, and collects surplus equipment for resale. Please contact Honorary Treasurer / Membership Secretary Mrs Shelagh Chambers, 78 Durley Ave, Pinner, Middx HA5 1JH. Web site address: http://www.gurney.co.uk/raibc

Radiocommunications Agency (RA)

is the licensing authority for all UK radio amateurs. They have a large number of free publications, including the booklet *How to Become a Radio Amateur*, and their *Novice Licence Information* sheet and can offer advice on many aspects of licensing. Wyndham House, 189 Marsh Wall, London E14 9SX. Amateur Radio line, tel: 0171 211 0160. General enquiries, tel: 0171 211 0211. Answerphone service, tel: 0171 211 0591.

Radio Society of Great Britain (RSGB)

is the internationally-recognised national society, which has been representing UK Radio Amateurs and short wave listeners for 87 years. Members of the RSGB receive *RadCom*, a 100-page colour magazine sent to their home each month, have the advantage of free QSLing, can enter RSGB contests, and get help in obtaining planning permission for antennas, as well as much other technical support. A network of over 2000 volunteers is on hand to help the Radio Amateur and short wave listener with any enquiry. Address is: Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE; tel: 01707 659015; Internet site: http://www.rsgb.org and e-mail: info@rsgb.org.uk

Royal Air Force ARS (RAFARS)

is an international society for radio amateurs who are or have been serving members of the Royal Air Force, inc RAF Reserves and Commonwealth or Allied Forces. Civilians whose work associated them with the RAF, or anyone with an interest in the RAF can also be members. RAFARS publishes its own callbook and magazine, *QRV*, twice a year, and runs its own QSL bureau. Contact address is The Administrator, HQ RAFARS, RAF Cosford, Wolverhampton WV7 3EX.

Post Office Customer Management Ltd (POCM)

formerly Subscription Services Ltd (SSL), handles the issuing of amateur licences in the UK on behalf of the Radiocommunications Agency. SSL can help regarding enquiries concerning individual licences (rather than general licensing matters, which the RA handles, see above). Contact details: The Radio Licensing Centre, POCM, PO Box 884, Bristol BS99 5LF; tel: 0117 925 8333.

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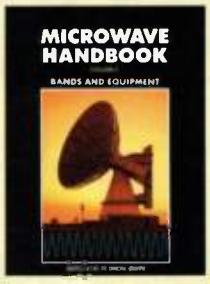

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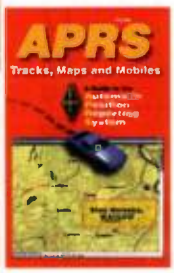

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contributors:

RADIO TODAY EDITORIAL: RSGB Publications, Lambda House, Cranborne Road, Potters Bar, Herts, EN6 3JE; tel: 01707 853300; fax: 01707 645105; e-mail: rtoday@rsgb.org.uk

DATA CONNECTION: Chris Lorek, G4HCL, post: PO Box 400, Eastleigh SO53 4ZF; fax/answerphone: 01703 263429; e-mail: g4hcl@rsgb.org.uk packet: G4HCL@GB7SOU.#48.GBR.EU

HF HAPPENINGS: Martin Atherton, G3ZAY, post: 41 Enniskillen Road, Cambridge CB4 1SQ; e-mail: g3zay@rsgb.org.uk

NET COMMUNICATION: Jeremy Boot, G4NJH, post: via Editor; e-mail: g4njh@rsgb.org.uk

QRP CORNER: Dick Pascoe, G0BPS, post: Seaview House, Crete Road East, Folkestone CT18 7EG; e-mail: g0bps@rsgb.org.uk

SATELLITE RENDEZVOUS: Richard Limebear, G3RWL, post: via Editor; e-mail: g3rwl@amsat.org

VHF/UHF MESSAGE: Geoff Brown, G4ICD, post: 17 Grove Gardens, Sholing, Southampton SO19 9QZ; tel: 01703 445212; e-mail: g4icd@rsgb.org.uk

ALL IN A DAY'S WORK: Harry Leeming, G3LLL, The Cedars, 3A Wilson Grove, Heysham, Morecambe LA3 2PQ; tel: 07901 932763; e-mail: g3lll@rsgb.org.uk

BROADCAST SPECTRUM: Martin Peters, G4EFE, 11 Filbert Drive, Tilehurst, Reading RG31 5DZ; e-mail: broadcast@rsgb.org.uk

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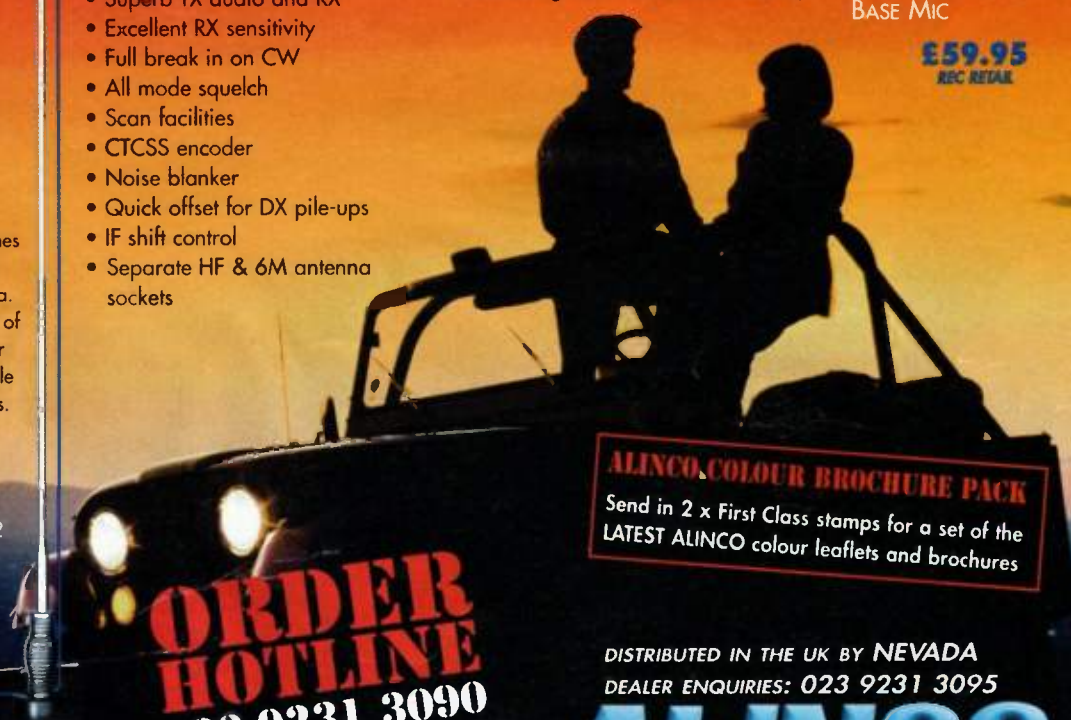

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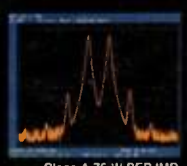

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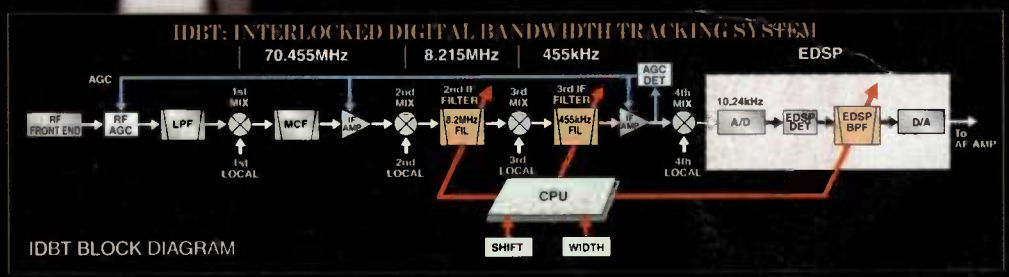

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[Volume 18] Index

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Take a tour around BBC Monitoring in the March 2000 issue

software reviews

rallies and exhibitions (inc 'rally of the month')

regular columns

Each issue of *Radio Today* contains the following regular columns:

All in a Day's Work (Harry Leeming, G3LLL)
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Net Communication (Jeremy Boot, G4NJH)
QRP Corner (Dick Pascoe, G0BPS)
Satellite Rendezvous (AMSAT-UK, compiled by Richard Limebear, G3RWL)
Scanners International (Steve Trevett)
VHF / UHF Message (Geoff Brown, GJ4ICD)

The Alinco DJ-X2

A top-pocket scanner, reviewed by Chris Lorek, G4HCL

■ Alinco already has 'firsts' in their launching of a tiny 2m FM transceiver and an equally tiny 70cm transceiver, each the size and thickness of a typical credit card-sized calculator, making these the world's smallest commercial amateur handhelds. Then came a dualband transceiver with the same front panel area and with a slight forward bulge to contain the thickness of a minuscule front panel speaker.

But what about a wideband receiver? Alinco has already had its DJ-X1 and DJ-X10 handheld receivers, and it was possibly only natural that they used the physical case size of their tiny dualband handheld to fit a wideband receiver into. The result was the DJ-X2, which could possibly now be the world's smallest wideband scanner receiver.

Measuring 58W x 90H x 15Dmm its the footprint of a credit card, and within its case there's a 0.5 - 1000MHz AM, FM and WFM continuous coverage receiver, including correct 8.33kHz steps for civil airband on VHF and 700 memory channels for frequency storage and scanning. It also weighs just 85g with its internal lithium-ion rechargeable battery. It comes supplied with a set-top whip antenna with an SMA socket, but if you wish you can instead use the lead from the supplied plug-in earphone as the antenna for a more portable, or even covert, shirt-pocket system. For mediumwave listening, an internal ferrite bar antenna is included for good portable reception, or you can of course plug in an external antenna if you wish.

power

The DJ-X2 is supplied with a built-in lithium-ion battery, which will typically give you around a day's worth of listening to normal activity, an internal battery saver extending the life of this when there's no activity on the channel, and a switchable 'Auto Power Off' saving your batteries going completely flat if you forget to switch it off.

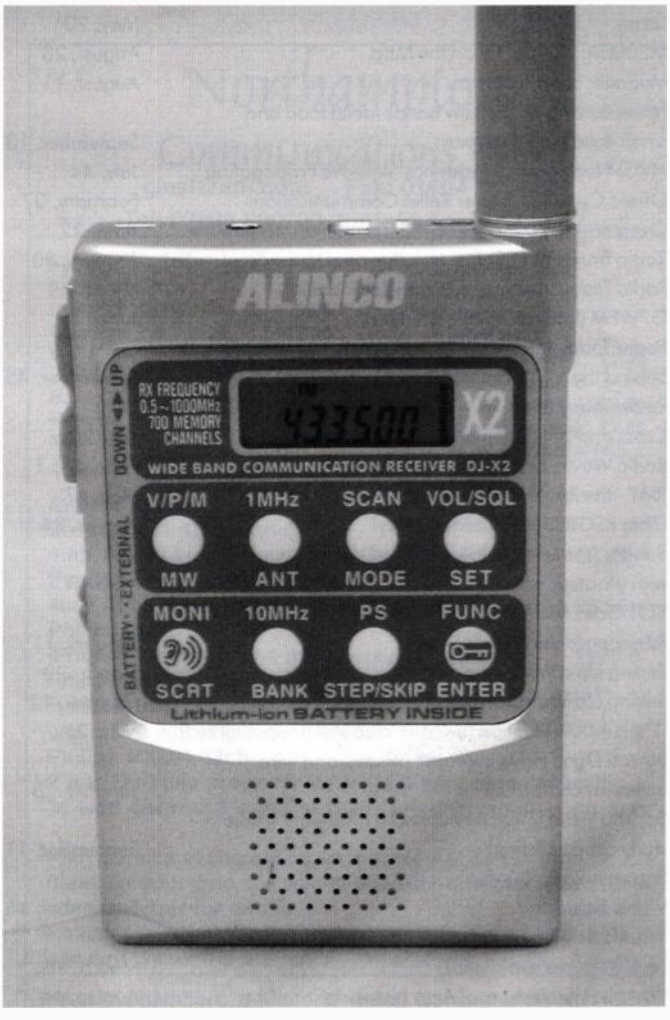
The receiver also comes with a larger clip-on external battery pack which holds three AA-sized cells. This can be used to extend the listening time, to an entire weekend for example, as well as acting as a charging interface for the internal battery.

A plug-in AC wall charger is supplied, the one that came with my review model being one of the widely-available 'universal' types with selectable voltages and plugs, the correct arrangement being ready-prepared when supplied with the scanner.

memories

The 700 available memory channels are arranged into 10 banks of 70 channels each, which you can individually program with your favourite frequencies. Besides these, a 'Preset' mode can be switched in, which includes pre-stored channels for mediumwave, FM Band II, and a number of wideband FM TV sound channels.

An 'overwrite protect' facility guards against you accidentally deleting stored frequencies by mistake.



Wideband Receiver

scanning and searching

The VFO tunes around using the side-mounted up / down bar, in selectable step sizes of 5, 6.25, 8.33, 10. 12.5, 15, 20, 25, 30, 50 and 100kHz. Front panel '1MHz' and '10MHz' buttons give larger tuning steps so you can get from one frequency range to another.

The 'Preset' mode usefully adds 9kHz pre-stored steps for mediumwave AM, corresponding to European station allocations.

The memory channel banks can be linked for scanning as you wish, with individual memory channels being 'locked out' of the scan by suitable pre-programming. The scan resumes either when the signal on a channel disappears, or after a five-second pause, depending again on your preference.

As well as memory scan, you can also scan through all the VFO frequencies, or through any one of 20 programmed scan ranges which you can individually set up to suit your listening interests.

There are also eight 'Priority' channels available, any of which you can command the receiver to check briefly for activity every five seconds while you're otherwise listening to another frequency. Finally, to stop the VFO scan halting on those annoying constant carriers over its very wide frequency range, the DJ-X2 usefully also lets you enter up to 100 'pass' channels which the VFO or Program scan will skip.

bugging detector

A unique feature of this tiny receiver is a curiously-named 'bugging detector'.

If you're suspicious that you're being spied upon, wireless-wise, providing you've got a selection of known 'bug' frequencies stored into the set's memory channels, it can scan through these. It looks for audio feedback from its internal speaker, which would occur if there's a sensitive wireless microphone in the room, and shows you on the display that your suspicions are correct!

You can set up various levels of sensitivity for this, although you will need to know already which frequencies to program in for it.

descrambling

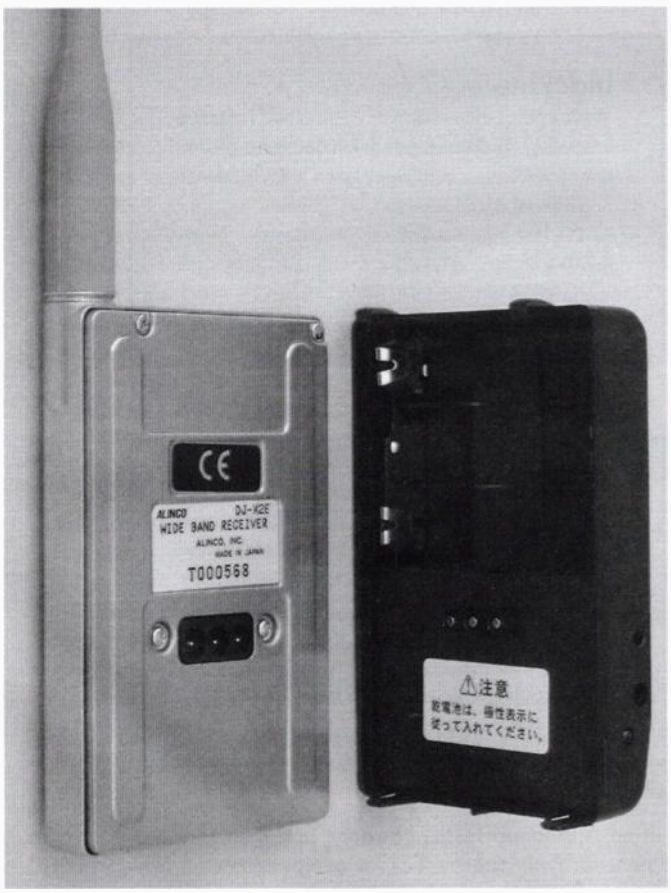
At the other end of the scale, some commercial organisations using PMR (Private Mobile Radio) naturally want to keep their messages a little safer from casual eavesdropping, and use various audio scrambling systems for this. A typical case is that of taxi firms, to try to prevent competitors getting to their fares first (although many now use data transmission for this).

One system that's fitted to some 'off the shelf' commercial radios, including up-market PMR-446 licence-free handhelds, is simple audio inversion, and the DJ-X2 has a built-in switchable un-inverter for this.

Selecting the 'SCRT' mode with a double-button press, then using the up / down bar as a 'fine tune' control, gives readable audio from this. But don't get too excited, as the receiver will *not* decode digital radio systems such as encrypted police and GSM cellphone transmissions!

on the air

The first thing I noticed about the DJ-X2 when I came to operate it was that, in keeping with modern trends, there were no 'traditional' rotary controls. An up / down toggle bar at the left-hand side of the case acts as a combined



alinco dj-x2 receiver laboratory results

All measurements taken at 145.000MHz, FM, unless otherwise stated, using fully-charged internal lithium-ion battery.

sensitivity

Input signal level in μV pd required to give 12dB SINAD.

2MHz	0.30 μV pd (AM)
4MHz	0.28 μV pd (AM)
6MHz	0.29 μV pd (AM)
8MHz	0.31 μV pd (AM)
10MHz	0.32 μV pd (AM)
15MHz	0.30 μV pd (AM)
20MHz	0.27 μV pd (AM)
30MHz	0.48 μV pd (FM)
50MHz	0.42 μV pd (FM)
70MHz	0.30 μV pd (FM)
100MHz	1.16 μV pd (WFM)
145MHz	0.22 μV pd (FM)
170MHz	0.24 μV pd (FM)
250MHz	0.39 μV pd (AM)
350MHz	0.22 μV pd (FM)
435MHz	0.26 μV pd (FM)
450MHz	0.29 μV pd (FM)
550MHz	1.71 μV pd (WFM)
750MHz	1.60 μV pd (WFM)
950MHz	0.40 μV pd (FM)

squelch sensitivity

Level of signal required to raise receiver squelch.

Threshold (1)	0.12 μV pd (3dB SINAD)
Maximum (5)	0.25 μV pd (14dB SINAD)

adjacent channel selectivity

Measured as increase in level of interfering signal, modulated with 400Hz at 1.5kHz deviation, above 12dB SINAD ref level to cause 6dB degradation in 12dB on-channel signal.

+12.5kHz	24.4dB
-12.5kHz	25.2dB
+25kHz	43.0dB
-25kHz	39.6dB

blocking

Measured as increase over 12dB SINAD level of interfering signal modulated with 400Hz at 1.5kHz deviation to cause 6dB degradation in 12dB SINAD on-channel signal.

+100kHz	60.4dB
+1MHz	81.1dB
+10MHz	83.0dB

image rejection

Difference in level between unwanted and wanted IF image signal levels, each giving 12dB SINAD on-channel signals.

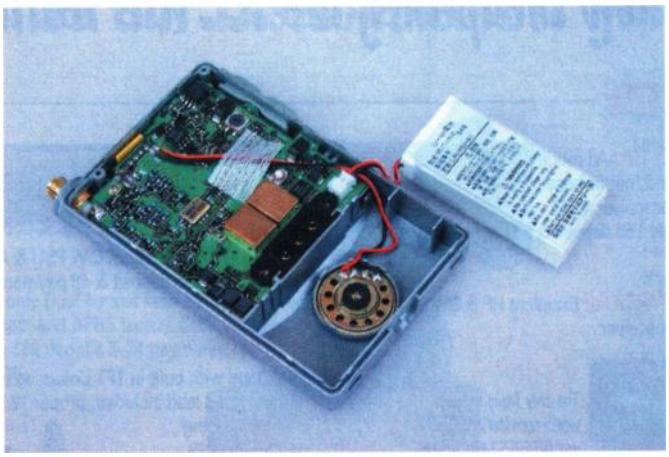
1st IF image	66.5dB
2nd IF image	47.6dB
3rd IF image	74.0dB

intermodulation rejection

Measured as increase over 12dB SINAD level of two interfering signals giving identical 12dB SINAD on-channel 3rd order intermodulation product.

25 / 50kHz spacing	45.5dB
50 / 100kHz spacing	43.2dB

The measurement results contained in this review were not made in an Accredited Test Laboratory, and therefore should not be construed as indicating compliance or otherwise with any requirement for type approval or for compliance with any Directive.



volume, squelch, frequency and channel change control, its function at any time being 'toggled' by the use of front panel buttons, such as the Vol / Sql / Set button.

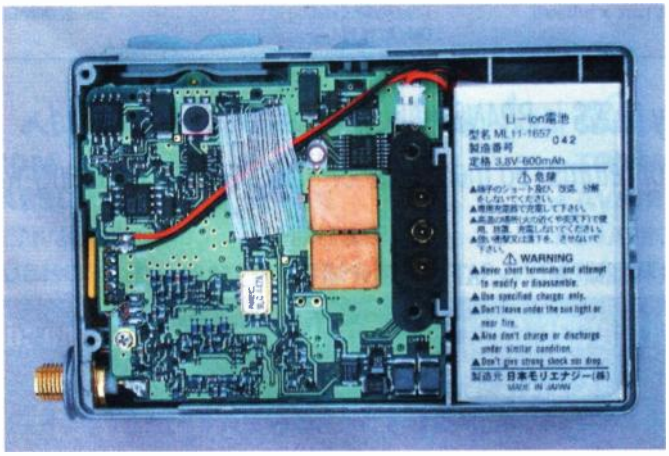
There are two main operation modes on the receiver, 'Easy' and 'Expert', and the receiver comes out of the box set to 'Easy'. This means you can't program any memory channels, change the tuning steps sizes or reception modes from 'Auto' and so on, and you can only tune and scan around the VFO and 'Preset' tuning modes. In other words, you can't 'mess it up' while you're trying it out for the first time. You'll have to read well into the manual to find out how to change to 'Expert' mode!

Alinco claims "Loud and Clear AM, FM and WFM receptions" (sic) from the DJ-X2. I'd say this is certainly true if you use the supplied padded in-ear earphone with the receiver, which I often did when I was using the DJ-X2 whilst I was walking around outdoors. This was mainly because the front panel speaker simply wasn't up to providing a sufficient level of undistorted audio for outdoor listening in noisy surroundings, although I found it acceptable (although still rather tinny, as would be expected from such a small speaker) when listening in a quiet indoor environment. You can't "squeeze a quart out of a pint pot", and one must naturally expect limitations in such a tiny receiver.

Marketing hyperbolae aside, I found the receiver to be a great performer in portable mode. It slipped into my shirt pocket without a bulge and the earphone audio and antenna lead facility gave me listening enjoyment while I was walking around my local shopping centre! There's even a built-in backlight for night-time use, and a tiny S-meter bargraph along the right-hand side of the LCD to give an idea of the relative received signal level.

Overall the DJ-X2 gave quite reasonable performance on receive, not quite that of a purpose-designed amateur handheld in terms of absolute sensitivity on VHF / UHF, but signals still came in plentifully. The mediumwave reception ability was great using the built-in ferrite rod, sports fans will I'm sure appreciate being able to listen to broadcast sports news as well as the local action on VHF FM while they're at an event.

Top marks go to Alinco for the receiver's ability to reject the dreaded 'pager breakthrough' that cripples many portable scanners. I encountered none of this with the DJ-X2 using its own antennas. A built-in switchable RF attenuator was present for times when strong signals could have caused a problem, and I made use of this with the set connected to my roof-top antennas at home, particularly on the HF bands listening to AM broadcast stations.



The 'Auto' step size and mode, which varied depending upon which part of the band you're on, I found a mixed blessing, as this was set up for non-European use. For example, the 2m amateur band was tuned correctly on FM but in 20kHz steps, rather than 12.5kHz steps. So I tended to use the manual mode and step change, although I'd have wished that the mode setting would have remembered the step size I last used for this. For example, switching to FM on VHF from AM meant I also had to alter the step size from 25kHz (or 8.33kHz) to 12.5kHz each time, and *vice versa*.

pc link?

Alinco USA say that the receiver is 'PC Programmable' and this could be very useful with so many memory channels, search banks etc available. If the 'Auto Mode' could also be programmed to suit UK use, it would make the receiver even better and easier to use. The DJ-X2 certainly does have a receiver-to-receiver 'clone' mode for transferring stored information, so PC control of at least the stored memories is certainly technically possible, all we need is the software and possibly an in-line RS-232 or USB interface. This is not currently available in the UK.

conclusions

A great little performer. Alinco has done it again, by squeezing a self-contained multi-featured scanner into a very portable size.

Our thanks go to Nevada (tel: 023 9231 3090) who are the UK Alinco distributors, for the loan of the review receiver. The Alinco DJ-X2 'microscanner' costs £239.

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He was very efficient and extremely helpful, in fact I ended up buying a new Yaesu rig. .

I would just like to convey how happy I am with the service which I received, so keep up the good work.

Many Thanks
JW Smith M1JWS

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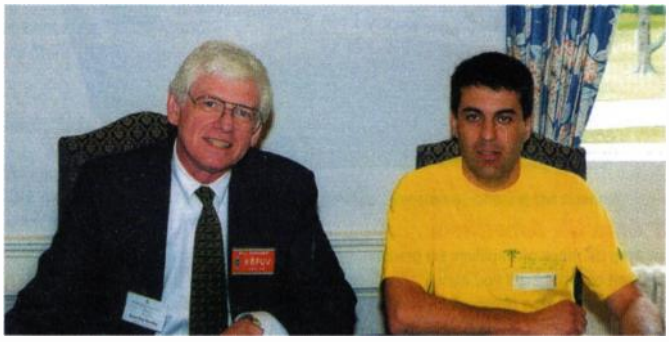
RALLY OF THE MONTH

13 - 15 OCTOBER 13 - 15 OCTOBER 13 - 15 OCTOBER 13 - 15 OCTOBER



Bill Kennamer, K5FUV, and a Brazilian DXer checking QSL cards for DXCC applications at last year's HF Convention. Bill has since retired, but Wayne Mills, N7NG, has taken over the role and will be at Windsor this year.

"Pass the wine!" DXers from G, GW and PA0 exchange yarns at the 'DX Dinner'.

RSGB HF & IOTA CONVENTION

■ The 'Rally of the Month' is the RSGB's own International HF and IOTA Convention, which takes place from the evening of Friday 13 October until the afternoon of Sunday 15 October. The venue is the Beaumont Conference Centre in Old Windsor, Berkshire.

This is *the* annual event for all HF operators - and in this context 'HF' means everything from 73kHz to 50MHz! It is not a trade show, although there is a display by Martin Lynch & Sons of the latest HF equipment from Yaesu (ML&S and Yaesu are the two major sponsors of the Convention). This will be an excellent opportunity to check out the new Yaesu FT-1000MP Mark-V, which we are previewing on 47 - 49 this month.

The main interest in the Convention is the series of lectures which take place from morning until mid-afternoon on both days. There are three lecture streams running 'in parallel', which sometimes gives those attending a tough decision to make! There are lectures or presentations of interest to those into HF DXing, the RSGB IOTA programme, LF (73 and 136kHz), propagation, the *PacketCluster* network, antennas and antenna modelling, 6 metres, computer logging and contests. For beginners to HF DXing, there is a forum moderated by Don Field, G3XTT, on the Sunday morning. For full details of the lecture streams at the time of going to press, please see page 51 in this issue of *Radio Today*.

Many people going to the HF Convention wish to attend lectures on both days and so stay overnight at the Beaumont, which in addition to being a conference centre has all the facilities of an hotel. On the Friday evening is an IOTA buffet supper, following which the bar remains open until the wee small hours. A 'DX Dinner' is organised on the Saturday night, again followed by socialising.

Packages which include accommodation are available for one or both nights and for one or two people - contact Fay Huxley on tel: 01707 659015 for full details. For spouses, or anyone else not interested in attending the radio lectures, an alternative 'partners' programme' is available which includes trips to local sites of historic interest and shopping excursions. For those only wishing to attend on one of the days - or for those living close enough to Windsor to travel in on both days - full day entrance is only £5.00. Day visitors are very welcome and the doors open at 9.00am on both the Saturday and the Sunday.

Beaumont is located just off the A308 and A328, close to junction 13 of the M25 (A30 to Staines). Follow the signs to A308 Windsor. Shortly after the historic site of Runnymede turn left at a mini-roundabout, then first right. Enter Beaumont by the second entrance on the left (a map can also be found on page 51 this month).

Events Diary

21 September	RSGB Slow Speed Cumulative Contest (80m CW, max 12WPM, 1900 - 2030UTC).
29 September	RSGB Slow Speed Cumulative Contest (80m CW, max 12WPM, 1900 - 2030UTC).
30 Sep / 1 Oct	Morse Campaign, RSGB HQ, Potters Bar, Herts. Details tel: 01707 659015.
1 October	RSGB 21/28MHz SSB Contest (0700 - 1900UTC).
1 October	WAB 432MHz Phone Contest. Details at www.users.zetnet.co.uk/g1ntw/wab.htm
7 / 8 October	IARU 432MHz - 248GHz Contest (1400 - 1400UTC).
11 - 13 Oct	9th CEPT Radio Conference, Lisbon. Details: ERO, Midtermolen 1, DK-2100 Copenhagen; ero@ero.dk
14 - 15 Oct	WAB HF Phone Contest. Details at www.users.zetnet.co.uk/g1ntw/wab.htm
15 October	RSGB 21/28MHz CW Contest (0700 - 1900UTC).
22 October	RSGB 50MHz Contest (0900 - 1300UTC).
22 October	WAB LF CW Contest. Details at www.users.zetnet.co.uk/g1ntw/wab.htm
25 - 26 Oct	'Radio Solutions' Low Power Radio Association show, Birmingham, see www.lpra.org
27 - 29 Oct	AMSAT-NA 2000 Annual Meeting and Space Symposium, Portland, Maine.
28 / 29 Oct	CQ World Wide DX Phone Contest (160 - 10m, 0000 - 2400UTC).

rallies

22 / 23 September

Leicester Amateur Radio Show at the Donington International Centre, Donington Park, Castle Donington, Leicestershire. Note that this event is held on a Friday and Saturday! The organisers say that at the 28th annual show, held at the same venue last year, traders reported good business although the attendance was slightly down on previous years. Help to make the 2000 event the biggest and best yet by visiting LARS 2000! Details from Geoff Dover, G4AFJ, tel: 01455 823344; fax: 01455 828273; e-mail: g4afj@argonet.co.uk

1 October

Great Lumley Amateur Radio and electronics Society Rally - the biggest and best rally in the north-east - will be held on 1 October at the Great Lumley Community Centre, Front Street, Great Lumley (near Chester-le-Street, Co Durham). The venue is just off the A1(M) and provides free parking and easy access. Radio, electronics, computer, satellite and component stalls, plus a two-section bring and buy - 'junk' and good buys. Doors open at 11.00am (10.30am for disabled visitors) and admission is £1 (free of charge to under-14s accompanied by an adult). Talk-in will be provided. More details from rally organiser Nancy Bone, G7UUR, 49 South Street, Durham City DH1 4QP; tel: 0191 384 2803 or 020 8937 2772.

1 October

Belgian Amateur Radio and Computer Rally, La Louviere Expo hall, at La Louviere, about 50km south of Brussels. This is the largest rally in Belgium and features 3200sq m of trade stands from Belgium, the UK, Netherlands, Germany and France, plus a flea market. Direct access from the motorway and talk-in on local FM repeaters on 145.600 and 430.325MHz. Further details from Michel, ON7FI, on tel: 0032 64 849 596.

8 October

North Wakefield Radio Club's 17th radio rally takes place on 8 October at the Wakefield 41 Industrial Estate. There will be radio and computer traders, user groups, a large bring and buy, refreshments, a demonstration HF station, RSGB Morse code tests on demand and much more. The rally is well sign-posted from junction 41 of the M1: follow the A650 towards Wakefield to the next roundabout and then turn left into the Wakefield 41 Industrial Estate from where parking and the rally is sign-posted. Further details from Ken Baker, G3SPX, tel: 01924 824451, or check www.nwrc.mcmail.com

8 October

Portland Amateur Radio Club, in association with Portland Island Computer Club, will be holding their annual Rally at the Royal Manor School, Weston, Portland, Dorset. Doors open at 10.00am. Attending will be well-known amateur radio, electronics and computer traders, craft and hobby stalls. There will also be radio and computer displays. Food and drink will be available on-site or at nearby local hostelries. Admission: Adults £1, accompanied children free. Talk-in on 145.550MHz. For further details contact Kerry, G1WIK, tel: 01305 788591, e-mail: parc@the-morris-family.freeserve.co.uk or look at the web site: members.xoom.com/parc

13 - 15 October

RSGB International HF and IOTA (Islands on the Air) Convention, at the Beaumont Conference Centre, Old Windsor, in Berkshire. Everything for the HF - or HF-aspirant - amateur, including several lecture streams, contesting, DXpeditions, linear amplifiers, LF (73 / 136kHz), beginners, forums, trophy presentations, and socialising. You can stay overnight at the conference centre, or attend as a day visitor, the choice is yours. Friday night IOTA buffet meal and reception, and Saturday night DX dinner (bookable in advance). See www.rsgb.org/news/hfc2000.htm for more information or tel: 01707 659015 during office hours.

15 October

Hornsea Amateur Radio Club rally at the Floral Hall, Hornsea. The event features traders, demonstrations, exhibitions, RSARS, RAFARS, RSGB books, a large bring and buy stand, restaurant and licensed bar. Doors open 11.00am (10.30am for disabled visitors). Details from Duncan, G3TLI, tel: 01964 532588.

15 October

Blackwood Radio, Computer and Electronics Rally will be held again at the Newport Centre, Newport, located 1 mile from junction 25A of the M4. Features trade stands, special interest groups, a bring and buy stand, catering and licensed bar plus family attractions. Doors open at 11.00am (10.30am for disabled visitors). Details from Stuart Instone, GW0NPL, tel: 01495 243824.

Saturday 28 October

QRP Mini-Convention, St Aidan's Church Hall in Sudden, Rochdale, Lancashire. 'Traditional' bring and buy stand, kit traders, QRP components, plus a huge selection of good quality 'junk'. There is also a series of lectures on subjects of interest to QRP operators. Hot food and other refreshments available. Doors open at 10.00am and admission is £1. Further details from George Dobbs, G3RJV, 498 Manchester Road, Rochdale, Lancs OL11 3HE.

Saturday 28 October

The 19th Interradio Exhibition at Hannover takes place at Eilenriedehalle, part of the Hannover Congress Centre, at Theodor-Heuss-Place 1 - 3. The event features trade stands, a flea market and a series of lectures. Last year's event attracted over 5000 radio amateurs from more than 10 countries. Doors open at 9.00am and entrance is DM10, which includes a free prize draw to win a trip to the Dayton HamVention in 2001. The Eilenriedehalle is easy to reach, near Hannover Zoo, with lots of free parking space. Additional information is on the website at www.interradio-hannover.de

29 October

Galashiels and District ARS annual radio and computer rally will be held at The Volunteer Hall, St Johns Street, Galashiels, in the Scottish Borders, with doors opening at 11.00am. The event features traders, a bring and buy stall, and catering on site. Details from Jim, GM7LUN, tel: 01896 850245; e-mail: jimk@gm7lun.freeserve.co.uk

DigiPan Program

The *Radio Today* resident datacomms expert, Chris Lorek, G4HCL, tries out amateur radio's 'hottest' new mode

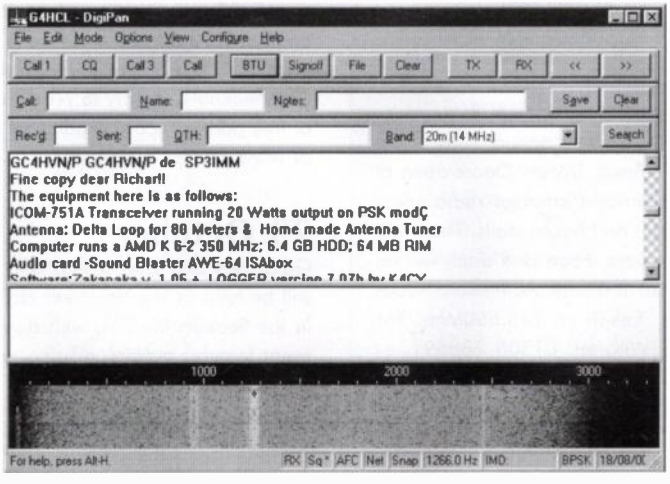
■ Amateur radio's 'hottest' new mode, PSK31, has already been sampled by many amateurs. Even if you haven't yet tried it I'm sure you'll have heard about its ability to use Digital Signal Processing to squeeze a two-way data contact into just a few tens of Hertz of bandwidth, allowing several QSOs to take place in what would be the bandwidth needed even for a single 'aural' CW contact.

It's popularity was given a tremendous boost a while ago by the availability of PC-based software, notably G3PLX's *PSK31*, which use a PC's built-in sound card as the interface to your transceiver. There are plenty of soundcard-based PSK31 programs now available, including those written for specific interests such as contesting. But when the *Radio Today* Editor repeatedly heard several amateurs (as well as myself) enthusing about the merits of *DigiPan*, he thought it was time for a review!

what's special about it?

First and foremost, it's a Windows-based program that's freeware, which means it doesn't cost you anything, and gives you easy-to-use PSK31 transceive capabilities by just making a couple of simple audio connections between your PC's sound card and the transmit and receive audio lines of your SSB transceiver. If you don't want to use 'VOX' switching, the program also offers 'hard' TX / RX switching from your PC's RS-232 port.

What makes DigiPan currently unique is hinted at by the program's name. DigiPan stands for "Digital Panoramic Tuning", and it gives you a panoramic display of the close-in frequency spectrum at your tuned frequency, covering the entire bandwidth of your receiver's IF filter. With, say, a typical SSB filter of around 2.0 - 3.0kHz bandwidth, it means you can 'see' plenty of PSK31 stations simultaneously. In other words, typically *all* the PSK31 stations operating in any given amateur band! You don't even need to touch your transceiver's tuning dial either to tune into any of them. Just use your PC mouse and left-click on any visible signal on the program's spectrum display that takes your fancy. DigiPan takes care of the rest, and displays the received text on the screen.



This not only makes tuning to a station very easy, but also greatly helps you choose a clear frequency to call CQ on, which is especially useful for PSK31 operation where many stations can squeeze into a small frequency segment. Once tuned into another station, whether you're in QSO or just monitoring, the program includes an AFC (Automatic Frequency Control) facility which keeps you locked in to that station, even if you or your QSO partner are drifting slightly.

installation

The program comes as a self-installing file of just over 500kB in size, a simple mouse click on this in 'Explorer' is all you need to install it. You'll need a Windows 95 or 98 equipped 486 or Pentium PC, and DigiPan works best with a PC speed of at least 100MHz (much less than this and all Win95 programs are rather sluggish anyway!)

Once installed, to receive PSK31 signals you'll just need a simple lead between your receiver's audio output and your PC's sound card 'line' input. Most reasonably-modern transceivers have a fixed RX audio output available on the rear panel, one that's independent of the front panel volume control; this is the one to use if you can. Otherwise you can use the extension speaker or headphone socket, and there's a level-setting window available from the DigiPan program to help you set the audio level up correctly, although I found it not at all critical. Then just tune to one of the PSK31 band segments, and you'll typically see one or more vertical yellow lines on the spectrum display, standing out amongst the blue speckled background 'band noise', to show that signals are present.

You can identify an 'idling' PSK31 signal by two close-spaced vertical lines, with these merging and forming a slightly wider signal when data's being sent by the other station. It literally took me less than one minute from connecting up to receiving my

- a Freeware for PSK31

first PSK31 stations on 20m using DigiPan.

Likewise on transmit, if your transmitter has a separate audio input, this is the one to use, otherwise the mic input is fine. But in either case you'll need to add a simple two-resistor in-line attenuator in this lead to drop the audio level from your sound card to suit your rig's input. Like me you'll probably be able to fit the couple of resistors within the plastic cover of the transmitter's audio input plug you've used. I used the VOX (audio-operated transmit switching) on my system to start with, with a very short VOX 'hang time', although with a transistor switch, plus a resistor and diode, hard switching is also possible. The program's Help file gives full information of this, as well as the audio attenuator, including typical component values and hints on setting your transmit drive level up correctly.

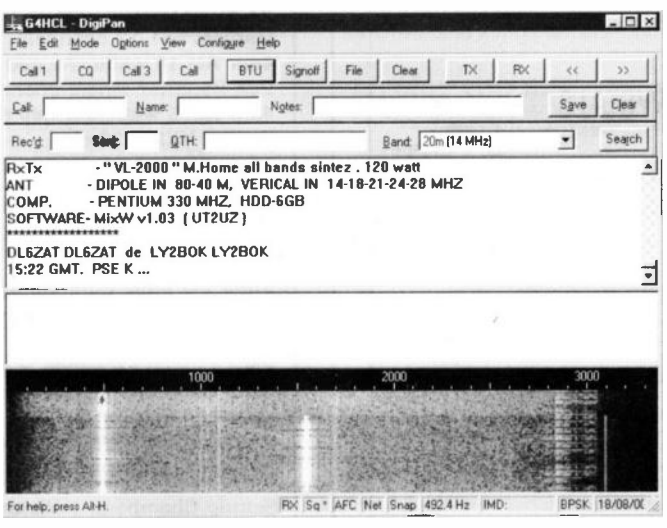
station seeking

I mainly used the mouse-based 'point and click' method to select stations, a handy 'snap' function automatically putting the cursor to the centre of each station. 'Bookmarks' and 'markers' can also be used on the spectrum display to keep a note of where stations were. The configuration menu lets you set up default band dial scales for each amateur band, which means that just one PSK31 'base' channel for each band in your transceiver's memory are all that's needed.

DigiPan also has another handy function, that of 'station seeking'. With a single button press, the program will jump to the nearest station and start displaying received text.

Yet another for the even-lazier amongst us is 'Scan', which automatically tunes to every active PSK31 signal on the display, decodes the station for a given period of time and displays the text, and then jumps to the next active station. This I found great for 'letting the program do its own thing' while I was chatting on VHF or UHF with my other base station transceiver. The received text even has an intelligent 'word wrap', so the text isn't broken up at the end of a screen line, and you can scroll up as you wish to view previously received text that's disappeared from the current screen view.

You can even 'cut and paste' text in the program in true Windows fashion, which I found to be a handy short cut for station calling, logging etc.



To save your typing fingers even more during a QSO, there are 24 'Macro' keys which you can pre-program for various text and command strings, like station details, CQ calls, '73' signoffs including CW ID etc. There's even a built-in logging facility which can store your QSO partner's callsign, name, location, the time, date, frequency, signal reports and remarks, with an automatic search and display 'lookup' while you're in QSO. The program has the usual type-ahead buffer for preparing your replies during a contact.

However, a very minor 'niggle' was that, if I wanted to add something to text I'd prepared, I had to delete the text I'd already entered, back to the point where I wanted to add something. In other words, there was no 'insert' facility, just an 'overwrite' - but I really *am* being critical here! There are plenty of niceties though, like a settable squelch level to prevent random characters being printed with no signal, even an IMD (Intermodulation Distortion) level calculator which shows you exactly what IMD level the other station is putting out in 'idling' mode. Many PSK31 signals from newcomers are put out by overdriven transmitters, and this facility is thus quite useful for constructive signal reports.

the authors

This superb program is the result of a joint effort between Nick, UT2UZ, (who also wrote Mixw32, another program for PSK31) and Skip, KH6TY. Once you've got a copy of DigiPan, either on disk, CD or downloaded from the Internet, you're entirely free to use it with no registration payment needed.

Even so, the program authors do still get requests from amateurs to register and pay for it - I'm not surprised as it's an excellent offering! If anyone does want to make a voluntary contribution to the 'Nick Fund' to help him out during these difficult times, Skip says he'll make sure any contribution sent via him gets forwarded to Nick.

The current version of DigiPan, as of mid-August 2000, is V1.20. You can download the latest version at any time from Nick's web page at http://members.home.net/hteller/digipan/ If you'd like a copy on a 1.44Mb disk, just send a blank formatted disk plus a return SASE to me, Chris Lorek, PO Box 400, Eastleigh SO53 4ZF, and I'll be pleased to oblige (or if you prefer, send a £1.00 coin and I'll provide the disk and P&P).