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RadCom

The Radio Society of Great Britain Members' Magazine

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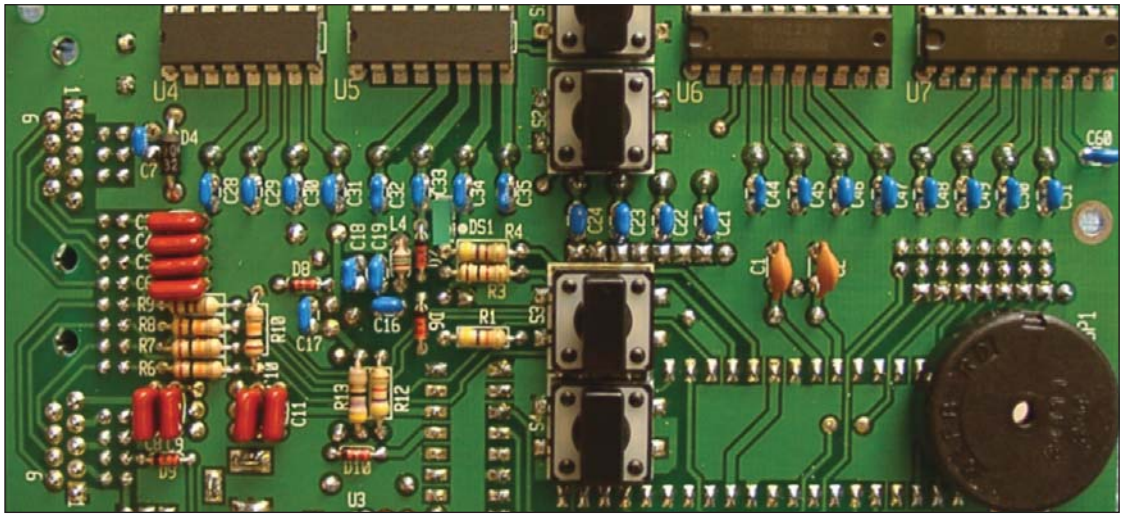

AUTOMATING YOUR STATION

Fraser Robertson, G4BJM, reviews the Elecraft KRC2 band decoder kit p29

REVIEW

Chris Lorek reviews the Alinco DJ-C7 dualband handheld p24

CONTESTING IN 2005

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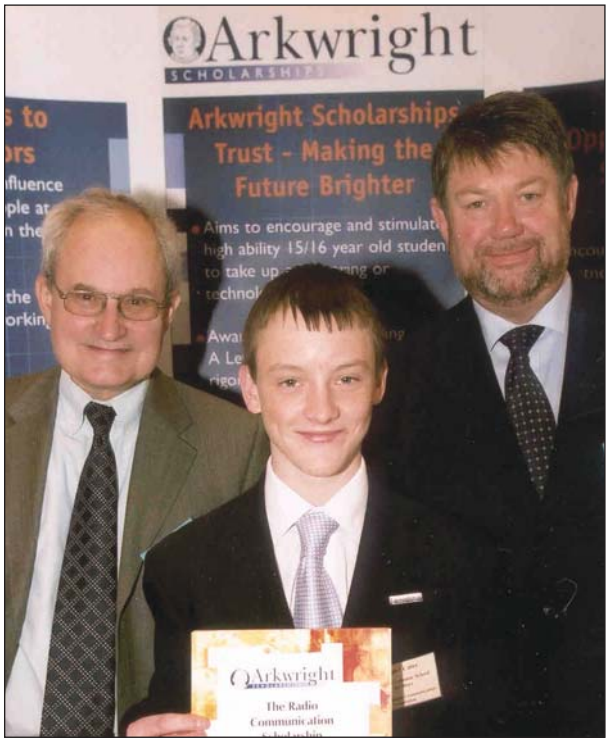


INSIDE

WATERS & STANTON

ZERO DEPOS

WATERS & STANTON WISH ALL OUR CUSTOMERS A MERRY CHRISTMAS & HAPPY NEW YEAR!

330 YEARS WORTH OF EXPERIENCE!
One of our strengths at Waters & Stanton is in the fact our staff have many years experience - over 330 years altogether! - not only in amateur radio, but also in general communications & electronics. This knowledge is shared on a daily basis with our customers providing helpful professional advice.

New
The Waters & Stanton 2005 UK Radio Communication Equipment Guide Now Available

Now **384 full colour** pages bursting with over 5000 products, information and money off vouchers, still only **£2.95** +P&P

NEW IC-7800 In Stock!

No deposit and 12 months interest free! Subject to status - see details below

BUY NOW PAY LATER AT ALL THREE STORES

You won't find a better deal!

Proof that at W&S you get the best possible deal. On selected items it is now possible to pay nothing for a whole year without incurring any interest charge. Amazing but true. And what's more, you get probably the best prices in the business. Give us a call today or visit one of our branches.

Important. When visiting a store, please bring two pieces of identity eg. driving licence, recent utility bill, passport, recent bank statement (all to show your address), or credit card.

0% APR TYPICAL EXAMPLE OF BUY NOW PAY LATER. CASH PRICE £600. PAY NO DEPOSIT AND PAY THE FULL AMOUNT 12 MONTH'S LATER. PAY NO INTEREST.

OR AFTER TWELVE MONTHS

29.8% APR REPAY £31.53 PER MONTH FOR 36 MONTHS. TOTAL AMOUNT DUE £1135.08. INTEREST IS CALCULATED FROM THE DATE OF THE AGREEMENT.

ALL FINANCE SUBJECT TO STATUS WRITTEN QUOTATION ON REQUEST.

ICOM IC-756 PRO II £1899 C

Flagship of the Icom range of HF transceivers. HF & 50MHz, features large colour LCD with spectrum scope, auto ATU and 32-bit floating point DSP unit.

LAST FEW!

ICOM IC-7400 SPECIAL OFFER £1299 C

HF/VHF 100W transceiver covers 1.8 - 146MHz Features large LCD with spectrum scope, auto ATU and same DSP system as IC-756PRO II. A great base station!
Comes with *FREE* SP-21 Speaker & SM-20 Desk mic

ICOM IC-703 SPECIAL OFFER £539 C

HF/ 50MHz Transceiver 0.1-10W Portable, Mobile, Base-Station. Ideal for Foundation Licence/QRP. Auto ATU, DSP memory keyer. External batt **BP-228 £71.76. B**

FREE Icom IC-703 Logbook with every IC-703 - While Stocks Last!

ICOM IC-706 IIG DSP £769 C

HF/VHF/UHF mobile DSP transceiver. Its relative small size not only makes it a great mobile rig but also for fixed station use as well. HF general coverage and VHF & UHF .

Heil Traveler single ear "706" headset + PTT **£89.95 B** →

ICOM IC-718 £449 C

HF 100W transceiver. Covers all HF bands plus wideband receive. C/w dual VFO, SWR meter etc. Options include extnl ATU DSP & filters.

KENWOOD TS-2000 £1399 C

New Lower Price!

Top-of-the-range Kenwood transceiver. HF/VHF/UHF or up to 23cm with the optional module. Built-in auto ATU, DSP and its unique TNC.

ARCP Control Software. **£44.95 B**

KENWOOD TS-870S DSP £1399 C

HFDSP 100W base station. 1.8 - 30MHz. Excellent all round rig great for DX working with its ability to winkle out weak stations using its true IF DSP. No filters to buy.

MC-60A base mic with pre-amp. Ideal match. **£117.95 B** →

KENWOOD TS-570DGE £849 C

HF100W base station with built-in auto ATU. Very popular rig, excellent performance on SSB and CW. Two fitted antenna sockets - very handy.

SP-23 Matching base station receiver **£68.95 B** →

ICOM IC-910HX with 23cm £1249 C

Icom's all mode VHF/UHF transceiver with 23cm.
Large clear LCD with lots of facilities. 100W on VHF and 75W on UHF, 10W on 23cm.

UT-106 DSP unit **£84.99 B**

Basic Model IC-910H £1099 C

YAESU FT-1000 MKV £2349 C

200W HF transceiver, EDSP, Collins filter, auto ATU, 220V AC PSU - Acknowledged as one of the finest DX rigs on the market. Superb tailored audio and the ability to select Class A bias for dramatic signal purity.

YAESU FT-1000 FIELD £1749 C

100W HF transceiver, EDSP, Collins filter, auto ATU, 220V AC / 13.8V DC - Building on the success of the FT-1000MkV, the Field has become a respected leader in its class.

KENWOOD TS-480SAT & TS-480HX

SPECIAL OFFER!!!

The **TS-480SAT** is the 100W version of this new HF+6m transceiver from Kenwood. Smaller than the TS-2000/ TS-B2000 it has many similar features. The **TS-480HX** is the 200W version of this new HF+6m transceiver.

Buy a TS-480 SAT/HX and get a *FREE* Heil MH5 Mic
with matching;-
CH-1K Cable, DS-1 Dash Mount, MC-1 Clip & WS-1 Windshield
worth £85

Offer claimed from Kenwood

TS-480SAT £999 C TS-480HX £1099 C

YAESU FT-897D £899 C

100W HF rig plus 2m and 70cms (50W/20W) 13.8V external supply / internal optional FP-30V AC power supply / self powered portable using optional Ni-MH pack at 20W output. Compatible with FC-30 auto ATU and ATAS 120/100 antennas. The "must have" radio for 2003.

YAESU FT-847 £1199 C

1.8 to 440MHz, this all-in-one transceiver offers unbeatable value. 100W on HF plus 6m, and 50W on 2m and 70cm. You get genuine RF clipping on SSB for up to 6dB gain and there are 4 separate antenna sockets.

YAESU FT-857D £649 C

HF / 50 / 144 / 430MHz Mobile Transceiver. HF/6m 100W, 2m 50W, 70cm 20W. (13.8V DC)
Developed on the FT-897 and FT-817 transceivers. Built-in features 32 colour display, spectrum scope, AM airband aircraft reception, built-in memory keyer, detachable front panel.

YAESU FT-817ND £499 C

160m - 70cms. Up to 5W output all modes.

Ours includes **battery and charger.**
Add £90 for DSP version

Carriage Charges: A=£2.75, B=£6, C=£10

SIT ZERO INTEREST

THE ONLY THING WE CUSTOMER SERVICE WON'T DISCOUNT

NO DEPOSIT NOTHING TO PAY FOR 12 MONTHS
ON SELECTED ITEMS MARKED BY £

ICOM IC-E208 Lower Price! £219 C

VHF/UHF FM Dual Band Mobile Transceiver *Freq range 144-146MHz, 430-440MHz Tx *55/50W (3 pwr steps each band) *Wideband Rx 118-173, 230-549 & 810-999MHz *512 memories *FM narrow capability *104x2 DTCS, 50 CTCSS tone squelch *16 DTMF channels *HM-133 remote control mic *Packet ready for 9600/1200bps-mini DIN or 1200bps-mic socket *Supply 13.8V

ICOM IC-2725E £269 C

The Icom IC-2725 dual band FM transceiver is proving very popular. Easy to install, the controller is separated from the main unit - great where space is limited.

ICOM IC-2100H £229 C

2m 55W FM mobile. Commercial grade, rugged construction. One piece die-cast aluminium chassis. Selectable green or amber display.

YAESU FT-8900R NEW £339 C

Want the best of all worlds then the FT-8900R is just the ticket! A rig with four of the most popular mobile bands - 10m/6m/2m & 70cm. Detachable head.

YAESU FT-2800M NEW £159 C

*144-146MHz *FM *137 - 174MHz expanded Rx *RF Pwr 65/25/10/5W *25/12.5kHz channel spacing.The NewFT-2800M from Yaesu with 65 Watts High Power, rugged construction, excellent receiver performance and direct keypad entry.

YAESU FT-8800E £289 C

Dual Band FM Mobile 50/35W
The FT-8800R series operates as two radios in one, with independant two channel operation.
Remote head mounting capability, wideband receive on VHF & UHF and over 1000 memories.

YAESU FT-7800E NEW £239 C

*2m/70cms Dual Band Mobile *High power 50W 2m /40W 70cms *Wide receive inc. civil & military airband *CTCSS & DCS with direct keypad mic. *Detachable front panel *1000 memories plus five one-touch

We Price Match!
Call 08000 73 73 88

KENWOOD TMD-700E £449 C

Certainly the best 2m/70cm dual band mobile transceiver with APRS. Does not need extra high cost boards to function. The only extra if required is a compatible GPS receiver.

KENWOOD TM-V7E £359 C

Dual-band 2m/70cm.
A lovely cool blue display, easy to read with 50/35W output. 50W/35W plus 280 memos and five storable operating profiles.

KENWOOD TM-G707E £289 C

Dual Band
If you are looking for simplicity and low cost, here's the answer. 2m &70cms with detachable front panel and "Easy operation mode." GREAT!

YAESU VX-7R £299 B

6m/2m/70cm

Available in Silver or Black

The VX-7R is the best outdoor handie ever. The case, keypad, speaker and connectors are all sealed against water damage. Wide Frequency coverage from 500kHz to 900MHz the VX-7R is ideal for monitoring a variety of broadcasts. The display is a dazzling 132x64 dot matrix providing easy-to-read frequencies and information plus pictorial graphics.

YAESU VX-150 £125 B

The VX-150 is a fully featured compact yet incredibly rugged 2m 5W Handheld. Features include direct keypad frequency entry, CTCSS, DTMF, 1750Hz tone calling, wide/narrow deviation selection. It has a die-cast case, large high output speaker, illuminated keypad and battery voltage meter.

YAESU VX-2E NEW £169 B

Dual Band handy, 1.5W (2m) and 1W (70cm). Full DTMF, CTSS and DCS. With 1300 memories and AM/FM coverage 500kHz-960MHz.

ICOM IC-E90 £269 B

The new E-90 offers triple band coverage of 6m, 2m and 70cms. Up to 5W output and rx coverage from 495kHz - 999MHz makes this a very attractive rig.

ICOM IC-T3H £129 B

The IC-T3H 2m handheld features tough quality but with slim looks. Its striking green polycarbonate case has been ergonomically designed. The rig is capable of providing a powerful 5.5W output with either Ni-Cad or Ni-MH battery packs. Supplied with charger and rechargeable battery.

KENWOOD TH-D7E £319 B

DATA COMMUNICATOR

One of the most successful handhelds over the past few years. It has a built-in TNC for Packet use. You can also use it for APRS operation in conjunction with an external GPS unit. Plus NMEA, 200 memos, and up to 5W output.

KENWOOD TH-F7E £239 B

WITH EXTRA WIDE RX COVERAGE

- 144-146MHz Tx/Rx: FM
- 430-440MHz Tx/Rx: FM

Up to 6W out with Li-ion battery and "scanner" style coverage from 100kHz to 1300MHz including SSB on receive! This is a great radio to have at all times when you are on your travels.

KENWOOD TH-G71E £179 B

If you want an excellent 2m/70cm dual-bander then you can't go wrong with the TH-G71. Fully functional with three power levels, 200 memories, CTCSS tone encoder/decoder, illuminated keypad and backlit LED.

YAESU VX-110 £119 B

Combining the ruggedness of the VX-150 with the simplicity of 8-key operation, the VX-110 is a fully featured 2m hand held ideal for the most demanding of applications. With its die-cast case, large speaker, and illuminated keypad, it is particularly well suited for most conditions. The VX-110 is a very affordable, rugged and reliable handheld.

NEW ICOM IC-756 PRO III

The IC-756PRO III marked its debut at the Leicester Amateur Radio Show at Donington. This is Icom's latest HF transceiver and incorporates many of the features from its predecessors and from the new technology used in the IC-7800.

£2099 C

NEW YAESU FT-60R

5 Watts Dual Band For Just £189.95B

*Wide band Reception 108-520MHz & 700-999.990MHz (Cellular blocked)
*New Emergency Automatic ID System
*Huge LCD
*High 5W Power Output
*Ni-MH Long-Life Battery FNB-83 (7.2V, 1400mAh)
*Overnight Charger
*Programmable Keys for user convenience
*Split CTCSS/DCS and DCS Encode-Only Capability.

The FT-60E is a new dual-band FM handheld transceiver from Yaesu. It provides versatile 2-way comms with unmatched monitoring. This is a rugged design that is happy in all weathers. And its wide receiver range makes it an ideal companion for the traveller.

Price Match Competitor's goods must be: new, UK sourced via official UK distributors and be in stock. Some competitors items offered may be non-UK compatible, ex demonstration or have no CE or E approval. All our new products come through official sources.

WEB ORDERING
www.wsplc.com

GENERAL ENQUIRIES:
01702 206835/204965
FREEPHONE ORDERLINE:
08000 73 73 88

HEAD OFFICE & SOUTHERN STORE
SPA HOUSE, 22 MAIN RD, HOCKLEY, ESSEX, SS5 4QS
ENQUIRIES: 01702 206835/204965 FAX: 01702 205843
Christmas Opening Days: Closed Sat 25th & Sun 26th Dec
Closed Sat 1st & Sun 2nd Jan

MIDLANDS STORE
W&S @ LOWE, BENTLEY BRIDGE, CHESTERFIELD RD, MATLOCK, DERBYSHIRE, DE4 5LE
ENQUIRIES: 01629 832375 FAX: 01629 580800
Christmas Opening Days: Closed Thurs 23rd Dec - Sun 2nd Jan

SCOTTISH STORE
W&S @ JAYCEE, 20 WOODSIDE WAY, GLENROTHES, FIFE KY7 5DF - CLOSED MONDAYS
ENQUIRIES: 01592 756962 FAX: 01592 610451
Christmas Opening Days: Closed Fri 24th - Mon 27th Dec
Closed Fri 31st Dec - Mon 3rd Jan

WATERS & STANTON

PRICE MATCH

THE ONLY THING WE CUSTOMER SERVICE WON'T DISCOUNT

VERTICAL MOBILE ANTENNAS

Out performs all other single banders by up to 3dB!

Purchase the **MO-3 base** (137cm) for **£25.95** or the **MO-4 base** (68cm) for **£22.95**.

Then add the **coil + resonator** of your choice: **RM-10, RM-12, RM-15**, all **£19.95** ea. **RM-17, RM-20 £24.95** ea. **RM-40 £26.95, RM-80 £29.95** (all 200W)

Resonator

If you want **1kW power** handling and even better bandwidth choose: **RM-10S £24.95, RM-15S £26.95, RM-20S £29.95 RM-40S £37.95** or **RM-80S £49.95**

Base section (MO-3 or MO-4)

Carriage £6 on any combination.

CUSHCRAFT HF BASE ANTENNAS

CUSHCRAFT BASE ANTENNAS

MA6V *NEW*	20-17-15-12-10-6m 250W PEP	**£269.95**	C
MA5V	20-17-14-12-10m 250W PEP	**£239.95**	C
R-8	40-30-20-17-15-12-10-6m 1.5kW	**£469.95**	C
R6000	20-17-15-12-10-6m 1.5kW PEP	**£329.95**	C

DIAMOND CP6 £239.95 C

**Bands: 3.5 -50MHz *Power: 200W *VSWR: Better than 1.5:1 *Socket: SO-239 *Height: 4.6m *Radials: 1.8m adjustable*

Covers five popular HF bands and the 6m band. Low angle radiation makes it ideal for DX work. Outperforms dipoles for long distance contacts and compares favourably with beams located 10m+ above ground. It doesn't need long wire radials. Adjustable rigid radials, DC return helps the antenna get rid of static noise. Antenna is adjustable for each band.

HARI High quality German traps. (Pairs)
200W 20m £44.95 40m £49.95 80m £53.95
1kW 20m £59.95 40m £64.95 80m £73.95
Carriage £2.75

HARI High quality German Baluns
SO-239200W 1:1, 4:1 or 6:1 £25.95 ea.
1kw 1:1 £34.95 4:1 or 6:1 £41.95 ea
Carriage £2.75

HORIZONTAL BEAMS & DIPOLES

CUSHCRAFT Prices down!

Premier HF beam used around the world by serious DX'ers.

X-7	20/15/10m 7 el. Yagi 2kW	**£669.95**	D

Not got the space for a full sized HF beam antenna, then the mini beam MA-5B should be considered.

MA5B	10-12-15-17-20m 4 el. Yagi 2kW	**£369.95**	C
A4-S	10-15 & 20m 4 el. Yagi 2kW	**£569.95**	D
A3-WS	12 & 17m 3 el. Yagi 2kW	**£379.95**	D
D-3	10-15-20m dipole element 2kW	**£249.95**	C

Don't want a wire antenna but can't fit a Yagi, then consider a rotatable dipole.

D-3W	12-17-30m dipole element 2kW	**£249.95**	C
D-4	10-40m dipole element 2kW	**£349.95**	C
D-40	40m dipole element 2kW	**£319.95**	C
TEN-3	10m 3 el. Yagi 2kW	**£229.95**	C
ASL-2010	13.5-32MHz 8 el. log periodic	**£749.95**	C

RADIO WORKS - CAROLINA WINDOMS

A choice of quality wire antennas available to fit almost any circumstances. Prices down!

CW-160	160-10m 76.8m long	**£129.95**	C
CWS-160	160-10m 40.5m long	**£119.95**	C
CW-80	80-10m 40.5m long	**£89.95**	C
CWS-80	80-10m 20.1m long	**£109.95**	C
CW-40	40-10m 20.1m long	**£84.95**	C
CW-20	20-10m 10.36m long	**£89.95**	C
CW-620	20-6m 9.7m (32ft) long	**£89.95**	C
G5RV PLUS	80-10m with balun 31m (102ft) long	**£59.95**	B

MFJ-1701 6-Way Coax Switch

*Range 1.8 - 30MHz
*50 - 75 Ohm
*2kW PEP, 1kW CW
*6-Way
*SO-239
*Size 220 x 75 x 40mm

£52.95 B

BR-210 Antenna Analyser

The BR-210 professional grade analyser from Kuranishi measures resonance, VSWR and impedance.

**1.8 - 170MHz in 6 bands *VSWR 1:1 to infinity *Impedance 12.5 - 300 Ohms *Termination: SO-239 *Slow motion tuning dial *6 x AA or ext. 12V DC *Size: 80 x 177 x 60mm *Weight: 850g*

£359.95 C

DCI-145 Filter

**Passband: 144-146MHz *Loss: less than 1dB *Selectivity: -68dB at 136MHz, -55dB at 155MHz *Power: 200W *VSWR 1.5:1 *Sockets: SO-239 (N-type available) *Case size: 304 x 76 x 127mm *Weight: 1.21kg*

DCI-145-2H £99.95 B DCI-145-2HN £109.95 B

RC5-1 Rotator

**Rotation torque: 6kg/m *Brake torque: 80kg/m *Max. vert load: 400kg *Max. horiz load: 800kg *Mast size: 48-63mm *360 Rotation time: 60-150sec/50Hz *Power requirement: 230V AC 80VA *Weight: 5kg *Cable: 7 core*

£329.95 C

MFJ-125 Clock

**24 Hour Quartz clock *Full 24 Hour dial format *Separate Day, Month and 12 Hour movements *All dials independently set *Size 305mm *Supply 1xAA cell (Not supplied)*

£37.95 B

MP1-SA Antenna

**40 - 70cm (Inc WARC) *Coil 27cm x 3cm (not extended) *Lower mast 29cm *Upper whip 110cm *Total extended length 185cm approx. *Power handling 150W (75W CW) *Base connection 3/8" stud (male). *Kit comprises: lower mast, universal clamp & radial kit (not shown), coil assembly and telescopic whip.*

£139.95 B

LA-300 Field Strength Meter

**10 - 1500MHz *Thru *90MHz LPF *100-170MHz BPF *330MHz HPF *Impedance 50 Ohms *BNC connector *Measurement level -30 - 0dBm (83-113dBu) *3-step attenuator 0dB, 10dB and 20dB *6 x AA or ext. 8 - 12V DC *80 x 170 x 60mm *750g*

£329.95 B

CX-310 Coax Switch

**3-way *Connectors 'N' , SO-239 *Power 1.5kW (max) *50 Ohms *Isolation: 60dB DC - 500MHz, 50dB 500 - 1500MHz *Range DC - 1500MHz *30 - 150MHz 1kW *150 - 500MHz 500W *500 - 1000MHz 250W *1000 - 1500MHz 150W *84 x 95mm *600g*

CX-310A £65.95 B CX-310N £79.95 B

KEVLAR Support Line

**1.905mm (0.075in) diameter *60.96m (200ft) spools *Colour black *181.4kg (400lb) strain *By weight it is stronger than steel *Has outer protective layer of Dacron *Will not stretch and not affected by sunlight*

£25.95 A

WEP-501 Headset

**Adjustable headset with boom mic. *Swivel boom adjustment *Lightweight earpiece *Adjusts for right or left ear. *PTT in-line switch with belt clip *2 pin connectors for Yaesu, Kenwood and Motorola *32 Ohm earpiece *1k Ohm electret mic capsule*

£24.95 A

Zero Space - - DX Antennas

From Hustler USA

Run full legal power - 80m to 10m - with no masts or guys to worry about. 50 Ohm feed.

Small garden, planning problems or similar restrictions? Then the Hustler range is the answer. These HF verticals will take 1kW of power, work at ground level, and are self-supporting. A single earth rod will get you going. Add buried radials for even better results. Many hams have got on the HF bands with just this simple system. So why not join in the fun. These are rugged, well-built antennas that American hams have been using for years. Now they are available in the UK from our three stores.

4BTV
40-20-15-10m. 6.52m high. Full band coverage.
£169.95 C

5BTV
80-40-20-15-10m. 7.64m high. Full band coverage (100kHz on 80m).
£199.95 C

6BTV
80-40-30-20-15-10m. 7.3m high. Full band coverage (100KHz on 80m).
£229.95 C

SMP-1000A £9.95 A

**Input: 100-240V AC 50/60Hz *Output: 3, 4.5, 5, 6, 9.& 12V DC *Regulated *Max current 1000mA *6 connectors *Reversible connectors *Cable length 1.8m*

Very handy switch mode regulated AC/DC Adaptor with short circuit and overload protection with max current to 1000mA. Great for the shack, 3-12V DC selectable, many uses. Six diffrent power connectors with the ability to change the polarity.

PORTABLE ANTENNAS

MIZUHO (FOR FT-817)

ATX-WBN	Walkabout 80-6m Whip 1.5mBNC	**£44.95**	B
ATX-WPL	Walkabout 80-6m Whip1.5mSO-239	**£44.95**	B
ATX-W38	Walkabout 80-6m Whip 1.5m 3/8in	**£44.95**	B

New **ATX-MkII** **£49.95 B**
The new ATX-MkII Walkabout includes 3 different connections, PL-259, BNC & 3/8th.

AT-80	Single band 80m whip with BNC	**£19.95**	A
AT-40	Single band 40m whip with BNC	**£19.95**	A
AT-30	Single band 30m whip with BNC	**£14.95**	A
AT-20	Single band 20m whip with BNC	**£14.95**	A

Range of single band HF antennas with BNC connection. Ideal for FT-817.

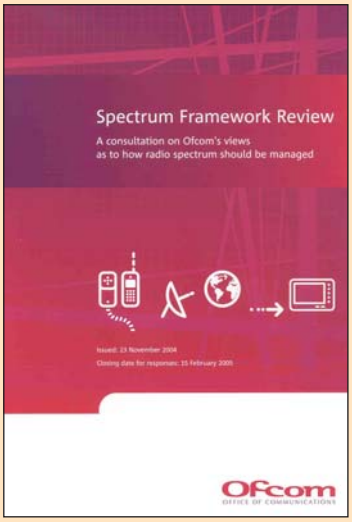
AT-17	Single band 17m whip with BNC	**£14.95**	A
AT-15	Single band 15m whip with BNC	**£14.95**	A
AT-12	Single band 12m whip with BNC	**£14.95**	A
AT-10	Single band 10m whip with BNC	**£14.95**	A

Check our website for more info - www.wspic.com

RSGB matters

SPECTRUM REVIEW CHALLENGES AMATEUR RADIO FUTURE

The RSGB has received a number of enquiries from concerned radio amateurs regarding the future licensing of amateur radio since the publication of Ofcom's Spectrum Framework Review Consultation paper in late November. The RSGB is fully aware of the contents of the paper and the perceived threat to amateur radio that some of the statements in the paper imply. The review lays down a number of ideas that could be introduced for the future management of the radio spectrum. A number of suggestions, if introduced, would affect the way that amateur radio is administered in the United Kingdom.



The RSGB is in discussions with Ofcom and will be formally responding to the consultation. The Society will be robustly defending against any changes to amateur radio licensing that will disenfranchise the UK amateur radio community or will adversely affect the long-term future of amateur radio as a regulated science-based hobby.

The Spectrum Framework Review paper is available on Ofcom's website (www.ofcom.org.uk/consultations/current/sfr) or you can obtain a paper copy direct from Ofcom. The RSGB recommends that all UK amateurs have sight of the document and input into the consultation process. Your views and comments can be forwarded direct to Ofcom or via the RSGB: ar.dept@rsgb.org.uk The consultation closes on 15 February 2005.

PLT - RSGB PUTS MONEY WHERE ITS MOUTH IS

Since the first proposals for PLT trials appeared in the UK the RSGB has been pressing the case for the protection of the HF bands and HF radio spectrum generally. The work to date has concentrated on lobbying Ofcom and other bodies and defending our interests at the meetings of the standards bodies, in an attempt to ensure that suitable limits were set for control of RF emissions from the cables of all new network technologies. RSGB representatives have collaborated closely with other HF users at national and EU levels and it can reasonably be said that RSGB actions have been key to raising the awareness of other HF users as to the potential threat of interference from PLT.

The present position is that there is no agreement between radio interests and the proponents of PLT on standards for control of RF emissions and, perhaps as a result, it appears that there have been no further announcements of PLT trails in the UK. The RSGB is aware of the desire of the DTI to carry forward the rollout of 'Broadband Britain' and to have a competitive environment for network services throughout the UK. Ofcom has stated that it is watching the PLT issues carefully and that it appreciates the importance of HF radio communications, but the picture that is emerging to the RSGB is one of powerful political pressures for PLT to be authorised without effective limits on RF emissions. We do not ever expect PLT to be widely deployed in the UK, not least because the rapid expansion of Broadband by BT and other providers using the ADSL route is making the introduction of PLT uneconomic, particularly in rural and semi-urban areas. This rapid expansion, however, does not reduce the very real threat from the expected easing of limits on RF emissions. It is also right to say that whilst we do not want to over emphasise the possible problem, we are in no doubt that RSGB members expect the Board to be vigorous in protecting the interests of amateur radio in the UK.

In this climate the RSGB Board has decided to launch a PR initiative to ensure that the facts of the situation are presented in the best possible way. The purpose of this initiative is to bring professional PR skills and experience to bear on the most effective manner for presenting our case to other parties, particularly at the non-technical level. The RSGB now needs to have a clearly focused PR strategy to address the potential threat posed by the easing of standards to facilitate PLT. The main thrust of this initiative is strategic and advisory and should also be seen as a learning experience for the

CONGRATULATIONS!

Congratulations go to the following RSGB members who successfully upgraded to the **Intermediate licence** by taking the exam on 9 November: Martin Walsh, M3CUS; Richard Sutton, M3UYP; James Hill, M3GXQ; Edward Simms, M3DDA; Robert Powell, M3FXD; Michael Bartley, M3MBB; Ida Mary Coggon, M3HOX; Frank Nuttall, M3FNB; Helen Greenhaigh, M3HAG; Elisabeth Stratmann, M3DMR; Daniel Schlieper, M3CAX; Darren Simmons, M3DWV; Michael Streader, M3OLB; Timothy Henry, M3EYP; Chris Walmsley, M3WMY; Donald Wallis, M3JLX; Geoffrey Patrick, M3EKB; Nicholas Palmer, M3NWP; Robert Baines, M3FFS; James Bence, MM3JSB.

Congratulations too to the following members who successfully upgraded to the **Full licence** by taking the Advanced exams on 24 or 26 October: Kenneth Hull, 2E0LKH; Patricia Holland, 2E0BIH; Edward Deeley, 2E0EMD; William Rogers, 2E0AXW; Graham Rumsey, 2E0AXR; Robert Mayfield, 2E0RWM; John Mallichan, 2E1IJQ; Jens Hougaard, 2E0YEN; Andy Jackson, 2E1KLP; Richard Mills, 2E0OLY; Oliver-Lewis Staines, 2E0AYB; James Bryant, 2E0JWB; Iain Stirzaker, 2E0VPE; Brian Aicheler, 2E0OZJ; Clive Humphris; Richard Needham, M3RNE; Gavin Andrews.

Society. For this work, the Board has agreed to engage a leading PR practitioner, who is experienced in the field of corporate communications for technical organisations. The brief for the Consultant is to advise the Board on a PR strategy that will highlight the importance of protecting the HF bands and present the wider case for preserving the HF spectrum from interference.

The RSGB acknowledges that the public at large is not well informed about our hobby or the long record of amateur radio in public service. No doubt the hobby suffers from a perception that it is purely technical, boring and generally in the 'anorak' class of leisure activities. Changing these perceptions will be a long haul and the RSGB needs professional assistance to formulate a communications strategy and to set up lines of action to carry it through.

Radio amateurs have often been in the forefront of the adoption of new technologies and they are not opposed to innovative methods of accessing the Internet and providing network services. Much has been achieved by the dedicated actions of our representatives on the standards bodies but we now need to widen the scope of our activities on PLT and ensure that the issues are better understood at the policy level in Westminster and in the public arena. The RSGB does not seek to halt the deployment of PLT or any other new technology, but we do want to ensure that PLT systems are not authorised to operate in a way that will be to the detriment of amateur radio and other users of the HF spectrum.

Whilst the RSGB is primarily a volunteer organisation, the judgement of the Board is that this is one of those situations where professional advice is essential and it is recognised that substantial costs may be incurred. We expect to spend around £20,000 in the first instance, with the possibility of more expenditure required later.

Regular bulletins will appear in RadCom to keep RSGB members in touch with developments as this initiative unfolds.

RSGB COMMITTEES' ANNUAL REPORTS

The RSGB EMC Committee and HF Contests Committee reports were omitted from the Annual Report published with the November 2004 RadCom. They can be found, along with lists of RSGB committee members, on the RSGB members-only website at www.rsgb.org/membersonly (follow the links 'RSGB Information', then 'RSGB Regional Manager, Committee & Honorary Officer Reports 2003-2004').

RADIO COMMUNICATION HANDBOOK: CONTRIBUTORS WANTED

A major update of the *Radio Communication Handbook* is under way and we are looking for members who can help to revise chapters on the following subjects: Passive Components, Semiconductors and Valves, Oscillators and other building blocks, Receivers and Transmitters (either HF or VHF/UHF), Power Supplies, Measurements and Test Gear, and Hardware and Construction Practice. Anyone interested should e-mail the book's editor, Mike Dennison, G3XDV, at mike.dennison@ntlworld.com

NEW DATES FOR RCE ADVANCED EXAMS

To allow for the proposed changes to the Radio Communications Examination Advanced exam (see 'RSGB Matters' December 2004, page 6) to be implemented in March 2005, the Exam Group has requested that the previously-advertised exam timetable for 2005 be amended. The revised times and dates for the Advanced exam are now: 1830 on Wednesday 16 March, 1830 on Tuesday 17 May, 1430 on Saturday 9 July, 1830 on Monday 22 August, and 1030 on Sunday 9 October.

The dates of all Intermediate and Advanced examinations can be found on the RSGB website at www.rsgb.org The Foundation exam is available at 10 days short notice.

NATIONAL SCIENCE WEEK 2005

The RSGB is writing to all Affiliated Societies' chairmen in its annual appeal to support the BA's (www.the-ba.net/the-ba) National Science Week, which takes place this year between 11 and 20 March. If you would like to organise an event to promote amateur radio during this period, please write to Mark Allgar at RSGB HQ or e-mail: mark.allgar@rsgb.org.uk

QSL BUREAU NEWS

There is a new RSGB QSL Bureau sub-manager for the 2M series of callsigns, ie all Intermediate licensees in Scotland. He is Tony Horton, G0LKG, 18 Kingsmead Park, Swinhope, Binbrook, Market Rasen, Lincs LN8 6HS.

Marc Litchman, G0TOC, the RSGB QSL Bureau sub-manager for the G7 series of callsigns, has started a Yahoo! Group where current and former G7 callsign-holders can interrogate an on-line database to see how many QSL cards and / or SASEs are being held behalf. Marc says, "I keep the databases completely up to date, and have received very positive feedback from the slowly increasing number of subscribers. It can be found at http://groups.yahoo.com/group/G7QSLMan".

REQUEST TO DXPEDITION, PORTABLE AND FIELD-DAY OPERATORS

The Society occasionally receives complaints about the behaviour of operators associated with portable activity on private property. This can bring the hobby into disrepute and limit opportunities for future activity. The Society would therefore encourage operators:

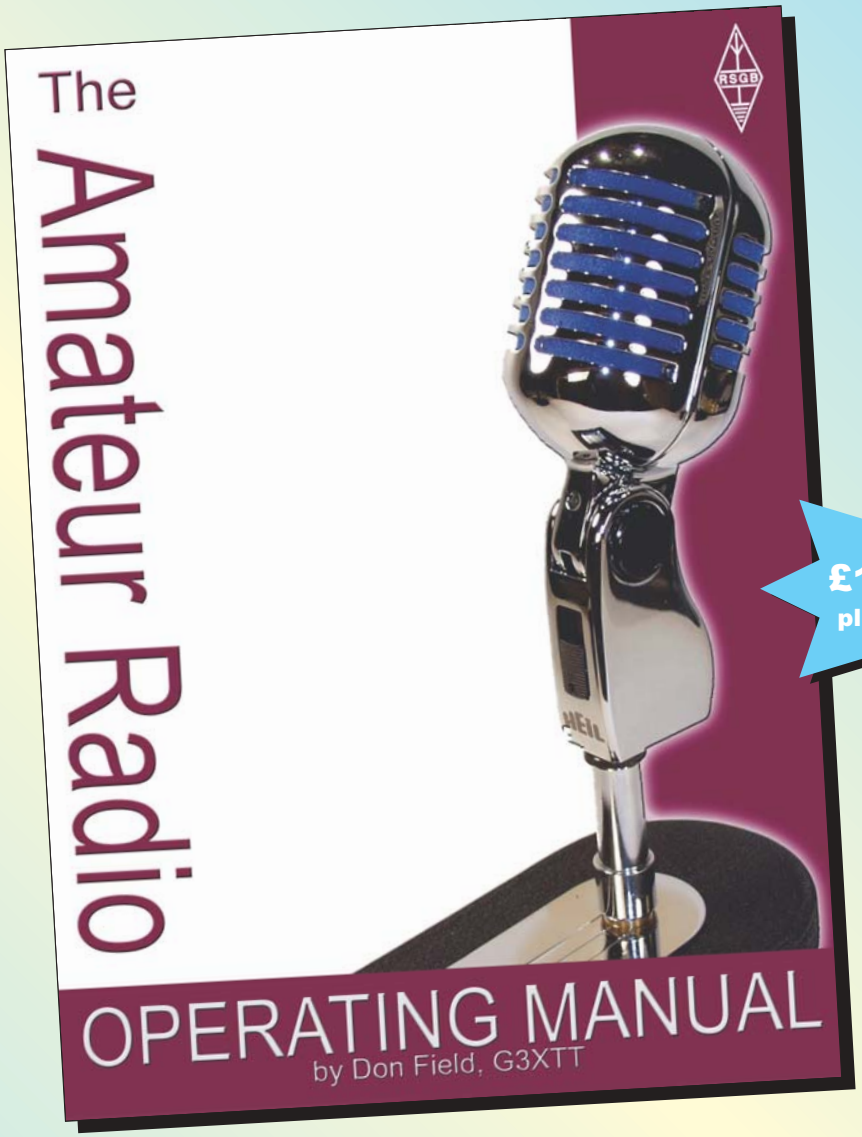
- Where possible to ensure written authority is obtained from landowners or their official appointed agents prior to moving on to private land, and especially before occupying or utilising as an antenna support any privately-owned structure.
- To ensure they are fully aware of, and adhere to, any restrictions associated with an area's status as a nature reserve or Site of Special Scientific Interest.
- To be considerate of other users of the land / site.
- To ensure that the location is left in at least as good a condition as found.

In the event of serious breach of these Guidelines, the Society may deny contact credit for any of its activity events or awards for which it is responsible.

VACANCY IN REGION 10

We have a vacancy for a Deputy RSGB Regional Manager (DRRM) in Wiltshire. If you live in Wiltshire and would like to help the RSGB to grow the hobby, please contact the RSGB Regional Manager for the South and South East (Region 10), Ivan Rosevear, G3GKC, tel: 01225 863622 or e-mail: ivangkc@btinternet.com ♦

The RSGB Amateur Radio Operating Manual



The RSGB Amateur Radio Operating Manual

By Don Field

This 6th edition of the RSGB Amateur Radio Operating Manual has been completely updated and redesigned this edition reflects the huge changes in hobby in recent years.

The impact of licensing changes and the ubiquity of PCs and the Internet are just some of the challenges in the hobby in the 21st Century. To deal with these, RSGB Amateur Radio Operating Manual has a completely new look at the content and approach. For example, some of the traditional demarcations between HF and VHF and between the various operating modes have been overturned. New and comprehensive chapters can be found on topics such as PCs in the Shack and Operating Modes. There is also a huge amount of new material included, for example, the 136kHz and 5MHz allocations, new data modes and the WSJT software suite, APRS and VoIP. Much of the book has been heavily updated and there is a complete rewrite of the chapter on Satellites and Space communications. If you are interested in amateur radio the RSGB Amateur Radio Operating Manual is the book you should not be without. This book provides a comprehensive guide to operating across the amateur radio spectrum. Packed with information and tips this book has long been a standard reference work found on the bookshelf of radio amateurs.

The RSGB Amateur Radio Operating Manual is a valuable addition to your bookshelf and the must have book for everyone interested in amateur radio.
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RadCom
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Editor
Steve Telenius-Lowe, G4JVG

Technical Editor
George Brown, M5ACN

Secretarial
Vicky Keep

Advertising Design
Jodie Escott, M3TPQ

All contributions and correspondence concerning the content of RadCom should be posted to:
The Editor, Radio Communication,
Lambda House, Cranborne Road
Potters Bar, Herts EN6 3JE
Tel: 0870 904 7373
Fax: 0870 904 7374
E-mail: radcom@rsgb.org.uk

ADVERTISING
All display and classified advertising enquiries (excepting Members' Ads) should be sent to:
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Hellesdon, Norwich NR6 5AD
Tel: 0870 904 7377; **Fax:** 0870 904 7378;
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Special arrangements exist for blind and disabled persons. Details and membership application forms are available from RSGB HQ.

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p68 – John Heath meets the first woman in space. **p31 – The Peter Hart Review.**

HAPPY NEW YEAR!

The Board and Staff of the Radio Society of Great Britain wish all members a very Happy New Year!

James makes world record attempt

Broadcast radio DJ James Patterson, who is also licensed at M1DST, is attempting to smash the world record for the longest continuous radio broadcast. His attempt commemorates the 10 years since his friend Dawn Easterling died at the age of 19. James last smashed the world record with a marathon broadcast of 72 hours in September 2000, raising funds for the Dawn Easterling Appeal by asking listeners to donate money in return for record requests and dedications.

This time, James will be broadcasting a show live on

DAB's Swindon FM non-stop for a full 180 hours. That's seven and a half days without any sleep! The show was scheduled to kick off on Friday 10 December at 6.00am. Medical staff will be on hand in case James suffers from sleep deprivation. James said, "I have done lots of research into staying awake since my last record breaking broadcast, so I know what I am up against! I am really looking forward to breaking the world record, which is currently 120 hours. I will be prepared as much as I can be and have the full support of my family and friends."

20dBi gain - on 30 metres!

PHOTO: WWW.HB9MM.COM

The massive former Swiss Radio International antenna system used by HE3RSI.

The Swiss Radio International broadcast station has stopped using short waves and its transmitters and antennas have been decommissioned. Members of the HB9MM club station in Lausanne (www.hb9mm.com) were given permission to use the former broadcast station facilities and antennas, including a 62-metre high curtain array weighing 135 tonnes. The special callsign HE3RSI was on the air in November and early December on bands from 40 to 10 metres. The gain of the antenna was between 18 and 20dBi and, sadly, it was scheduled to be dismantled on 5 December. This was the first time the HE3 prefix had been used.

SEANET Convention

The 2004 SEANET (South-East Asia Network) Convention that took place in Bangkok from 19 to 21 November, was a great success. It was formally announced there that the 2005 SEANET Convention will take place in Bangalore, India.

Delegates of the 2004 SEANET Convention in Bangkok.

PHOTO: ANDY, 9M2PV

Spotted recently in a north-west supermarket. Get one for the XYL whilst you're drinking Suffolk Strong Bitter (SSB - see 'RadCom News', August 2003). It apparently means 'Vodka High Flavour'. Photo by Paul Gaskell, G4MWO.

'Candlelight' tests

The Belgian national society UBA is arranging a series of very low power tests on HF, known as the 'Candlelight Tests'. The challenge is to copy correctly the code words embedded in the transmitted messages. A number of stations transmit simultaneously on 80, 40 or 30 metres running power levels from 100mW down to 5mW. The first test was on Sunday 21 November but a second and third series of tests will take place on 26 December 2004 and 16 January 2005. Full information is on the UBA website at www.uba.be/actual/candlelight/candlelight_en.html

News from space

British-born astronaut Mike Foale, KB5UAC, has been appointed the NASA Deputy Associate Administrator for Exploration Operations. He will advise senior management on training, operations, engineering support and life sciences research. Mike Foale is a veteran of six space flights and has logged more than 374 days in space, including four space walks, making him the US record-holder for time spent in space. During his stay on the International Space Station, he operated as NA1SS in more than a dozen ARISS (Amateur Radio on the International Space Station) school contacts (see 'RadCom News', page 10 March 2004).

♦ Leroy Chiao, KE5BRW, the Commander of the Expedition 10 crew on the International Space Station, made history on 2 November by being the first person to vote from space. A law passed in 1997 allows astronauts to vote electronically from space and Chiao submitted his ballot in the US Presidential Election via e-mail.

International talk on Internet linking

On 21 November Ian Abel, G3ZHI, gave a one-hour talk about Internet linking on the South African Radio League's 'Intechnet' programme. The programme, which is unique in the world, is broadcast every month on a large number of 2m and 70cm repeaters all over South Africa as well as on 80 and 40m plus a 90m 100kW broadcast transmitter audible throughout much of Africa. The programme can also be heard all over the world via *Echolink* on node number 185459, the ZS6FCS Pretoria repeater.

After Ian's talk he took questions from amateurs all around South Africa who were listening on one of the repeaters or on HF. The host of the event is Hans, ZS6AKV, who calls hams on the telephone anywhere in the world who are to be on the programme. If you would like to give a talk on your specialist subject please e-mail him at hans@intekom.co.za

The next such programme is scheduled to be broadcast at 1800UTC on 19 December, subject to confirmation. Anyone wishing to listen in can connect on *Echolink* 185459.

Amateur radio Internet groups

Angie Sitton, G0HGA, founder of the Vivat Morse and 2m CW Yahoo! groups, started two new groups last year for UK hams living abroad and for radio hams interested in classical and good music. However, more support is required and new members will be warmly welcomed. Partners are welcome on both groups. Go to: http://groups.yahoo.com/group/UK_Radio_Hams_Abroad or http://groups.yahoo.com/group/Classical_Hams/ For further details you can e-mail Angie at morselady@hotmail.com or go to her website at http://www.qsl.net/g0hga/

HF Internet link gateways

The UK's first HF Internet link Gateways are now operational on 10m FM. Both M0CJY in Rotherham, South Yorkshire and G6IBQ in Chesterfield are operating gateways on 29530kHz and are keen to receive reception reports (via www.qsl.net/m0cjy and to g6ibq@aol.com respectively). M0DWC in Congresbury is also scheduled to be operating on 29530kHz. Around 21 UK 10m Internet Gateways are set to become operational using either 29530 or 29630kHz. For a full list please visit the RSGB Datacoms committee website at www.dccrsgb.org/showgates.asp?band=0029

Calling high-speed telegraphists!

The sixth IARU High-Speed Telegraphy (HST) World Championship takes place in Ohrid, Macedonia, from 13 - 17 June. The cost is 260€ for competitors or 180€ for guests for full-board accommodation (plus flights). Those wishing to form a UK team should contact HF Contests Committee Chairman Justin Snow, G4TSH, e-mail: hfcc.chairman@rsgb.org.uk (see www.hst2005.com.mk).

Former *RadCom* columnist Vin Thompson, GM4ULS, SK

Vincent Mather Thompson, GM4ULS, died suddenly on 22 November at the age of 83. He was a keen and active satellite operator and kindly agreed to take over the *RadCom* 'Satellite' column on a temporary basis in May 1997 when Dr Arthur Gee, G2UK, had a spell in hospital. The column was renamed 'Space' in January 1998 and Vin continued to write it until September that year.

Vin Thompson learned his radio in the RAF during WWII and was seconded to Marshal Tito's partisans in Yugoslavia as a radio operator. He had a long career in the Civil Service, and was in his time a brilliant cricketer.

After his son Paul gained his amateur licence (GM6MEN), Vin took the RAE himself in order to share the interest. Paul writes: "He became interested in amateur satellites, and spaceflight in general; one of the greatest thrills of his life was meeting Helen Sharman [GB1MIR]. He was well-known as an 'Elmer' in AMSAT-UK, and published a book for amateurs about the *Mir* space station."

Laurie & Marilyn

Well-known GB2RS newsreader Laurie Bradshaw, G0MRL, and his new bride Marilyn, M3LBQ, recently held a party to celebrate their wedding, which took place at the end of October. No fewer than 16 radio amateurs attended the party, and the entertainment was provided by a jazz band led by saxophonist and clarinettist Howard Murray, G3NBY.

Martin, G0TPT; Pat, GW4PAT; John, M3POP; Annick, M0HDE; Malcolm, G3REM; Andrew, G4IVD; Bob, G0MOK; an unidentified person at back!; Howard, G3NBY; Marilyn, M3LBQ; Roland, G7UGK; Trevor, G0TEE; Laurie, G0MRL; Jean, G0WBT; Christine, G1LBQ and Warwick, G6SKM.

Advanced RCE licence course

An Advanced Radio Communications Examination course and exam will be held at Bromley Adult Education College on Monday evenings 7.30 - 9.30pm at Newstead Wood School for Girls in Orpington (London Borough of Bromley). The course starts on Monday 17 January and aims for the exam on Tuesday 17 May 2005. You are requested to enrol as soon as possible, please, via the college on tel: 020 8460 0020.

Left, Peter, G3EMF / F5VJE; right: Alan, G4BIZ / F5VIW. Both spend part of each year at their homes in France and say they are always looking for a 'ragchew' with G stations.

Orkney 5MHz beacon

The new GB3ORK 5MHz beacon commenced operation on 3 December in support of the '5MHz Experiment'. It transmits from the Orkney Islands on 5290kHz with a stepped transmit power sequence and a 30-second sounder sequence of 0.5ms pulses at 40Hz prf, identical to that of the GB3RAL beacon. Reception reports are welcome by the 5MHz Working Group. Further information is available on the RSGB Spectrum Forum website at www.rsgb-spectrumforum.org.uk/5MHz.htm

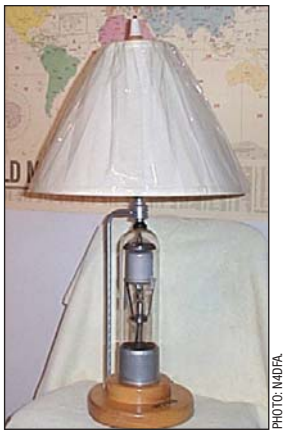


PHOTO: N4DFA

Carlton O'Rork, N4DFA, sent in this photo, saying: "This is what we Yanks do with spent radio valves. The lamp was made for W7ES by K4CAV."

Bedworth Lions Club

GB4BLC will be operational from 3 to 31 January in support of Bedworth Lions Awareness Month. Activity will be on 40, 20, 17, 15 and 10m SSB plus 2m FM. The event will be officially opened by the Mayor at 11.00am on 11 January. Further information from Lion Brian Leathley-Andrew, G8GMU, tel: 024 7636 4235.

Club and regional news

Items for club news should be sent to the RadCom Office at HQ to arrive by the 26th of the month, ie approximately a month before publication (eg 26 January for the March Issue). News items should be sent in writing (fax, letter or e-mail: gb2rs@rsgb.org.uk) by the club secretary or the person responsible for publicity. Post cards for this purpose are available from RSGB HQ. A database of all meetings is shared between RadCom and GB2RS, so information only needs to be sent once.

1 Scotland South & Western Isles

AYR ARG
5, ARDF.
15, Foundation course.
19, Ham radio of yesteryear.
22, Foundation course.
25, Intermediate exam. John, MM1JAS, 01292 445599.

LOTHIANS RS
10, Video night, Peter, GM4DTH.
24, Malt whisky tasting: a guided tour of the golden dram, Peter Dryburgh and Toby Sigouin, MM0TSS. The club is looking for new members: Toby Sigouin, MM0TSS, 07739 742367, tobysigouin@onetel.net.uk

PAISLEY (YMCA) ARC
5, 'GBZ QRT?', GM4OAW. Jim, GM3UWX.

2 Scotland North & Northern Isles

No club details received.

3 North West

CHESTER & DARS
4, AGM. Chris, MW3TWI, 01244 683629 or Bruce, 01244 343825.

SOUTH MANCHESTER R & CC
7, Mini lecture evening.
14, Disscussion on favourite websites.
21, 'Flying at Barton', Ed, M3GES.
28, 'Topband DXing', Ron, G3SVW. Ed, 0161 969 1964.

4 North East

GREAT LUMLEY AR & ES
5, On air.
12, Raynet comms in emergency situa tions with user services, Terry Elliott.
19, 26, On air. Nancy, 0191 447 0036, 07990 760 920, nancybone2001@yahoo.co.uk

HALIFAX & DARS
18, Talk on video by, David, G3PTU. Tom, M0TKA, 01484 715079.

HORNSEA ARC
12, Quiz, Richard, G4YTV.
19, Annual dinner at Hornsea Golf Club.
26, Surface Mount Soldering, Richard, G7MFO. Richard, G4YTV, 01964 562498, g4ytv@aol.com

KEIGHLEY ARS
13, On air.
27, AGM. Kath, G0OSA, 01535 656155.

NORTH WAKEFIELD RC
13, The Met Office in the 21st Century, Robert Brooks.

5 West Midlands

BROMSGROVE & DARC
14, New Year party.
28, Practical tips. Chris, M0BQE, 01905 776869.

CHELTENHAM ARA
7, Quiz, Pat, G3IKR.
10, 'A small slice of Pye'.
17, On air HF, workshop.
24, DF hunt.
31, On air HF, workshop. Tony, 01452 618930 (daytime).

KIDDERMINSTER & DARS
4, 'EMC Committee', RRM5 Roy Clarke, G8AYD. Tony, G1OZB, 01299 400172.

MID-WARWICKSHIRE ARS
11, Mini talks by members.
25, Meeting on the air. Bernard, M1AUK, 01926 420913.

ST LEONARD'S ARS
13, Open evening.
14, Christmas and New Year party.
27, Make an antenna for 70MHz on a bamboo cane. Derek, G0EYX, 01785 604904.

STRATFORD UPON AVON DRS
10, GSM radio, Andy, G4EZT.
24, Team challenge. Terry, G3MXH, 01789 294387.

TELFORD & DARS
5, On air, open evening.
12, 'My HF antenna': members share ideas, bring a photo.
19, Surplus equipment sale, G8UGL with gavel.
24, Open forum: your ideas for TDARS in 2005, M1RKH. Mike, G3JKX, 01952 299677, mjstreetg3jkx@aol.com

THORNBURY & SOUTH GLOS ARC
5, Propagation.
12, Video night.
19, On air 2m, HF & packet.
26, Valves. Stan, G0RYM, stang@talkgas.net

6 North Wales

No club details received.

7 South Wales

ABERYSTWYTH & DARC
13, PMR radio, Robin, GW1LWA. Ray, mwmg01@aber.ac.uk

CHEPSTOW & DARS
4, 4m history and activity, Ross, G6GVI. Steve, GW8ZOE, gw8zoe@btinternet.com

8 Northern Ireland

No club details received.

9 London & Thames Valley

AYLESBURY VALE RS
12, Club dinner. Roger, G3MEH, 01442 826651, roger@g3meh.com

DORKING & DRS
11, New Year social, Stephen, G1LJR. John, G3AEZ, 01306 631236.

SILVERTHORN RC
7, First meeting of New Year.
14, 'Come and rake' sale.
21, Informal.
28, On air. Les, G0CIB, 07980 275081.

STEVENAGE & DARS
11, M3 training and operating practice. info@sadars.org

SUTTON & CHEAM RS
20, EMC, Nick, G8NLY. John, G0BWV, 020 8644 9945, info@scrs.org.uk

WIMBLEDON & DARS
14, Matching wire antennas, George, G3DWW. 28, PicATUne construction, on air. Jim, M0CON, 020 8874 7456.

10 South & South East

ANDOVER RAC
4, G4NNS microwave aerial table, Terry, G8ALR.
18, Rig measurement evening. Terry, G8ALR, 01980 629346.

HARWELL ARS
1, Chairman's New Year foxhunt, Malcolm, G8NRP.
11, Rally preparations, Ann, G8NVI, and quiz, John, G6LNU.
22, Annual dinner, Malcolm, G8NRP. Angus, G0UGO, 01235 522858.

HASTINGS E & RC
19, Waters & Stanton PLC.
26, Auction. Gordon, 01424 431909, gordon@gsweet.fsnet.co.uk, www.g4cus.freeserve.co.uk

HORNDEAN & DARC
25, Quiz trophy. Stuart, G0FYX, 023 9247 2846.

HORSHAM ARC
6, Computers and networks, Gavin, M3DFV. David, G4JHI, 01403 252202.

ITCHEN VALLEY RC
14, Quiz, Sheila, G0VNI.
28, Great Egg Race, Brian, G0UKB. Sheila, G0VNI, 023 8081 3827, sheila.williams@ivarc.org.uk

SOUTHDOWN ARS
9, CW AFS.
10, AGM, RSGB video.
15, SSB AFS 80m. John, G3DQY, 01424 424319, vaughdqy@aol.com

SWINDON & DARC
13, 4m operation, Andy, G0BEQ.
27, Using Motorola analyser for amateur radio measurements, Jan, G0BBL. Mike, M5CBS, 01793 826465.

WORTHING & DARC
5, New Year resolutions.
12, Setting up your radio station.
19, 'Collectorama' evening.
26, Experiments with Antennas, Peter, G3LDO. Roy, G4GPX, 01903 753893.

11 South West & Channel Islands

APPLEDORE & DARC
3, 20 years in ham radio, Jeff G4SOF. Brian, M0BRB, brian.jewell@ic24.net

BOURNEMOUTH RS
7, GPO reminiscences, Arthur, G4EKE.
21, Kites and aerials, Alan, G4EKE. Chris, M5AGG, 01202 893126, www.brswebsite.freeserve.co.uk

CORNISH RAC
6, South West Water, Mike, G7ERQ.
10, 'My days in National Service', Brian. John, G4LJY, 01872 863849.

EXMOUTH ARC
5, Forum and auction. Mike, G1GZG, 01395 274172.

FLIGHT REFUELLING ARS
1, QSO party (1300-1600). Tony, G3PFM, 01202 622262.

PLYMOUTH RC
4, TBA.
8, Rooster breakfast (TBC).
18, Constructors' cup. Frank, G7LUL, frank@foxonezero.fsnet.co.uk

POOLE RADIO SOCIETY
14, Recent projects, Alan, G4UWS. Phil, G0KKL, 01202 700903.

SOUTH BRISTOL ARC
5, Computer & software clinic.
12, Display of club archives.
19, HF aerial clinic.
26, On air. Len, G4RZY, 01275 834282.

SOUTH DORSET RS
11, 'Hams Across the Sea', Tony, M0TRW. Carol, 2E1RBH, 01305 820400, carolonfraggle@tiscali.co.uk

TAUNTON & DARC
7, On air.
21, Club dinner. William, G3WNI, 01823 666234, g3wni@btinternet.com

12 East & East Anglia

BRAINTREE & DARS

3, On air.
17, Essex wildlife talk. John, M5AJB, 01787 460947.

CHELMSFORD ARS

4, 'Going Digital: the End of Analogue Broadcasting', Murray, G6YJB. Martyn, G1EFL, 01245 469008,or via club website.

COLCHESTER RADIO AMATEURS

13, 'Ciphers New and Old', Edward Erbes. James, M0ZZO, 01255 242748.

HARWICH ARIG

12, 'The Diverse Role of the Police Search Adviser', Sgt Kettle, Essex Police. Tony, G4EYE, 01255 886065.

HAVERING & DRC

5, AGM.
12, Business meeting.
19, Data on air, PSK and RTTY.
26, Raynet, G4ZST. Oliver, G3TPJ, 01708 746677.

NORFOLK ARC

5, Radio workshop, informal.
12, Inter-club contesting, Malcolm, G3PDH.
19, Radio workshop, informal.
26, Circuit boards, David, G0PFN, Stuart, G3XYO. Reg, G0VDO, 01603 429269.

13 East Midlands

EAGLE RADIO GROUP

11, Advances and service of marine radio, local coastguard. Terry, G0SWS, 07979 733640.

HUCKNALL ROLLS-ROYCE ARC

7, Linear amp demo, G4TSN.
14, 'Foxhunt' for beginners.
21, Forum.
28, 'The flying bedstead', Stan Grainger. Keith, G6NHY, 07929 916642, hrrarc@ntlworld.com

LEICESTERSHIRE REPEATER GROUP

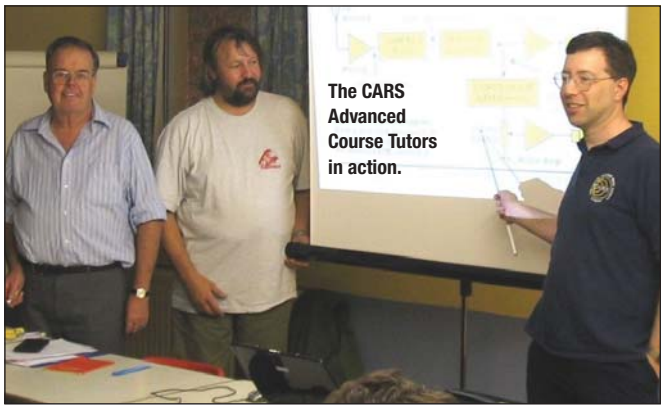
3, Fagots & peas social evening.
10, On air, quiz.
17, AGM.
24, Talk by Johanne, G0VZO.
31, On air, video, construction evening. Tom, G1IUT, 0116 286 3949, tomchristmas@ukonline.co.uk

LOUGHBOROUGH & DARC

4, Welcome to 2005, on air.
11, Computer laptops.
18, Valves part 2, Andrew, G7SEG.
25, 'The Hammond organ, Don, G8AYG. Chris, G1ETZ, 01509 504319. 504319.

MELTON MOWBRAY ARS

21, WWII reminiscences, Phil, G4LWB. Phil, G4LWB, phil@croxtonkerr.fsnet.co.uk



The CARS Advanced Course Tutors in action.

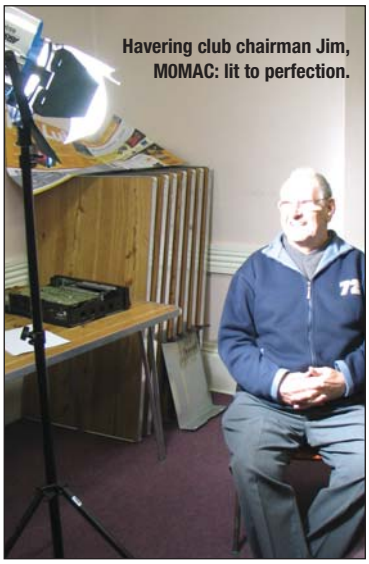
ADVANCED COURSE TRAINING MATERIAL AVAILABLE

Having completed its first Advanced training course, the Chelmsford Amateur Radio Society has now added the Advanced *PowerPoint* slides to its training website. All the tuition material that the club has developed for use in its Foundation and Intermediate courses is also available, to help encourage more clubs to set up courses. They can be downloaded from the 'Training' page at www.g0mwt.org.uk

Chelmsford has had six of its tutors complete the RSGB 'Train The Trainers' course. Having this number of qualified volunteer trainers has enabled courses to be run every Thursday evening throughout the year. Anyone wishing to enrol on a course should contact the training officer Clive Ward, M0SIX, tel: 01245 224577; Mob: 07860 418835; e-mail: training2005@g0mwt.org.uk

AN EVENING AT THE HAVERING & DRC

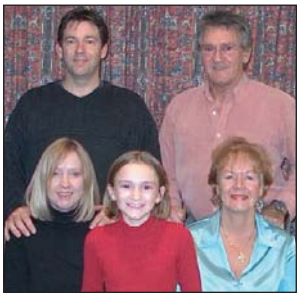
Martin, G3VOF, recently gave the Havering and District Radio Club an illustrated talk and demonstration on TV lighting. He explained the differences between different types of light treatment and showed slides of different types of luminaires that he uses in the ITN Ch 5 news studios. This was followed with an brief explanation of studio lighting design, Martin holding the Royal Television Society 1990 award for craft and lighting design.



Havering club chairman Jim, M0MAC: lit to perfection.

RADIO FAMILY AT MILTON KEYNES ARS

All the family shown in the photo have passed either the licensing exam or the 12WPM Morse test with the Milton Keynes Amateur Radio Society (MKARS). Shown in the picture are 8-year old Lauran Talbot (awaiting her callsign), on her right is her mother Jill, M3GLT, then dad Mark, M3MGL, grandfather Peter, EA5EMH / M0BHL and on Lauran's left is her grandmother Carol, EA5EBA / M0DKL. Carol's sister Penny also holds an M3 licence. Lauran was one of five who passed the Foundation exam in October. A total of 17 passed with MKARS in 2004. The next course starts on 11 January - for further information tel: 01908 647662 or e-mail: foundation@bletchley.net



TAUNTON & DARC IN 2004

The Taunton and District ARC held its AGM on 15 October. Peter Robinson, G0EYR, wished to stand down and Michael Coles, M0CIE, was elected Chairman. David Rosewarn, M0CIF, and Michael Thyer continued as Secretary and Treasurer respectively. The paid-up membership for the year was 21.

Four candidates sat the Foundation examination. Three passed: Michael Thyer, David Atwood and Freddie Drakeford.

Club activities included Jamboree on the Air with the Taunton and District Scouts and Guides when the new Foundation licensees had their first opportunity to operate a special event station. The annual expedition to St Mary's, Isles of Scilly, was undertaken by Tom, G0PSE; Dave M0AOD, and Bill, G3WNI.

Club meetings will continue to be held on the first and third Fridays of the month at 7.30 pm in the Scout HQ Tangier, Taunton. Visitors and new members are always very welcome. It is proposed to erect new HF and VHF aerials over Christmas to facilitate regular station operating at club meetings. The secretary may be contacted by e-mail: david.rosewarn@virgin.net or tel: 01823 254267.

SADARC WEBSITE IS FOR ALL

The Southport & District Amateur Radio Club's website is a resource for all radio amateurs, not just its local members. On it you is the latest news from around the world, links to technical articles, a free classified advertisements section, a diary of national and international events and contests and a free discussion group for anyone to chat about things radio. The site was updated in November and is now sporting its Christmas livery with Christmas pages that offer festive news, articles and special offers for those Christmas presents. The site can be found at www.southportarc.org.uk

HILLCREST ARS COURSE

The Hillcrest ARS, based near Dudley in the West Midlands, will shortly start an Intermediate licence course. The proposed start date is 16 February. For further details please contact the secretary, Stuart, M0SJV, by e-mail: m0sjv@blueyonder.co.uk or tel: 01384 232457.

G5RV LOGBOOK SAVED FOR POSTERITY

The final logbook of one of the UK's best-known radio amateurs has been saved for posterity. The late Louis Varney, G5RV, was one of the founder members of the Chelmsford Amateur Radio Society in 1936, so when eagle-eyed Chelmsford club member Duncan, M0KGK, spotted that G5RV's last ever logbook was being auctioned on e-bay, the club decided to buy it. Duncan did the bidding and despite fierce competition managed to secure the logbook in the last eight seconds of auction. The logbook shows that G5RV's final QSOs, on 11 January 2000, were with G0WGP and Chelmsford club President Harry Heap, G5HF, appropriately enough on page 73 of the logbook. Louis was, of course, using a G5RV antenna for the contacts!

John, G8DET, receives the G5RV logbook on behalf of the Chelmsford club from Duncan, M0KGK.

NEW M3 RUNS ESSEX MORSE PRACTICE GROUP

Although only licensed a couple of months, Alex, M3HSK, can send and receive Morse code at 15WPM. Many of the new M3s in Essex are keen to learn Morse but there have been no classes available. Alex decided to do something about it and set up the Essex Morse Practice Group to help others learn the code. The group operates a Morse net for beginners and also plans to hire a room for tuition. Anyone interested in learning Morse or wishing to help with the teaching can contact Alex on tel: 07973 210057, or e-mail morse.code@bouncylandings.com

LEFARS AND EPPING COLLEGE

Marc, G0TOC (left), and Trevor, M5AKA.

The Loughton and Epping Forest Amateur Radio Society (LEFARS, www.lefars.org.uk) has been active in building close links with Epping Forest College. The special event stations run by the club at the college have generated a lot of interest amongst students there. As a result, LEFARS has gained many new members who have gone on to get their licence through the club's Foundation course. These newcomers have helped revitalise the club and one of them, Selim, M3EKF, has gone on to read the GB2RS news in the region.

The club has donated amateur radio books to the college library to enable students to find out more about the hobby. On a recent visit to the club the Deputy RSGB Regional Manager, Trevor, M5AKA, presented LEFARS secretary Marc, G0TOC, with a copy of the RSGB DVD *What is Amateur Radio?* The club will be putting the DVD in the college library for students to borrow.

LEFARS meets at 7.45pm on alternate Fridays in All Saints House, Romford Road, Chigwell Row, Essex. For further information contact Marc, G0TOC, tel: 020 8502 1645, mob: 07743 456058, e-mail: info@lefars.org.uk

COURSES IN THE LOTHIANS

Lothians Radio Society recently held a Foundation course which John McCaig, Kelly Tait and Wim Ton successfully completed. Two candidates scored full marks in the exam whilst the other dropped only one point. Course tutors Peter Dick, GM4DTH, and Norman Stewart, GM1CNH, also deserve thanks for their efforts in assisting the students to achieve this excellent result.

The Lothians Radio Society will be holding a Foundation licence course commencing 29 January. The course will be held over two weekends and anyone interested in attending should contact the Lothians Radio Society secretary Toby Sigouin, MM0TSS, tel: 07739 742367 or e-mail: tobysigouin@onetel.com for further details.

BRAINTREE RF FILTER EVENING

The Braintree Radio Society recently held an 'RF filter evening'. A talk was given by Dave, G0DEC, on the different types of filter and their uses, with the aid of homemade and commercial examples. Then, using network analysers and spectrum analysers, a practical demonstration was given on how filters work and how the skirt shapes should look. Members had the opportunity to try out their own filters on the equipment and make any necessary adjustments. This was a very busy evening with the meeting overrunning by some considerable time. For further details about the club visit www.badars.org.uk

The ERG Committee. Standing: Jim Batchelor, M1GUS; Keith Wainwright, G1NHW; Trevor Downey, M0TDA; Alan Radley, G0TTM; Simon Wilton, G7HCD; Anthony Martin, M1FDE; Bob Cheverall, M0DTA. Seated: Treasurer Clive Ward, G1EUC; Chairman Mike Wheaton, G4ZPE; Secretary Murray Niman, G6JYB.

ESSEX REPEATER GROUP'S 30th BIRTHDAY

Essex Repeater Group (ERG, www.essexrepeatergroup.org.uk) maintains repeaters and beacons in Essex: GB3DA (2m), GB3ER (70cm), GB3DB (6m), GB3ZP (23cm) and GB3CMS (10GHz) are located on Danbury and Rettendon hills. ERG has over 50 members. On 10 January 2005, ERG celebrates the 30th anniversary of its founding.

The photo shows the 2004/5 committee which was elected at the AGM on 21 October. ERG will welcome members and visitors to its stand at its next major event, the Canvey rally on Sunday 6 February. For further details about ERG, please contact Murray Niman, G6JYB, e-mail: mjniman@iee.org8502 1645, mob: 07743 456058, e-mail: info@lefars.org.uk

COURSES IN NI

Starting Tuesday 4 January, the Carrickfergus Amateur Radio Group will be offering courses for the Foundation, Intermediate and Advanced exams. Since there is a limited number of places available, interested candidates are asked to contact either John Branagh, tel: 02893 367208, or John Roberts, tel: 02890 459910 before 4 January in order to reserve a place.

TAMWORTH AMATEUR RADIO SOCIETY REVIVED

The Tamworth Amateur Radio Society (TARS) had been closed down for several years but the inaugural meeting of a revived TARS took place on 7 December at the Leyfields Community Centre, Masefield Drive, Tamworth. Further details about joining this renewed club can be obtained from Bob Williams, G1BCZ, e-mail g1bcz@btinternet.com

SPRING FOUNDATION COURSE AT SHEFFORD

The Shefford and District Amateur Radio Society is preparing a new series of weekly two-hour evening courses for the Foundation licence. Encouraged by the success and 100% pass rate of the 2004 course, their instructors invite interested readers who may live in Bedfordshire and Hertfordshire to contact Stewart Baker, G3RXQ, for details - tel: 01908 585284 or e-mail: baker@nildram.co.uk

WESTERN ISLES ARS

The Western Isles ARS now meets in the Borve Village Hall, Borve, on the second Wednesday of the month. There is a new WIARS website at www.islander.freewire.co.uk For further details please contact Jim Morris, 2M0AYL, tel: 01851 850456 or e-mail: jim-morris3@btinternet.com

DUNDEE AMATEUR RADIO CLUB

Eleven members of the Dundee Amateur Radio Club gathered at the Mills Observatory on a cold night on 9 November 2004 for an enjoyable tour of the observatory, a talk on the solar system and the experience of viewing through the telescope. The evening was thoroughly enjoyed by everyone thanks to the excellent tour and talk provided by Robert, one of the experts on hand at the observatory.

First RCF Arkwright Scholarship presented

The Radio Communications Foundation has made its first presentation to a student under the Arkwright Scholarship scheme.

The Arkwright Scholarship scheme is a unique prestigious programme which encourages and stimulates high-ability 15 / 16 year old students to take up engineering or technical careers by offering scholarships to those about to enter 'A' level / Scottish Highers courses.

WHY ARKWRIGHT?

The Radio Communications Foundation wanted to support the right type of educational bursary scheme, a scheme whose ethos was to encourage and promote science and engineering as a career.

Arkwright was the RCF's chosen vehicle because it influences young people at the crucial time of choosing their sixth form subjects. It has a proven track record. It promotes best practice with sponsors and schools and identifies highly motivated and able students through its rigorous process of selection. The selection process includes an examination interview and project work.

This year the Arkwright Trust awarded 166 scholarships and the RCF joins a distinguished and growing list of sponsors which includes companies like BAE Systems, Microsoft, Pilkington, Rolls-Royce and Orange, as well as a number of leading universities and institutions.

This year the RCF provided one scholarship. This was awarded to Daniel Cater, who attends Sutton Grammar School for Boys. Daniel will receive support from the RCF for the next two years.

At a recent meeting of the RCF Trustees, it was agreed that from 2005 the RCF will support two bursaries annually. The Trustees see this as an extremely worthwhile venture to undertake which matches the objectives of the RCF and encourages able and well motivated young people to look at engineering in its various disciplines as a career option.

THANKS GO TO . . .

We would like say a special 'thank you' to one of this month's RCF 'Big Hitters'. At the RSGB-sponsored 'Bite Size' lectures at the Kempton Park Rally on 14 November, the tin was rattled effectively by volunteers from both the organisers RadioFairs, and the Whitton Amateur Radio Group. The sum collected was in the hundreds of pounds range and we are grateful to both those who donated the money and to those shaking the tins. On a similar note we would like to thank those who dropped by the RSGB stand at the North Wales Radio, Electronics and Computer Show in Llandudno on 6 / 7 November and dropped money into the RCF collection boxes. Thank you one and all. ♦

Daniel Cater receives his Arkwright Scholarship on 29 October at the IEE in Savoy Place, London. He is seen here with Bob Whelan, G3PJT, and Peter Kirby, G0TWW, both Trustees of the Radio Communications Foundation, which is sponsoring Daniel's Arkwright Scholarship.

Supporters of the Radio Communications Foundation

We asked members when renewing their membership to include a donation to help to continue to support the work of the Radio Communications Foundation. The following is the list of those members who have kindly sent in a donation by the deadline date for this issue. Contributions continue to be wanted: if you would like to help, please send your donation to RCF, c/o RSGB HQ.

RCF 'Big Hitters'
G Millar, GM3UM
Derwentside ARC
British Railways ARS
Radio Fairs & visitors at Kempton Rally

North Wales rally visitors, Llandudno
T Rodgers, 2E1IIL
J M Purfield, EI2CI
J A Harrington, G0ERH
L Surgey, G0GMW
H Wright, G0LKB
R C Pardoe, G0MHZ
J Worsnop, G0SNV
L J Crow, G0TNH
S J Bird, G0UFE
R C Walker, G0UTP
N P Reilly, G0VOK
R Wallbank, G0XAT
M Cowley, G1LAJ
C A G Hoy, G1YZN
D Smith, G1ZJQ
W Moorwood, G3CAQ
H D Romer, G3CIK
M R Browne, G3DIH
G A Bird, G3GDB
J O Yarker, G3GJY
E C Clayson, G3IIY
J F Lucas, G3ISU
P J Wright, G3JDM
J Anthony, G3KQF
T K Wright, G3KVE
K O Holland, G3MCD
D H Parr, G3MIR
D R Paice, G3MXK
S A Greenfield, G3PFP
G Bloor, G3UD
P R Cragg, G3UGK
M C Foden, G3UPA
A Wang, G3VAA
A G Coker, G3WHM
E Hodgetts, G3WPY
M C Baker, G3ZBP
B H Slatter, G4DF
C D Appleton, G4GBK
T J Aldridge, G4GJR
S Simmonds, G4GJY
P B Vaughan, G4HNU
W H Etheridge, G4HTS
S R Fouracres, G4HVX
S P Richardson, G4JCC
Waterside (New Forest) ARS, G4JYN
K Hircock, G4KFE
E David, G4LQI
P G Dolling, G4LQZ
T R Underhill, G4MWP
North Wakefield RC, G4NOK
J B Rowlands, G4OJS
V H Dann, G4PPD
L A Kennedy, G4TEP
T J Stanley, G4TXK
H W D Maude, G4YDG
C B Jones, G6ERZ
E G D Kesterton, G6HGK
J D Hayward, G7HOD
J D Mendham, G7PEF
P Taylor, G8BCG
W D Curtis, G8BGR
P W Best, G8BLS
J G Durrant, G8DCD
M J Smith, G8EII
D L Herke, G8IBC
G W Allen, G8LZG
W Parkin, G8PBE
M Kremer, G8VLN
D M Price, G8XZA
W J Smith, GI7VJN
Ayr ARG, GM0AYR
R P Russell, GM3DEE
G Moore, GM3JQJ
D C Didymus, GM6KXO
G R Kelly, GM8MST
B F le Lievre, GU4LJC
P M Wadley, GU4YBW
D Roberts, GW0CSR
W D Evans, GW3CDP
R B Mowbray, GW4BDS
J H Baines, GW7LXI
S Susch, K2PLI
D W Summerwill, M0DWS
R G Harry, M0NET
G K J Chapman, M0RMG
S Watanabe, M0SMW
W Hibberd, M0TYW
R Vickerstaff, M1ADT
R D Cameron, M1CAO
D Baldwin, M0ESB
J H Locke, M3JHL
D G Donohoe, M3LOS
J G Fleming, MI0CMY
N R McKee, MI1MCK
J R Gorin, MJ1DZJ
K M Duggan, MM0RZZ
C Fallaize, MU0FAL
W L Sheppard, MW0LES
L D Thomas, MW0LEW
J V McKaig, RS178538
C Coore, RS193825
R Singleton, RS25288
D Foster, RS34817
J M Y Yellowlees, RS87120

The RSGB is also grateful to those many generous members who have sent donations anonymously, or who have asked us not to publish their names.

Mounting Hardware (All galvanised)

6" Stand Off Bracket *(complete with U Bolts)*.....**£6.00**
9" Stand off bracket *(complete with U Bolts)*.....**£9.00**
12" Stand off bracket *(complete with U Bolts)*..**£12.00**
12" T & K Bracket *(complete with U Bolts)*.....**£14.95**
18" T & K Bracket *(complete with U Bolts)*.....**£17.95**
24" T & K Bracket *(complete with U Bolts)*.....**£19.95**
36" T & K Bracket *(complete with U Bolts)*.....**£29.95**
Chimney lashing kit.....**£12.95**
Double chimney lashing kit.....**£24.95**
3-Way Pole Spider for Guy Rope/ wire.....**£3.95**
4-Way Pole Spider for Guy Rope/wire.....**£4.95**
1" Mast Sleeve/Joiner.....**£6.95**
1.25" Mast Sleeve/Joiner.....**£7.95**
1.5" Mast Sleeve/Joiner.....**£8.95**
2" Mast Sleeve/Joiner.....**£9.95**
Earth rod including clamp (copper plated).....**£9.95**
Earth rod including clamp (solid copper).....**£14.95**
Pole to pole clamp 2"-2".....**£4.95**
Di-pole centre (for wire).....**£4.95**
Di-pole centre (for aluminium rod).....**£4.95**
Dog bone insulator.....**£1.00**
Dog bone insulator heavy duty.....**£2.00**

5ft Poles Heavy Duty (swaged)

Heavy Duty Aluminium (1.8mm wall) with a lovely push-fit finnish to give a very strong mast set
1¼" single 5' ali pole.....**£7.00**
1¼" set of four (20' total approx).....**£24.95**
1½" single 5' ali pole.....**£10.00**
1½" set of four (20' total approx).....**£34.95**
1¾" single 5' ali pole.....**£12.00**
1¾" set of four (20' total approx).....**£39.95**
2" single 5' ali pole.....**£15.00**
2" set of four (20' total approx).....**£49.95**

Cable & Coax Cable

RG58 best quality standard per mt.....**35p**
RG58 best quality military spec per mt.....**60p**
RGMini 8 best quality military spec per mt.....**70p**
RG213 best quality military spec per mt.....**85p**
H100 best quality military coax cable per mt.....**£1.10**
3-core rotator cable per mt.....**45p**
7-core rotator cable per mt.....**£1.00**
10 amp red/black cable 10 amp per mt.....**40p**
20 amp red/black cable 20 amp per mt.....**75p**
30 amp red/black cable 30 amp per mt.....**£1.25**
Please phone for special 100 metre discounted price

Connectors & Adaptors

PL259/9 plug (Large entry).....**£0.75**
PL259 Reducer (For PL259/6 to conv to P1259/6).....**£0.25**
PL259/6 plug (Small entry).....**£0.75**
PL259/7 plug (For mini 8 cable).....**£1.00**
BNC Screw type plug (Small entry).....**£1.25**
BNC Solder type plug (Small entry).....**£1.25**
BNC Solder type plug (Large entry).....**£3.00**
N-Type plug (Small entry).....**£3.00**
N-Type plug (Large entry).....**£3.00**
SO239 Chassis socket (Round).....**£1.00**
SO239 Chassis socket (Square).....**£1.00**
N-Type Chassis scoket (Round).....**£3.00**
N-Type Chassis scoket (Square).....**£3.00**
SO239 Double female adapter.....**£1.00**
PL259 Double male adapter.....**£1.00**
N-Type Double female.....**£2.50**
SO239 to BNC adapter.....**£2.00**
SO239 to N-Type adapter.....**£3.00**
SO239 to PL259 adapter (Right angle).....**£2.50**
SO239 T-Piece adapter (2xPL 1XSO).....**£3.00**
N-Type to PL259 adapter (Female to male).....**£3.00**
BNC to PL259 adapter (Female to male).....**£2.00**
BNC to N-Type adapter (Female to male).....**£3.00**
BNC to N-Type adapter (Male to female).....**£2.50**
SMA to BNC adapter (Male to female).....**£3.95**
SMA to SO239 adapter (Male to SO239).....**£3.95**
SO239 to 3/8 adapter (For antennas).....**£3.95**
3/8 Whip stud (For 2.5mm whips).....**£2.95**
Please add just £2.00 P&P for connector only orders
PLEASE PHONE FOR LARGE CONNECTOR ORDER DISCOUNTS

Baluns

MB-1 1:1 Balun 400 watts power.....**£24.95**
MB-4 4:1 Balun 400 watts power.....**£24.95**
MB-6 6:1 Balun 400 watts power.....**£24.95**
MB-1X 1:1 Balun 1000 watts power.....**£29.95**
MB-4X 4:1 Balun 1000 watts power.....**£29.95**
MB-6X 6:1 Balun 1000 watts power.....**£29.95**
MB-Y2 Yagi Balun 1.5 to 50MHz 1kW.....**£24.95**

Tri/Duplex & Antennas Switches

MD-24 HF or VHF/UHF internal duplexer (1.3-225MHz) (350-540MHz) SO239/PL259 fittings.....**£22.95**
MD-24N same spec as MD-24 but "N-type" fittings.**£24.95**
MX2000 HF/VHF/UHF internal Tri-plexer (1.6-60MHz) (110-170MHz) (300-950MHz).....**£59.95**
CS201 Two-way di-cast antenna switch. Freq: 0-1000MHz max 2,500 watts SO239 fittings.....**£14.95**
CS201-N Same spec as CS201 but with N-type fittings.....**£19.95**
CS401 Same spec as CS201 but4-way.....**£39.95**

Antennas Rotators

AR-31050 Very light duty TV/UHF.....**£24.95**
AR-300XL Light duty UHF\VHF.....**£49.95**
YS-130 Medium duty VHF.....**£79.95**
RC5-1 Heavy duty HF.....**£349.95**
RG5-3 Heavy Duty HF inc pre set control box.....**£449.95**
AR26 Alignment Bearing for the AR300XL.....**£18.95**
RC26 Alignment Bearing for RC5-1/3.....**£49.95**

Mobile Mounts

Turbo mag mount 7" 4mtrs coax/PL259 3/8 or SO239.....**£14.95**
Tri-mag mount 3 x 5" 4mtrs coax/PL259 3/8 or SO239.....**£39.95**
Hatch Back Mount (stainless steel) 4 mts coax/PL259 3/8 or SO239 fully adjustable with turn knob.....**£29.95**
Gutter Mount (same as above).....**£29.95**
Rail Mount (aluminium) 4mtrs coax/PL259 sutiable for up to linch roof bars or poles 3/8 fitting.....**£12.95**
SO259 fitting.....**£14.95**
Gutter Mount (cast aluminium) 4mtrs coax/PL259 3/8 fitting...**£9.95**
SO259 fitting.....**£12.95**
Hatch Back Mount 3/8 4mtrs coax/PL259.....**£12.95**
Roof stud Mount 4mts coax/PL259 3/8 or SO239 fitting.....**£12.95**

Antenna Wire & Ribbon

Enamelled copper wire 16 gauge (50mtrs).....**£11.95**
Hard Drawn copper wire 16 gauge (50mtrs)..**£13.95**
Equipment wire Multi Stranded (50mtrs).....**£9.95**
Flexweave high quality (50mtrs).....**£27.95**
PVC Coated Flexweave high quality (50mtrs).....**£37.95**
300Ω Ladder Ribbon heavy duty USA imported (20mtrs).....**£15.00**
450Ω Ladder Ribbon heavy duty USA imported (20mtrs).....**£15.00**
(Other lengths available, please phone for details)

HF Balcony Antenna

BAHF-4 FREQ:10-15-20-40 Mtrs LENGTH: 1.70m HEIGHT: 1.20m POWER: 300 Watts.....**£159.95**

Miscellaneous Items

CDX Lightening arrestor 500 watts.....**£19.95**
MDX Lightening arrestor 1000 watts.....**£24.95**
AKD TV1 filter.....**£9.95**
Amalgamating tape (10mtrs).....**£7.50**
Desoldering pump.....**£2.99**
Alignment 5pc kit.....**£1.99**

Telescopic Masts (aluminium & Fibreglass opt)

TMA-1 Aluminium mast ★ 4 sections 170cm each ★ 45mm to 30mm ★ Approx 20ft erect 6ft collapsed.....**£99.95**
TMA-2 Aluminium mast ★ 8 sections 170cm each ★ 65mm to 30mm ★ Approx 40ft erect 6ft collapsed.....**£189.95**
TMF-1 Fibreglass mast ★ 4 sections 160cm each ★ 50mm to 30mm ★ Approx 20ft erect 6ft collapsed.....**£99.95**
TMF-2 Fibreglass mast ★ 5 sections 240cm each ★ 60mm to 30mm ★Approx 40ft erect 9ft collapsed.....**£189.95**

HF Yagi

HBV-2 2 BAND 2 ELEMENT TRAPPED BEAM FREQ:20-40 Mtrs GAIN:4dBd BOOM:5.00m LONGEST ELEMENT:13.00m POWER:1600 Watts.....**£399.95**

ADEX-3300 3 BAND 3 ELEMENT TRAPPED BEAM
FREQ:10-15-20 Mtrs GAIN:8 dBd BOOM:4.42m LONGEST ELE:8.46m POWER:2000 Watts.....**£329.95**

ADEX-6400 6 BAND 4 ELEMENT TRAPPED BEAM FREQ:10-12-15-17-20-30 Mtrs GAIN:7.5 dBd BOOM:4.27m LONGEST ELE:10.00m POWER:2000 Watts.....**£599.95**
40 Mtr RADIAL KIT FOR ABOVE.....**£99.00**

HF Verticals

VR3000 3 BAND VERTICAL
FREQ: 10-15-20 Mtrs
GAIN: 3.5dBi HEIGHT: 3.80m POWER: 2000 Watts (without radials)
POWER: 500 Watts (with optional radials).....**£99.95**
OPTIONAL 10-15-20mtr radial kit.....**£39.95**

VR5000 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN: 3.5dBi HEIGHT: 4.00m RADIAL LENGTH: 2.30m (included). POWER: 500 Watts.....**£189.95**

EVX4000 4 BAND VERTICAL FREQ:10-15-20-40 Mtrs GAIN: 3.5dBi HEIGHT: 6.50m POWER: 2000 Watts (without radials) POWER: 500 Watts (with optional radials).....**£119.95**
OPTIONAL 10-15-20mtr radial kit.....**£39.95**
OPTIONAL 40mtr radial kit.....**£14.95**

EVX5000 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN: 3.5dBi HEIGHT: 7.30m POWER: 2000 Watts (without radials) POWER: 500 Watts (with optional radials).....**£169.95**
OPTIONAL 10-15-20mtr radial kit.....**£39.95**
OPTIONAL 40mtr radial kit.....**£14.95**
OPTIONAL 80mtr radial kit.....**£16.95**

EVX6000 6 BAND VERTICAL FREQ: 10-15-20-30-40-80 Mtrs GAIN: 3.5dBi HEIGHT: 5.00m RADIAL LENGTH: 1.70m(included) POWER: 800 Watts.....**£299.95**

EVX8000 8 BAND VERTICAL FREQ:10-12-15-17-20-30-40 Mtrs (80m optional) GAIN: 3.5dBi HEIGHT: 4.90m RADIAL LENGTH: 1.80m (included) POWER: 2000 Watts.....**£319.95**
80 MTR RADIAL KIT FOR ABOVE.....**£89.00**

(All verticals require grounding if optional radials are not purchased to obtain a good VSWR)

Trapped Wire Di-Pole Antennas (Hi grade heavy duty Commercial Antennas)

UTD160 FREQ:160 Mtrs LENGTH:28m POWER:1000 Watts.....**£49.95**
MTD-1 (3 BAND) FREQ:10-15-20 Mtrs LENGTH:7.40 Mtrs POWER:1000 Watts..**£44.95**
MTD-2 (2 BAND) FREQ:40-80 Mtrs LENGTH: 20Mtrs POWER:1000 Watts.....**£49.95**
MTD-3 (3 BAND) FREQ:40-80-160 Mtrs LENGTH: 32.5m POWER: 1000 Watts.....**£89.95**
MTD-4 (3 BAND) FREQ: 12-17-30 Mtrs LENGTH: 10.5m POWER: 1000 Watts.....**£44.95**
MTD-5 (5 BAND) FREQ: 10-15-20-40-80 Mtrs LENGTH: 20m POWER:1000 Watts.....**£79.95**
(MTD-5 is a crossed di-pole with 4 legs)

Patch Leads

STANDARD LEADS
1mtr RG58 PL259 to PL259 lead.....**£3.95**
10mtr RG58 PL259 to PL259 lead.....**£7.95**
30mtr RG58 PL259 to PL259 lead.....**£14.95**

MILITARY SPECIFICATION LEADS
1mtr RG58 Mil spec PL259 to PL259 lead.....**£4.95**
10mtr RG58 Mil spec PL259 to PL259 lead.....**£10.95**
30mtr RG58 Mil spec PL259 to PL259 lead.....**£24.95**
1mtr RG213 Mil spec PL259 to PL259 lead.....**£4.95**
10mtr RG213 Mil spec PL259 to PL259 lead.....**£14.95**
30mtr RG213 Mil spec PL259 to PL259 lead.....**£29.95**
(All other leads and lengths available, ie. BNC to N-type, etc. Please phone for details)

ALL PICTURES ARE FOR REFERENCE ONLY

Andy Cook, G4PIQ

VHF Contest Committee Chairman, Knaves Acre, Brantham Hill, Brantham, Manningtree CO11 1TA.

E-mail: g4piq@btinternet.com

2005: the contesting year ahead

Andy Cook presents a guide to the RSGB HF, VHF / UHF and Microwave contests taking place in 2005, and encourages greater participation from UK stations in international contests.

The super station of Jan Fisher, GOIVZ, in Cornwall, winner of many RSGB and international HF contests.

Last year, the RSGB HF and VHF Contest Committees introduced club-based championships on both 80m and 2m. The 80m events in particular took off like a rocket and will be repeated in their very successful format on a variety of weekday evenings between January and July 2005. The basic idea behind this event is that RSGB Affiliated Societies should get as many as possible of their members to come on the air for these short weekday evening events. Unlike the AFS contests, every club member's log counts towards the overall score for each club / society. Events are run on SSB, CW and Data modes on 80m in an attempt to get people to try something new. The entry requirement for these 80m contests stipulates e-mail logs only within 10 days of the contest and the results are published as quickly as possible on the HFCC website with an overall position for each club updated throughout the period of the events which run from January to July.

The 2m events were somewhat less well supported, but nevertheless the 2000 - 2230 local time on the first Tuesday in every month still represents a great time to catch high levels of activity on 2m SSB. You need very little to get on in these events - just a small Yagi, which could even be indoors, and a basic multimode rig will get you on and making QSOs. When you hear stations, just exchange a signal report, serial number (starting at 001 for the first contact of the day and increasing by one for each subsequent QSO) and your locator. After the contest, the scoring is very simple - you simply multiply the number of QSOs that you make by the number of large locator squares (eg JO01, IO92) that you work.

There's no doubt that the release of HF to the former class B licensees in the UK has generated a tremendous amount of new interest in HF contesting, but many Affiliated Societies also have a bunch of VHF die-hards in their ranks. Why not get those folks lined up to put together a club entry for these events? Clubs can enter as many stations as they like towards an overall team score - so the more people which a club can get on for as many sessions as possible, the higher the score. It's that simple!

OTHER CLUB EVENTS

One of the most enjoyable aspects of contesting is often when you take part as a team. The Club Championships are one great option around which clubs can bring together a team, but there are plenty of others. Some of the best are the Affiliated Society contests on 80m (CW and SSB) in January, 70cm in February and 2m in December - these let clubs form teams of up to three or five stations (depending on the event) whose individual efforts all count to an overall club total.

As the weather gets better, however, thoughts turn to fresh air, and the Field Day contests are great opportunities to get club members (and often their families as well) out in the country for the weekend. Depending on how seriously you take it, casual operating can be combined with serious BBQing - or the other way around! Even where people aren't that interested in operating, there's always a need for lots of pairs of hands to help put the antennas and tents. together. HF CW NFD is in June, the all-mode VHF event in July, and HF SSB in September. All have sections to suit both the 'big gun' contest groups and smaller clubs looking to put together smaller stations.

WHAT HAPPENS TO YOUR ENTRIES WHEN WE RECEIVE THEM?

It's often a bit of a mystery to entrants as to what happens to your entries when we run them through the adjudication process. The first stage is to get all the entries into one of the standard electronic formats which our adjudication software can handle. We may also receive copies of entries from outside the UK, via other national societies, to add to the database. Once completed, the software can then run an automatic pass through all the logs. At VHF (and the HF process is similar) this cross checks callsigns, reports, serial numbers, locators, multipliers and any other information exchanged. It also scores all the logs according to a common algorithm. From consensus information in those logs which we do have, it also creates 'virtual logs'

An SSB Field Day scene: members of the Scarborough ARS, G4BP/P, at Wykeham Lakes on the Lord Downe estate. L to r: M3BYD, M3CNH, G4VDH, G0KFG and G0TOS.

for stations who were active, but from whom we haven't received logs.

After creating this complete database of activity during the contest the software then runs through and marks which QSOs it thinks are 'broken' and which it thinks are good. However, a great help as it is, it's not good enough for us simply to leave it all to the computer, and the adjudicator will manually trudge through all of the QSOs marked as bad and verify whether they are *actually* good, bad, or unknown.

After all this has been completed, the software will then re-score all the entries and create a final results table.

This all sounds really straightforward, but in reality there is still a lot of time consuming work in this process. One major issue is that we have to get your logs into electronic form one way or another. Sending them to us electronically, rather than having us type them up ourselves is obviously better! There is a tremendously wide variety of software available for logging, but one of the most popular packages (due to its very simple user interface) has recently moved from being a paid-for program to being a freeware program: *SD* (and its variants, including the VHF version *SDV*) by Paul O'Kane, EI5DI. This is a generous move by the author, and gives entrants another option for a free logging package, along with those such as *LOG* by G0GJV and *TACLOG* by OZ2M at VHF, and *CT* by K1EA & *N1MM* at HF.

Don't forget that if you don't fancy diving straight into the deep end and using logging software during the contest, you can always use it *after* the event. It's pretty quick and easy to use the computer after the event to type up your entry, and, if you have e-mail, just to drop it in the e-mail rather than having to traipse off to the post office. After you get used to using the computer off-line, you may like to dip your toe in the water and start to try using it *during* the contest. It really can make life that much easier: none of the pain of paperwork after the event any more, just click and go!

Even when we *do* get the logs electronically, a significant amount of time in the adjudication process is simply associated with getting a small percentage of non-standard computer logs into a format that we can use. Please do look at the rules and submit you log in one of our preferred formats and with a filename containing your callsign, eg G4PIQ-P.LOG. We can take the standard log files from any of the normal logging packages, along with a number of other standard formats. What really does give us a headache, though, are Excel spreadsheets and print files because these take quite a lot of manipulation to get into a standard format.

CHANGES TO THE VHF CALENDAR FOR 2005

There has only been a handful of changes to the RSGB VHF contest rules for 2005. The full calendar appears on page 22. In the 2m and 70cm AFS contests, portable entrants will count to club scores, just as they have always done in the 80m events. A few events where activity is not so high have had their durations shortened to finish at more sociable hours, while others which haven't attracted a high number of single operator portable entries have had their sections consolidated into single operator fixed and everyone else.

Finally, there's a subtle change to the details of our 1 point/km scoring system so that it now lines up with standard European practice of using commenced kilometres. This means that you now score 1 point for each kilometre or part kilometre of a QSO as opposed to every complete kilometre.

SIGNAL QUALITY

Unfortunately, we are seeing a definite increase in the number of bad signal complaints received. This could be the subject of a much longer article, but it's worth us bringing out a few key points here. Firstly, all transmitters generate spurious signals, all receivers are subject to overload, and because of high antenna gains and low noise levels, these effects can show up at remarkably long distances at VHF. The difference between good and bad radios is vast, and spending lots of money, or having the newest rigs is not a guarantee of performance. A well-sited large - but legal - portable 2m station can easily overload an off-the-shelf receiv-

PHOTO: HILARY CLAYTONSMITH, G4JKS.

Members of the De Montfort University ARS - and family - collect their trophy for winning the Restricted Section of the 2003 VHF National Field Day.

MICROWAVE CONTESTS

The full contest programme and rules are published in the January 2005 issue of the Microwave Newsletter and are also available on G3PHO's website on the Internet (see 'Web search').

The calendar is very similar to 2004, with the same format for the combined 5.7GHz and 10GHz cumulatives, and the combined 1.3GHz / 2.3GHz / 3.4GHz events. These have encouraged a lot of new activity on these bands, since their introduction in 2003.

On the higher bands, 24GHz is combined with 47GHz, as per 2004. Often the same dish is used for both bands, and 24GHz is often used to align this dish before a 47GHz contact is attempted, so that a number of operators expressed the wish that it be continued. 76GHz is not included as an event in the calendar - operation on this band tends to be more individual tests, arranged to suit the weather and individual operators, rather than a specific contest date.

In planning the year's contests we have tried to avoid clashes and adjacent weekends with major VHF contests and events such as rallies and microwave meetings but, inevitably, this has not been possible in all cases.

Microwavers in Europe are most welcome to join in our UK contests. There is already a core of French, Dutch and Belgian stations who appear regularly in our summer contests. We would like many more to do the same!

Steve Davies, G4KNZ

MICROWAVE CONTEST CALENDAR 2005

Dates	Time UTC	Contest name	Sections
23 Jan	0900 - 2100	All-band Activity Day	Non competitive
20 Feb	0900 - 2100	All-band Activity Day	Non competitive
20 Mar	0900 - 2100	All-band Activity Day	Non competitive
24 Apr	0900 - 2100	1.3GHz/2.3GHz/3.4GHz	Open
7 May	1400 - 2200	10GHz Trophy	See VHFCC Rules
22 May	0900 - 2100	1st 5.7GHz Cumulative	Open
22 May	0900 - 2100	1st 10GHz Cumulative	Open, Restricted
5 Jun	0900 - 2100	1.3GHz/2.3GHz/3.4GHz	Open
19 Jun	0900 - 2100	2nd 5.7GHz Cumulative	Open
19 Jun	0900 - 2100	2nd 10GHz Cumulative	Open, Restricted
10 Jul	0900 - 2100	1st 24GHz Cumulative	Open
10 Jul	0900 - 2100	1st 47GHz Cumulative	Open
24 Jul	0900 - 2100	3rd 5.7GHz Cumulative	Open
24 Jul	0900 - 2100	3rd 10GHz Cumulative	Open, Restricted
7 Aug	0900 - 2100	2nd 24GHz Cumulative	Open
7 Aug	0900 - 2100	2nd 47GHz Cumulative	Open
21 Aug	0900 - 2100	4th 5.7GHz Cumulative	Open
21 Aug	0900 - 2100	4th 10GHz Cumulative	Open, Restricted
4 Sep	0900 - 2100	3rd 24GHz Cumulative	Open
4 Sep	0900 - 2100	3rd 47GHz Cumulative	Open
18 Sep	0900 - 2100	5th 5.7GHz Cumulative	Open
18 Sep	0900 - 2100	5th 10GHz Cumulative	Open, Restricted
2 Oct	0900 - 2100	4th 24GHz Cumulative	Open
2 Oct	0900 - 2100	4th 47GHz Cumulative	Open
23 Oct	0900 - 2100	6th 5.7GHz Cumulative	Open
23 Oct	0900 - 2100	6th 10GHz Cumulative	Open, Restricted
20 Nov	0900 - 2100	1.3GHz/2.3GHz/3.4GHz	Open
18 Dec	0900 - 2100	All-band Activity Day	Non competitive

er even at 100km.

If you are having problems with a signal appearing wide, firstly make sure your noise blanker is turned off - these can often make a signal appear wide. Then switch off your pre-amp and see if the problem remains. Also try moving your antenna away from the station to get the signal to a level where your S-meter is not on the end stop (down to around a true S9+30dB is a reasonable level) and if the splatter drops more quickly than the wanted signal then the problem is in your receiver. If you are still convinced that the transmitting station has a problem, then let them know.

If you receive a complaint, firstly you must note it in your log. Check that your station is working correctly. Try making changes - turn drive levels down, check amplifier tuning, check your antenna SWR. The last point is well worth doing since you can suddenly discover a bad connection in your antenna system which is arcing. Try different equipment if you have it available.

You can't expect to drive transistor amplifiers to their full rated output and remain clean; many are not great at more than 50% of their rated power. Valve amplifiers must be adjusted correctly - watch those meters, especially grid current. On generators, many valve amplifiers can't deliver anything close to the same power that they can at home.

Contrary to popular belief, neither high power nor speech processing automatically mean that signals will be dirty. A properly engineered station running 400W can cause much less disruption than a badly put-together 25W one. Test the equipment beforehand in the actual configuration that it will be used in the contest - don't just throw it together on the day and hope!

NEW HF TROPHIES

IOTA Contest

2004 has seen the introduction of a large number of new trophies and plaques to the IOTA Contest with over 30 trophies covering a variety of the categories in the contest, many of them ideal for winning from the UK. In particular we now have a range of non-returnable plaques. The RSGB is grateful to the trophy sponsors / donors for their support. In addition to this we now have a listing of the IOTA Contest record scores. So go and visit the HFCC website and browse the records and you may find some that you think you could do better yourself and grab the record!

The Commonwealth Contest

The HFCC is very pleased to announce a new trophy for the

A great club event: G3IZD/P during HF National Field Day.

Commonwealth Contest. The new trophy, to be called the John Dunnington Trophy, will be awarded each year to the highest-placed UK station who used 100 watts and single element antennas. The trophy is to encourage those with modest stations to enter this contest. Each year 500 - 600 UK stations seize the opportunity to work some good DX. This new trophy is to encourage those with modest stations to make an entry. To encourage participation further, winners of the trophy will not be eligible to win it again for three years (they will be awarded a certificate, however). Don't forget also that there are attractive BERU certificates that can be claimed by all those working more than 68 Commonwealth Band Call Areas in the 2005 contest. The full rules and further information on the contest can be found through the HFCC website. Mark your diary now and see you on 12 and 13 March 2005 in the contest.

INTERNATIONAL CONTESTS

Promoting UK participation in international contests is one area that the RSGB wishes to expand. It has not gone unnoticed that in major international events such as CQWW and WPX a large number of UK calls are recorded in contestants' logs. However, only a very small proportion of these callsigns are to be seen in the results listings.

CQ magazine runs the major C*Q World Wide* (CQWW) and *World Prefix* (WPX) contests annually on CW, SSB and RTTY. Each is a full weekend (48 hours) long on each mode and literally thousands of amateurs enter. CQWW usually provides great opportunities to work rare countries, often activated by DXpeditions who go there specifically to operate in the contests. In the WPX contests, scoring is by multipliers for each prefix, rather than country, which is great for holders of some of the more unusual UK prefixes!

In February and March, the Amateur Radio Relay League (ARRL) organises major DX contests on CW and SSB, where the rest of the world works the 48 mainland US states plus Canadian provinces on all six contest bands from 160 to 10m. The UK is quite well placed to compete in these contests due to its geographical location on the western side of Europe, and it's great fun running big strings of North American stations. Also, it is possible to erect very competitive antennas for these contests as the complexity of rotating beams on towers is not required.

The International Amateur Radio Union (IARU) runs a major event on all the HF bands on the second full weekend in July. The RSGB Headquarters station GB5HQ is one of several stations around the world representing a country's national society. All such stations count as additional multipliers.

In the WAE DX Contests, Europe works the rest of the world and extra points can be earned by DX stations sending back to Europeans details of their previous QSOs (called QTCs). The rules are fairly complicated and anyone intending to enter should obtain a copy on-line or from the German national society (DARC) which organises the events. The CW event is held in mid-August, SSB in mid-September and the RTTY event in mid-November.

While the competition to win outright in these events is very tough, if you have a modest station there are still great opportunities to win awards, and indeed set new records, for being the leading entrant in your country in a particular category - and there is often a wide variety of categories. For example, leading Scottish station, 20m Low Power. Check the individual rules for details. ♦

RSGB HF CONTEST CALENDAR 2005

Month	Time (UTC)	Contest	
January	2000-2130	80m Club Championship	3rd - CW; 12th - SSB; 20th - Data
9 Jan	1400-1800	AFS CW	3510-3590kHz, RST+serial
15 Jan	1400-1800	AFS SSB	3600-3750kHz, RS+serial
February	2000-2130	80m Club Championship	7th - SSB; 16th - Data; 24th - CW
12/13 Feb	2100-0100	1st 1.8MHz	1820-1870kHz, RST+serial+district
March	2000-2130	80m Club Championship	7th - Data; 16th - CW; 24th - SSB
12/13 Mar	1200-1200	Commonwealth	3.5-28MHz, RST+serial
April	2000-2130	80m Club Championship	4th - CW; 13th - SSB; 21st - Data
3 Apr	0700-0900	RoPoCo 1	3520-3570kHz, RST+postcode received
May	2000-2130	80m Club Championship	2nd - SSB; 11th - Data; 19th - CW
June	2000-2130	80m Club Championship	6th - Data; 15th - CW; 23rd - SSB
4/5 Jun	1500-1500	National Field Day	1.8-28MHz, RST+serial
July	2000-2130	80m Club Championship	4th - CW; 13th - SSB; 21st - Data
17 Jul	0900-1200; 1300-1600	Low Power Field Day	3510-3580;7000-7040kHz, RST+serial+power
30/31 Jul	1200-1200	IOTA	3.5-28MHz, RS(T)+serial+IOTA reference
7 Aug	0700-0900	RoPoCo 2	3520-3570kHz, RST+postcode received
3/4Sept	1300-1300	SSB Field Day	3.5-28MHz, RS+serial
2 Oct*	0700-1900	21/28MHz SSB	21150-21350; 28400-29000kHz, RS+serial+district
16 Oct*	0700-1900	21/28MHz CW	21000-21150; 28000-28100kHz, RST+serial+district
12 Nov	2000-2300	Club Calls	1870-1990kHz, RS+serial+club info
19/20 Nov	2100-0100	2nd 1.8MHz	1820-1870kHz, RST+serial+district

* = Provisional dates, subject to possible change

WEB SEARCH

RSGB HF Contests Committee:	www.rsgbhfcc.org
RSGB VHF Contests Committee:	www.blacksheep.org/vhfcc
UK Microwave contests:	www.g3pho.free-online.co.uk
Major contest sponsors:	
ARRL Contests:	www.arrl.org/contests
CQWW Contests:	www.cqww.com
WPX Contests:	http://home.woh.rr.com/wpx
Worked All Europe DX Contest:	www.waedc.de
IARU HF Championship:	www.iaru.org/contest.html
EU Sprint:	www.qsl.net/eusprint
General contesting information:	
Contesting.com:	www.contesting.com
UK-Contest e-mail reflector:	http://lists.contesting.com/mailman/listinfo/uk-contest
Contest logging software:	
SD (freeware):	www.ei5di.com
CT (freeware):	www.k1ea.com
G0GJV (VHF freeware):	www.mjgoodey.connectfree.co.uk/VHFLog.htm
TACLOG (VHF freeware):	http://rudius.net/oz2m/taclog
N1MM (freeware):	http://pages.cthome.net/n1mm
TR Log:	www.trlog.com
Writelog:	www.writelog.com

RSGB VHF/UHF CONTESTS CALENDAR 2005

Date	Time	Contest Name	Sections	Notes/Special Rules
4 Jan	2000-2230	144MHz UK Activity Contest & Club Championship	SF,O	M2, S1, S8, S9
11 Jan	2000-2230	432MHz UK Activity Contest	SF,O	M2, S8
16 Jan	1000-1200	70MHz Cumulative Contest #1	SF,O	S2, S5
18 Jan	2000-2230	1.3/2.3GHz UK Activity Contest	SF,O	M2, S8
25 Jan	2000-2230	50MHz Activity Contest	SF,O	M2, S1, S8
30 Jan	1000-1200	70MHz Cumulative Contest #2	SF,O	S2, S5
1 Feb	2000-2230	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
6 Feb	0900-1300	432MHz Affiliated Soc. Contest	SF,O	S3
8 Feb	2000-2230	432MHz UKAC	SF,O	M2, S8
13 Feb	1000-1200	70MHz Cumulative Contest #3	SF,O	S2, S5
15 Feb	2000-2230	1.3/2.3GHz UKAC	SF,O	M2, S8
22 Feb	2000-2230	50MHz UKAC	SF,O	M2, S1, S8
27 Feb	1000-1200	70MHz Cumulative Contest #4	SF,O	S2, S5
1 Mar	2000-2230	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
5/6 Mar	1400-1400	**March 144/432MHz**	SF,SO,M,6S,6O	
8 Mar	2000-2230	432MHz UKAC	SF,O	M2, S8
13 Mar	1000-1200	70MHz Cumulative Contest #5	SF,O	S2, S5
15 Mar	2000-2230	1.3/2.3GHz UKAC	SF,O	M2, S8
22 Mar	2000-2230	50MHz UKAC	SF,O	M2, S1, S8
29 Mar	2000-2230	70MHz UK Activity Contest	SF,O	M2, S1, S8
5 Apr	1900-2130	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
10 Apr	0900-1200	First 70MHz Contest	SF,O	S2
12 Apr	1900-2130	432MHz UKAC	SF,O	M2, S8
19 Apr	1900-2130	1.3/2.3GHz UKAC	SF,O	M2, S8
24 Apr	0900-1200	First 50MHz Contest	SF,O	M3
26 Apr	1900-2130	50MHz UKAC	SF,O	M2, S1, S8
3 May	1900-2130	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
7/8 May	1400-1400	432MHz-248GHz Contest	SF,O	
7 May	1400-2200	**432MHz Trophy Contest**	SF,O	S6
7 May	1400-2200	10GHz Trophy Contest	O	M4, S6
10 May	1900-2130	432MHz UKAC	SF,O	M2, S8
15 May	0900-1200	70MHz CW Contest	SF,O	M1, S2
17 May	1900-2130	1/3/2.3GHz Contest	SF,O	M2, S8
21/22 May	1400-1400	**144MHz May Contest**	SF,SO,M,6S,6O	M1
22 May	1100-1500	144MHz Backpackers Contest #1	See Separate	Backpackers Rules, M3
24 May	1900-2130	50MHz UKAC	SF,O	M2, S1, S8
31 May	1900-2130	70MHz UKAC	SF,O	M2, S1, S8
7 June	1900-2130	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
12 June	0900-1300	144MHz Backpackers Contest #2	See Separate	Backpackers Rules, M4
14 June	1900-2130	432MHz UKAC	SF,O	M2, S8
18/19 June	1400-1400	**50MHz Trophy Contest**	SF,SO,M,6S,6O	M4, S7
19 June	1100-1500	50MHz Backpackers Contest #1	See Separate	Backpackers Rules, M4
21 June	1900-2130	1.3/2.3GHz UKAC	SF,O	M2, S8
28 June	1900-2130	50MHz UKAC	SF,O	M2, S1, S8
2/3 July	1400-1400	VHF National Field Day	See Separate	VHF NFD Rules
3 July	1100-1500	144MHz Backpackers Contest #3	See Separate	Backpackers Rules, M4
5 July	1900-2130	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
10 July	1100-1500	50MHz Backpackers Contest #2	See Separate	Backpackers Rules, M3
12 July	1900-2130	432MHz UKAC	SF,O	M2, S8
17 July	1100-1500	144MHz Backpackers Contest #4	See Separate	Backpackers Rules, M3
19 July	1900-2130	1.3/2.3GHz UKAC	SF,O	M2, S8
26 July	1900-2130	50MHz UKAC	SF,O	M2, S1, S8
2 Aug	1900-2130	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
6 Aug	1400-2000	**144MHz Low Power Contest**	SF,SO,M	25W max. transmit o/p power, M3
7 Aug	0800-1200	**432MHz Low Power Contest**	SF,SO,M	25W max. transmit o/p power, M3
9 Aug	1900-2130	432MHz UKAC	SF,O	M2, S8
16 Aug	1900-2130	1.3/2.3GHz UKAC	SF,O	M2,S8
21 Aug	0900-1500	**70MHz Trophy Contest**	SF,SO,M	M1
23 Aug	1900-2130	50MHz UKAC	SF,O	M2, S1, S8
30 Aug	1900-2130	70MHz UKAC	SF,O	M2, S1, S8
3/4 Sept	1400-1400	**144MHz Trophy Contest**	SF,SO,M,6S,6O	IARU co-ordinated S7
4 Sept	1100-1500	144MHz Backpackers Contest #5	See Separate	Backpackers Rules, M4
6 Sept	1900-2130	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
13 Sept	1900-2130	432MHz UKAC	SF,O	M2, S8
18 Sept	0900-1200	Second 70MHz Contest	SF,O	S2
20 Sept	1900-2130	1.3/2.3GHz UKAC	SF,O	M2, S8
27 Sept	1900-2130	50MHz UKAC	SF,O	M2, S1, S8
1/2 Oct	1400-1400	432MHz-248GHz IARU	SF,O	IARU co-ordinated S7
1 Oct	1400-2200	**1.3GHz Trophy & 2.3GHz Trophy**	SF,O	S6
4 Oct	1900-2130	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
11 Oct	1900-2130	432MHz UKAC	SF,O	M2, S8
16 Oct	0900-1200	Second 50MHz Contest	SF,O	M3
18 Oct	1900-2130	1.3/2.3GHz UKAC	SF,O	M2, S8
25 Oct	1900-2130	50MHz UKAC	SF,O	M2, S1, S8
1 Nov	2000-2230	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
5/6 Nov	1400-1400	144MHz CW Marconi	SF,O,6S,6O	
8 Nov	2000-2230	432MHz UKAC	SF,O	M2, S8
15 Nov	2000-2230	1.3/2.3GHz UKAC	SF,O	M2, S8
22 Nov	2000-2230	50MHz UKAC	SF,O	M2, S1, S8
29 Nov	2000-2230	70MHz UKAC	SF,O	M2, S1, S8
4 Dec	0900-1700	144MHz Affiliated Soc Contest	SF,O	S3
6 Dec	2000-2230	144MHz UKAC & CC	SF,O	M2, S1, S8, S9
13 Dec	2000-2230	432MHz UKAC	SF,O	M2, S8
20 Dec	2000-2230	1.3/2.3GHz UKAC	SF,O	M2, S8
26-29 Dec	1400-1600 on each day	50/70/144/432MHz Christmas Cumulatives	SF,O	M4 (on each band on each day independently), S1, S5
27 Dec	2000-2230	50MHz UKAC	SF,O	M2, S1, S8

Key to sections: O - Open; M - Multi operator; SF - Single operator Fixed; SO - Single operator Others; 6S - Six hour Single operator fixed; 6O - Six hour Others.
Key to multipliers: M1 - country & postcode; M2 - locator; M3 - postcode, country & locator; M4 - country & locator.
Key to Special Rules: S1 - scored at 1pt/km; S2 - QTH info to be exchanged; S3 - AFS rules apply; S4 - concurrent with Backpackers; S5 - Cumulatives rules apply; S6 - concurrent with start of 24hr event; S7 - concurrent with IARU contest; S8 - Activity contest rules apply; S9 - Qualifies towards Club Championship.
All times are UTC. Contests qualifying towards the VHF Championship are identified in **bold**. See the RSGB VHFCC website for full rules and any updates.

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Alinco DJ-C7 dual-band pocket-sized hand-held

In the same way that mobile phones are getting smaller and smaller and possessing more and more features, so too are hand-helds. Chris Lorek looks at a tiny new dual-band hand-held with wide-band receive and plenty of 'bells and whistles'.

Hardly larger than a credit card sized calculator, this incredibly thin radio is not only a true dual-band 2m / 70cm transceiver, but also a wide-band receiver, including VHF airband on AM, broadcast Band II on wideband FM, and plenty more across 108 - 174 MHz and 380 - 512MHz in five switched bands. Measuring 58W x 96H x 14.5Dmm and weighing just 102g, it's a very handy size to slip into your shirt pocket with hardly a bulge.

Such a small size naturally comes with some limitations. For example, the speaker is a small size with a limit to its audio output power capability, and the transmit power output of 300mW is of course lower than the more usual 4 or 5W of much larger hand-held transceivers, like the complementary Alinco DJ-596 dual-bander. But plug in an external 6V power supply and the power output increases to 500mW for home or mobile use.

POWER

A very compact 3.7V 600mAh rechargeable lithium-ion battery pack clips on to the transceiver, and a plug-in wall charger is supplied for recharging, with a charge time of two hours. The AC charger is fitted with a two-pin side-mounted 'Euro' plug, with a UK clamp-on adapter supplied; using this means that you'll need to use either a single AC outlet socket or the left-hand side socket of a bank. A handy feature is that when plugged into the DJ-C7, a red LED on the set shows that charging in being carried out, and this turns green when charging is complete.

ANTENNA

A compact multi-band set-top antenna screws into the set-top SMA coax socket; this also lets you plug in external antennas, via a suitable adapter, when the need arises. If you're using an optional earphone for VHF broadcast Band II listening, this can also act as a receive antenna, an antenna socket cap is supplied with the set to keep dust and water out for when you're using the earphone in this way.Optional accessories include a speaker microphone, earphone microphone, earphone, soft carry case, cigarette lighter DC cable, additional battery pack, and an additional battery charger.

CHANNELS AND FREQUENCIES

Despite its tiny size, there's an incredible 200 memory channels available for you to store your favourite frequencies, combined with tuning steps of 5, 6.25, 8.33, 10, 12.5, 15, 20, 25, 30, 50, 100, 125 and 200kHz. The inclusion of 8.33kHz for the new VHF airband channels steps will be of interest to aircraft enthusiasts, and 6.25kHz steps affords tuning to 'offsets' as used by a number of public private mobile radio services including PMR-446.

ON THE AIR

As well as using the set around my local area in the south and south west of England, I took the set with me on a tour of Scotland's highlands, as well as on business trips to mainland Europe including Denmark and Switzerland, which also gave me a chance for some airband listening whilst at the overseas airports (remember, airband listening is still technically illegal in the UK unless you've the appropriate authority). Hence it received a good test! The set's tiny size and low weight, typically weighing less than a cellphone as well as being thinner, lent nicely to it being carried around in my top pocket. Although I didn't test it, I'm sure the optional earpiece microphone would be very useful in this mode of carrying the set.

The top panel click-step rotary knob normally acts as a frequency / channel control, a quick press downwards on this changes it to a 30-step volume control, a further press allowing you to alter the squelch in nine steps, and in all cases after a few seconds the control automatically reverts back to channel change. Further push-buttons on the front panel select other modes such as VFO / Memory and so on, a 'set' mode also allows prestoring less-altered functions such as Auto Power Off etc.

The tiny antenna seemed remarkably good at pulling in distant signals, and bearing in mind the 300mW transmit power level I managed to have a number of contacts when suitably 'close in' to higher-powered stations. The transceiver has full CTCSS encode and decode (ie tone squelch) facility as well as a 1750Hz tone burst for repeater

access. This can also be set to 1000, 1450Hz, and 2100Hz tone burst frequency should you need it. An automatic repeater offset can be programmed, including automatic CTCSS encode should you wish, as well as split frequency operation.

AUDIO

On transmit, I found audio reports very satisfactory on 70cm, although the 5kHz deviation on 2m meant that I needed to keep the set a bit further away from my mouth to avoid my signal 'clipping out' of most repeaters' squelch systems on my speech peaks. Even so, my audio was still described as very clear. However, a quick look inside shows two clearly-labelled tiny potentiometers, 'VHF' and 'UHF' for deviation adjustment, a quick tweak of the 2m one would be what I would have done if I had owned the rig! I found the maximum available audio from the speaker to be a little on the 'quiet' side for use outdoors, here I normally had to hold the set near to my ear to be able to listen to incoming signals, although use indoors was no problem. Again, I feel an earphone would be a handy addition for outdoors 'hands free' monitoring.

I appreciated the wide-band receive capability, which incidentally also helped me in engineering tests abroad, with AM airband reception an added bonus for whiling away some hours in my leisure time. A handy 'Priority Scan' could also automatically briefly check a different frequency every few seconds. Accompanied by the Band II reception, the little set also acted as a travel-friendly broadcast band radio for me, and switching on the built-in 'Auto Power Off' function also let me use it as a 'fall asleep' radio at night.

SEARCHING

To find new signals, the set has a full VFO scan and a useful program scan (which scans between two preset frequencies), and writing frequencies into a memory channel was a simple two-button push operation, the set automatically showing you which memory channels are free as you rotate the top dial to switch between the channels. Besides a frequency scan, the DJ-C7 also has a CTCSS 'Tone Scan', where on a given channel it could search for and find which, if any, CTCSS tone was being used. I found this very handy when I needed to set my CTCSS encode to the same frequency as being used on a channel. Memory channels can of course also be scanned across, although when scanning both VHF (eg 2m) and UHF (eg 70cm) channels I found that I had to set the squelch higher on UHF, to a level of around 6 or 7 which coincided with the squelch threshold, rather than level 1 which was the threshold on VHF. Even so, this still allowed me to receive weak but readable signals on 2m rather than just very strong ones.

The small internal battery always gave me many hours of operation before a recharge was needed, and a selectable 'battery save' could be switched in on receive to extend the battery life even more when monitoring a normally quiet channel. It was whilst watching a superb firework display one night by a lakeside that I found one limitation, that of no backlight to let me see what I was tuned to or what the set was doing as I pressed various buttons in the dark. But I suppose this is a minor limitation on such a tiny set.

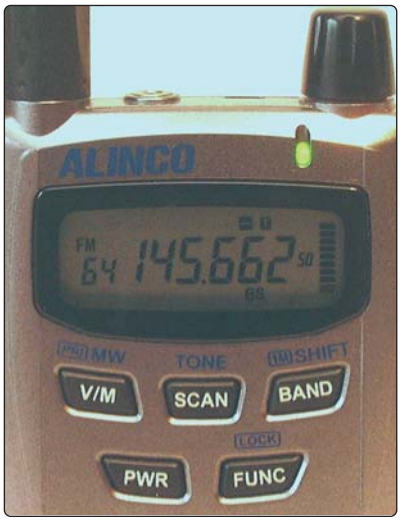
Back at home, plugging in a rooftop collinear showed the receiver was reasonably tolerant in rejecting the many other strong signals around on the band, and although I sometimes had the odd problem on 12.5kHz-separated signals I feel it would lend itself quite nicely to occasional use in this mode when needed.

CONCLUSION

A tiny yet superb 2m / 70cm dual-band transceiver, with the added bonus of wide-band receive including VHF airband and Band II wide-band FM for broadcast reception. Its thin casing slips into a top pocket very easily, and the simple-to-use operating controls will I'm sure appeal to amateurs who want a handy 'second rig' to carry around.

The DJ-C7 is currently priced at £149, and our thanks go to Nevada, Unit 1, Fitzherbert Spur, Farlington, Portsmouth PO6 1TT, tel: 023 9231 3090, for the loan of the review transceiver.

Editor's note: Nevada points out that the DJ-C7 does not come supplied with wide-band receive. This is an optional user modification requiring the removal of an internal wire link. ♦



LABORATORY RESULTS

Receiver measurement methods:
Sensitivity: Input signal level required to give 12dB SINAD.
Squelch Sensitivity: Level of signal required to raise receiver squelch.
Adjacent Channel Selectivity and Blocking: 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.
Intermodulation Rejection: Increase over 12dB SINAD level of two interfering signals giving identical 12dB SINAD on-channel 3rd order intermodulation product.
Image Rejection: Difference in level between unwanted and wanted IF image signal levels, each giving 12dB SINAD on-channel signals.
All measurements taken using fully charged battery as supplied.

RECEIVER	145MHz	433MH
Sensitivity (µV pd)	0.26	0.28
Squelch Level Min (µV pd)	0.11	0.17
Squelch Level Min (dB SINAD)	3.5	2
Squelch Level Max (µV pd)	0.25	0.47
Squelch Level Max (dB SINAD)	16	17
Adjacent Chan Rejection +12.5kHz (dB)	23.6	18.5
Adjacent Chan Rejection -12.5kHz (dB)	21.7	22
Adjacent Chan Rejection +25kHz (dB)	50.6	44.5
Adjacent Chan Rejection -25kHz (dB)	47.5	46.6
Blocking Rejection 100kHz spacing (dB)	68.9	59.2
Blocking Rejection 1 MHz spacing (dB)	86.5	81.5
Blocking Rejection 10 MHz spacing (dB)	88.9	87.4
Intermodulation Rejection 25kHz spacing (dB)	64	68.7
Intermodulation Rejection 50kHz spacing (dB)	60.1	65.4
Image Rejection 1st IF (dB)	87	49.4
Image Rejection 2nd IF (dB)	75.9	79.6
Image Rejection half 1st IF (dB)	74	40.3
Maximum Audio Output (mW)	93	93
S Meter Level 1st indication (µV pd)	Sq Open	Sq open
S Meter Level 1st indication (Relative Level dB)	n/a	n/a
S Meter Level 2nd indication (µV pd)	0.4	0.45
S Meter Level 2nd indication (Relative Level dB)	0dB ref	0dB ref
S Meter Level 3rd indication (µV pd)	0.49	0.55
S Meter Level 3rd indication (Relative Level dB)	1.7	2
S Meter Level 4th indication (µV pd)	0.6	0.7
S Meter Level 4th indication (Relative Level dB)	3.5	3.9
S Meter Level 5th indication (µV pd)	0.71	0.86
S Meter Level 5th indication (Relative Level dB)	5	5.7
S Meter Level 6th indication (µV pd)	0.9	1.03
S Meter Level 6th indication (Relative Level dB)	7	7.2
S Meter Level 7th Indication (µV pd)	1.14	1.19
S Meter Level 7th Indication (Relative Level dB)	9	8.5
S Meter Level 8th Indication (µV pd)	1.45	1.42
S Meter Level 8th Indication (Relative Level dB)	11.1	10
S Meter Level 9th Indication (µV pd	1.97	2.07
S Meter Level 9th Indication (Relative Level dB	13.8	13.3
TRANSMITTER		
Power	0.30W	0.30W
Deviation (kHz)	4.89	4.29
1750Hz deviation (kHz)	3.13	3.04
2nd harmonic level (dBc)	-64	-63
3rd harmonic level (dBc)	-61	-61
4th harmonic level (dBc)	-58	-72
5th harmonic level (dBc)	<-80	-
6th harmonic level (dBc)	<-80	-
7th harmonic level (dBc)	<-80	-

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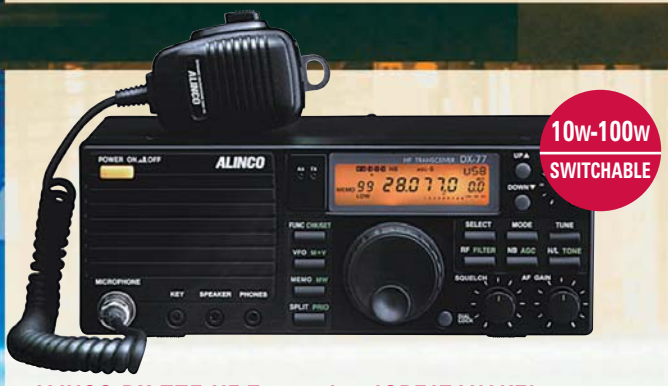

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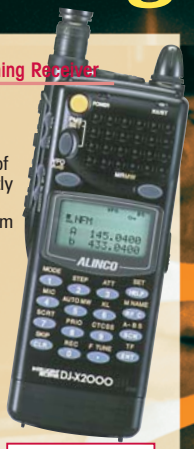

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A new kit designed to automate the switching of antennas, band-pass filters and other accessories from the transceiver's band-data output is reviewed by Fraser Robertson.

Elecraft KRC2 band decoder kit

The Elecraft KRC2 is a band decoder that can be used with HF rigs from Icom, Kenwood and Yaesu, as well as, of course, Elecraft's K2 transceiver. Its main purpose is to switch aerials, filters, amplifiers or other equipment automatically, tracking the band selected on the radio. This makes for instant band changes and so greater operating convenience, especially useful in contests. The KRC2 is only available in kit form. Optionally the KRC2-ACC version adds accessibility features when used with the K2, announcing rig function changes in Morse code.

There are 32 outputs, 16 sink and 16 source, each of which is RF decoupled and can switch up to 500mA at 50V. All HF bands are decoded, including the WARC bands and 60m, as well as three accessory and three transverter outputs. Analogue, digital (BCD) and RS232 inputs are provided, depending on which radio is used. The digital input can also be used with some logging programs if the radio does not provide band data output. The KRC2 measures 14 x 9 x 3cm.

ASSEMBLY

The kit arrives in a box measuring 26 x 21 x 6.5cm. The manual is very comprehensive and includes step-by-step assembly instructions, with tick boxes for each process. Elecraft says it is suitable for first-time kit builders, but good soldering skills are essential. No surface mount components are used, but some of the components are very small, and use of a magnifying glass is recommended. I used a digital multimeter with LCR functions to check the value of each component before fitting it.

There are over 110 components to be mounted on the PCB and the board size is kept down by clever design; mounting components on both sides. All ICs are soldered in except for the 40-pin programmed microcontroller. No problems were encountered, but following the instructions to the letter is most important. All components including the connectors, push buttons and status LED are PCB mounted so there is no wiring required, except for the rig interface cable (connectors and screened cable are provided). Populating the PCB took 3.5 hours, with a further hour for mounting it into the box, testing the unit and making the interface cable. The full manual can be downloaded from Elecraft's website (see 'Web search').

ACC OPTION & K2 USE

The ACC option is only worth considering for K2 owners, and adds the capability of Morse code announcement of frequency, button presses, displays and menu items. Four levels of 'verbosity' can be selected and, as with the basic KRC2, it is possible to control various K2 functions using the four push buttons. Complete operation of

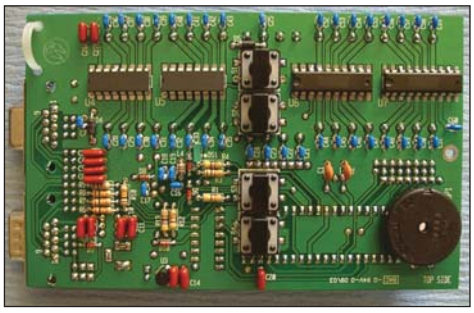
the K2 is possible without the need actually to see the rig. Combinations of short (tap) and long (hold) button presses means a wide range of functions can be selected. Even the pitch and speed of announcements can be chosen to suit the user. Because of the wide range of functions available a crib sheet will be needed for all but regularly used commands, but for basic band decoder use the push buttons aren't needed. The ACC option consists of two additional PCB mounted parts; a volume pot and small sounder, plus a different version of the firmware chip. This option can be added to the basic KRC2 later if desired. The review kit was bought with the ACC option.

Note that without the KRC2, band data is not easily derived from the basic K2 due to its use of latching relays.

IN USE

Having worked through the construction steps in the KRC2 manual I proceeded to the test stage which involves holding the F1 button repeatedly and checking that a voltage appears on each of the band source outputs in turn. Frustratingly this did not work, even though other checks around the circuit indicated that it was basically working correctly. Eventually the penny dropped: the test procedure for the ACC option was different, and included in the additional ACC manual. Elecraft say they will address this in future versions of the manual. Once I was tapping the right key combinations the unit tested out fine.

The KRC2 is highly configurable; there's a total of 23 internal jumpers. This can appear rather daunting at first. However, full instructions are given in the manual to set the jumpers for different radios. The review unit has only been used with a K2 and the set-up was very straightforward. In this case the KRC2 plugs into the K2's



Above: The top of the KRC2 PCB.
Left: The completed unit.

nine-pin serial port, and the PC, if used, is then plugged into the KRC2. Icom rigs and the Yaesu FT-817 give a voltage output that changes per band and this is fed to either of the KRC2's nine-pin connectors. BCD or serial inputs are available on these connectors too (depending on jumper settings) for Kenwood and Yaesu rigs, and for use with logging programs (PC parallel port).

Two rows of screw terminals on the PCB are used for connecting the outputs to external relays or ancillary equipment. A cut-out in the rear panel is used to route these cables. The KRC2 is powered either through the nine-way connectors, the screw terminals, or a 2.1mm barrel plug (supplied). Source voltage for driving external devices can be applied to either of the latter two.

Any of the outputs can be connected together (wire-ORed), eg the 10, 15 and 20m band outputs can be connected together to a single relay for switching in a triband beam. Likewise the 40 and 80m outputs can be used together to switch in a trap dipole for those bands. Any combination is possible. Antennas can also be manually selected via the push buttons if needed. Elecraft says that a PC-based command interface is about to be released as an alternative method of configuring the KRC2. A switch on the PCB accessible from outside enables this function.

CONCLUSION

The kit is of the usual very high Elecraft standard, both in design and production, and the finished unit is nothing less than commercial quality. It's worth checking before purchasing that your rig or logging program does provide the necessary band data. The kit is only available direct from Elecraft, and can be ordered via their website using a credit card. The KRC2 costs $159 (approx £90), or $178 for the ACC version (approx £100) ($19 to upgrade). Prices do not include postage or VAT. Import duty is not payable. ♦

WEB SEARCH	
Elecraft:	www.elecraft.com

Peter Hart, G3SJX

The Willows, Paice Lane, Medstead, Alton, Hants GU34 5PR.

E-mail: peter@g3sjx.freeserve.co.uk

Peter G3SJX

International Radio roofing filter for FT-1000MP

Can even the best transceivers be further improved? Peter Hart installs an INRAD roofing filter to his Yaesu FT-1000MP. This is what he found...

International Radio (INRAD) is a US company specialising in providing modules and filter upgrades for a wide range of transceivers. They are particularly known for their huge range of high performance IF filters for virtually every radio marketed in the last 30 years, but they also provide performance enhancement modifications and modules such as front-end filters, VOX units and keyer modules. The Yaesu FT-1000MP and its later variants is probably the most popular radio for the serious DX and contest operator and International Radio has recently made available a narrow bandwidth roofing filter module to improve the close-in dynamic range.

Most high performance radios have a respectable dynamic range when strong unwanted signals are well separated from the frequency to which the receiver is tuned. However, at closer spacings when strong adjacent channel signals fall inside the roofing filter bandwidth of the first IF, the receiver dynamic range is considerably reduced resulting in possible blocking and intermodulation effects. Such problems can occur with crowded band conditions and particularly in major contests and DX pile-ups. Most roofing filters have a bandwidth of around 20kHz which can be achieved quite cheaply and which accommodate the wider bandwidth modes such as FM. Narrow bandwidth roofing filters are now appearing in top-end radios such as the Icom IC-7800 and Yaesu FT DX 9000 (due to become available shortly) in order to give a better close-in dynamic range. However, the ultimate in adjacent channel dynamic range is still achieved in amateur band-only radios such as the Ten-Tec Orion, Omni and Corsair, which place their channel filters immediately after the first mixer and avoid the use of an up-conversion architecture.

FITTING THE FILTER

The INRAD filter module comprises a metal cased narrow bandwidth quartz filter unit for 70.455MHz and a two transistor amplifier to compensate for filter loss, all contained on a small printed circuit board measuring 63 x 40mm with a height of 18mm.

After removing the bottom cover of the transceiver, fitting the roofing filter module is straightforward. Yaesu conveniently provides a plug and socket breakpoint in the signal path between the RF and IF circuit boards at a point following the standard 70MHz roofing filter. Inserting the INRAD filter module into this cable link places both the Yaesu and INRAD filters in series. There is space on the adjacent AF board complete with mounting holes and power connections where the roofing filter board can be mounted. INRAD provides all necessary mounting brackets, screws, cables and instructions. With the FT-1000MP, the modification is purely plug-in and requires no soldering. With the Mark V or Field model, two solder links are required to apply power to the module. The overall fitting time is just a few minutes.

I found that the overall IF gain of the radio was about 8dB higher with the new filter board fitted, resulting in slightly higher S-meter readings. The gain of the radio can be reduced to give similar S-meter readings via extended menu setting 9-1 (extra menu items 9-0 to 9-9 are accessed by holding down FAST and LOCK at power-on). I set the IF gain to '9' from the default of '12' but this may vary with different filter losses in different units and is slightly at variance with the instructions.

With the bottom cover removed a small modification to the main receiver audio board is worthwhile: a 47nF capacitor clipped across C3015 located near the centre of the AF-Unit PCB reduces significantly the high frequency hiss on CW. INRAD provides a capacitor for this purpose.

MEASUREMENTS AND RESULTS

With the new filter board fitted in my FT-1000MP and the IF gain set to give similar S-meter readings, the before and after measurements shown in **Table 1** were made on 14MHz CW. 500Hz bandwidth filters were selected for both IFs to enable very close-in measurements to be made and the receiver preamp was switched out (IPO). The before and after results show a similar level of intermodulation dynamic range at frequency spacings well outside both roofing filter bandwidths. This is to be expected and represents the dynamic range of the RF front end. Similarly, at very close spacings well inside both roofing filters the results are similar and this represents the dynamic range of the second mixer. However, at frequencies offset from the operating frequency in the 3 to 10kHz region, the INRAD filter improves the dynamic range by up to 10dB.

I measured a 2dB improvement in sensitivity with the INRAD filter board fitted, possibly indicating a lower noise post filter amplifier fitted on the INRAD board.

The 2.4kHz IF bandwidth setting was narrowed very slightly by 75Hz which will make little discernible difference on SSB. The THRU/6kHz bandwidth setting was narrowed from 7000Hz to 4880Hz which will still give reasonable quality AM but is not really suitable for FM. The sub-receiver should be used for wider bandwidth AM and FM modes.

CONCLUSION

In most operating situations fitting this filter will not make much of a difference. However, those whose interests lie in contests and DXing will appreciate the improvement in close-in performance when band conditions are really crowded.

The filter module may be obtained directly from International Radio, 13620 Tyee Road, Umpqua, OR 97486, USA; e-mail: INRAD@rosenet.net at $165 plus shipping (expect also to pay a UK Customs & Excise import VAT charge). It is now available in the UK from Vine Antenna Products, Taranaki, Four Crosses, Powys SY22 6RJ; tel: 01691 831111; e-mail: info@vinecom.co.uk

I would like to thank Fred Handscombe, G4BWP, for the loan of the review module. ♦

TABLE 1

	ORIGINAL FT-1000MP		FT-1000MP + INRAD FILTER	
SIGNAL SPACING	3rd order intercept	2-tone dynamic range	3rd order intercept	2-tone dynamic range
1kHz	-25dBm	67dB	-28dBm	66dB
2kHz	-23.5dBm	68dB	-21dBm	71dB
3kHz	-14.5dBm	74dB	-7dBm	80dB
5kHz	-11.5dBm	76dB	-1dBm	84dB
7kHz	-4dBm	81dB	+8dBm	90dB
10kHz	+2dBm	85dB	+17dBm	96dB
15kHz	+14dBm	93dB	+20dBm	98dB
20kHz	+23dBm	99dB	+21dBm	99dB
25kHz	+23dBm	99dB	+22dBm	99dB
>30kHz	+24dBm	100dB	+24dBm	101dB

Table 1: Intermodulation results with two equal interfering signals.

WEB SEARCH

International Radio (INRAD):	www.qth.com/inrad
Vine Antenna Products:	www.vinecom.co.uk

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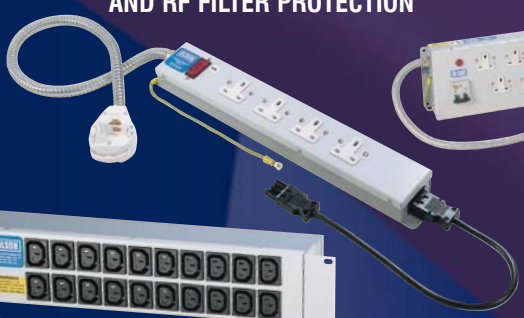

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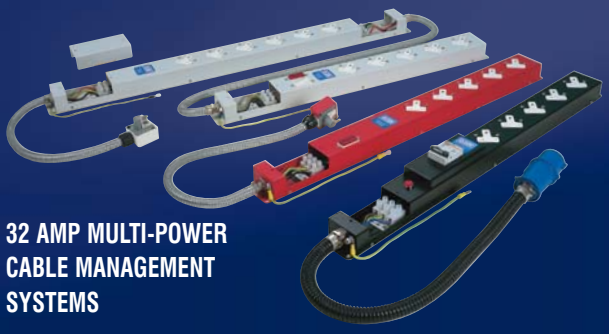

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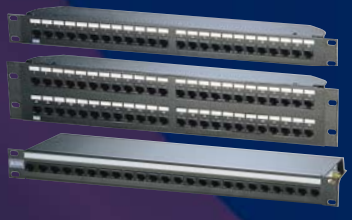

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Book review

THE MAN WHO CHANGED EVERYTHING – THE LIFE OF JAMES CLERK MAXWELL

By Basil Mahon

Reviewed by RSGB Staff

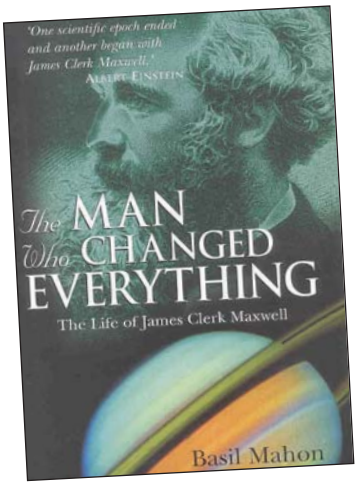
It is not often that we get to review a book on a subject that predates radio by more than 50 years. So, why should we, as radio amateurs, be concerned with a book about an ordinary Scots boy, born in Edinburgh on 13 June 1831 to ordinary Scots parents? To understand this, it is useful to recall the status of science in the 19th century. Electricity, Magnetism and Light were well-known and documented. To many scientists of the period, these phenomena seemed to be linked, but a proof of any such link had evaded discovery. It was James Clerk Maxwell who found it. He realised that every time a magnet moved, or a current changed in a wire, energy would radiate into space like the ripples on a pond. He also showed that the speed of these waves was the same as the speed of light. At a stroke, he had unified the three disciplines, and had laid the foundations for (amongst other things) the science of radio. Many of his peers thought his ideas altogether too fantastic, and another quarter-century had to elapse before Heinrich Hertz produced radio waves from a spark gap and detected them at a distance.

Maxwell's first academic paper was written at the age of 14, and its subject was the production of geometrical curves with paper, pencil and string. Although he did not know it at the time, it had already been tried by no less a personage than René Descartes, but Maxwell's approach was more general and his construction method simpler. The paper was presented for him (he was deemed to young to do it himself) at the Royal Society of Edinburgh, and represented his debut on the international scientific stage.

He was to go on to make great contributions to colour theory and perception, and was the first to appreciate additive and subtractive colour mixing. He took the world's first colour photograph, and showed, by a process of elimination and simple mathematics, that Saturn's rings were composed of individual solid particles. He also derived the first-ever statistical law in physics – the Maxwell distribution of molecular velocities.

In 1862, he wrote "We can scarcely avoid the inference [that] light consists in the transverse undulations of the same medium which is the cause of electrical and magnetic phenomena". After this, it was not long until 'Maxwell's Equations', in a form now known to all physicists, appeared.

He continued to work on the statistical theories of gases, and observation of the governor on a steam engine led him to write *On Governors*, the first mathematical analysis of control systems, covering negative feedback, stability and damping.



There are too many aspects of his life to consider in a short review. The book is highly recommended to all who want to know more about this fascinating character.

THE MAN WHO CHANGED EVERYTHING – THE LIFE OF JAMES CLERK MAXWELL

By Basil Mahon

John Wiley, 2003

226 pages, 130 x 215mm, paperback

ISBN 0-470-86171-1

Member's price £7.64 (non-members' price £8.99)

PASSPORT TO WORLD BAND RADIO - 2005 EDITION

Editor in Chief: Lawrence Magne; Editor: Tony Jones

Reviewed by RSGB Staff

If you have an HF transceiver, you probably also have a general coverage receiver. Yet many users never tune outside the amateur bands. What a waste! There is a whole lot going on outside the ham bands that can provide an additional fascinating hobby which complements amateur radio perfectly. The problem is that random tuning across the international broadcast bands can be a disappointment. There's a Babel of languages and, when you're lucky enough to find a good-quality signal in a tongue you can understand, as likely as not it will be discussing the wheat harvest in the Ukraine or the masterful works of the Dear Leader in the Democratic People's Republic of Korea. What you need is a guide - like the *Passport to World Band Radio*, for instance.

The *Passport to World Band Radio* is like a TV guide for international radio. It tells you what's on when, and on what frequency. This works in three ways. Want to tune in Radio Prague in English this evening? No problem, *Passport to World Band Radio* tells you that it's on 5930kHz at 1800-1830. Or, let's say it's 1830UTC. What programmes are available now? The book says that Radio Bulgaria, Flanders Radio International and Radio Sweden all start English-language broadcasts at this time, the frequencies are given, as well as details of the programmes within each broadcast. Finally, the book works the other way round too. Its famous 'blue pages' are 180 pages of tables in frequency order listing every station you're likely to hear - and lots more besides. For example, it's 2100UTC and you're tuned to 9460kHz. What is the station? *Passport to World Band Radio* tells you that the Chinese Central People's BS, China Radio International, FEBC Philippines and the Voice of Turkey all use 9460kHz at various times of day - but only the Voice of Turkey is scheduled to use that frequency at 2100UTC.

Beyond that, *Passport to World Band Radio* has a lengthy section devoted to reviews of short-wave receivers - from tiny pocket portables up to $4000 professional communications receivers - and passive and active receiving antennas. These reviews pull no punches: if the reviewers don't like it, they'll tell you so.

One minor criticism is that, although the schedules include broadcasts beamed to all parts of the word, they cover short-wave frequencies only: there is no mention of the many international broadcasts that can be received in Europe on medium wave. But if you have any interest at all in what is happening on the frequencies between the amateur bands, you should certainly keep a copy by your receiver at all times!

PASSPORT TO WORLD BAND RADIO - 2005 EDITION

Editor in Chief: Lawrence Magne; Editor: Tony Jones

International Broadcasting Services, Ltd, 2004

592 pages, 178 x 233mm

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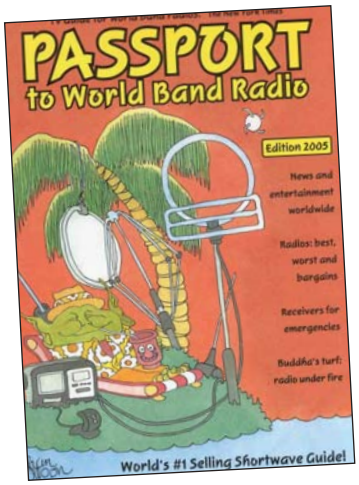

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Basic QSOs in German

We Brits have a reputation, generally well-deserved, for being monoglots. But amateur radio provides an ideal medium for learning and practising another language, so it is a shame that more of us do not use it for that purpose. German speaker Martyn Phillips provides a helping hand for our first hesitant steps on to the bands in German.

Author Martyn Phillips, G3RFX.

Why bother to learn a foreign language? Let everybody speak English! Well, that's one way of looking at it. Indeed, before setting off on his 'Around the World in 80 Days', Michael Palin popped round to see fellow globetrotter Alan Whicker for a few words of advice on the dos and don'ts when travelling in foreign parts. Don't No. 1: "Don't ever try to speak their language. Always speak English. Otherwise if the going gets tough you'll only put yourself at a considerable psychological disadvantage." This also applies to German - any language which is not your own - especially in a conflict situation.

However, in an amateur radio context where everybody's normally the best of friends, trying to speak a few words of the other station's language can be fun. It also shows willingness, gets away from the typical Brit monoglot *cliché*, and will be much appreciated. Most Germans are more than used to speaking English on the air, but the following is aimed at those of you might like to have a go the other way round and speak a bit of German – not a million miles away from English in linguistic terms (Finnish or Chinese would be a slightly different proposition!) I've also included some information on the DL scene. After all, learning a language is not only about the language itself, but also finding out about the local 'culture', the different ways of doing things in the other country.

THE GERMAN SYSTEM

How many licensed German stations are there? Well, as of January 2004: 82,767, according to DARC (*Deutscher Amateur-Radio-Club*) figures, with 49,346 of those members of the DARC itself – a very high percentage compared with national society membership in most other countries. Licensing is in the hands of the regional post and telecommunications authorities (*RegTPs*).

However, the German licensing authorities tend to be rather more conservative than our own and are reluctant to issue special prefixes. Indeed you'd think that the Y2A-Y9Z series, inherited from the days of the German Democratic Republic (East Germany), would be an ideal source of special prefixes, but the licensing authorities do not seem to share this view and these prefixes are not used now by radio amateurs. I gather that there are still callsigns such as Y3B, Y5X etc around, used by former East German yachting folk. So maybe that's part of the problem!

In DL it's common to re-issue callsigns which are no longer required. There are vanity callsigns, although these can sometimes be difficult to identify as such. For example, DL2XYZ could apply for DL9AA, should that become available – and thus give the impression that he's been around on the air for a lot longer than he actually has. Such two-letter DL suffixes have a distinctly old-style 'West German' feel to them. Maybe that's part of the attraction for some, especially those in the eastern part of Germany today.

Can you tell from the prefix whereabouts in Germany a station is located? With the newer DL plus three-letter suffixes: yes, if you know the local *RegTP* allocations. There again, of course, the station might have moved! Otherwise DL7 will most likely be Berlin, but not necessarily. DL8 used to be the Saar area. DJ0s are foreign nationals living in Germany. Other stations with a '0' in the call are invariably club stations, eg DA0, DF0, DK0, DL0.

Map of the German DOK districts.

THE DOK SYSTEM

There being very few German special prefixes as such, the Germans tend to make up for this with their DOK system (*Distrikt- und Ortsverbandskenner* or DARC district / local club identifier). Here, Germany is divided into 24 geographical districts – see map – corresponding roughly to the German *Länder* or states. When I was working in Germany I was a member of the Berlin (District D) Neukölln club (03), so my DOK was D03. Germans are always exchanging these DOKs amongst themselves, even if you don't want them. Even if you take the rig with you to another part of Germany you still give your 'home' DOK. There are also *Sonder-DOKs* (special DOKs) for equally special stations or occasions. Again, another way of compensating for the lack of special prefixes.

ALPHABET & NUMBERS

Unlike English, German is a highly phonetic language, so it sounds very much as it looks. The alphabet is very similar to our own, albeit pronounced slightly differently:

A ('Ah'), B ('Bay'), C ('Tsay'), D ('Day'), E ('Eh'), F ('Eff'), G ('Gay') etc.

In fact, as far as the vowels are concerned there are distinct similarities with Scottish English. There are also those letters with the umlauts: 'Ä', 'Ö' and 'Ü', plus 'ß' (pronounced like 's'). But don't let's worry too much about those, except to say that if you can pronounce the German word for 'squirrel', Eichhörnchen, correctly then you've really made it (likewise the German who can pronounce our word 'squirrel' correctly - and not as 'skvirrel'!)

CALLIN CQ

I'm assuming not many of you will want to risk calling CQ, after all, you never know who might come back. Anyway, just in case you're feeling really brave:

Ist die Frequenz besetzt?

Is the frequency occupied?

CQ, Allgemeiner Anruf. Hier ruft G3RFX. G3RFX geht auf Empfang (ruft CQ und hört).

CQ. G3RFX calling CQ. G3RFX is listening (literally, 'G3RFX goes to reception')

CALLING A DL

DL2XYZ, hier ruft G3RFX - und hört.

DL2XYZ, G3RFX calling you – and listening.

G3RFX von DL2XYZ. Danke für den Anruf . . .

G3RFX from DL2XYZ. Thanks for the call . . .

REPORT, NAME & QTH

DL2XYZ - G3RFX zurück. Guten Morgen / Tag / Abend [Lieber OM]. Vielen Dank für das Zurückkommen. Der Rapport für dich ist 5 und 9, mit etwas QRM und QSB.

DL2XYZ - G3RFX returning. Good morning / day / evening [Dear OM]. Many thanks for coming back. Your report is 5 and 9, with some QRM and QSB.

Mein Name ist Martyn [M-A-R-T-Y-N], und das QTH ist Bristol im Südwesten Englands.

My name is Martyn and the QTH is Bristol in the south-west of England.

THE RIG

Ich fahre hier 150 Watt. Mein Transceiver ist ein FT-950SDX. Die Antenne ist ein 3-Element-Beam / Dipol / Langdraht circa 10m über Grund.

I'm running here 150 watts. My transceiver is an FT-950SDX. The antenna is a 3-element beam / dipole / long wire roughly 30ft above the ground.

(There's no real equivalent in German of our expression "I'm running 150 watts into a . . ."

THE WEATHER

Well, if you insist. The Germans are not quite as obsessed with this one as we are.

Das Wetter hier ist sonnig / bedeckt / es regnet / es schneit. Die Temperatur: 15 Grad.

The weather here is sunny / overcast / it's raining / it's snowing. The temperature: 15 degrees.

(*Es regnet Katzen und Hunde*, our "It's raining cats and dogs", sounds rather odd in German!)

QSLING

Die QSL-Karte geht über den Club / via Büro.

I'll send my QSL card via the Bureau (literally: "the QSL card goes over the Club / Bureau").

DLs tend to take QSLing a lot more seriously than we do. Indeed some of them are of the opinion that it's everybody's moral duty to QSL 100% ("a QSL is the final courtesy of a QSO"), band / mode dupes an' all. I've never quite understood this one. Also, frequently DLs operating from their local club station (750W to a 5-element monobander) firmly expect a QSL card for their home station as well (100W to a piece of wet string)!

Talking of the clubs: these are very much the focal point of DL amateur radio activity. The club is also where they pick up their QSL cards from the DARC, ie they are not posted off direct to the members.

ENDING A QSO

73, vielen Dank für das QSO / die nette Verbindung. Tschüss, auf Wiederhören!

73, many thanks for the QSO / the nice contact. Bye for now, hope to hear you again (NB: not Auf Wiedersehen).

DL2XYZ, 73 von G3RFX.

As for the numbers, yes:

1 eins, 2 zwei, 3 drei, 4 vier, 5 fünf, 6 sechs, 7 sieben, 8 acht, 9 neun. Zero = 'Null'. Just to say too that 'zwei' is often pronounced as 'zwo' on the air, to avoid any possible confusion with 'drei'.

GENERAL

Apart from the NATO phonetic alphabet you will also hear (older) German stations using the 'Anton', 'Berta', 'Cäsar', 'Dora' etc system. So G3RFX is "Gustav drei Richard Friedrich Xanthippe". No, it's not really me, is it?

A brief word on regional accents. There are plenty of these in Germany too. The Germans themselves have problems with some of them, especially the variety of German spoken in Switzerland (*Schwyzertüütsch*). Indeed for most Germans this is largely incomprehensible. Some people even maintain the Swiss talk like this on purpose! A broad Bavarian or Austrian accent can be tricky too, especially for a north German.

GRAMMAR

How much time have we got? Let's just say that all nouns in German have a certain gender, ie masculine (*der*), feminine (*die*) or neuter (*das*). So a 'table' is masculine (*der Tisch*), a 'door' is feminine (*die Tür*) and a 'girl' neuter (*das Mädchen*), believe it or not. No, I wouldn't worry about it. It takes many years of practice.

There are also two different words for 'you'. You say *du* to a friend and

Box above: A 'Rubber Stamp' QSO

Left: Some think it is everybody's moral duty to QSL 100% . .

Sie to somebody you don't know quite so well. On the air I tend to use *du*. We're all friends, after all.

VOCABULARY

Predictably there are lots of English radio- and computer-type words in German, so this makes life a lot easier. Examples:

Transceiver, Mikrofon, Signal, Dipol, Beam, Vertikal, TVI, Koaxialkabel, Computer, E-mail, Handy (mobile phone), *SMS* (text message), *Scanner, Motherboard, Joystick* (translated literally into German as Freudenstock, this would sound delightfully erotic!)

One or two common exceptions: *Relais/Umsetzer* (repeater), *Matchbox* (an ATU!), *Endstufe* (linear), *allgemeiner Anruf* (general call = CQ), EMV (EMC).

The abbreviation *OM* (Old Man / operator), as in *Lieber OM* (Dear OM), is used a lot more liberally in Germany, as is the Q code 'QRG' on SSB. Also abbreviations such as '55', '51' etc, which still have me confused every time!

CONCLUSION

All of this should give you a rough idea of the basics. In German there's no real equivalent of our (to them) rather long-winded and confusing constructions such as "there would seem to be a problem with . . ." or "I don't suppose there's any chance of you possibly giving me some idea of your QSL address, maybe? . . ." Don't be afraid to be direct and to the point. The Germans usually are.

And the other way round - as a UK station in QSO with a foreign station with only a very basic command of English - don't rattle on for ages in highly colloquial English the other station is most unlikely to understand. Recently I heard a G station doing this on 20m to a poor UA3 whose command of English was at best limited. Be considerate! Try to imagine how you would feel if a foreign station were to do this sort of thing to you in their language. But then it's most unlikely that they would.

Meanwhile, have fun in German. And if it doesn't work out too well, maybe the best idea is to do an Alan Whicker or Michael Palin - and let them speak English after all! ♦

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Type 1/2, 2x5/8, 4x5/8
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Weight: 12 lbs (5.4 kg)
Impedance: Nom 50 ohms
VSWR: 1.5:1 or less
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Tune - Approx SWR Rating of 10:1

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One-Plug-Power

One-Plug Power is the internal FT-817 battery solution you have been waiting for until now.

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NEW!

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One-Big Punch

One BIG Punch (OBP) is a custom add-on accessory for the Yaesu MH-31 microphone commonly used with many Yaesu amateur radios

OBP £49.95

Speech Compressor for the Yaesu MH-31 mic and FT817 FT857, FT897. Improve the TALK POWER.

Hand Mike £57.95

W4RT Electronics Microphone with One BIG Punch Speech Compressor included.

The One BIG Punch is an AF-based speech compressor specifically configured to provide remarkable increase in talk power while maintaining good audio quality. The OBP is NOT a clipper, but a compressor providing great voice compression, high-level limiting, and noise gating. The unit can be mounted inside the MH-31, requires no additional electrical power, and can be turned on or off by using the MH-31's TONE switch.

One-Board-Filter

The One-Board Filter (OBF) affords you the opportunity to have both the Collins CW and SSB mechanical filters available in your FT-817 together!

OBF £229.95

Replace two filters in the space of one. OBF includes the two optional filters and fitting.

Collins Mechanical Filters
for the Yaesu FT-817, 857 & 897.

500 Hz CW - £94.95 ***2.3kHz SSB - £94.95***

This is the option that many, many FT-817 owners have requested. The OBF utilizes Collins Mechanical Filters that are the same as used in the optional Yaesu filters for the FT-817. The bandwidth of the 7-pole CW filter is 500 Hz and the 10-pole SSB filter is 2.3 kHz. The One-Board Filter is NOT available for installation by FT-817 owners. This is not a "do-it-yourself" option. The One-Board Filter must be installed by RADIOWORLD, or a competent engineer . If in doubt please call for details.

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E-mail: newcomers.radcom@rsgb.org.uk

Steve Hartley, G0FUW, gives a tutor's eye view of the Advanced syllabus, book and examination, and outlines some important changes for the New Year.

Too advanced?

Having been heavily involved in the development of the Advanced Radio Communications Examination syllabus I had a pretty good idea about what it contained. Helping to write the textbook also helped me to prepare my lesson plans for this year's classes.

However, I have to confess to being more than a little anxious before the classes started and from the feedback I was getting from other tutors I was not alone. There appeared to be a genuine perception that the new syllabus, textbook and examination are too advanced, certainly more difficult than the old City & Guilds Radio Amateurs' Examination (RAE).

The aim of this article is to try to evaluate that position, based on the experience of delivering a course to a class of mixed students, some more technically orientated than others. As you will see, there has not been as big a change as many people think, particularly taking into account the changes that will come into effect from 2005.

THE NEW SYLLABUS

The Advanced syllabus was published in January 2004 [1]. It follows the same structure as the two lower levels with slightly modified headings:

- Licensing Conditions
- Technical Aspects
- Transmitters & Receivers
- Feeders and Antennas
- Propagation
- EMC
- Operating Practices and Procedures
- Safety
- Measurements

As you might expect, whilst the same headings are used, the content requires a deeper understanding of the subject. This is understandable, given the greater technical knowledge required to deal with the increase in permitted power, from 50 to 400W.

The starting point for the Advanced syllabus was the Harmonised Amateur Radio Examination Certificate (HAREC) document [2]. This sets out a broad outline syllabus for internationally-recognised amateur radio licences. The combined syllabus for the Foundation, Intermediate and Advanced has to cover the HAREC requirements. Otherwise, the Full UK licence could lose its international equivalent status and operation in other countries under CEPT arrangements could be jeopardised. The HAREC document therefore sets the boundaries for the new syllabus.

The next step was to take out all of the items that were already covered at Foundation or Intermediate level. It is therefore no surprise that what was left were the more complex or technical topics. A small number of additional items were identified that were felt to be relevant and these were added to the HAREC list:

- Direct Digital Synthesisers (DDS)
- External Pre-amplifiers
- Signal to Noise Ratio (SNR)
- Circular Polarisation
- Waveguides
- Return Loss
- RF Safety
- Lightning
- Packet Radio

The aim was to produce a syllabus that clearly stated what it was that students and tutors needed to know or be able to do. This was probably the hardest task in setting the syllabus. It took many man-hours of committee work and lots of correspondence. The end result was largely guided by experience in delivering the old RAE material, knowledge of the C&G questions and practical knowledge of being a radio amateur. We now have a document containing around 150 clear statements of what is required of an Advanced student.

This may appear to be much more than was included in the old RAE syllabus but the old syllabus did not detail the knowledge required in the same way. It is important to note that whilst the Advanced syllabus may be physically larger that the RAE version, it contains less material. It has only a few 'new' topics and all the Foundation / Intermediate material has been removed.

THE BOOK

As the new syllabus is much the same as the old, you might have expected to carry on using the old and trusted *RAE Manual* [3]. However, the Manual required considerable revision following changes in UK licensing (removal of the Morse requirements, age restrictions, etc) and the need to remove lower level material. It was therefore decided to start from scratch and write a book to accompany the new syllabus, written in a style and format that would match up with the Foundation and Intermediate books.

Alan Betts, G0HIQ, wrote the bulk of the book [4] and I added a few chapters. Mike Dennison, G3XDV, stitched it all together and his desktop publishing efforts deserve far more credit than the cover notes

indicate.

At first the book looked quite daunting. As an 'amateur' amateur I always sympathise with students who come to me saying they "don't do science", and the new book has lots of circuit diagrams and formulae to set the pulse racing. However, as mentioned above, there is little 'new' material. This was borne out when I had a flick through my copy of the old *RAE Revision Notes* book [5] - virtually all the 'Advanced' topics are covered and it is still an excellent pocket revision guide, if it is still in print.

The new book has lots of explanation so facts are not just presented for memorising - they are backed up with examples and background knowledge that were largely absent from in the old *RAE Manual*. I have to say that I warmed to the book as I used it 'in anger'.

"You would sing its praises," I hear you say, "you helped to write it!" Well, I have to admit the book has its flaws. As a tutor I found that I had to supplement the core text with some additional materials:

♦ There are no revision questions in the new book. The old RAE Manual had lots of practice questions at the end of each chapter and a practice exam paper at the back. In the absence of any questions in the book, Mike Coombs, G3VTO, my co-tutor, and I penned some of our own and 'borrowed' some from the old *RAE Manual*.

♦ In my experience, maths is never a popular subject at any of the three levels but when 10^{-6} appeared for the first time with no explanation I thought some of my students were going to burst a blood vessel. I found myself delivering a series of impromptu maths lessons, in particular, how to 'drive' a scientific calculator. Again, the old *RAE Manual* had a section at the back.

My only other criticism of the book is that some of the chapters are too long. I prefer 'bite-size' chunks and we had to split some chapters across two or three weeks' classes.

It is worth noting that the 'key facts' are highlighted with a 'mortarboard' symbol to make sure you don't confuse the background text with the bits you really need to know. At around 100 pages it has less content that the old *RAE Manual* (around 150 pages) and with more pictures and a larger font, so accusations that "there is more in this new book" are definitely unfounded.

Candidates take the exam: in this case at the Stevenage and District ARS.

A second edition is in the offing. This should tidy up a few loose ends and incorporate much of the feedback from tutors and students who have used the book.

THE DREADED EXAM

Firstly a reminder that there is no practical assessment at Advanced level, it is just a written exam. The format is just the same as the Foundation and Intermediate in that it is multiple choice with four possible answers. During its first year (2004), the exam has had 68 questions but because the exams are still being piloted there is no published pass mark. This means that candidates do not get instant results and a six-week wait is the norm. It is hoped that a fixed pass mark can be set, once sufficient numbers have been assessed to give a statistically sound base.

The structure of the questions in the new exam is probably the biggest change. Where there used to be around 30% of questions on 'Licence Conditions and Operating Practices' (including safety), there are now only 23%, and where the RAE had only 8% of the 80 questions on electronics, the new exam has 25%. This represents a shift in focus that favours the 'technician' candidate, rather than the would-be amateur 'operator' - a shift that has been noted, and changes are on the way (see below).

DOES THE SYSTEM WORK?

In preparation for the real exam I put together a practice paper using the 'revision' questions from the old *RAE Manual* with a few written to fill in where the old book did not cover the topics. It was quite reassuring to see how much of the new syllabus and exam was covered by the old book's questions.

The students scored between 45 and 80% on my practice paper. This was about the same spread as we get every year at the end of a course. We have averaged a pass rate of around 80% in the old RAE and this time four of our five students who took the June Advanced exam passed, so our record is intact.

As an experiment, I took the percentage scores for the various sections of the practice exam and applied them to the old City & Guilds structure assuming similar performance in each section. In most cases the overall scores would have been slightly better using the old structure. However, the highest scoring student would have faired less well in the old RAE. The largest difference was in the lowest scoring paper, 45% from the Advanced structure equated to 49% in the RAE structure. Again, I found it quite reassuring that, despite the differences between the two exams, the results would have been much the same.

OTHER RESOURCES

Whilst our course was very much structured around the Advanced text book, we did use other resources. Practical demonstrations included making capacitors out of double-sided printed circuit board to see the effect of increasing surface area, checking resonant frequency of tuned circuits made with different inductor and capacitor combinations and measuring UHF losses in cheap coax.

Murray Ward's excellent free *QADV* question and answer software [6] was very popular and Ray Petri's *RAE Questions and Answers* text book [7] was found to come into its own with the shift back towards the more technical aspects.

Whilst there is no compulsion to attend a formal course, I hope the students found the advice, support and explanations from their tutors

It has all been worthwhile! Success at last (Norfolk ARC).

at least as valuable as the written word. I would encourage anyone that can attend a course to do so.

FORTHCOMING CHANGES

The purpose of any 'pilot' scheme is to test the system, and to investigate the possibility of improvement where necessary. After a few months' experience with the Advanced syllabus and examination in 2004, several instructors drew the RSGB Board's attention to the points made in this article. It was decided to make a case to Ofcom, seeking a review of the Advanced examination.

Board member Ed Taylor, G3SQX, made a presentation to Ofcom's Examination Group, setting out in detail the reasoning outlined here, and suggesting suitable modifications. I can report that the case was well received and from 2005 the following changes will be made:

♦ Students will be given a data sheet from which they may select the appropriate formula to solve mathematical questions. This is in line with standard educational practice in schools, colleges and universities. It will allow candidates to focus on understanding the concepts, rather than memorising formulae that are widely available in reference books for use in real life.

♦ The exam question structure will be changed to reduce the drift towards an 'overly' technical examination. As reported in *RadCom* last month, the number of questions will be reduced from 68 to 62 to shift the emphasis more towards operating practices rather than electronic theory. There will still be more technical questions than in the old RAE, but that reflects the content of the Advanced syllabus and the fact that the Advanced examination is no longer the 'entry level' test it used to be. It is important to note that an amateur radio licence is granted on the basis of self-teaching and experimentation, so a service that only involved operating would be difficult to justify.

In addition, the Examination Group said that they would review the question bank, to make sure that none of the questions strayed outside the strict domain of their syllabus allocation.

These changes are excellent news and show that 'the powers that be' *do* listen to reasoned arguments and that the RSGB is actively involved in such debates. It is to be hoped that the results of the pilot examinations and the forthcoming changes will encourage more Intermediate licence-holders to take the plunge and upgrade their licences.

SUMMARY

What does all this tell us? My conclusions are as follows:

♦ The perception that the Advanced syllabus contains more than the old RAE syllabus is flawed. It is essentially a more explicit version of the old RAE syllabus, with a little new material but lots removed.

♦ The RSGB book covers the syllabus with lots of explanation and expansion on the 'key facts'. The second edition should be even better.

♦ Other resources are available to help students and tutors.

♦ It is the structure of the Advanced exam that has seen the biggest change with a much greater percentage of 'technician' questions than ever before.

♦ The pilot Advanced examinations have been a little more technically orientated than the old RAE but the level of the subject matter has been about the same.

♦ Things will change from 2005, so the 'amateur' amateur should not be put off. It is worth reminding ourselves that around a third of all RAE candidates failed, at least once. This level never was 'a walk in the park'!

AND FINALLY . . .

My final point covers a question I was asked at a club meeting, "Why should I bother to do all this extra work?" Well, you do gain access to additional privileges with a Full licence (more power, CEPT operation, maritime mobile operation, the ability to supervise others, etc) but I believe the best 'reason' is the satisfaction of knowing that you have applied yourself and have achieved a new 'personal best'. Pride in a job well done is a powerful motivator.

I hope this 'tutor's eye view' of the new Advanced syllabus, book and exam will help dispel some of the myths surrounding them. Have a go - you might actually enjoy it! ♦

REFERENCES

[1] The Advanced Syllabus, Ofcom, 2004 - available from www.rsgb.org.uk or www.ofcom.gov.uk

[2] HAREC document, available from http://www.ero.dk/documentation/docs/doc98/official/pdf/TR6102.PDF

[3] Radio Amateurs Examination Manual, John Case, GW4HWR, and Hilary Claytonsmith, G4JKS. RSGB, 1998.

[4] Advance! The Full Licence Manual, Alan Betts, G0HIQ, and Steve Hartley, G0FUW. RSGB, 2003.

[5] RAE Revision Notes, George Benbow, G3HB. RSGB, 1995.

[6] QADV, Murray Ward, G3KZB, available from http://freespace.virgin.net/murray.g3kzb

[7] RAE Questions and Answers, Ray Petri, G0OAT, RP Publishing, 1999.

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5 Meadway, Staines, Middx TW18 2PW.

E-mail: edit@radio-electronics.co.uk

In the second and final part of his short series on HF propagation, Ian Poole looks at how variations in the ionosphere can have an effect on propagation of radio waves on earth.

Variations in the ionosphere

Ionospheric propagation is of great importance to anyone who uses the MF and HF bands. Variations in the state of the ionosphere govern the conditions on these bands, and an understanding of the mechanisms behind these changes is an essential element of knowledge for anyone using them.

Predicting the state of the ionosphere and band conditions is akin to weather forecasting: it can appear to be more of an art than a science. Although there are many factors affecting the ionosphere, it is still possible to gain a good idea of how these factors may affect the ionosphere. Many people use propagation prediction programs, and feed in current data to gain a good idea of what conditions might be like. These programs use the knowledge built up over many years of research, and combine this with current readings.

COMBINATION AND RE-COMBINATION

At this point it is worth remembering that the very high temperatures and exceedingly low pressures that exist in the upper reaches of the ionosphere mean that the gases exist in a monatomic form and they are known as 'neutrals'. In fact at altitudes greater than about 150km, most of the gas 'molecules' are in this form.

In very broad terms, the state of the ionosphere is dependent upon the level of ionisation that exists in the ionosphere. The higher the level of ionisation, the greater the level of refraction, and the higher the frequencies are that can be 'reflected' back to earth. This level of ionisation is chiefly governed by the amount radiation received from the sun.

Radiation from the sun (mainly ultra-violet light) is sufficiently strong that when it strikes the gas molecules and neutrals, they split or ionise to form an electron, which is negatively charged, and a positive ion (see **Fig 1**).

It is also possible for ions and electrons to recombine. In fact what is termed a 'dynamic equilibrium' is set up where radiation from the sun causes the molecules and neutrals to split into ions and electrons, and these can then recombine to re-form the molecules or neutrals. The level of ionisation is then dependent upon the rate of the two reactions. If the rate of either of the reactions changes, the level of ionisation will also change. Therefore if the level of radiation is reduced, this will reduce the generation of ions and electrons and as a result the number of free electrons falls, reducing the effectiveness of the ionosphere.

FIG 1

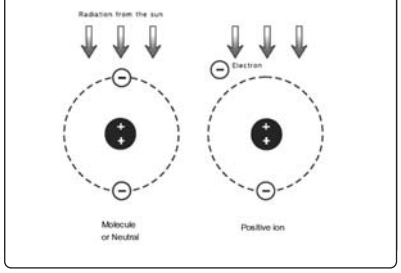

Fig 1: Radiation from the sun strikes a gas atom or neutral to produce a free electron and a positive ion.

Some of the most obvious changes in the level of ionisation take place on a daily basis. During the day, radiation is received from the sun, and the levels of ionisation build up. Then after dusk no radiation is received and the levels of ionisation fall. This affects all the regions, but in slightly different ways.

In the lowest region, the D region, recombination of ions and molecules takes place relatively quickly because of the relatively high density of the gas. As a result of this, ionisation in the D region virtually disappears after dark and as a result absorption levels fall. This is particularly noticeable on the MF bands such as the medium-wave band and topband where signals are able to pass through the D region and be refracted back to earth, allowing ionospheric propagation.

Ionisation in the E region also falls significantly and it almost disappears after dark. However, there is some residual ionisation and it can still affect radio signals.

The highest region is the F region. Although levels of ionisation build up in the day, and fall at night, the rate at which ions and electrons recombine is very much slower in view of the exceedingly low gas density. As a result, ionisation levels are such that signals are still refracted back to earth, although the maximum frequencies are considerably lower at night than during the day. A further effect is that the F region often splits into two during the day.

SEASONAL CHANGES

There are also major changes in the ionosphere that occur in line with the seasons. As the angle subtended to the sun changes and causes summer and winter, so this also affects the ionisation levels in the ionosphere. This results from the fact that in summer the radiation received spreads over a smaller area because the earth's surface is closer to being at right angles to the direction of the radiation. In winter, the earth's surface is at a greater angle and the radiation has to spread over a larger area. As a result the ionosphere receives less radiation in winter than summer.

Accordingly, the D and E regions have lower levels of ionisation in winter than summer, and the F_1 region also follows a similar pattern. The F_2 region responds in a different and rather unexpected way because there are other factors that need to be considered.

For the F_2 region, the heating effect of the sun plays a crucial role in the way it responds. The temperature during the winter is much less than in the summer because the heat from the sun is spread over a larger area when it is lower in the sky. In summer the gas temperature rises in the F_2 region so the activity in the air rises and a greater number of molecules rise higher up into the atmosphere. In winter as the temperature falls, so the heavier molecules fall, leaving the lighter neutrals to rise to the top.

This means that in winter there is a higher proportion of neutrals at the higher altitude of the F_2 region.

Neutrals are easier to ionise than gas molecules, and so the number of suitable targets for the radiation to ionise also rises. As a result the levels of daytime ionisation are actually higher in winter than they are in the summer. The overall effect is that the peak daytime levels of ionisation rise higher in winter than summer, but they fall away to a lower level as the sun's radiation is present for a smaller proportion of the time.

GEOGRAPHICAL VARIATIONS

It is also worth mentioning that the levels of ionisation are not the same all around the globe. There are naturally variations arising from latitude, where polar regions receive less radiation and equatorial regions enjoy much higher levels of radiation. Broadly this results in higher levels of ionisation for the D, E and F_1 regions in equatorial areas than towards the poles.

The F_2 region has a number of other factors that affect its level of ionisation, including the earth's magnetic field. It also receives ionisation from other sources. As a result, the levels of ionisation are higher around Asia and Australia than they are over the western hemisphere, including Africa, Europe, and North America.

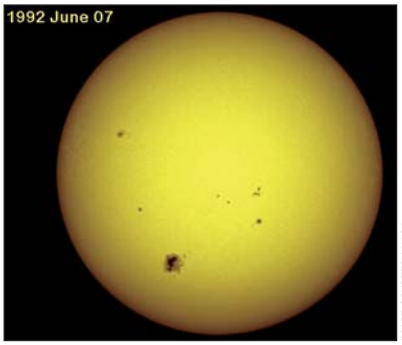

IMAGE COURTESY NASA.

A view of the sun showing areas of sunspots.

SUN

Apart from the daily, seasonal and geographic variations in the levels of ionisation, the situation is further complicated by changes in the levels of radiation received from the sun. There are a several ways in which this occurs and one of the major influences is that of sunspots.

FIG 2

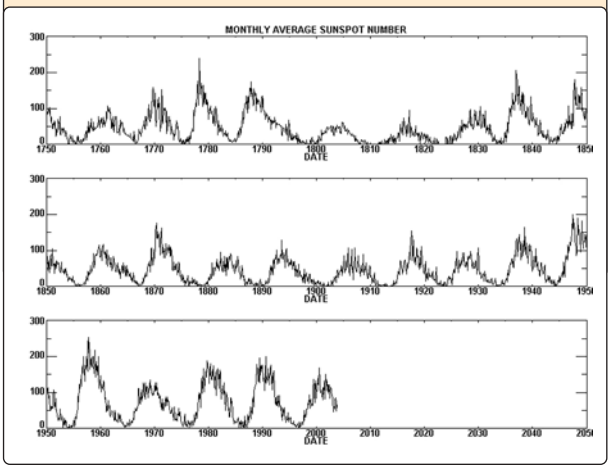

Fig 2: The sunspot cycle since records began.

Sunspots are the dark spots that appear on the surface of the sun. They play a major role in determining the state of the ionosphere because associated with them is an increase in the level or radiation emanating from the sun.

The numbers of sunspots varies over a long cycle. On a day-to-day basis the numbers vary widely and for many centuries the cycle was not detected. Once the numbers were smoothed, though, a trend was detected and it could be seen that there was cyclical variation with a period of about 11 years. See **Fig 2**: the cycles have been given numbers starting with Cycle 1, which began in 1755. Since then there have been over 20 more, with Cycle 22 ending in the latter part of summer 1996.

From analysis of the figures since the first records were available a number of factors have become obvious. The first is that the cycles are by no means very regular. Although the average cycle length when measured as the time between two peaks is about 10.9 years, it actually varies anywhere from just over 7 years to 17 years. The smoothed sunspot numbers also vary widely. The maximum sunspot activity numbers vary from 49 to 200 with an average of just over 100. The minimum number can be anywhere between none and 12.

It is usually found that the after the sunspot minimum, sunspot activity rises sharply, reaching the peak in around four years, and after this it falls away more slowly, taking around seven years to decay. Naturally this figure too varies very widely and it can only be taken as a rough guide.

The sunspot cycle is of great interest to anyone using the HF portion of the radio spectrum. Propagation conditions are greatly influenced by sunspot activity, and accordingly they vary in line with the sunspot cycle. The greater the number of sunspots the greater the levels of radiation that are emitted by the sun and that reach the ionosphere. Consequently during periods of high sunspot activity the levels of ionisation in the ionosphere are higher. At the low point of the cycle, the levels of ionisation in the F region are such that high frequency bands above 20MHz or so may not support ionospheric reflections, whereas at the peak of the cycle frequencies at 50MHz and higher may be reflected. Similarly the levels of ionisation in the D region are higher at the peak. This means that at the peak of the cycle when the high frequency bands are at their best, then the low frequency ones suffer more attenuation from the D region and are poorer. At the trough of the cycle, however, when the high frequency bands exhibit poor conditions, the lower frequency bands suffer less D region attenuation and therefore perform better.

Ionospheric storms also have a major affect on HF band conditions - but that will have to be the subject of another article. ♦

FURTHER READING

Further information on this subject can be gained from the RSGB book *Radio Propagation – Principles and Practice* by Ian Poole. It is available from the RSGB Shop at £12.74 (members price: non-members £14.99).

WEB SEARCH

Radio Propagation – Principles and Practice	www.rsgb.org/shop
Ian Poole's radio and electronics website:	www.radio-electronics.com
Ian Poole's business website:	www.adrio-communicatons.com

Steve Hartley, GOFUW

5 Sydenham Buildings, Lower Bristol Road, Bath BA2 3BS.

E-mail: newcomers.radcom@rsgb.org.uk

Newcomers' news

Steve Hartley, GOFUW, looks back over the last 12 months and looks forward to more 'Newcomers' News' in 2005.

Season's greetings to one and all. Another year of 'Newcomers' News' has gone by, and what a year it has been. The change from the City & Guilds Radio Amateurs Examinations was completed and some 87 amateurs passed the new Advanced Radio Communications Examination during the year. At the time of writing a further 46 were awaiting results and we have just had the December exam. 120 pass slips have been issued during the year. Well done all concerned!

Smiles before the exam: the eight candidates just before taking the Advanced exam at the HF Convention.

HF CONVENTION

Back in October we offered all three levels of Radio Communications Exams at the RSGB HF Convention. Two intrepid souls signed up to do all three over the weekend and about 10 others came along for one or two of the series.

It took some organising to ensure that we had enough assessors, exam invigilators and markers to cover all the bases but it seems it was worth it. We had a 100% pass rate in the Foundation and Intermediate exams. Whilst not everyone passed the Advanced exam, it had the highest pass rate of any sitting to date. Special congratulations must got to the two candidates who successfully navigated all three levels in one weekend, Gavin Andrews and David Walter. What an achievement!

Thanks go to Brian Reay, G8OSN; Dave Wilson, M0OBW; Ed Taylor, G3SQX; Alan Betts, G0HIQ, and David Cutter, G3UNA, for helping out, and to the HF Convention team for making it all possible.

Another success at the Convention was the 'newcomers' lecture stream. The organisers are keen to make the Convention an open and inclusive event, so a whole series of talks was arranged for those new to HF. I was very pleased to have around 30 RadCom readers attend my talk - good to see you all. I sat in on a couple of talks on the Sunday; Dominic Smith, M0BLF, did a fine job of covering wire antennas and Andrew Scott-Green, G4GWR, gave an excellent illustrated guide to running a 'low budget' DXpedition to Lundy Island.

I for one hope the format is retained next year and that even more newcomers will attend this very enjoyable event.

NO SUPERVISION ALLOWED

The fact that the Foundation licence does not permit the holder to supervise those who do not have a Licence seems to have been forgotten during Jamboree on the Air (JOTA). I had a number of reports of M3s running JOTA stations with Special Event callsigns. Providing they are under the direct supervision of a Full licence holder that is not a problem, but when they start supervising Beavers, Cubs and Scouts who are not licensed they are straying into troubled waters. Whilst club and special event stations can be operated by Foundation and Intermediate licence holders they *must* be supervised by the Full licence holder.

One Station was heard to say that the Full licence holder was "on site somewhere", which is hardly "direct supervision". He then proceeded to allow his fellow Scouts to pass Greetings Messages. Laudable, but illegal.

Whilst there is no doubt that this was all done in good faith, those involved could be risking their own licences by trying to encourage others. I have been asked to appeal to all those involved with club and special event stations to plan carefully to ensure that a nominated Full licence holder is present at all times when Foundation and Intermediate licence holders are at the controls, not just for JOTA.

CORRECT JARGON PLEASE

Every group of radio users has its own language or jargon - words, phrases or codes that have built up over the years and become accepted as 'custom and practice'. It is therefore not surprising that when someone moves from one group of radio users to another they take a little time to adjust to the 'correct' jargon.

The welcome influx of new blood into the hobby has, by its very nature, brought a large number of new and inexperienced radio amateurs onto the bands. A number of 'old hands' have expressed strong feelings that newcomers are using 'inappropriate language'. That does not mean 'bad' language, just wrong language. Citizen Band jargon is perfectly normal on the 27MHz band but it does sound out of place on the amateur bands.

I would ask all newcomers to try hard to blend in with the accepted practices and procedures of the amateur bands, which are different to CB, which is different to marine, which is different to military jargon, etc. I would also ask the 'old hands' to be patient with the newcomers; we all had to learn sometime. Remember that a positive friendly correction is likely to have a more lasting effect than an angry negative rebuff.

WHAT NEXT?

Now that we have the three tier exam / licence system in place the route into the hobby for newcomers is pretty much fixed. Where do we go next? Hopefully you, the readers, will keep the news, views and information coming in. Photographs are always particularly welcome, but do you have any good ideas for 2005?

There has been talk of a series of weekend courses for continued training after the Advanced exam. Antenna experimentation, Morse code, radio construction, microwave operation, contesting and EMC are all topics that could feature. Would these be welcomed? Someone even suggested a 'Radio Communications Diploma' for those who complete a number of such courses. Would that appeal? What topics do you think should be included?

Whatever your thoughts, may I wish you all a very happy 2005. I look forward to hearing from you soon. 73. ♦

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Snapshots from the new store...

Peter G4BLF looking just as happy having purchased the very first IC-756 Pro3 available in the U.K. from ML&S.

Martin handing over a new FT-897 to one of his original customers, Charles Rodgers M0BIN, on a recent trip to the store. He is looking particularly happy because he has just worked out that by paying for it in full now he doesn't have to worry about paying for it "later".(!)

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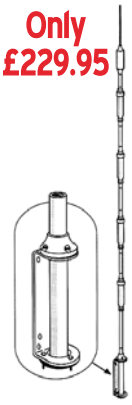

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* SWR Detection sensitivity: 5W minimum
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FJ, Miracle Antenna, Oregon Scientic, Revex, Tokyo-Hypower, Watson, Diamond, Yaesu and many more!

By Don Field, G3XTT

105 Shiplake Bottom, Peppard Common, Henley on Thames RG9 5HJ.

E-mail: don@g3xtt.com

HF

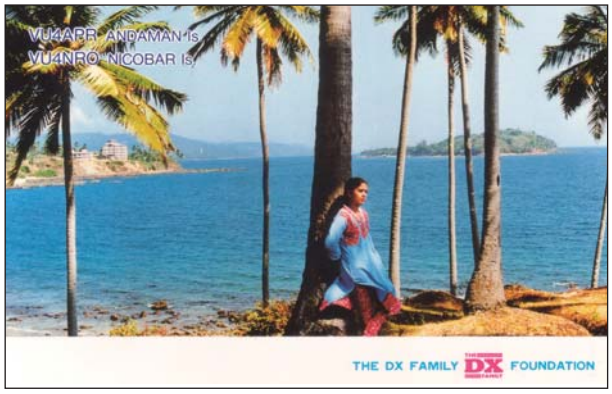
With many operators new to the HF bands, either with Foundation licences or after spending time on VHF / UHF, Don Field starts 2005 with a look at some of the terminology to be heard almost exclusively on the HF bands.

Dave, G6UWO, has recently arrived on the HF bands after a very successful amateur radio career on VHF / UHF and the microwave bands. He asks about some of the abbreviations and terminology used in this column and by HF operators, and it's a timely reminder to me that an explanation is helpful occasionally. Firstly, references such as 'OC-017' are Islands on the Air designators (see G3KMA's bimonthly 'IOTA' columns), and a full list is available on the IOTA web page or by buying a copy of the excellent *IOTA Directory* [see 'Further Reading' below - *Ed.*]

Dave mentions the Maidenhead locators which he is familiar with on VHF and readers might like to know that these are used from time to time on HF but in specific contests which have chosen to use grid squares as part of the contest exchange. Generally HF operators don't chase grid squares, the idea never having really caught on.

Dave is also confused by the various zone numbers that he has heard being exchanged. There are two main systems in use. CQ magazine sponsors Worked All Zones awards, the same zones being used in contests sponsored by that magazine. There are 40 zones in all, the UK being in Zone 14. However, the ITU divides the world into 90 zones, and these are also used for some IARU awards and as multipliers in the annual IARU Contest. The UK is in ITU Zone 27. The good news is that full lists appear in the *RSGB Yearbook*, as well as on various websites. The *Yearbook* also includes a list of country prefixes, useful for decoding some of the callsigns which appear in this column (I tend not to add country names every time, as this would take up too much space). The definitive list of prefixes, zones, etc is the *RSGB Prefix List*, compiled by Fred Handscombe, G4BWP. Well worth keeping next to the operating table.

Finally, Dave asks why some portable calls are of the form F/G6UWO while others are of the form GW3UOF/HI3. The answer to this one is mainly historical. In the past, portable designators were always added after the callsign. But it's actually more helpful when they come first, because you can immediately figure out what you are hearing, where to point the antenna, etc. The CEPT licence arrangement requires this, and most other administrations are now falling into line. So expect to hear 9Y4/G3XTT and similar as typical. But when I operated from Bermuda, for example, I was issued G3XTT/VP9, the licence system still being based on the UK licence of many years ago. Usually the matter is academic – it's pretty obvious which part of the callsign is the home call, and which is the portable designator. Where life starts to get a little more confusing is with callsigns like BY1PK/G3XTT. In this case, the Chinese authorities like guest operators at local stations (BY1PK is a club station) to append their home call, so that there is an audit trail of who was operating at the time.



QSL from one of the last operations from the Andaman Islands, in 1987.

AUTUMN CONDITIONS

Back in September I was wondering whether I would ever manage DXCC (100 entities) on 10 and 12m in 2004, as conditions had been so awful over the summer period. How things change, and I now have well over 150 on each of those bands. The excellent CQWW Phone conditions were repeated in late November in the days leading up to the CW leg of the contest, although by the CW weekend it seemed to me they were falling off again. Over the contest weekend 40m appeared to be the star band. I worked over 100 countries and there were probably 120 or so to be worked from the UK. 20m was also buzzing during daylight hours, with great conditions to the US West Coast in the late afternoon, but was closing quite early in the evening other than for a few watery South American signals.

The Bavarian Contest Club's DXpedition to Nepal (9N7BCC) was probably the most notable activity during November. They were consistently good signals on all bands, with multiple stations active, the only drawback being that they were operating from a built-up area and having some difficulties in hearing signals on the low bands. Nevertheless, they were worked from the UK on all bands 160 - 10m.

DX NEWS

The Royal Signals ARS will be running GB6BOB from 27 December for 28 days to commemorate the 60th Anniversary of the Battle of the Bulge. They will be on SSB, CW, RTTY and PSK. They will be issuing free certificates to any stations that work them or any SWL that hears them; send 2 x 2nd class stamps, $2 or 2 IRCs to station manager G0SWY (QTHR) or e-mail g0swy@aol.com

Graham, G0VNW, is currently active as 5X1GS from **Uganda**. He is on 10, 15 and 20m, awaiting a WARC bands beam and also trying some low band activity, although noise levels are very high on those bands.

Two operators from France are expected to be stationed on Crozet Island in early 2005. Jean Paul Gendner, F5BU (who operated as FT5WG in early 1998), and Nicolas Chatelain, F4EGX, are expected to be working on the island for about two or three months. They hope to be active in their spare time on 40 and above.

One important piece of news arrived too late for the December column, namely that the Indian National Institute of Amateur Radio had gained permission to undertake an operation from the **Andaman Islands** (VU4). Although the Andamans are easily accessible, permission for amateur radio operations has been denied for many years now, so this news was extremely welcome. The permission was for the whole month of December, so hopefully by the time this appears there will already have been significant activity. The team was due to be led by Bharathi Prasad, VU2RBI, who has led previous expeditions to the Laccadives in 1983 and 1989 and the Andamans in 1987. After years of negotiations, the final permit came through quite suddenly, and a lot of work had to be done quickly to put an expedition together, quite apart from finding the necessary funds. The team hopes to demonstrate to the Indian authorities that, rather than being a security threat, amateur radio brings excellent world-wide publicity to the Indian government and tourist agencies. The hope is that further operations will then follow.

The Texas-based Lone Star DX Association is working to overturn the bar on operating from **Navassa** (KP1) and **Desecheo** (KP5), currently two of the rarest DXCC entities. They are mounting a legal challenge, along with representations to members of Congress. I will pass on any further news as it occurs, but don't hold your breath on these.

John, G4RCG, is off to the Caribbean

COUNTRIES WORKED, 2004
(sorted this month by CW totals)

CALL	CW	SSB	DATA	MIXED
G3TBK	250	203	139	261
W1JR	244	243	180	267
G3XTT	238	210	77	262
G0KBL	209	0	0	209
G4KFT	192	0	0	192
G3SXW	187	0	0	187
G3LHJ	183	70	118	203
G4IRN	181	0	0	181
G3VDL	177	0	0	177
G3TXF	176	13	4	176
GM4FAM	163	146	0	199
G4OBK	157	119	105	206
G4WXZ	156	152	0	204
VK4BUI	156	154	0	187
MU0FAL	155	99	0	161
G3YVH	153	21	0	153
G3YMC (QRP)	146	0	0	136
GM0TGE	130	159	0	189
G3ZRJ	129	9	0	129
M0BVE	129	0	0	129
G4JZO (QRP)	104	0	15	119
MM1APX	87	109	70	134
G4DDL	85	10	14	85
GM8OEG	71	126	88	147
G3WP	66	0	0	66
G4FVK	63	94	0	115
G0GFQ	32	109	33	117
M0CNP	28	115	87	136
M5AEF (1W)	28	41	0	49
M3TBK	9	119	3	123
MM5DWW	3	247	125	248
2U0GSY (MU3GSY)	1	86	0	86
G4NXG/M	0	200	0	200
M5GUS	0	163	0	163
G1VDP	0	142	0	142
G6HOU	0	0	132	132
M0BKV	0	124	41	129
G0LGJ/M	0	107	0	107
G1UGH	0	100	0	100
GU0SUP	0	0	96	96
G3URA	0	0	60	60
G7CLY	0	38	0	38

again with Bruce, KI7VR (ex-G3NDG), 21 January to 6 February to operate the CQ 160 CW contest and have some fun in the sun DXing on the low bands. This time it's to St Croix, **US Virgin Islands**, with the callsign KP2ZZ in the contest and otherwise KP2/G4RCG and KP2/KI7VR. QSL to their home calls.

This month's 'big one' is **Peter 1 Island**. Everything is set and the callsign will be 3Y0X. Dates are (give or take, depending on weather conditions), 20 January to 4 February. This is a major DXpedition, with multiple stations on all bands and modes. There is an excellent web page, with propagation predictions and much more, including a downloadable presentation prepared by K3NA.

CORRESPONDENCE AND TABLES

Welcome to Edward, M3TBK, son of G3TBK (see photo on p13, December *RadCom*). Edward has made a useful start, using mainly SSB, but also some CW and data. A new DXer in the making! David, M0CNP, writes that the GB200CLB station went off very well, but with fewer contacts than hoped for due to conditions and the clash with the *CQ* WW Phone contest. However, the many visitors and operators enjoyed themselves. From home David snagged 7Q7HB and XE1KK (15 SSB), 9M2/G4ZFE (20 RTTY) and HV0HQ (Vatican, 30 RTTY). David, G4FVK, comments on the good band conditions during the CQWW Phone contest, which gave him several new band slots. He particularly notes FP/VE7SV (St Pierre & Miquelon) worked on 80, 40 and 10m. Derrick, G3LHJ, also worked the FP, in his case a new one on RTTY, along with VK9LW and VP2ENK as further new ones on that mode. I was chatting with Alan, G4NXG, at the HF Convention in October, and he told me he was at 198 for the year from his mobile activities, and hoping to make the 200. Well, he caught two new ones in one day, with EY8BW on 15 and 6O0W (Somalia) on 40. This was in late November, after my deadline but just before this went to print, and he sent me an excited e-mail. Well done Alan, and still one month to go!

Stan, G0KBL, caught TX9 on 12 and D2PFN (Angola) on 40 RTTY among a host of other DX. Stan is enjoying using his new Orion, as recently reviewed here in *RadCom*.

Terry, G1UGH, had a ball in the CQWW Phone contest and sends a long list of DX worked, although he hasn't updated his table scores. To give a flavour of the contest QSOs (which are echoed by several other correspondents): D4B, SU9NC, V47KP, ZP5MAL on 15, A61AJ, FM5BH, 9K2HN, ST2T, YI9KT, 9J2KC, 8P1A, VP2E, VQ9OG, FY5KE, 9Y4NZ, ZP0R, 5H3HK nd P40A on 10m.

Chris, G1VDP, also has a long list for the month, with several all-time new ones. In the contest he was single-band 10m, low power, and certainly picked a good weekend for it! 10m QSOs included (over and above some of those mentioned by G1UGH, above) 5Z4YT1CS, WP4BL, 4L1FL, YF1AR, BG7TBP, T48K, 6W1RY, FY5KE, P40W and FS/AH8DX.

Andy, GM8OEG, sends an extensive update, so I'll have to précis it here. He has dabbled, or participated actively, in several contests, adding to his various totals and finds that, having a 'rareish' prefix, he even gets direct QSL cards turning up unsolicited from stations he works. His CQWW list includes: 10m VP5X, 8P1A, A61AJ, VP2E, FY5KE, PJ4J, 6W1RY, 5H3HK, 9J2KC, P49Y, V47KP, XE1CQ, 9Y4ZC, V31MD, FP/VE7SV (also worked 15, 20 and 40), HC8L, 5U7B; 15m PJ2T, VP2E, HC8L, CO8LY, FM5FJ, VP5DX, SU9NC, P49Y, HC1JQ, P40A, V26B, FG/K9NW, 8P1A, J37K, V26NR; 20m FM5BH, P43E. Then there were some nice RTTY ones such as PZ5RA and ZP6VT. Crispin, GM4FAM, writes that he, too, has been putting some nice ones in the log recently. To pick a few (mostly CW): 10m YI9GT, D44TD, 6W1RY, ST2T, HQ4DMR; 12m TJ3FR, TY5ZR, ZY0K, HZ1MD, TG9NX, 9J2BO, 9L1ADA, ZD7F, 9L/M0FDH, KP2L, VK8DP, D44TD, FG/K9NW, YA7X, PJ2/DL5CW; 15m CP6XE, 5V7BR, ZD7T, 9L1ADA, 9M2/G4ZFE, XX9C, KG4WW; 17m TX9, ZD7J, 5Z4YT1CS, VK9LA, 5T5SN, XE2K, FS/AH8DX, YA7X; 20m ZD7T, 9L1ADA, FG5FR, V7/K6NA.

Mike, G6HOU, was active on all bands with 100W for the CQ WW DX SSB contest and enjoyed the good conditions experienced between 24 October and 3 November. He has added BD7OH, YN4SU, CP6XE, HC8L, ST2T, 5H3HK, 9J2KC, YI9OM, ZP0R, HI3CCP, 5U7JB, FP/VE7SV and HC2GT on 10m, XE2K on 12m, and HC8L and SU9NC on 15m. He was also pleased to work both FP/VE7SV and VP2E on 40m and to make further progress on 160m adding SM, OH0 and YL. Martyn, G4JZO, is another new entrant, using just 5 watts and wire aerials. Finally, Dave, M0BVE, laments some of the poor conditions we had in mid-October, but when things picked up he managed 3B8MM and JT1CO on 12m, as well as FP/VE7SV and 9L1ADA 40m.

QSL MATTERS

Mike, G3TEV, who is QSL manager for Brian, 9J2BO, writes that he often gets requests from stations to put Brian's log on the eQSL website. However, Brian keeps his logs in paper form, and

QTH Corner

3Y0X: Stephen Grose, K4YL, PO Box 183, Flat Rock, NC 28731, USA.
5U7DX: (see TY5M).
600W: Thomas Lind, DL1QW, Saturnstreet 1, Castrop-Rauxel, Germany.
600X: Baldur Drobnica, DJ6SI, Zedernweg 6, DE-50127 Bergheim, Germany.
9L/M0FDH: Fred Hughes, 16 Hillside, DMAS, Camberley, Surrey, GU15 4NU.
9L1ADA: Ivo Pezer, c/o UNLB, Via U Maddalena 54, 72011 Brindisi - BR, Italy.
9N7BCC: Falk Weinhold, DK7YY, PO Box 700343, D-10323 Berlin, Germany.
A52CDX: Jean-Louis Dupoirier, F9DK, 11 rue Henri Barbusse, Magny Les Hameaux, France.
C93Q: Ralph Karhammar, W3/VK4VB1306 34th Street NW, Washington, DC 20007-2801 USA.
ET3AA: Box 60258, Addis Ababa, Ethiopia.
FP/DK8XT: Martin Groth, Kirchwerder Elbdeich 165A, D-21037 Hamburg, Germany.
FP/VE7SV: Richard J Moen, N7RO, 2935 Plymouth Drive, Bellingham, WA 98225, USA.
HK3JJH: Pedro J Allina, PO Box 81119, Bogota, Colombia.
TJ3FR, TJ3SP: Siegfried Presch, Wilhelmsmuehlenweg 123, 12621 Berlin, Germany.
TX9: (CW and 6m) Maike Voss, DL4XS, Friedrichsthal 21, 51688 Wipperfuerth, Germany.
TX9: (SSB and RTTY) Chris Sauvageot, DL5NAM, Guttenburg 19, 91322 Graefenberg, Germany.
TY5M: Dennis Robbemond, PA7FM, Loggerhof 11, 3181NS Rozenburg, The Netherlands.
TZ6M: (see TY5M).
TZ6VV, TZ6YL: Larry Erwin, Residence Les Horizons II, Batiment D, Route des Sanguinaires, 20000 Ajaccio, France.
V60: Fred Stenger, 6000 Hesketh Dr., Bakersfield, CA 93309, USA.
VK4SWE: Lyn Battle, Sweers Island, PMB 1 Karumba, Gulf of Carpentaria, QLD 4891, Australia.
VK9LA: Oceania Amateur Radio DX Group Inc, PO Box 513, Nambour, QLD 4560, Australia.
XW3DT: Alexey Sinchukov, PO Box T511, Vientiane, Laos.
ZD7F: Franz Berndt, DL9GFB, Heinrich-Heine-Strasse 1, D-18209 Bad Doberan, Germany.
ZD7J: Juergen Radtke, DL7UVO, Roettkenring 35, Berlin 13053, Germany.
ZD7T: Joerg Trautner, DL3NRV, Neuendorfer Strasse 5, DE-17379 Luebs, Germany.
ZY0K: Michael W Elliott, KQ0B, 6701 Blossom View Drive, Florissant, Missouri 63033, USA.

there is no intention of typing them up for any of the electronic QSL systems. However, as bureau cards can take a long time to work their way through the system, Mike is perfectly happy to receive requests via e-mail for traditional bureau cards: MIKE@g3tev.freeserve.co.uk Direct cards should go to Mike's callbook address. Rather than wait for Brian's logbooks, Mike maintains daily skeds with Brian and they have completed 3600 contacts since 1992. As Mike says, not bad for a 40m inverted-vee doublet at his end! Petr, OK1DOT, offers his services as a QSL manager (petr.gustab@seznam.cz). He is already doing the job for 9V1GO. Lots of address information this month, though I can never keep up with the plethora of QSL routes that get published, especially after the autumn contests. However, most information is readily available from the web.

THANKS

Special thanks go to the authors of the following for information extracted: *OPDX Bulletin* (KB8NW), *The Daily DX* (W3UR) and *425 DX News* (I1JQJ). Please send items for the **March** issue including your end-of year table scores by **22 January**.

FURTHER READING

RSGB IOTA Directory, 40th Anniversary Edition, edited by Roger Balister, G3KMA, available from RSGB Shop, members price £8.49 (non-members £9.99).
RSGB Yearbook 2005, edited by Steve White, G3ZVW, available from RSGB Shop, members price £14.44 (non-members £16.99).
Callseeker 2005 (all the contents of RSGB Yearbook plus lots more, on CD-ROM), available from RSGB Shop, members price £11.89 (non-members £13.99).
RSGB Prefix Guide, by Fred Handscombe, G4BWP, available from RSGB Shop, members price £7.64 (non-members £8.99).
RSGB Radio Amateur Operating Manual, 6th Edition, by Don Field, G3XTT, available from RSGB Shop, members price £16.99 (non-members £19.99). ♦

Petr, OK1DOT, is offering his services as a QSL manager (see text).

WEB SEARCH

IOTA:	www.rsgbiota.org
3Y0X:	www.peterone.com
RSGB Shop:	www.rsgb.org/shop

HF F-Layer, Propagation Predictions for January 2005

Compiled by Gwyn Williams, G4FKH

	7.0MHz	10.1MHz	14.0MHz	18.1MHz	21.0MHz	24.9MHz	28.0MHz
Time	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220
(UTC)	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020
*** Europe							
Moscow	6.61..377677	...32267....	...56672....	...7999.....	....998.....	....33......	.....
*** Asia							
Yakutsk	3.1...144444	...66.......	...5........	.....	.....	.....	.....
Tokyo	...1...11.1.	...1..11....	.....	.....	.....	.....	.....
Singapore	.......1...1	......22....	......31....	.....14.....	.....22.....	....111.....	.....1.....
Hyderabad	.....	.......22...	......23....	...11363....	...3356.....	....121.....	....11.....
Tel Aviv	6.6....77647	...2..382...	...64466....	...1554.....	....21......	.....	.....
*** Oceania							
Wellington	....35552...	....67751...	....7772....	....232.....	....12......	.....	.....
Well (NZ) (LP)	.....	.1..........	2........112	.....	.....	.....	.....
Perth	.....	.......1....	......11....	.....251....	.....23.....	...123......	....2.....
Sydney	.....	.....12.....	.....23.....	....466.....	....343.....	.....	.....
Melbourne (LP)	...31.......	...47.......	...28.......	.....	.....	.....	.....
Honolulu	.....	.....1......	.....	.....	.....	.....	.....
Honolulu (LP)	.....	.....	.....	.....	.....	.....	.....
W. Samoa	.....	....332.....	....342.....	....11......	.....	.....	.....
*** Africa							
Mauritius	1..........	3......32212	.......511.1	.....	.....	.....	.....
Johannesburg	67......2667	22......4545	23211	.......21...	.....112....	...13554....	....244.....
Ibadan	332.....2222	747.....5623	3..61..256..	...887785...	...88888....	...79998....	....888.....
Nairobi	11..........	.71....56767	..62113775.3	...21124....	...32345....	...5145.....	...1.11.....
Canary Isles	7763....7667	67.4...25666	....311352..	....22115...	.....	.....	.....
*** S. America							
Buenos Aires	2316......12	...3........	.....	....1.......	.....1.1....	.......1....	.....
Rio de Janeiro	...2........	...1........	.....	....2..11...	....21.1....	....1..1....	.......1....
Lima	.....	.....	.....	.....211....	.....321....	.....211....	.....11.....
Caracas	1	...2........	....1.......	.....1......	.....111....	.....652....	.....22.....
*** N. America							
Guatemala	.....	.....	.....	.....	.....	......1.....	.....
New Orleans	11.........1	.....	.....	......551...	......66....	......43....	.....
Washington	44.4......55	.1.......3..	.....2..2...	......331...	......55....	......11....	.....
Quebec	56.51....574	........14..	.....2113...	......87....	......88....	......76....	.....
Anchorage	66.411135435	........2...	.....	.....	.....	.....	.....
Vancouver	11..........	.....	.....	.....	.....	.....	.....
San Francisco	.....	.....	.....	.......1....	.....	.....	.....
San Fran (LP)	.....	.......1....	.......5....	.....	.....	.....	.....

Key: Each number in the table represents the expected circuit reliability, e.g. '1' represents reliability between 1 and 19% of days, '2' between 20 and 30% of days, etc. No signal is expected when a '.' is shown. **Black** is shown when the signal strength is expected to be low to very low, green when it is expected to be fair and red when it is expected to be strong.

The RSGB Propagation Studies Committee provides propagation predictions on the Internet at http://members.aol.com/g4fkhgwyn The page is updated monthly. The provisional mean sunspot number for November 2004 issued by the Sunspot Data Centre, Brussels, was 43.7. The daily maximum / minimum numbers were 76 on 1 November,and 26 on 21 Novemberrespectively. The predicted smoothed sunspot numbers for January, February and March are respectively: (SIDC classical method - Waldmeier's standard) 35, 33, 32 (combined method) 36, 35, 34. Longpath predictions are shown with (LP) following the path name. Higher input power and superior aerials have been used for these predictions; less well-equipped stations may find the longpath predictions somewhat inaccurate.

By Roger Balister, G3KMA

La Quinta, Mimbridge, Chobham, Woking, Surrey GU24 8AR.

E-mail: g3kma@dsl.pipex.com

IOTA

IOTA Manager Roger Balister, G3KMA, looks back at the IOTA activities at the HF Convention and speculates that there may be a future problem for radio amateurs using IRCs for QSLing.

IOTA celebrated its 40 successful years at the HF Convention at Gatwick over the weekend 22-24 October. Well-known IOTA chasers and DXpeditioners from around the world including a sizable group from Italy were present to enjoy the event and an IOTA stream ran on both days with a total of five hours of talks and island presentations. Those present at the Gala Dinner on the Saturday night could not have missed the enjoyment of this highlight occasion with the MC Bob Beebe, GU4YOX, working his magic.

The talk 'Onwards to 50 Years' gave a personal view on how IOTA might develop. It was focused on the forthcoming rewrite of the programme software rather than on any changes to IOTA rules or island listings. The 'Next Generation IOTA System' (NGIS) envisages the process of application submission, checking and database recording being done on-line on the Internet. If this can be achieved - and it is a major task - there will be considerable savings both in processing time for everyone involved and, with a suite of specially tailored internal data checks, savings also in detailed management intervention. An essential part of NGIS will be the ability to provide a range of statistical outputs. The talk also mentioned our intention to link IOTA into the ARRL's Logbook of The World (LoTW) and many IOTA enthusiasts were interested to hear from Wayne Mills, N7NG, on the Sunday morning about progress to date in introducing LoTW for DXCC.

IOTA's anniversary cake at the HF Convention.

A PROBLEM LOOMING WITH IRCs?

A friend reported recently receiving five new cards for IOTA via the bureau. Perhaps no great surprise, except these cards took her to 951 groups confirmed, so they were not run-of-the-mill QSLs one might expect to receive via the bureau. As she said, "the bureau works, it is just a question of being patient."

I mention this because a problem seems to be looming with International Reply Coupons (IRCs). As many readers will know, these are commonly used by amateurs requiring direct reply QSL cards since they are exchangeable in most countries for stamps to the value of airmail postage at the lowest weight band to any destination. The problem is that the latest IRCs introduced a couple of years ago carry a note that they have to be exchanged before 31 December 2006. Although some postal authorities may exercise flexibility, we have to expect that most will refuse to redeem these IRCs for stamps after the expiry date. Even if IRCs with a later validity date are issued, there will still be a large number in circulation with the 2006 cut-off date. As no-one will want to be caught with these, there could well be a move away from accepting IRCs by DXpeditions and, generally, DX / IOTA stations who receive a lot of direct requests.

The alternative of sending two US dollars (one is no longer sufficient to many destinations) increases the cost of direct QSLing significantly. While many amateurs have gone down that route, albeit reluctantly, others hesitate. Could there be a trend back to sending cards via the bureau? This would be welcomed if in turn it meant greater use of the bureaus by DXpedition stations. For those who are patience-challenged Logbook of The World (LoTW) may provide a quicker method of getting rare DX and, we hope in due course, rare IOTAs, confirmed. Food for thought.

ANNUAL UPDATE

Final notice. The last date for mailing applications or updates to checkpoints for inclusion in the 2005 Honour Roll and other performance tables is 1 February 2005. If postmarked after that date, they will be processed in the normal way but the scores will be held over to the following year. Listing in the tables is restricted to those members who have updated their scores at least once in the previous five years. In the case of the 2005 tables this means since the 2000 annual listings. If you wish to remain listed, check to see that you qualify and, if not, make a submission on or before 1 February 2005. The tables will appear on the RSGB IOTA website in the spring.

Don't forget. Shortly after compiling the 2005 tables the IOTA Committee will implement the second part of the Conversion Exercise schedule drawn up at the time of the major island listings revision in year 2000 and withdraw credit for contacts with a small number of islands that have been found not to meet IOTA qualification criteria.

If you have not done so already, check your records for the IOTA groups concerned - these have been listed in an annex in the *IOTA Directory* since 2002 - to see if you need to resubmit, or send replacement, cards to your checkpoint (see 'IOTA' column, *RadCom* November 2004 p80). ♦

ADDITIONS TO IOTA DIRECTORY - 40TH ANNIVERSARY EDITION

AF-095/Pr	TJ	Cameroon group (Cameroon)
AF-096	3X	Guinee-Maritime Province North group (Guinea)
AS-169	VU	Maharashtra State group (India)
AS-170/Pr	R0I	Shelikhova Bay group, Magadanskaya Oblast (Russian Federation - Asia)
AS-171	4S	Sri Lanka's Coastal Islands (Sri Lanka)
AS-172	R0C	Sea of Okhotsk Coast North group (Russian Federation - Asia)
AS-173	VU	Tamil Nadu State group (India)
OC-266	VK6	Western Australia State (North Coast) Centre group (Australia)
OC-267/Pr	VK9	Coral Sea Islands Territory North (Australia)

Pr = Provisional

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WEB SEARCH

RSGB IOTA Programme:	www.rsgbiota.org
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IREF:	www.islandradio.org

By Bob Treacher, BRS32525

93 Elibank Road, Eltham, London SE9 1QJ.

E-mail: brs32525@compuserve.com

Listening during CQWW

This time Bob Treacher reports on listening activity by SWLs, particularly during the CQ World Wide DX phone contest at the end of October.

Robert Small, BRS8841, starts the ball rolling. He comments that it made a pleasant change providing his report this time as conditions had been so good. The bands always seem better during the CQ World Wide contest weekend as there is so much activity. The SFI (solar flux) was high - in the 130s - and even 28MHz provided some excellent conditions (we will clearly pay for this: as I write this there is an aurora talking place with SMs working into the UK on 28MHz). Robert was really enthusiastic about HF conditions during the CQ World Wide phone weekend, with 21 and 28MHz wide open on both days and some very good DX to be heard. Robert also picked up two new countries on 1.8MHz: VR2MY (Hong Kong) and HC8L (Galapagos); he also logged FP/VE7SV (St Pierre & Miquelon), but that was not new. He found nothing new on 3.5MHz, but had a great time on 7MHz logging R1MVI, 9G5OO, TC2K4J, FM/DL5CF, 9L1ADA, VP2E and FP/VE7SV.

10MHz provided Robert two new countries in the shape of TX9 (Chesterfield Is) and ZD7F (St Helena). Other DX included S79RJ, 7W0AD, FP/NN9K and YI9GT. 14MHz had been interesting: Robert notes D4B, ZK3DX, TF4M, K7ASU/KH9, OA/9A6DX, V6O, T2AH, ZK2ED and VK4WWI/8 (OC-185). Moving up to 18MHz he logged ZD7T on CW and FK/KF4TUG (OC-079), FW8RG and V7/K7ZZ. However, the star bands were 21 and 28MHz. Some of the DX noted on 21MHz included BG1TNA, BY1CJL, DT04YL, 3D2LL, 8P6GU, TJ3FR, TX9, A61R, A52CDX, BV0J and V31MD. The pick of a long list of DX heard on 28MHz was 5Z4/YT1CS, S79SO, S79MH, YA7X, Z24S, ZD8I, XV9TH, HC8L, 5H3HK, ST2T, C91Z, 6W1RY and VK9XD . . . and finally, just to show that 24MHz had been good, too, I have CW reports of P29XF, A92GR, TJ3SP, TX9 and XW3DT.

STATISTICS

Good to hear too from David Whitaker, BRS25429. He provided some facts and figures from the CQ World Wide weekend and listened for 30 hours of the contest. Despite my creeping years I still manage to do about 30 hours of listening, while Arthur Miller, GW5218, listened for 38 hours. Between them they heard 162 DXCC entities - 129 on 28MHz, 123 on 21MHz, 129 on 14MHz, 91 on 7MHz, 71 on 3.5MHz and a very respectable 58 on 1.8MHz.

David considers JD1AMA on 21 and 14MHz as his best catch, while he heard XX9C on five bands. Arthur Miller's best were R1ANF (South Shetland) and FO5JV on 20m, and VK9XD on 28MHz. David will be holidaying with receiver in the Canaries again before the next column, so we may find out more about band conditions from there next time.

Sean Gilbert, G4UCJ, donned his ISWL G4001 SWL callsign and provided his DX totals for the year (**Table 1**). I mentioned in an earlier column that I would run a table this year but Sean's is the only one I have received. I hope that it might spur other listeners on to give me some 2004 year-end figures for the next column. One of the enjoyable parts of SWLing is keeping statistics so that progress in chasing, for example, the DXLCA award can be monitored. Other listeners simply keep year-on-year statistics as a record of how good (or bad) any year has been in terms of DX chasing. I do hope that more SWLs consider keeping such records in 2005.

Sean's totals have been improved by the recent good conditions on 28 and 24MHz. He noted the following on 28MHz: A61AJ, VK6KRC, W6YA, 9J2SZ, 5R8FU (all SSB) and FG/K9NW, XE3ARV and 8P6BX (CW), and these on 24MHz: D44TD, FP/VE7SV and FG/K9NW (all CW), and TF3FK (RTTY). He also heard the USA on the medium wave broadcast band (WWZN on 1510kHz) at S7 with deep QSB. Sean was already looking forward to the CW leg of CQ World Wide at the end of November.

M3 HOPEFULS

Doug Johnstone, BRS54163, has been busy DXing and also studying for his M3 licence with his blind sister-in-law, Betty. They hoped to be able to sit the exam before the end of 2004. Good luck to you both! Doug had done most of his listening on 18MHz and had heard 4X, A6, JW and TF.

Peter Webb had been in touch with HQ about taking a Foundation course in the Tiverton, Devon, area but it seems that there are none in that area. If any amateur in that area of Devon can help Peter to get an M3 licence perhaps they can write or e-mail me so I can put them in touch with Peter. Peter had found the bands good, too. He lists a good few stations that he had heard on 14MHz. He reported receiving 65 QSL cards from the RSGB bureau taking his total to 21,402! He has cards from all DXCC entities except TT8, 5U7 and five rare islands – we can have a good guess at which ones they are. Even at 83, Peter can still read CW at 20WPM. ♦

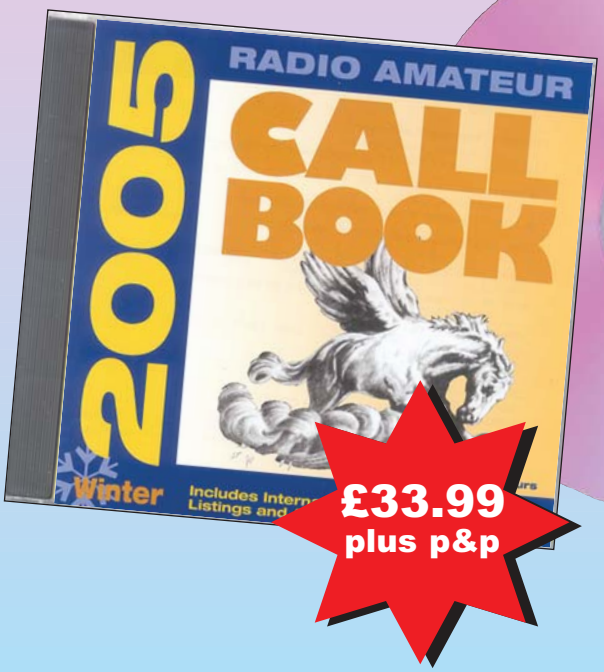
Dieter Reibold, DE0DKR, is seen here with his son Karsten recording their weekly DX programme for the German service of HCJB, Quito, Ecuador (you can hear Dieter and Karsten Saturdays at 0500 - 0530UTC on 9780kHz).

TABLE 1

Band	Total	CW	SSB	DIGI	RTTY	PSK31	SSTV
160m	82	81	23	0	0	0	0
80m	120	105	49	45	31	39	0
40m	170	149	60	84	67	64	4
30m	149	146	0	19	7	13	0
20m	200	153	71	130	90	100	21
17m	134	113	35	47	19	39	0
15m	183	138	54	108	64	82	1
12m	75	66	11	11	9	5	0
10m	82	73	27	11	6	6	0
6m	53	47	38	2	1	1	0
Total	241	221	137	161	122	130	24

Table 1: 2004 entities heard by Sean Gilbert, G4001 / G4UCJ.

New winter 2005 Edition



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Contest

The 80m Club Championships were a great success in 2004 and are being repeated starting in January 2005. This month, the 2004 results in full.

This month I'm thrilled to be able to include the results of the 2004 80m Club Championships, as these have proved a real success. To me, the greatest thing is seeing the numbers of different operators who have taken part. I hope it inspires you, as it does me, to get involved in the 2005 sessions. Remember that there are three sessions each month, one SSB, one CW and one Data. See you on 80m!

CONTESTS THIS MONTH

Apart from the Club Championships getting underway again as noted above, 80m gets a good bashing this month in the shape of the two Affiliated Society contests. CW takes place on 9 January and SSB on the 15th. The format is simple, four hours and it's all about rate! Work as many as you can, and let your club secretary know how many you've worked and he / she will put the team together for the club. Have a go! It's a great contest. Last year, particularly in the SSB leg, it was good to see some ex-Class B callsigns featuring highly in the results listings. Hopefully there will be more this year, and perhaps on CW as well.

For the data contesters, ARRL's RTTY Roundup is a great event held on the weekend of 8 / 9 January. This would be a good event to have a go at if you had your first attempt at data contesting last year during the Club Championships. If you can make contacts on 80m, you'll find HF a doddle!

On VHF, the monthly activity contests continue as in 2004. These sessions, like the 80m ones, are a tremendous encouragement to get on the air, after a hard day at work. The first two of the 70MHz Cumulative sessions take place on 16 and 30 January. I haven't done these sessions portable for many years, but when I did, I do remember snow being involved on more than one occasion! So, do make the effort to come on and support the event. Remember too, that with the greatly increased activity on 70MHz FM, it will be well worth looking on that mode as well as CW and SSB.

Members of the Cray Valley Radio Society, M8C, putting up a 2-ele Quad and 3-ele tribander for the CQ WPX SSB contest in March 2004. Both antennas are at 36ft on steel scaffold poles.

Contest Calendar

HF Contests

Date	Time	Contest	Mode	Bands	Exchange
3 Jan	2000-2130	RSGB 80m Club Championship	CW	3.5	RST+SN
8/9 Jan	1800-2400	ARRL RTTY Roundup	RTTY	3.5-28	RST+SN
9 Jan	1400-1800	RSGB Affiliated Societies Contest	CW	3.5	RST+SN
12 Jan	2000-2130	RSGB 80m Club Championship	SSB	3.5	RST+SN
15 Jan	1400-1800	RSGB Affiliated Societies Contest	SSB	3.5	RST+SN
20 Jan	2000-2130	RSGB 80m Club Championship	DATA	3.5	RST+SN
22/23 Jan	1200-1200	BARTG RTTY Sprint	RTTY	3.5-28	RST+SN
29/30 Jan	0000-2359	CQ 160m	CW	1.8	RST+DXCC Country
29/30 Jan	0600-1800	REF (French Contest)	CW	3.5-28	RST+SN
29/30 Jan	1300-1300	UBA (Belgian) DX	SSB	3.5-28	RST+SN

VHF Contests

Date	Time	Contest	Mode	Bands	Exchange
4 Jan	2000-2230	RSGB 144MHz activity & Club Championship	ALL	144	RST+SN+Locator
11 Jan	2000-2230	RSGB 432MHz activity	ALL	432	RST+SN+Locator
16 Jan	1000-1200	RSGB 70MHz Cumulative	ALL	70	RST+SN+Locator+QTH
18 Jan	2000-2230	RSGB 1.3GHz/2.3GHz activity	ALL	1.3G/2.3G	RST+SN+Locator
25 Jan	2000-2230	RSGB 50MHz activity	ALL	50	RST+SN+Locator
30 Jan	1000-1200	RSGB 70MHz Cumulative	ALL	70	RST+SN+Locator+QTH

The full rules of RSGB contests are published in the RSGB Yearbook 2005 and are also available at www.contesting.co.uk/hfcc (HF Contests) and www.blacksheep.org/vhfcc (VHF / UHF Contests). Both sites are linked from www.rsgb.org

ARRL DX FROM J8

Congratulations to Dave Cree, G3TBK, who achieved world 3rd place on SSB and world fifth on CW, both low-power (100W) all-bands class, operating as J88DR from St Vincent and the Grenadines. Dave found conditions very different to operating from the UK in those contests, only using dipoles for the low bands and a multiband vertical for HF. But, with the DX callsign and situated on the USA doorstep, he made 3700 QSOs on phone and 3100 on CW.

Dave plans to be QRV again from J8 for the 2005 events (and also the RSGB Commonwealth Contest), subject to clearance from his wife! Dave is also doing his bit encouraging the next generation of contest operators. His youngest son, Edward, M3TBK (13) took several shifts on SSB Field Day and Dave's eldest son, Alistair, M3DVQ (15), is doing well on data modes: he insisted on setting a laptop up for RTTY and SSTV for the last trip to J8, which resulted in a lot of folks getting a new one. Both took the Club Championship very seriously, even to the extent of doing homework early! The 80m dipole was changing length twice every month to be resonant for each mode.

70MHz CUMULATIVE CONTESTS, 2004

Twenty stations competed for honours in the 2004 4m Cumulative Contest. As usual, conditions were extremely variable across the sessions with deep QSB. Many entrants in the south of the UK reported high local noise levels.

The majority of the logs were received via e-mail. Maybe next year all logs will be submitted this way?

The standard of logging was very variable. In most sessions, at least three stations managed to submit perfect logs – but it was not the same three stations in each session. There was no one main cause for the loss of points. Callsigns, signal reports, serial numbers, locators and QTH errors all caused loss of points in nearly equal proportions.

A few logs arrived after the closing date for this series of contests (16 days after the date of the last session). Please try to submit your logs on time so that the results can be produced quickly. All of the late logs have been included in the results on this occasion.

In the Single Operator Fixed Station section, Robert Ferguson, GD4GNH, once again established a dominant position by winning every session bar one. Bill Capstick, G3JYP, claimed the runners-up spot in this section. The Flight Refuelling Amateur Radio Society, G4RFR, were the winners in the Others section with Ross Wilkinson, G6GVI/M, as the runner-up. Finally, the 25W / Single Antenna award goes to Bob Offer, G1ZJP, operating as M1MHZ.

Thank you to G3MEH for his very useful check log.

Ian Pawson, GOFCT

Section O

Pos	Callsign	11/1	25/1	8/2	22/2	14/3	Total	QSOs
1	G4RFR *	0	4894	4941	6143	3973	3000	123
2	G6GVI/M *	2240	2068	1902	1728	2475	1428	51

Section SF

Pos	Callsign	11/1	25/1	8/2	22/2	14/3	Total	QSOs
1	GD4GNH *	12050	11674	0	11630	13260	3000	171
2	G3JYP *	3625	5768	4198	2751	6617	1986	90
3	G4DEZ	4093	3933	4224	4113	4174	1692	98
4	G3IKR	4132	4258	3706	4795	5069	1671	181
5	G0ODQ	3750	3249	2663	3060	4733	1297	139
6	G3TCU	3318	3910	2393	0	4001	1201	105
7	G8SRL	3654	3450	2234	2846	2591	1126	100
8	G1EHF	3178	2620	2233	2290	2270	1015	112
9	M1MHZ *	3804	0	0	4695	3916	1013	68
10	G4SJH	0	2601	1662	1659	0	757	52
11	G1KHX	2297	3255	1121	1931	1981	733	76
12	G8EFU	2422	1786	1343	1927	1613	682	98
13	G0UPU	0	0	523	926	1161	289	24
14	GM4DIJ	272	451	0	694	960	169	17
15	GM3TAL	0	0	0	0	1207	91	4
16	G4CZB	0	0	0	1037	0	89	8
17	GM4VVX	0	412	0	0	0	35	1
18	G3VQO	0	0	0	0	156	11	3

Check Log: G3MEH.

80m CLUB CHAMPIONSHIPS 2004

The launch of the 80m Club Championship proved to be one of the most popular RSGB Contesting events in recent years. Certainly the simple QSO format with the added spice of data modes has brought about enhanced participation from some clubs with many people having a go for the first time. Many of the 'old hands' of SSB / CW contesting had the challenge of setting up a station to do PSK and RTTY for the first time.

Now to the results. Congratulations go to the De Montfort University ARS for their overall win. They receive the new G5RV trophy. Second placed Newbury & DARS gave a good chase, leading the table for a time during the early part of the year. Note must also be made of the very good performance put in by G4ARI who won two out of the three QRP sections and came a close second in the third.

Hopefully the underlying emphasis of getting members of clubs to work to help each other to get on air and submit logs will continue in 2005. Maybe some will extend this approach to participation in other contests too.

Justin Snow, G4TSH

Pos	Club Name	Total	CW	SSB	Data
1	De Montfort University ARS	11498	4355	4121	3022
2	Newbury & DARS	8801	3390	3669	1742
3	Grimsby ARS	7406	2892	2807	1707
4	Bristol CG	6214	2428	2322	1464
5	Cray Valley RS	4633	1751	2385	497
6	Colchester Radio Amateurs	4116	2229	1538	349
7	Wythall ARC	3114	494	1400	1220
8	Scunthorpe Steel ARC	3064	1497	1364	203
9	Lichfield ARS	2852	1547	1305	0
10	Echelford ARS	2704	1417	917	370
11	Norfolk ARC	2305	831	737	737
12	Horsham ARC	2288	860	724	704
13	Three As CG	1720	1068	438	214
14	Stratford-on-Avon & DRS	1709	745	793	171
15	Reading & DARC	1559	809	589	161
16	Guernsey ARS	1506	371	374	761
17	RAF Waddington ARC	1414	757	531	126
18	Addiscombe ARC	1130	591	113	426
19	Buxton RAS	1092	51	972	69
20	Bracknell ARC	1069	1054	15	0
22	Stevenage & DARS	957	407	498	52
21	Contest Cumbria	899	729	170	0
23	Horndean ARC	880	574	306	0
24	Warrington ARC	841	277	425	139
25	Farnborough & DRS	757	580	126	51
26	Dragon ARC	721	286	380	55
27	Clifton ARS	700	504	95	101
28	Contest Cambria	643	187	234	222
29	Orkney ARC	602	219	383	0
30	Torbay ARS	584	23	301	260
31	Worthing and DARC	455	124	316	15
32	Bolsover ARS	431	32	245	154
34	Ripon & DARS	398	220	178	0
33	Cheltenham ARA	329	263	66	0
35	Peterborough & DARC	329	189	140	0
36	Pye & Lowestoft DARC	300	300	0	0
37	Mid Beds Contest Association	267	267	0	0
38	FISTS CW Club	210	210	0	0
39	LSWC	187	45	142	0
40	Martlesham RS	175	92	83	0
41	West Kent ARS	170	0	170	0
42	BARTG	143	0	82	61
43	Meirion ARS	102	102	0	0
44	Aviators Contest Club	98	98	0	0
45	Taunton and District ARS	91	36	55	0
46	Cambridge & District ARS	79	79	0	0
47	Chiltern DX Club	74	0	0	74
48	Stockport RS	69	57	12	0
49	Yorkshire Cluster Support Group	68	68	0	0
50	Basingstoke ARC	55	0	55	0
51	Moreton ARCA	44	44	0	0
52	Southdown ARS	40	0	40	0
53	Ayr ARG	40	40	0	0
54	Northampton RC	39	0	39	0
55	Edgware & DRS	20	20	0	0
56	Sheffield ARC	20	20	0	0
57	Hornsea ARC	18	18	0	0
58	Barking R&EC	16	0	16	0
59	Hadley Wood CG	13	13	0	0
60	Cambridge University WS	12	0	12	0
61	Mid Cheshire ARS	9	0	9	0
62	Chelmsford ARS	3	0	3	0

Individual section

100W Section CW

GW3KDB ..666
G3RVM.....641
G4BUO 564
G3ZGC 554
G3ORY 547
G3GLL 546
M0AJT 544
G3TKF 522
G3YAJ 520
G3RSD 514
G4OGB 511
G0ORH 510
G3YEC 497
G3TBK 447
G3ZRJ 434
G3RIR.....433
G0MTN.....432
G3XTT 421
G3TXF 416
G4EBK 413
G3PDH 409
G3WVG.....409
G4DDX 405
G4EOF 399
G3SET 390
G3LIK 388
G3KLH 387
G3NVO 381
G3SJJ 374
G4FON 361
G0RAF 357
G0WKW 334
G3WZT 334
G3MCK.....330
G3IZD 328
G3UFY 323
M0BZU.....314
G4BCA 309
G3JJZ 300
G3YHV 296
GM0OGN ..278
G3NKS 261
G3ZBU 253
G0MRH 252
G3KNU 245
G4IIY 245
G3ZBE 237
G3VIP 232
G3WYW 230
G3LDI 228
G3JRM.....226
G3SWC.....224
G4LPD 224
G0VQR 207
G0AOJ 204
M0TTT 195
G3NKC 194
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GW4BLE....189
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G3SXE 179
G4KTI 179
G3WGV.....177
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G2DWB 3
G0POT 2
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Sam Jewell, G4DDK

Blenheim Cottage, Kirton Road, Falkenham, Ipswich IP10 0QU.

E-mail: jewell@btinternet.com

Website: www.btinternet.com/~jewell

Microwave

A large high-pressure system crossed the UK in early September, leading to excellent propagation conditions on the microwave bands. Sam reports on some long-distance contacts made during this event, as well as describing his visit to Microwave Update 2004.

Merry Christmas and a Happy New Year to all readers of the 'Microwave' column. May you all have a successful and DX-filled 2005.

It seems strange to be writing the above words whilst I sit here in my shack, in mid-September, preparing my column report on the recent extensive band opening on the higher bands. It's 21°C outside, and the higher bands have just quietened down after one of the best 'lifts' in propagation conditions seen in Western Europe in some time.

BAND ACTIVITY

On 2 September, a high-pressure system moved across the UK. As it started to recede north-east, improving propagation allowed many UK microwave operators the opportunity to work many new stations and QTH locators. From East Anglia, conditions appeared have been best on a roughly north/south path.

Reporting from near Fraserburgh, Scotland, is Martin Andrew, GM6VXB (IO89). Using his barefoot TS-2000X on 23cm with 10W output to a 55-element antenna at 15m AGL, Martin reports working 19 stations on the evening of 7 September, ranging from PA0, OZ, and DL through G, with the best DX being DK3AK at 988km. Signal levels were often well over 59. On the 8th, Martin contacted nine stations on 23cm, mainly to the south of his location, with stations in both F and G being worked. On the 8th, his best DX was F5HRY (JN18) at 1041km.

By the 9th, conditions were beginning to drop in the south of the UK but Martin was still able to work OZ1CTZ (JO43) and reports that the band was "wide open" to LA, SM and OZ, but there was little additional activity. Presumably Martin was hearing Scandinavian beacons. He now plans to re-activate some old 13cm-band equipment ready for next year. I will be waiting to work him, of course.

Allan Stewart, GM4ZUK, operated portable on 23cm from two separate locations on the 8th and 9th. He is pictured operating from IO86RW on the 8th, using just 10W from his TS-790 to a single Yagi antenna on a portable mast. Allan's log extract shows he worked 29 stations on the 8th, mainly towards the south and east into OZ, SM, DL, G, PA0, and F. Using Gridloc on my PDA to calculate the distances, Allan's best DX on the 8th seems to be F5HRY (JN18) at 975km. Allan then moved to IO87VE for the 9th, where his log extract shows he used the same portable equipment on 23cm to work 21 stations. Clearly, propagation had moved further to the east from Scotland with stations in OZ, SM and DL appearing in the log. The best DX on the 9th was SM7LCB (JO86) at 1158km. My thanks to Allan for the photograph of his portable location in IO86 which clearly shows the presence of the inversion responsible for this fine DX.

Sam, G4DDK (JO02), worked Arnold, HB9AMP/P (JN39), at 59 on 10GHz on the evening of 8 September, showing that conditions from the east of England were extending at least down to the French/Swiss border area. A QSO on 6cm over this same path failed, however.

John Quarmby, G3XDY (JO02), sent in a report on his activity in this same lift. He reports that signals from GM in particular were huge for several days on end. From his home location near Ipswich, John worked 39 stations on 23cm, 16 stations on 13cm, two on 9cm, two on 6cm and 11 on 3cm between 1 and 9 September, with his best DX on 23, 13 and 6cm being SM4DHN (JP60) at 1176km. Although they tried for 20 minutes, they were unable to make a QSO on 3cm. GM4LBV (IO86) was, however, a new square and country on 3cm. GM8CBQ (IO87), Aberdeen, at a distance of 607km, was running just 10W on 23cm to an indoor 14/14 slot-fed Yagi when John worked him.

John also reported his results for the IARU Region 1 UHF/SHF and RSGB 432MHz -248GHz multi-band contest held over the weekend of 2 / 3 October. Conditions were fairly flat on the Saturday, with some 3cm rain-scatter contacts to PA0, but reported as improving on Sunday. John's 2m talkback antenna had a fault and was unusable, so the higher-band contacts were set up by QSY from 23cm, or on ON4KST/WW Convers.

GM4ZUK/P operating portable from IO86RW during the September 2004 opening.

I would like to thank G3LQR, G4PBP and G3PHO for their reports. They help to enhance the picture of how conditions develop and change. Please keep them coming.

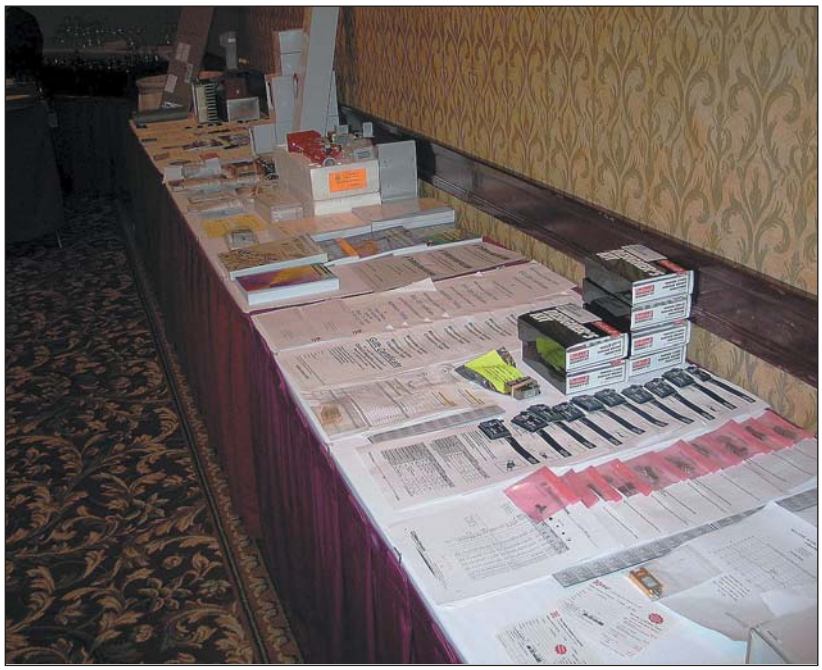
CRAWLEY MICROWAVE ROUND TABLE

Crawley Amateur Radio Club hosts an annual get-together for microwave enthusiasts at its 'log cabin' club house located near Crawley. This year, the Crawley Round Table event, held on Sunday 26 September, featured talks on the middle bands, DDS design, environmental control, a new dish positioning system, and light-wave communications, as well as a small 'bring and buy' facility and an opportunity to meet friends and chat. Around 30 microwave enthusiasts turned up for the meeting and the varied programme was obviously enjoyed by all present.

I have been a regular visitor to the Crawley Microwave Round Table for many years and always enjoy the relaxed atmosphere that Derek, G3GRO, and his fellow club members are able to create. I'm looking forward to next year's event already.

MICROWAVE UPDATE 2004 (MUD 2004)

This was my eighth Microwave Update and my third in the Dallas area. MUD 2004 was held at the Harvey Hotel near the Dallas – Fort



LEFT PHOTO BY GM4ZUK; RIGHT PHOTO BY G4DDK

Just some of the 'door prizes' given away at MUD 2004.

Worth airport on 14 – 16 October. There can be little doubt that this is the premier amateur microwave radio event of the year. It attracts visitors from all over the globe, which this year included a record size group from the UK, together with visitors from Australia, Japan, Belgium, and Canada in addition to a very large contingent from the USA.

As is traditional at MUD, the Thursday was reserved for a Texas-size surplus tour, which I calculated to be 150 miles along the route we took. The tour was organised by Kent Britain, WA5VJB, and, as well as the 10 places visited around Dallas and Fort Worth, Kent managed to arrange lunch at a Mongolian restaurant in Grand Prairie!

It is impossible to do justice here to the amount of surplus and new parts we had access to during the tour. My favourite surplus store is Ted Buell's Test Equipment Services Company commonly known as TESCO. We spent a lot of time at TESCO searching out millimetre-wave dish antennas and WR42 (WG20) parts. If you want it, Ted has it.

The antenna test range was set up on the Friday morning and antennas from 902MHz to 47GHz were tested for gain against known gain reference standards. It was an unnerving experience, standing in the car park at the rear of the Harvey Hotel with UPS and DHL parcel service jets winging close overhead on their approach to Dallas – Fort Worth airport. Such is Texas.

The talks programme featured an overview of UK microwave activity by our own Peter Day, G3PHO. This was well received and later led to an interesting discussion with one of the Californian visitors as to why 'rovering' is not so practical in the UK as in the USA. Needless to say fuel costs, vehicle fittings and distances were prominent in the discussion.

For me the talk on 'Millimetre-Wave LO References and Phase Noise Considerations', by Brian Justin, WA1ZMS, was the most informative session. Not only was the subject material well explained, but it was clearly applicable to wavelengths much longer than just the millimetre variety.

MUD 2005 is scheduled to be held on 27 – 30 October in Cerritos, California, and will be hosted jointly by the San Bernardino Microwave Society and the Western States Weak Signal Society. From previous visits to this area I know that this is close to Anaheim and Disneyland, as well as Knott's Berry farm and Long Beach, so it might be a great opportunity for a family visit to this entertaining area of the USA. It is sure to be an outstanding event.

GALILEO

All microwavers should by now be aware of this potential threat to the amateur 23cm band.

Galileo is a civil global satellite navigation system very similar in concept and operation to GPS, which is being developed under EU funding. It will comprise 30 satellites, in medium orbits, and is currently in the initial development phase. Initial operation is likely in 2009. Agreement was reached recently with the USA on sharing GPS frequencies and on the signal structure for the navigation signals which are spread-spectrum type. *Galileo*, however, also plans to radiate signals on a channel, designated as E6, which covers 1240 to 1300MHz. In this channel, the satellites will radiate spread-spectrum signals of the same type and ERP as the other navigation signals, but these are for what is called 'Commercial Service' and 'Public Regulated Service'. Very little has been published about what these services will provide. E6 is a threat to our use of the 1296MHz band for weak-signal and EME work, and a threat to all our other uses, because the intrinsically weak level of the E6 signals makes them vulnerable to interference. We have coexisted for years with radar because of the robust tolerance of radar to interference, but *Galileo* will, as a primary user, be very much more difficult to coexist with. The threat to our world-wide 1296MHz allocation is real. Currently, ITU studies are investigating whether the ATC radars can coexist with Galileo in E6, we must hope that these, when completed, may influence the programme.

The UKµG plans to submit a paper to the next IARU Region 1 conference, through the RSGB Microwave Manager, highlighting this possible threat. Meanwhile, we are using all our contacts to find out exactly what is likely to happen, and when, and also what other countries are doing about it.

My thanks to Peter Blair, G3LTF, for the *Galileo* contribution which, as our American friends say, 'heads up' on an important issue.

COLUMN INPUT

That's it for this issue. Please send your activity contributions to the address at the top of the first page. The latest date for copy is 7 January for inclusion in the March column. ♦

WEB SEARCH

UK Microwave Group:	www.microwavers.org
North Texas Microwave Society (NTMS):	www.NTMS.org
San Bernardino Microwave Society (SBMS):	www.ham-radio.com/sbms
Contest information:	www.g3pho.free-online.co.uk/microwaves/rules2004.html
Crawley Amateur Radio Club:	www.carc.org.uk

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*8-bands 40-6m (inc WARC)
*300W (PEP)
*Very high 'Q' 2.5" coil
*0.8 / 1.67m telescopic whip
*Standard 3/8in fitting
*Max/min height: 1.67m/0.8m
*Mobile or base use

£89.95 B

MFJ-260C Dummy Load

MFJ-260C 1.5MHz - 150MHz 300W
50 Ohm SO-239
*Size 180 x 57 x63mm *Weight 450g

Handles 300W for 30 seconds and lower powers proportionally longer.

£37.95 B

MFJ-1708 NEW

RF Sense Transmit/Receive Switch

*Fitted with relay *Delay adjustment *3x SO-239 sockets *2x phono sockets *LED power indicator *Power off defaults to transmit mode *Power 12V DC *Size 102 x 72 x 40mm *Weight 200g

£79.95 B

MFJ-971 £99.95 B

QRP portable tuner, 300/30/6W. Wire, coax or balanced.

MFJ-1026 £189.95 C

Active Antenna, 1.8-30MHz with noise canceller.

MFJ-901B Versa Tuner

This compact tuner is a low cost alternative where the main station already has a VSWR meter and just requires the 'bare bones' tuner. It will handle all types of aerials, match coax fed systems, long wires and balanced feeders and is very simple to use. It retains the basic MFJ T-network that has a wide impedance matching capability.

£85.95 B

MFJ-902 Travel Tuner

*3.5-30MHz
*150W
*Mobile & Portable use
*SO-239 sockets
*Size: 90 x 60 x 80mm

£74.95 B

MFJ-259B

Full diagnostic information about your antenna. 1.8 - 170MHz. Totally portable. Great value.

£259.95 B

MFJ-269

The most comprehensive diagnostic analyser ever made. 1.8 - 170 plus 415 - 470MHz

£349.95 B

MFJ-461 Morse Reader

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

£84.95 B

WATERS & STANTON

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Norman Fitch, G3FPK

40 Eskdale Gardens, Purley, Surrey CR8 1EZ.

E-mail: g3fpk@compuserve.com

VHF/UHF

This month, a plea for your new year resolutions to include courteous operating standards, details of what a Linux-PC radio can do, and news of some impressive auroral openings on the VHF bands.

A very Happy New Year to all readers and contributors. A new year traditionally starts with resolutions which, for radio amateurs, can cover a multitude of aims; anything from fixing a dodgy bit of soldering on a microphone lead to a major project such as building a new, high power amplifier. It's also an appropriate time to consider our operating procedures by adhering to band plans and ensuring that the quality of our transmissions is beyond reproach.

In this month's post bag there were two instances worthy of comment. The first concerned the 50MHz band plan in which 50.110MHz is the inter-regional calling frequency. For example an appropriate use would be for a station in Britain in IARU Region 1 to put out a CQ call because he or she could copy a beacon in North America, Region 2. Should a reply result, the accepted Code of Practice requires the stations to QSY. During a recent period of intense auroral activity, covering a huge area from Canada in the west to Asiatic Russia in the East, a contributor heard a UK station occupying 50.110MHz with persistent CQ calls, thus obscuring any weak DX that might have been workable. When told about the conditions, the station said he would work whom he liked on that frequency.

Another example was on 145MHz when a station politely informed some newcomers that they were causing interference to 2m FM channels 12.5kHz away due to their using old transceivers that still had the deviation set for 25kHz spacing even though 12.5kHz channel spacing on 2m has been the norm for many years. So, if there are any readers who have acquired these older rigs, please make sure that the deviation is correctly set for 12.5kHz channel spacing. This usually involves tweaking a potentiometer on a circuit board and is covered in all the operating manuals. Alternatively there are bound to be local amateurs who could help.

EVENTS

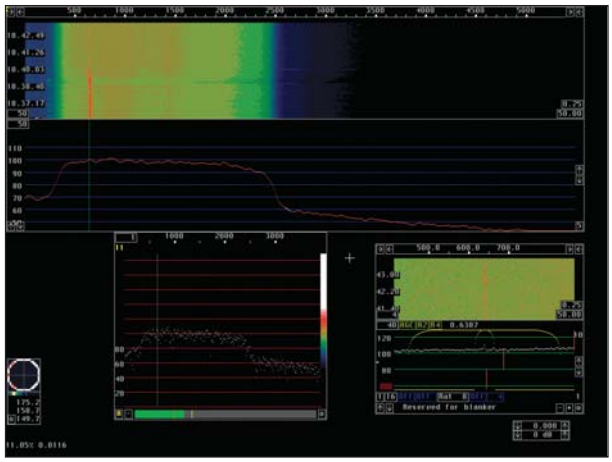
The item about the French CJ meetings in the November 'VHF/UHF' resulted in comments from a few readers. Chris Bartram, GW4DGU, wrote, "I'd hate to see a monster pseudo-rally like the VHF Conventions of the 1980s. Rather we need a technically-based meeting, perhaps with a very specialist trade show." He agrees that there is still a lot we don't know about marginal VHF/UHF propagation and says he would be quite happy to contribute to a new event, possibly giving a paper. So please let me have lots more comments.

Brian Carter, G8ADD, a non-car driver, hopes that any venue would have decent public transport connections. He asks what 'CJ' stands for and Graham Daubney, F5VHX, has solved the mystery. The venue is Seigy and, if you pronounce it as would a Frenchman, it sounds like the letters CJ sound in the French alphabet.

LINRAD

Niels Montanana, G8RWG (JO01) writes, "I've been experimenting with *LinRad*, a *Linux*-PC radio developed by Leif Åsbrink, SM5BSZ, over the last couple of months and I'm gradually getting to grips with what it can do. The software interfaces with soundcards for input and output and uses DSP algorithms to process the signals on the PC. The program has been used successfully by a number of amateurs around the world for weak signal reception on VHF - primarily EME.

"*LinRad* can process the whole bandwidth of high performance soundcards in quadrature allowing you to 'see' around 90kHz of the spectrum at any one time. At the moment I am using the audio output from my FT-1000MP so the bandwidth being processed is limited to 2-3kHz. However, I hope to have some new converters up and running soon that will allow me to convert from 144MHz to base-band and use the complete soundcard bandwidth available.



This is how the LinRad screen on G8RWG's monitor looked when receiving beacon GB3ANG on 144.473MHz on 7 November.

"I have used *LinRad* for receiving both SSB and CW signals and the recent Marconi contest gave me a chance to check its performance. In my brief experience there are two benefits: a) you can decrease the filter bandwidth in *LinRad* to, say, 50Hz or less, eliminating almost all QRM; b) even with a 2-3kHz bandwidth you can see several signals on a busy band."

The screenshot of *LinRad* is of its being used to receive GB3ANG on 144.453MHz on 7 November and Niels continues, "The waterfall graph at the top covers a five-minute period and the red vertical line is GB3ANG at varying signal strength. Below the waterfall graph is a spectral display clearly showing the audio bandwidth of the input signal with a cut-off of around 2.5kHz. The faint vertical green line determines the centre point for DSP processing. Below the spectral display on the left is a high-resolution display - the vertical line can be moved for fine-tuning. To the right of the high resolution display is the base-band display. This shows GB3ANG in the centre of a 300Hz-bandwidth filter. The centre

frequency, bandwidth and shape factor can all be changed by dragging with a mouse.

"I haven't tried it yet but it is possible to use the audio output of *LinRad* as the input to another soundcard for the JT44/JT65 modes. In these days of decreasing activity on 2m it is great to be able to find some new developments to keep my interest." Full descriptions of the software, downloads etc. are on Leif's website -see 'Web search'.

SOLAR AND GEOMAGNETIC DATA

Solar activity in the 30 days to 9 November was up on the previous month and the 10.7cm solar flux was above 100 units on 21 days maximising at 141 on 5 November with minima of 87 being recorded on 11 and 13 October. The average was 119. 19 new regions were reported and the sunspot area in millionths of the Sun's visible disc was over 1000 on ten days. This was primarily due to some very active and large spots, numbers 687, 691 and 696. The sunspot number was zero on 11 October but reached a maximum of 163 on the 30th. The middle latitude A-index at Fredericksburg was below 10 on 23 days with zero recorded on 17 and 26 October. However, major flares and coronal mass ejections saw it reach 116 on 8 November when for a while the K-index hit the maximum of 9. Not surprisingly there were major auroras, of which more later.

MOONBOUNCE

Stuart Jones, GW3XYW (IO71), was QRV on 23cm in the first leg of the ARRL contest on the 9/10 October weekend and completed HB9BBD, N2UO, OK1CA, DL0SHF, IK2MMB, G3LTF, SK0UX, G4CCH and OZ6OL on the Saturday and with HA5SHF, HB9SV, OE5JFL, K5GW, VE9DW and OH2DG next day. On 9 November he worked K9SLK, SM2CEW, OZ4MM, G4CCH, IK3COJ, W2UHI, N2UO and IK2MMB. The advent of WSJT has encouraged Stuart to set up a 2m system running 300W to four 9-ele Yagis. On 30 October, using JT65b, he worked I2FAK and on 8 November OE5MPL. Initial tests started on 28 February 2004 with 250W and two 9-ele Yagis and resulted in 11 completions and two partial QSOs.

The following is from the November edition of the *432 and Above EME News* edited by Al Katz, K2UYH. In the first leg of the ARRL contest early indications are that HB9Q was top on 70cm with a score of 72 x 33 while W2DRZ appears to have the lead on 23cm with 43 x 30.

AURORAL ACTIVITY

Until 6 November, geomagnetic activity in the Sun was quite benign. At the high latitude of College in Alaska the A-index was zero all day, while at mid-latitude it was just 4. But a series of explosions from sunspot 696 in the 3-5 period hurled some coronal mass ejections toward Earth. 696 unleashed an X-class solar flare on the 7th by which time the mid-latitude A-index had risen to 19. By the 8th, all hell had broken loose and the A-index reached a major storm value of 116. An M8 flare was recorded at 1715 on the 9th and an X2 flare at 0300 on the 10th.

Details of these events can be read on the Space Weather News website - see 'Web search' - and on logging on scroll down the opening page to the 'Essential Web Links' and click on the first one 'NOAA Space Environment Center'. Next click on the 'Space Weather Now' button, scroll down to the bottom of the page to 'User Groups' and choose 'Radio'. In the 'Recent Space Environment Reports' click on 'Reports of Solar and Geophysical Activity' finally choosing the day you want.

Unsurprisingly the result of these events was several big auroras. Kevin Jackson, M0XLT (IO83), checked 6m from 2150 on 8 November and found TV-video signals around 48.250 and 48.240MHz exhibiting S3 auroral backscatter. He checked 50.110MHz and broke into a QSO to work TF8GX (HP84) with RS55 reports both ways via Auroral-E for a new grid. G8RWG came on 2m SSB late on the 7th to work GM0HTT (IO89) for a new grid and district at azimuth (QTE) 5°. Contacts with SM7MRL (JO65), SP2IQW (JO94) at 1269km and SP2MKO (JO93) at 1236km followed at QTE 30°.

On 6m SWL David Whitaker, BRS25429, copied auroral GMs in IO67, 68 and 87 late on the 7th followed by Auroral-E to OH2TP (KP20), OZ1BXG (JO46) and SM5LE (JO99). In the 1500-1730 period on the 9th more Au-E signals were copied from SM7AED (JO65), LA3KJA (JO28), ES2QN (KO29) at 1657km, ES5AM (KO38) at 1794km, LA4LN (JP50) and OZ1DPR (JO45). From 2000 he heard OH6HJG (KP13), OH6HFX (KP14) and ODX LA5TFA (JP99) at 2029km.

Simon Freeman, G3LQR (JO02), had readout problems on the Sunday so only made seven QSOs on 23cm when K9SLQ was initial (#) 93. He heard lots of big signal stations working each other but none of the smaller ones so concluded that his tracking was way off at times. Due to high winds he had to shut down early.

Peter Blair, G3LTF (IO91), was pleased with his results overall. On 70cm he found activity down a bit and reports that Faraday rotation was very sharp on the Sunday afternoon. On the Saturday he completed 26 QSOs and next day made another eleven. SV1BTR, SK0UX, K0CSS and DL7UDA were new initials bringing his total to 385 but as he didn't know all the US states he hadn't calculated a score. On 23cm on the Saturday he completed with 31 stations and next day with a further eight. Peter Etheridge, G4ERG (IO93), found conditions quite good but the activity level down on previous contests. He finished with 25 x 21 on 70cm.

Joe Taylor, K1JT, is still working on his JT1 project that he announced at the EME Conference in August. A heavy workload has resulted in slow progress but he hopes to have a general release by Christmas. Pre-registration for the 2006 EME Conference in Germany can now be made on-line - see 'Web search'.

On the Moon-Net website Bob Kocisko, K6PF, lists his 2m activity in the 6-8 November period. On the 7th he completed with IK3MAC on random, SV3KH and MI0AYR for #191 and DXCC entity 41. He runs 1.5kW to four 20-ele M2 Yagis.

METEOR SCATTER

After the New Year celebrations there is the Quadrantids shower to look forward to and the OH5IY program predicts it should peak around 1100 on 3 January with a ZHR of 119. The peak of this all-day shower is usually quite sharp and at this year's maximum the north/south path should be the best and the east/west one the worst.

David Hilton-Jones, G4YTL (IO92), asked whether any Croatian amateurs would be operational on 4m during the recent Leonids shower? Although not specifically answering that question, David Butler, G4ASR (IO81), replied that 9A2EY (JN85), 9A2SB (JN95), 9A3AB (JN75), 9A3PR (JN86) and 9A6R (JN83) were worked from the UK last summer. The e-mail addresses of 2EY, 2SB and 6R can be found on the QRZ.com website - see 'Web search'.

BAND REPORTS

50MHz

Bryn Llewellyn, G4DEZ (JO03), seems to catch many brief Es openings that others appear to miss. He says that the SM beacons are regularly heard in MS bursts and pings, often with a very low-level background signal for very long periods of time. He is not sure whether these are very weak E-layer signals or some other propagation mode since the beacons only run low power to small antennas. On 10 November there was Au, Au-E and Es propagation from all over Europe.

M0XLT made SSB Es QSOs from 1050 on 1 November with three French and 20 Italian stations in the I0, 1, 2 and 5 districts in a very intense opening. Grids worked were JN15, 23, 26, 35, 45, 53, 61, 62 and 70. These contacts resulted from Kevin's CQ call when he was only running 5W to a tri-band collinear antenna 6m AGL. BRS25429 switched on at 1735 on the 10th logging over 20 Italians in an hour plus S57RR and HB9PLW (JN37) in a classic winter Es opening.

70MHz

From the 4m website news from Jon Wheeler that there are now two Gibraltar stations on FM, Ronald, ZB3B, and Eddie, ZB3E who are looking forward to Es contacts with the UK. John Livesey, G0JJL, is planning a 10-day trip to Gibraltar

from 4 June specifically to operate on 4m SSB and CW with some 4m/6m cross-band activity. The station will be located at the Caleta Hotel on the eastern side of the Rock, which looks to have a good take-off to the UK. GI0GDP reports that beacon GB3CFG (IO74CR) is now licensed to operate on 70.027MHz eventually to run 20W to a 3-ele Yagi.

On the vhf-dx-discuss reflector Geoff Grayer, G3NAQ (IO91), wondered why there was never any auroral activity on the band. This resulted in a lot of e-mails and G4ASR replied that he had worked GM4BYF and G3JYP at 1500 on 9 November. He reckons that you have to put out lots of CQ calls to stir up some activity and says that he gives the band a try at the beginning and end of any 2m opening.

Stewart Cooper, GM4AFF, asked if there was a warning system he could access and John Flowers, G0JLF, suggests the DXrobot alert service also recommended by PW1NWL - see 'Web search'. Ivan Stauning, OZ7IS, points out that the Danes only have permission for 25W output on the band. He has spent hours calling CQ during auroras with very limited results and has heard several UK stations. This year the regular Nordic Activity Contests (NAC) will include a 4m session on the third Thursday of the month but only OX, OY and OZ stations have the band so far.

OH1ZAA mentions that, although the Finns don't have the band yet, permission for a beacon has already been promised and he hopes to get one running from KP31BA. Both Zaba and OH5XO have antennas up for 4m and they will use 50.170MHz and 50.173MHz respectively for cross-band. Zaba doesn't think there will be much development before May.

ANNUAL VHF/UHF TABLE - JAN TO DEC 2004

	50MHz		70MHz		144MHz		430MHz		1.3GHz		Total
Callsign	Dist	Ctr	Dist	Ctr	Dist	Ctr	Dist	Ctr	Dist	Ctr	Points
G4DEZ	101	59	67	12	99	23	52	14	22	9	458
G3FIJ	20	12	22	5	55	7	15	4	1	1	142
G6TTL	3	23	-	-	38	7	17	7	-	-	95
M0XLT	22	39	-	-	22	4	2	1	-	-	90
G4APJ	13	22	-	-	31	5	11	3	-	-	85
G8RWG	-	-	-	-	32	17	-	-	-	-	49

The District Codes are the 124 listed on page 56 in the January 2003 RadCom. Up to 6 different GI stations and up to 3 different GM stations in each Scottish district may be counted. Countries are the current DXCC ones plus IT9. The deadline for the final 2004 totals is 11 January.

144MHz

G3NAQ found excellent tropo conditions in the evening of 5 November with the Spanish beacon EA1VHF (IN53) at S6, yet his CQs brought no replies. In the auroras on 7/8 November G4DEZ worked 13 countries and at other times Bryn continues to work the 'usual near-DX' into DL, OZ and SM at 700-850km. Steve Bunting, M0BPQ/P was QRV in the Marconi Memorial Contest over the 6/7 November weekend running 25W to a 5-ele home brew DK7ZB Yagi. ODX were DF0SX (JN48) and TM1Y (JN36) both at 717km. He thought that conditions were slightly better than average.

430MHz UP

G4DEZ writes that 70cm still brings in the good DX at more than 500km on a regular basis but that he's getting bored with listening to white noise on 23cm. M0BPQ/P was QRV in the 23cm UKAC on 19 October and completed six QSOs; ODX was PA0EHG* (JO22) at 329km.

FINALE

Thanks to Neil Clarke, G0CAS, for the September edition of *SunMag*. The deadline for copy for the March issue is **11 January** - don't forget your final Annual Table scores - and for April it's **8 February**. My telephone answering and fax machine is on 020 8763 9457 and my CompuServe ID is g3fpk. ♦

WEB SEARCH

LinRad(SM5BSZ):	http://www.nitehawk.com/sm5bsz/linuxdsp/linrad.htm
SM5BSZ home page:	http://antennspecialisten.se/~sm5bsz.htm
EME2006:	www.eme2006.com
QRZ.com:	www.qrz.com
Space Weather News:	www.spaceweather.com
DXrobot alert:	www.gooddx.net

HELPLINES

♦ Bill, GM3ZWG, would appreciate an original or copy of the manual / circuit diagram for his Trio JR-500S. All expenses will be re-imbursed. GM3ZWG, QTHR. E-mail: bill@wframe.fsworld.co.uk

♦ David, G3ZPF, is looking for a copy of the circuit diagram for the BNOS 12V 40A PSU, model 12/40P. G3ZPF, tel: 01384 263 020, or e-mail: g3zpf@supanet.com

♦ Brian, G7TUQ, needs unwanted comms equipment, particularly marine VHF transceivers and scanners, for use by a hovercraft rescue service in the Portsmouth area. G7TUQ, QTHR. Tel: 023 9252 2772, or e-mail: joyce.forhead@port.ac.uk

♦ John, G3GTJ, is seeking information about the Marconi Instruments Universal Bridge TF1313 and about the British military A16/UK PRC316 HF radio. "The PRC316 was produced in five variants, each equipped with a different suite of fixed HF channels, and identified by the suffix letters A to E. I would be grateful for a telephone call from any ownets of the PRC316 models C and D, as I need information from the aerial data panel in the battery compartment." G3GTJ, QTHR. Tel: 01963 240 319.

♦ Dick, M0CGN,needs help with a Farnell Digital Multimeter type DM131. It registers '-1' on direct voltage and current ranges, and '+1' on alternating voltage and current ranges. Any circuits or hints will be gratefully received and, if needed, photocopied and returned. M0CGN, QTHR. E-mail: biddulph@intonet.co.uk

♦ Bert, GM3JOA, has tried to thank all the members who sent him information about the Daiwa NS-660P meter. If he has missed anyone, he apologises. GM3JOA, QTHR. E-mail: bert.gm3joa@btinternet.com

♦ Gerald, G3AAZ, would like to find equivalents of the following solid-state devices: Q4006LT (triac / thyristor?); MOC3020/8113 (gate?). Any information would be greatly appreciated. G3AAZ, QTHR. Tel: 01480 456 781.

♦ Ray, G0BDA, needs a copy of the user's manual for the Radiometer Modulation Meter AFM2. All costs will be covered. G0BDA, QTHR. Tel: 01539 563 621, or e-mail: rfhills@waitrose.com

♦ Dennis, G3LLZ, needs copies of *QST* for May and July 1994, or copies of the 'Key Components of Modern Receiver Design' articles. He is also overhauling a 1943 AR88D receiver, and reports that "a previous owner has soldered wires to the grid and anode pins of the mixer and first IF, and to the grid pins of the second and third IF valves. The wires are about 2cm long and are formed to come at right angles from the pins, then being bent at 90° to run parallel to, and spaced 3/8in from, the valve envelope." Dennis has never come across this before; perhaps an AR88 owner can offer an explanation? G3LLZ, QTHR.

♦ Michael, G0NEE, is looking for an IC type SL?630F, a divider used in a Marconi frequency counter. There is a can type also, if the pin connections can be supplied with it. G0NEE, QTHR. E-mail: mstott7302@aol.com

IMPORTANT NOTICE

Respondents to items in the 'Helplines' column are advised not to send original documents, but to copy them and send the copies. This is to protect your (often valuable) property in those very few instances where the originals are not returned.

Trevor Brown, G8CJS

E-mail: chairman@batc.org.uk

ATV

New 13cm ATV repeater at Bushey Heath ♦ 502km ATV on 3cm ♦ Chair lift to space

GB3BH, the new 13cm ATV repeater, has now been activated. The repeater is run by the South-West Hertfordshire UHF Group and is located at IO91TP, Bushey Heath in Hertfordshire, with an ERP of 100W omnidirectional, with horizontal polarisation; the antenna is at a height of 200m ASL on 2440MHz. It is just transmitting a test card at present. But, by the time you read this, it will be in full repeater mode. Good reception reports have been received from as far away as Stansted in Essex and Luton in Bedfordshire. This could prove to be the most powerful active 13cm ATV repeater in Europe, with some interesting propagation tests planned over the coming months. Unfortunately, the frequency allocated is in the middle of the wireless LAN, CCTV FTA link, and microwave oven band.

Old and new: the receive equipment on top of the famous clock tower, 30m AGL, on the former RAE Farnborough site.

CHAIR LIFT TO SPACE

Giles Read, G1MFG, has been busy with a TV meteorological balloon project. The 'inspiration' for this project was the artist, Simon Faithfull, who wanted to film a chair ascending into space. Giles had previously sent a TV camera and transmitter up to the edge of space using a met balloon in 2003, but this time there would be a camera, boom and chair to add to the payload. Giles needed to keep the transmitter, camera and batteries down to about 900g in order to make allowance for a six-foot camera boom and of course the chair.

Using the standard free-space path-loss formula, a 6W transmitter into an 0dBd transmit antenna would give a range of around 100 miles for a P4.5 picture, provided a 24dB gain receive antenna and good low-noise preamp at the feed-point were used on the ground.

With the experience gained from the 2003 project, the real problem was when the transmitter was a long way away, at quite low elevation. This meant that a 'doughnut' radiation pattern was required - and a 13cm rubber duck fitted the bill. A network analyser was used to tune the antenna to exactly 2.50GHz (the frequency which was allocated by JFMG for this project).

The small G1MFG transmitter used in 2003 was fitted with a G3WDG 2W 13cm amplifier tuned to 2.50GHz and attached to a small heat sink/fan combination. This proved more than adequate to keep it cool. The amplifier required a power supply of 5.0V at 2.7A and a bias supply of 4.3V. This was solved by using a 78L05 regulator with a series diode to give the bias, and a switch-mode converter (with delayed start-up) for the main supply. This had the secondary advantage that the amplifier could run from the main payload 12V supply rail at about 1.2A, which was within the 2A drain limit of the lithium batteries.

GPS tracking was provided from an RS-232 GPS 'mouse' bought from Hong Kong via Ebay, and a slightly modified Tiny Track converter to turn the data into APRS format for transmission. Once it was all up together and mounted on a thin aluminium panel as the chassis, builders' gap-filling foam provided the body of the case. This gives great thermal insulation, keeping the sensitive electronics away from the -60°C to -70°C it would encounter at altitude.

The launch was from Farnborough, the receive antenna being at 30m AGL on top of the 'Clock Tower' [on the top of the old 24ft wind tunnel on the former RAE Farnborough site – *Ed.*]. This is the highest point around – so there was no chance of the signals being shielded by other buildings. 200m of video cable connected the receiver to a giant projection screen for everyone to view the pictures.

The launch did not go smoothly. The first attempt was a disaster. The balloon was released and, instead of soaring majestically to the heavens, it burst. The second balloon launch was better, apart from a GPS malfunction. However, at about 65,000ft, the GPS suddenly decided to behave itself. At maximum altitude, we could easily see the curvature of the Earth on the huge projection screen. It was just like looking out of the window of a space station. Then, at 74,703ft, the inevitable happened and the balloon burst; the payload plummeted a mile in the first minute. As the atmosphere got denser, the parachute deployed and slowed the payload descent, after which it fell in a quite leisurely manner. We never expected to see the payload fall all the way to the ground and, sure enough, at 4200ft above Ashford in Kent, we lost the signal as it went down over the radio horizon.

It took 1 hour 2 minutes for the balloon to reach its maximum altitude (that's an average rate of climb of around 1200ft per minute), and the signal was lost after about 90 minutes, at a range of 123km. It had been P4 and above for the whole flight (except for a couple of dropouts). The average descent speed was about 2400ft/minute – around 25mph. ♦

High chair: sitting pretty at 74,000ft.

WEB SEARCH

Bushey Heath ATV repeater	www.gb3bh.com
Reports on Bushey repeater to Dave Mann	g8adm@gb3bh.com
CQ-TV website	www.cq-tv.com

John Heath, G7HIA / M3BBX

Chestnuts, Desford Lane, Kirkby Mallory, Leics LE9 7QF.

E-mail: g7hia@amsat.org

Meeting the high-flyers

John, G7HIA, meets Valentina Tereshkova, the first woman in space, and Valery Bykovsky, and recounts some of their history and their attitudes towards the American astronauts. Andy Thomas, G0SFJ, meets Mike Foale at the NSC in Leicester.

Visitors to *Autographica 2004* in Coventry had a unique opportunity to meet astronauts and cosmonauts for autograph signings. For me, the highlight was meeting with Russian cosmonauts Valery Bykovsky and Valentina Tereshkova, who was the first woman in space. In June 1963, Bykovsky completed 81 orbits in *Vostok* 5, a solo endurance record to this day, and Tereshkova completed 48 orbits (in parallel with Bykovsky) in *Vostok* 6. The Bykovsky / Tereshkova mission was important in achieving parallel orbits within 100km, an essential precursor to later close-rendezvous and docking missions. They also further established VHF radio communications between the two orbiting spacecraft.

At the dinner, hosted by Rex Hall, President of the British Interplanetary Society, the cosmonauts were asked about the race to the Moon. I was impressed by the genuine warmth of feeling towards the American astronauts who had won the race. Valentina described the *Apollo* astronauts as "our space brothers". Bykovsky confirmed that the *Apollo* missions were closely monitored by the Russians and, in his mind, there was no doubt that they had landed on the Moon.

Thanks to *Autographica*, I have now met two of my heroes of the Russian space programme, Valentina Tereshkova and Alexei Leonov, who are remarkable for their determination in pursuit of a goal against all odds. Valentina was a factory worker, and Alexei's family was so poor he went to school in freezing temperatures with no shoes. Both intending cosmonauts had to pass the intensive physical training which was far more rigorous than that of today. They also had to complete many years of technical and academic study to qualify for space. These are truly inspiring characters.

Also in 2004, British-born astronaut Mike Foale was at the National Space Centre in Leicester. Andy Thomas, G0SFJ, past Chairman of The National Space Centre Radio Society, was able to meet with him and talk about amateur radio in space. On being asked about ham radio on *Mir* and the *ISS*, Mike replied that on *Mir* he had had no e-mail, no Internet, no telephone and only one voice contact per week with his family, and that ham radio had allowed him to have "normal contacts with normal people". He continued, "ham radio was my lifeline". In the *ISS* they had more access to the ground and used e-mail more. In reflecting on the conversation, Andy told me that he believed Mike must have been under immense personal pressure in *Mir* and only had ham radio operators to talk to. Andy said "I feel proud if we, as ham radio operators, did something to help him in that crisis. Maybe it will happen again."

Above: Valentina Tereshkova, the first woman in space – Vostok 6, June 1963.

Top: Astronaut Mike Foale meets Andy Thomas, G0SFJ, at the National Space Centre.

RESOURCES FOR TEACHERS

I recently came across a magazine called *Voyage* from The British Interplanetary Society, aimed at providing teachers with interesting space-related material with direct classroom relevance. By the time you read this, the second issue should be out. See 'Web Search' or write to the BIS at 27/29 South Lambeth Road, London SW8 1SZ.

PRINTING ORBITAL PREDICTION TABLES FROM *WINDOWS XP*

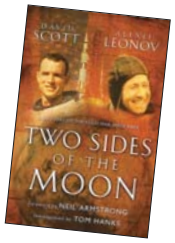
If you are running *Windows XP* and want to print prediction tables from inside *InstanTrack*, and have a USB or network printer, (or any printer that is not visible to DOS programs) check out a new tutorial on how to solve the problem. You may well find this useful for other printer tasks from other software too. The spelling in 'Web Search' is correct, by the way. Thanks to Allen, W7AM, for posing the question and testing the procedure, and to Paul, KB5MU, for the solution.

CTCSS PROBLEMS WITH THE FT-736

If you are trying to set up access tones on this rig, possibly the 67Hz tone for SO-51 and SO-50, you may run into this problem. The setup may appear to have gone OK, but the CTCSS board may not be fitted to the rig. Try a quick check with another radio to see if the tone is being transmitted.

HOW TO SPEND THOSE CHRISTMAS BOOK TOKENS

I can thoroughly recommend *Two Sides of The Moon*, by Norman Cousins. It tells the story of the cold war space race through the personal accounts of two of the leading figures. First is the astronaut David Scott, of *Gemini 8*, *Apollo 9* and commander of *Apollo 15*, one of the 12 men to have walked on the Moon. Second is cosmonaut Alexei Leonov, who flew *Voskhod 2* then was commander of *Soyuz 19* during the *Apollo-Soyuz* Test Project. Commander of the Lunar Training Group, Leonov would have been the first soviet cosmonaut to set foot on the Moon. This is not a dry factual book – at over 400 pages it's a great read and gives a real insight into the men and the events of the time. Published by St Martins Press, ISBN 0-312-30865-5, it has a cover price of $25.95. If not available locally, try Amazon. ♦



WEB SEARCH

Autographica:	www.autographica.co.uk
The British Interplanetary Society:	www.bis-spaceflight.com
Amazon books:	www.amazon.com
Printing problems:	www.amsat.org/amsat/instanttrack/xp-printing/index.html

Great new titles from the RSGB

The International Antenna Collection 2

This book collects together some of the best articles from around the world on the subject of antennas. It will appeal to radio amateurs in general, whether they be antenna enthusiasts or not. This book is a follow-up to the highly successful International Antenna Collection, compiled by the same editor. You will find antennas for most of the amateur bands. Traditional designs and highly original designs are here, simple and complex. Whatever your requirement, you will find something that is directly suited or that sets you thinking about how to solve your problem. Amongst the practical and highly erudite contents is an invited article by one of America's most respected authors on the subject of aerials. He is Kurt N Sterba, the regular 'Aerials' columnist of WorldRadio magazine. He considers one of his pet subjects - the much-misunderstood interface between transceiver and aerial. Does your ATU really tune your aerial? All the facts are clearly presented, leaving the author in no doubt as to the correct answer. As before, great care has been taken to ensure that there are antennas to cover almost all the bands between 136kHz and 2.4GHz, receiving and transmitting, mobile and fixed.

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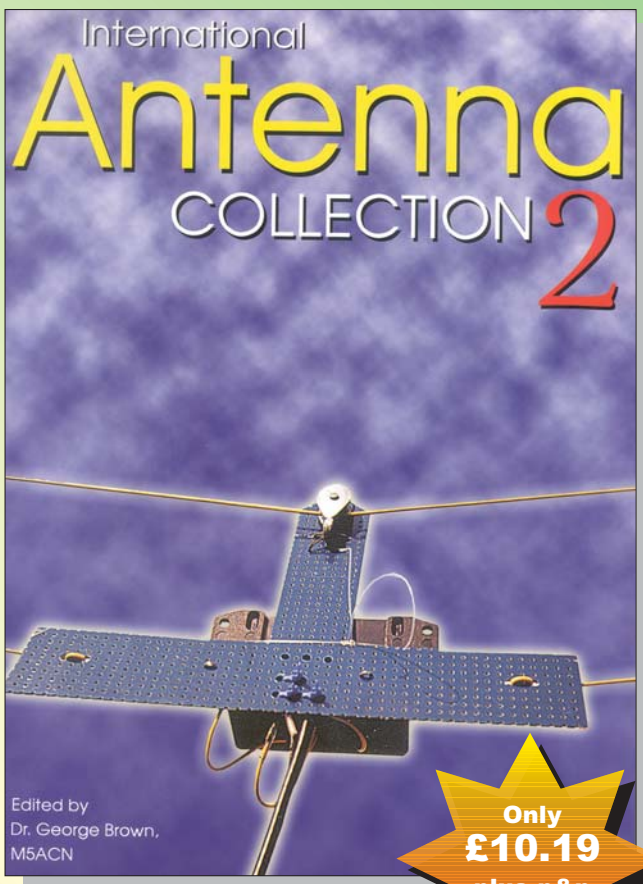
£11.99 plus p&p Non Members Price



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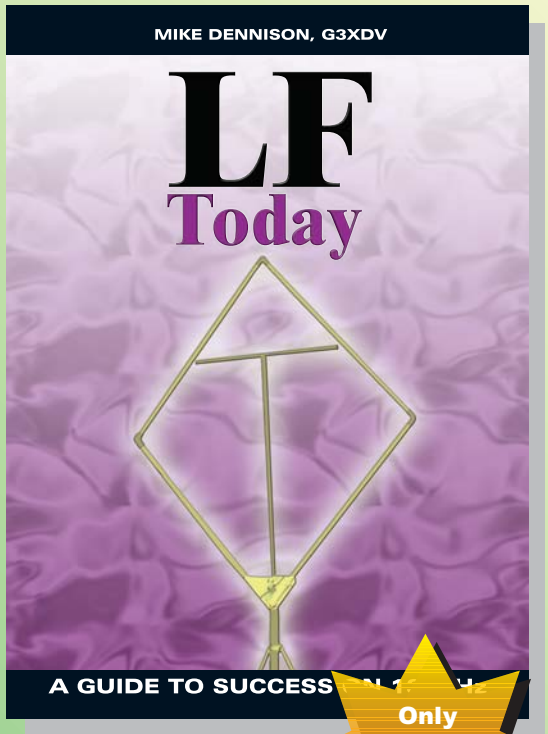

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LF Today:

A Guide to Success on 136kHz

By Mike Dennison, G3XDV

Many operators have said that their first contact on the 136kHz band was their most satisfying amateur radio experience. With this new RSGB book LF Today you too, can succeed on the frequencies below 300kHz. LF Today is a guide to amateur radio on LF and the effective use of this challenging allocation. Based on the experiences of the LF early experimenters this book will provide the reader with a firm basis so he will not waste time having to reinvent the wheel whilst still providing much scope for experimentation. Previous books about LF amateur radio have provided a way for experimenters to publish their ideas and practical results but LF Today moves on a stage. LF Today takes the reader step-by-step through the various parts of the station, explaining the options available and how to avoid pitfalls. With care and a little perseverance, an efficient station can be produced, capable of ranges of hundreds - perhaps thousands - of kilometres, even from a relatively small suburban garden. LF Today contains some theory and a little maths, but it is first and foremost a practical handbook. Written by the leading authority on LF, Mike Dennison, G3XDV, this book is aimed at those who want to try out this fascinating amateur allocation, but it is also of great value to anyone already active on the band. It contains everything needed to succeed on 136kHz without unnecessary effort.

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Jeremy Boot, G4NJH

E-mail: g4njh2@ntlworld.com

Jeremy trawls though some of the useful sources of data and software for PSK31.

PSK31 from experiment to worldwide use

From the Harvard Wireless Club Pages, we find 'The inspiration of Peter Martinez, G3PLX, PSK31 means 'Phase Shift Keying, 31.25Hz bit rate'. With the advent of this new mode, many have found renewed excitement in live keyboard-to-keyboard conversations. Until recently, PSK31 was known only to a handful of individuals who dabbled in digital signal processing. However, an article in *QST*, along with the creation of an active discussion list, has caused interest to skyrocket among amateurs worldwide.'

The pages continue to demonstrate graphically the signals as presented, to explain the mode's attraction, to demonstrate how it sounds with a .wav file, and then links, courteously, to the 'Official' PSK31 site pages. I wrote about PSK31 quite some time ago in these columns, but I thought it was time to revisit it, given that in many of the DX bulletins and amateur radio publications, this strange combinations of letters and numbers occurs time and time again.

The 'Official' pages for PSK31, which have been revamped since I last visited them is to be found in Spain (the text in sometimes idiosyncratic English) explain that Peter Martinez, G3PLX, is the true inventor of the mode; based on the *SLOWBPSK* system of Pavel SP9VRC, it is not error-free, but allows easy keyboard-to keyboard live contacts in a way not facilitated by some of the other digital modes. In the page about articles written about the mode you can read Peter Martinez's own article which appeared in *RadCom* in 1999 (pdf format). The article is, as you would expect, concise and informative.

SOFTWARE

One of the intentions of the author was that the mode be easily accessible with software available to run on a standard computer. I recommend the first port of call to be the 'Official' pages. But, apart from what is mentioned there, which seems to be pretty extensive, both for *DOS* and *Windows*, various other sites offer programmes too. I visited the DX-Soft Pages and found a program which includes, but goes well beyond, PSK31. This is *TrueTTY*. There is a registration cost. Free programmes abound, however, and you

PSK31 is popular wherever you look!

can hunt for what you want, and save yourself much trouble by looking at someone else's pages where they have done it for you. I looked at the list that AC6V pages (good, full, well indexed) provide. Or, take those of Dave, G3VFP. Look up his suggestions under 'software'. He seems to like *Zakanaka*, for which there is a link in the plentiful lists he draws up. I note also the names of *Winwarbler, WinPSK, W1SQLPSK, PGNR3*, amongst others, but this column does not seek to favour one more than another, nor to review software, just to advise you what might be out there.

OTHER SITES AND ENTHUSIASTS

PSK31 crops up all over the place now. The Stanislaus ARA reproduces Peter Martinez's article, presumably with permission, and goes on to explain just how you should set up a transceiver for optimum results. N1NKN is not one to hide his enthusiasm: "In my humble opinion, PSK31 is one of the *best* things to happen to ham radio in a *long* time! In the same bandwidth as one SSB conversation, there can be literally dozens of keyboard-to-keyboard text contacts. Because of the extremely narrow bandwidth (31Hz) you don't need a lot of power to have a good signal. Most DX PSK31 contacts are made with power levels at or below 30W!" He waxes lyrical in similar vein for some time. He likes *DigiPan* and *Hamscope* software. So we add those to the list. "Think of this site as more of an 'operator's manual for the layman' (PSK for Dummies?) to help you…" And a good read it is too.

Another enthusiast is KG6KXL who finds the whole business "…totally cool. My first evening with PSK31 was so inspiring that I am dreaming of inventing new digital modes myself. This technology opens up an entire spectrum of possibilities. A 1W rig in LA comes in 599 at San Francisco - over 400 miles in one hop. A 20W Ten-Tec in Buenos Aires is perfect copy even when the band is down. This is very exciting stuff. It is reassuring that it is possible to communicate reliably without the use of repeaters and at extremely low power levels in emergency situations. This is just the tip of the PSK31 iceberg…" Sold to the gentleman with the keyboard.

Across what we used to call the Iron Curtain, I couldn't help including a Russian page which embraces PSK31. In theory you can translate it from Russian to English automatically. This rarely works, so I can say little other than it espouses the use of PSK in contests. I discover it is the same link used by the 'Official' pages ascribed to UA1ACO. "*Novi Vid Svyazi*."

NOT FORGETTING…

As with all digital modes, who could fail to include the British Amateur Radio Teledata Group, better known as BARTG? Its pages and magazine are a *sine qua non* for these modes. Read them.

CONCLUSIONS

So that is a review of what I have been looking at for PSK31. Links abound now; space allows for few to be mentioned, as usual, but links were much thinner when I last looked some three years or more ago. I found nothing, by the way, on PSK36 that was mentioned on one site: does anyone have anything on this?

PSK31 is a mode that seems to have captured the hearts and minds of many amateurs. It has the advantages of keyboard and the personal touch of direct contact. The mode itself has many technical advantages: sustained, readable signals, small bandwidth, environmentally friendly, QRP etc. Never tried it? Perhaps now is the time. Follow some of the links, make your own Internet searches and give it a go. ♦

WEB SEARCH

Harvard Wireless Club:	http://hcs.harvard.edu/~w1af/psk31.html
Official PSK31:	http://aintel.bi.ehu.es/psk31.html
DX-Soft:	www.dxsoft.com/en/products/truetty/?google-adw
AC6V:	http://ac6v.com/software.htm#DIGITAL
G3VFP:	www.g3vfp.org/download.html
Stanislaus ARA:	www.saraclub.net/new_page_49.htm
N1NKM:	www.mymorninglight.org/ham/index.htm
Nelson, KG6KXL:	www.eham.net/articles/5500
UA1ACO (in Russian):	www.psk31.newmail.ru/contest.htm
BARTG:	www.bartg.demon.co.uk/

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E-mail: g3zvw@dsl.pipex.com

Whatever next

G3ZVW asks for *your* ideas about what constitutes your ideal transceiver. He will also hold a brainstorming session at the February Stevenage Show. Your considered opinions will then be relayed to the manufacturers, and their responses included in this column • Satellite jamming

The Kenwood TS-480 (top), Icom IC-7800 (middle) and Yaesu FTDX9000 represent the latest generation of 'super transceivers', but what would *you* like from your next rig?

Generally speaking, we are accustomed to new models of transceiver having more facilities than the previous generation. We are also accustomed to more expensive transceivers having better performance than inexpensive models, but when did the designers ever listen to *us*? I mean, do they ever solicit input on what *we* want from a radio? I don't ever recall being asked, so what I want to do this month is take control of the situation and – along with readers of this column – put together the design of a transceiver for the next generation.

At the Stevenage Show on 20 February, I will be hosting a discussion on this subject. If you are able to attend, great. If not, let me have your ideas beforehand and they will be presented to those in attendance. What we will do is thrash out the design for a transceiver. It may be the ultimate rig, with every bell and whistle imaginable. It may be the simplest / smallest / lightest / most versatile. I simply don't know, because this is an endeavour that will depend upon your input.

Let's start our design by examining the facilities offered by latest generation equipment such as the Icom IC-7800, Kenwood TS-480 and Yaesu FTDX9000, and take it from there.

- Each of these has variants which can produce 200W or more output. Is 200W too much, about right, or not enough for the next generation?
- Each of these is multi-mode. Are there new modes that we would include as standard, or old ones we would like to take out?
- Each of these has DSP. If we want DSP, what do we want from it?
- Each of these is an HF radio with at least one VHF band. What bands do we want our transceiver to cover?
- How do we want our radio to be controlled?
- What kind of receive performance do we want from our radio?
- What kind of power supply should our radio require/incorporate?
- How do we want external devices to be connected to our radio?
- What kind of front panel controls do we want (buttons/knobs/sliders), how large/close should they be, and how should they be labelled?

Everything about the overall design is up for grabs, so please let me have your ideas. After the event I will report back via this column what practical item of equipment we decided we would like the designers to implement, then I'll make sure they get the message and report back what they have to say.

THE CONTROL OF SPACE

Not content with being the only remaining superpower on earth, the USA has recently – and rather quietly – put into service a new weapon designed to ensure they are the only superpower in space as well. Their so-called Counter Communications System was declared operational in September and can block the satellite communications of adversaries. The mobile ground-based jammer knocks out transmissions on a temporary basis, without frying components or blowing anything apart, so that space-based capabilities can return to their original state afterwards.

Over the years, the US military has experimented with a range of 'anti-satellite' (ASAT) weapons, including lasers to knock out enemy craft by destroying them or damaging their sensors. Theresa Hitchens, vice president of the private Center for Defense Information in Washington, welcomed the new ground-based system because it would not create debris that could threaten the global use of space and would not destroy satellites, only jam them temporarily.

According to Reuters, "Citing 'operational security' concerns, military officials declined to discuss how the jammer worked but equated it with traditional Air Force electronic warfare weapons that have been used since WWII to deceive, disrupt, deny, degrade or destroy targets", although Air Force Space Command admitted that the system was built from off-the-shelf commercial equipment.

Jamming the radio traffic of your enemy has been common practice since practically the day radio started being used by the military. Everyone knows that a lot of military communication is conducted via satellite. As an example of this, when it failed to achieve popularity with the public (due to oversize handsets, expensive calls and the spread of conventional base stations), the Iridium worldwide cellular telephone network was adopted by the US Department of Defense, so what surprises me is that the US has not had such a system up and running for many years. It would be hard to believe that other technically-competent nations have not had satellite jamming facilities for years, but have simply kept quiet about it. ♦

WEB SEARCH

Satellite jammer
www.alertnet.org/thenews/newsdesk/N29557507.htm

ICOM

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Antennas

This month, G3LDO describes things to be aware of when feeding balanced antennas (particularly short ones) with coaxial cable.

For many years now I have used coaxial cable to feed a dipole antenna directly. The centre of the coax was connected to one leg of the dipole and the braid connected to the other. Antennas built this way seemed to work perfectly well, even though I was aware that connecting unbalanced feeder to a balanced antenna was, according to the text books, less than perfect.

In more recent years I have used a modified MQ-2 minibeam, the one shown on the front cover of [1]. This antenna is a small two-element beam antenna, which uses loading coils and capacitance 'spokes' to achieve multi-band operation. The driven element is split and fed directly with coax, as with the dipole described above. When SWR measurements were made on this antenna, it was found that, on some bands, the value of SWR changed if the length of the feeder was changed, or the shack end of the feeder was earthed. Common-mode currents, or antenna currents, were thought to be the problem.

In most previous discussions in this column regarding transmission lines, is has always been assumed that the two conductors carry equal and opposite currents (I1 and I2) throughout their length and consequently no radiation from the feeder takes place. In practice, this is very seldom the case. With coaxial cable, I1 flows on the inner conductor while I2 flows on the inside of the outer conductor. When this coax is connected to a balanced antenna all the I1 current flows on to its connected dipole element. The I2 on the inside of the inner conductor flows into the connected dipole element but part of I2 also flows down on to the outside of the coax outer conductor, which we can designate I3. Currents I1 and I3 are in phase and are the common-mode currents that can cause radiation from the coax.

Common-mode currents can also occur when the transmission line and the antenna arrangement is not symmetrical. In practice, most antenna arrangements are asymmetrical due to the number of electromagnetic obstructions to be found around an average suburban garden but, in most cases, they don't matter. In some cases, an antenna is designed so that the feeder is part of the radiating system as described in [2].

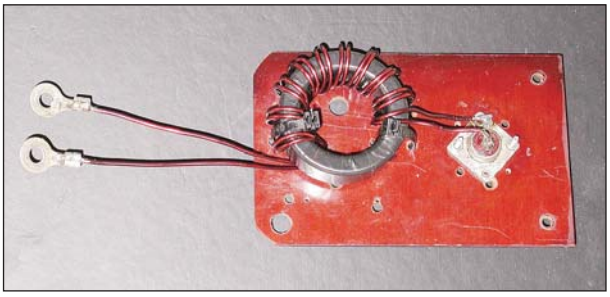
Common-mode currents seem worse on transmission line connected to small antennas, and this proved to be the case with my MQ-2. A current choke was originally made up a using a roll of RG-58 as a temporary stopgap. That was four years ago! and recently the antenna developed a high SWR, indicating trouble. The fault was found to be the 'temporary' current balun, which had succumbed to the ravages of years of coastal weather. I looked for a permanent solution that was in accord with the contents of my junk box.

MAGNETIC CORE CURRENT BALUN

Magnetic-cored baluns employ ferrite or iron powder material to provide a high common-mode impedance over a wide frequency range. The discovery of a T200 toroid core in the junk box inspired me to try the current choke balun from [3].

The balun is constructed simply by winding 10 bifilar turns of 14 or 16SWG (2mm) enamelled copper wire on the core, which had previously been given a layer of PVC tape. The construction is shown in the photograph. Plastic insulated electrical wire would probably give just as good results and provide better insulation for outdoor use. The balun was fixed to a piece of insulating material using tie wraps before being fixed to the antenna as shown in the photograph. The balun unit was then coated in grease for weather protection.

Information on the construction of the current choke balun in [3] recommends an Amidon FT240-43 ferrite ring. My T200 seems to work fine, the common-mode current effect described earlier is not present and the SWR readings are now stable.



The current balun with 10 bifilar turns of 14 or 16SWG (2mm) enamelled copper wire on a PVC tape layered T200 core.

FINALLY

In previous 'Antennas' columns, I described impedance measurement of an antenna. Because the impedance of a HF antenna varies with height, the only method of measuring the impedance of the antenna at its working height is to use a half-wavelength (or multiple) of feeder, which acts as a 1:1 transformer. However, a half-wavelength of feeder can have strong common-mode currents simply because it is resonant. This can have an adverse affect on the impedance measurements. The fix is to use the W2DU current balun comprising ferrite beads slipped over 300mm (1ft) of the feeder; described fully in [3]. ♦

REFERENCES

[1] *Backyard Antennas*. The modified MQ-2 is also described on pp103 – 05.
[2] 'Antennas', *RadCom* March 2004.
[3] *The ARRL Antenna Handbook*, 20th edition, pp26.21 – 26.25.

Seagull's eye view of the current balun fixed to the feed-point of the modified MQ-2, before the protective grease coating was applied.

Vine Antenna Products

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SteppIR Fluidmotion Antennas (RadCom review Feb 04)

We offer you a dipole, 2,3 or 4 element yagi, verticals that cover between 7 and 54 MHz with no gaps, with very low VSWR throughout that entire range. No need to set the antenna for ñPhoneò or ñCWò as these antennas are always the correct length. Remotely tuned from the shack with a desk-top controller, they can also be interfaced to your transceiver so that the antenna length adjusts automatically, reading the frequency from your radio.You can also design your ideal antenna using modelling software and implement it from the controller menu, without leaving the shack. 3-second beam reversal is easy with the ñ180 degreeò feature. There are no fault-prone traps. The yagis cover six bands with the lowest visual impact, and the verticals cover the full frequency range with one slim element. Keep neighbours happy with a SteppIR antenna!

Vine now stocks OPTIBEAM from Germany (RadCom review Aug 03)

Radcomôs reviewer described the antenna as ñthe best of the bestò We are pleased to offer the full Optibeam range for those who prefer traditional aluminium antennas.Models available for WARC, traditional HF bands, HF + 40m, etc. Contact us for more details for the *Mercedes*-

Back in stock - The GAP Titan Vertical. This is an excellent performer, only 25ft tall, with coverage of all bands from 80-10m and no radials, or lossy and fault-prone traps. At only Ã349.95, it wont break the bank either.

ACOM 1000 *HF+6m* Amplifier (RadCom review March 01)

- Up to 1kW output
- 160-6m inc WARC
- Matches up to 3:1 SWR loads
- Easy-Tune aid
- Fully protected
- LCD Display inc PEP metering
- Mil-spec quality

This amplifier, and the automatic 2000A, were described by Peter Hart as ñ**highly recommended**ò, and ñ**beautifully constructed and engineered**ò. These extremely well-made and reliable units are the choice of operators who require RELIABILITY as well as HIGH POWER. Here are a few user comments about the ACOM 1000 - ñReal quality kit - G8LIK. ñ1st classò - G0CGL. ñConstruction and finish is excellent. Operation is excellent. Signal quality is excellent. No fan noise to give you a headacheò - GM0TGE "I worked for many years in the scientific instrument business, and in my opinion, this equipment is of that standard." -G3IOE. "Very quiet with almost no fan noise and a silent changeover relay....A very well built and civilized amplifier" -EI6IZ. Check our website for details and many other complimentary user comments. **ACOM 1000 (160-6m) is now back in stock at Ã1,599. ACOM2000A automatic 2KW no-tune (160-10m) Ã4,295. ACOM 1006 (6m) Ã1,299**

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TT

G3VA takes a careful look at product and envelope detectors and highlights their performances ♦ Using super-bright blue LEDs in high-level mixers ♦ German and Russian receivers under the spotlight

DEMODULATION - PRODUCT AND ENVELOPE

'TT' January, 2004, page 45, included details of a pentode (6SJ7) product detector with in-built carrier oscillator that Peter Chadwick, G3RZP, fitted to his rebuilt HRO to improve reception of SSB: **Fig 1**. Subsequently, Jan-Martin Noeding, LA8AK, sent me information on some of the results of his delving into when product-type demodulation came into use by amateurs for SSB/CW reception.

But first it seems opportune to stress that the technique of using an inserted signal at carrier frequency to provide a 'mixer' (frequency converter) with an IF of 0kHz to form an RF detector was known many years ago, long before the term 'product detector' came into use in the early 1950s.

In the 1920s and 1930s, when the 'straight' (TRF) receivers still reigned supreme, 'leaky-grid' or 'anode-bend' detectors using triodes or pentodes were the norm, giving way to the diode envelope detector for the new superhets. For CW reception, regeneration (reaction) or a local beat frequency oscillator (BFO) provided an audio heterodyne and increased gain. All these were essentially non-linear RF rectifiers and tended to introduce distortion at low signal levels. But one should not knock the diode 'envelope detector' where both sidebands are transmitted. Philip F Panter in his classic book *Modulation, Noise & Spectral Analysis* (McGraw Hill, 1965), concludes that "for high-input signal-to-noise ratio, the envelope AM detector is as efficient as the product AM detector". If it had not been for the expansion of amateur SSB in the 1950s, diode detectors would have remained the norm despite the fact that for weak signal CW reception the more linear product-type detector offers distinct advantages provided that the inserted carrier is much stronger than the signal input at the detector stage.

Even in the early days, there was the alternative, at least for CW reception, to diode rectification of RF signals. of using the more linear frequency-conversion demodulator (oscillating detector), in what was, in the UK, termed a homodyne receiver: **Fig 2**. For conventional double-sideband-plus-carrier AM reception, this form of demodulation ideally requires that the local oscillator is phase-locked (synchronised) to the incoming carrier. Various forms of exalted-carrier and 'Synchrodyne' receivers were developed in the 1940s which largely overcame the severe distortion on AM signals introduced by frequency-selective fading, but did not take off commercially, Widespread 'consumer' use of fully-synchronous demodulation did not arrive until the coming of colour television where it is used to demodulate the colour sub-carrier.

Fig 3 shows a very simple synchrodyne receiver front end as described in 1947 in *Electronic Engineering* in 'The 'Synchrodyne' – a New Type of Radio Receiver for AM Signals', by Professor D G Tucker. This had an untuned (aperiodic) RF amplifier followed by a triode-hexode product-type detector to which a portion of the incoming RF signal is fed to lock the variable oscillator. A higher-gain receiver used a balanced ring demodulator to remove the carrier of the AM signal while a newly generated carrier is phase-locked to the original AM carrier using a Goyder-lock type approach. This provides synchronous (coherent) reception of AM broadcasts. It would be an interesting project to develop a solid-state synchrodyne-type direct-conversion receiver for broadcast or amateur AM reception.

It is, of course, possible to transmit double-sideband AM with suppressed carrier (DSB). A J Viterbi in his book *Principles of Coherent Communication* comments: "The only advantage of SSB/AM over DSB/AM is that the transmission bandwidth is reduced by a factor of two. It is a common misconception that the output signal-to-noise ratio for SSB/AM is double that for DSB/AM... coherent demodulation yields the same performance for both systems."

Homodyne reception of CW or SSB signals, as in most modern 'direct-conversion' receivers, does not require phase-locking of the local oscillator. In its simple form, it does not provide 'single-signal' reception, and has the audio image signal present. It is, however, usually possible to demodulate an AM transmission temporarily without true phase locking by careful adjustment of a stable insertion oscillator. Homodyne receivers have a long history and were originally postulated for broadcast AM as well as Morse reception.

A detailed paper 'The History of the Homodyne and Synchrodyne', by Professor Tucker appeared in *J Brit IRE*. April 1964, pp143 – 154 (with 62 references). This credits the original homodyne to F M Colebrook, *Wireless World & Radio Review*, Vol 13, 1934, pp645 – 648: Fig 2. Colebrook pointed out that the benefit obtained from the system was in providing linear (ie distortionless) rectification (demodulation). An exalted-carrier receiver

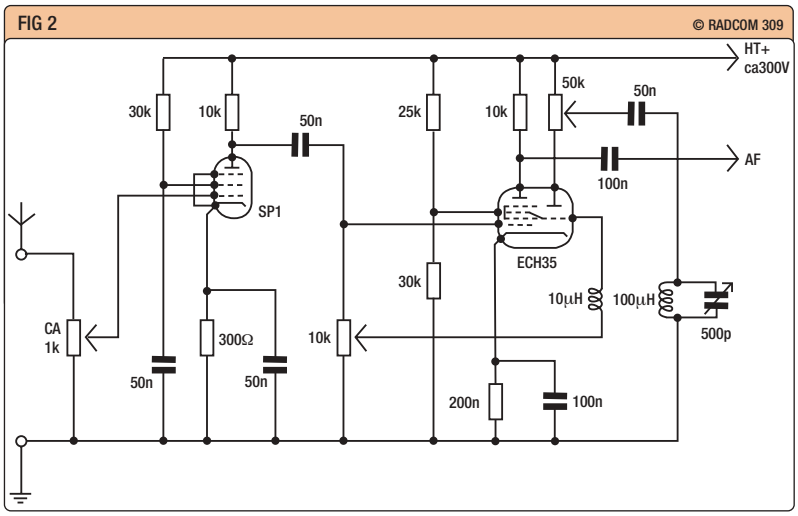


Fig 1: The simple product detector/insertion oscillator using a single pentode used by G3RZP in his rebuilt HRO, suitable for fitting into many older type receivers designed before the introduction of amateur SSB – see 'TT' January 2004, p45.

Fig 2: Very simple form of Synchrodyne MW broadcast receiver as described by Prof D G Tucker in 1947. He also described a rather more complex receiver having higher gain.

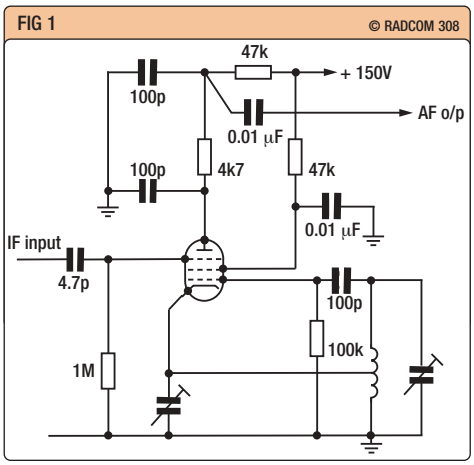


FIG 3 © RADCOM 303

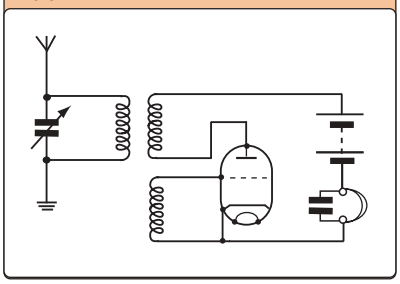


Fig 3: Colebrook's homodyne receiver of 1924.

was patented in 1930 by E Y Robinson using a high-*Q* crystal filter to remove the sidebands from the carrier which was then amplified and reinserted: **Fig 4**.

However, in a later paper 'The History of Positive Feedback' (up to around 1923), *Radio and Electronic Engineer*, February 1972, pp59 – 79, Prof Tucker notes that the homodyne technique was a logical development of H J Round's autodyne (regenerative) receiver, with Burton W Kendall in 1915 being the first to mention that increased sensitivity could be obtained in a receiver if a local carrier were added to reinforce the incoming wave. Kendall went on to describe a self-oscillating detector.

QST in the mid-30s published some simple designs of homodyne-type receivers for HF CW reception (although the term 'homodyne' was not used). An article 'Increased Sensitivity with the Regenerative Detector', by Rinaldo De Cola (*QST*, December, 1934, pp24 – 26), included a suggested circuit for a regenerative but non-oscillating detector with separate heterodyne oscillator: **Fig 5**.

Fig 4: Robinson's carrier-reinforcement (exalted-carrier) system patented (UK) 1930 for which he developed the highly-selective crystal filter, later adopted for a single-signal communications receiver by Lamb of ARRL.

Fig 5: A circuit suggested in QST in 1935 for a regenerative but non-oscillating detector with separate heterodyne oscillator, leading to the description of CW TRF receivers using this form of what was to become known as product-type detection.

FIG 4 © RADCOM 304

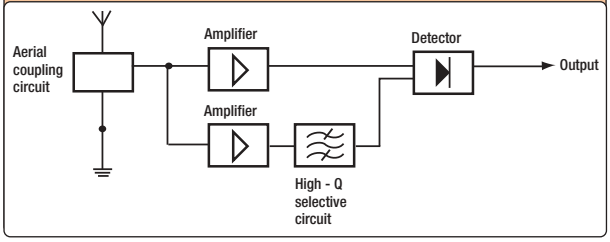
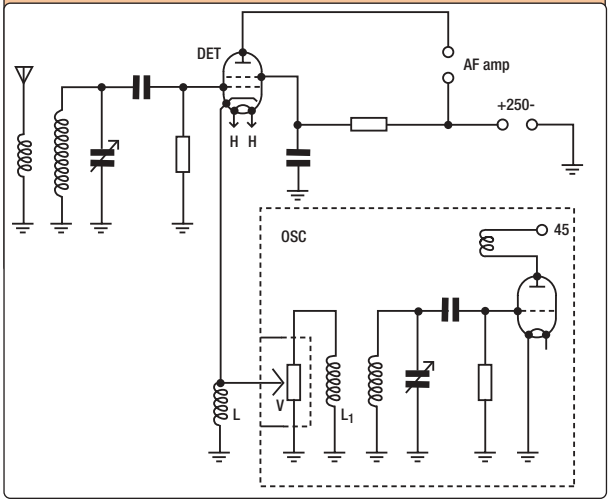


FIG 5 © RADCOM 400



An advantage on CW with any form of linear demodulator is that the resulting audio waveform is ideal for narrow-band audio filtering. With a well-designed but simple direct-conversion receiver, despite the presence of the audio image, the overall selectivity can be excellent; two sharp, clean signals can prove more effective than broader single-signal superhet reception, as well as providing the opportunity to choose the audio signal either side of the carrier frequency, one of which may be subject to less interference.

The use in the 1930s of a triode-hexode mixer valve to form a frequency-conversion demodulator detector has been noted by LA8AK. He draws attention to the 1936 Telefunken Spez 801 design (with only a Spez number it is possible that the receiver never went into full production).

The design had two RF (RE|NS 1284 + RES094), ACH1 triode-hexode mixer, and three IF stages (3 x RES094), with an extra RES094 for amplified AGC with four copper-oxide diodes as AGC rectifier in a voltage-doubler circuit. This is followed by another ACH1 triode-hexode in what we would now call a product detector feeding AF to an RE134 output valve via an optional AF filter. IF was 600kHz with five double-tuned IF transformers but no crystal filter. A later (1937) version provided positive and negative feedback in the third IF stage (*Q*-multiplication) to sharpen-up IF selectivity. This technique appeared in the 1939 *ARRL Handbook* as a 'High-Selectivity Regenerative IF-amplifier Circuit'. Regenerative IF or 2nd detector stages were a common feature in the SOE and Anglo-Polish clandestine receivers, and remains an effective approach.

LA8AK points out that the ACH1 'product detector' would not have been intended to demodulate SSB signals as, at that time, the few HF SSB commercial point-to-point links using pilot carriers were received on large 'commercial receivers' rather than on general-purpose communications receivers. The IF output compared with the BFO would have been excessive for SSB although the stage would have functioned well as a product detector for CW reception. As noted above, for optimum SSB demodulation, it is important that the inserted carrier should be very much stronger than the SSB signal presented to the product detector.

It was not until the 1950s after the introduction of single-sideband-suppressed-carrier transmissions (see 'TT' August 2004) that the term 'product detector' began to appear in the amateur journals. LA8AK has traced an article by the late Byron Goodman, W1DZ, 'A Sharp IF Amplifier for Phone and CW', *QST*, December 1950, using a 6BE6 heptode valve to convert from 455kHz to 50kHz and then a 6BE6 and 6C4 triode in what is termed an 'AF Converter' but is, in essence, a 'product detector'.

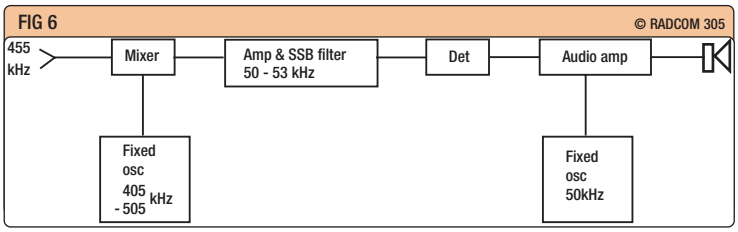
I have traced an article by the late O G Villard, W6QYT, 'Selectivity in SSSC Reception' (*QST*, April 1948 pp19 – 22), which discusses 'frequency conversion versus rectification' demodulation in respect of SSB reception. This includes circuit details of a balanced frequency converter for single-sideband reception using two 6L7 valves in a parallel-input, balanced-output, fed with balanced input from a BFO and intended as a substitute for the conventional diode detector.

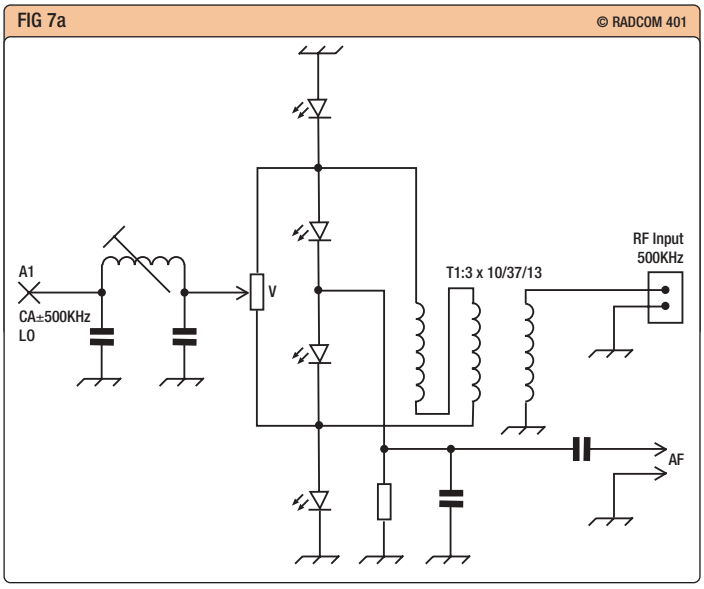
Michael, VE2BVW, in correspondence with LA8AK, also cites the W6QYT article as a reprint in the ARRL's *Single Sideband for the Radio Amateur* (1954) with the following page including a circuit labelled 'the product detector' with an editorial note claiming "Here is a useful detector for SSB reception, devised by Murray Crosby, W2CSY. It gets its name from its operation – the output signal is proportional to the 'product' of signals in two channels". This is reprinted from an article 'An All-Purpose Super-Selective IF Amplifier' (*QST*, March, 1953). The book adds a note: "Product versus Envelope Detectors – The interesting and significant thing about a product detector is that there is no output with the BFO turned off. Unlike an envelope detector, where two or more signals coming in will give a beat or beats, the product detector requires that the BFO voltage be present. Thus it is very similar to a mixer or converter stage, which also gives no output unless oscillator voltage is applied. The advantage of the product detector is consequently that the output voltage consists solely of beats with the BFO and not cross-modulation beats between signals."

VE2BYW mentions that Don Stoner in his *New Sideband Handbook* (1958) also credits Murray Crosby as inventor of the 'product detector', but does not give a date or reference. There is no use of the term in the classic SSB issue of *Proc IRE* (December, 1956), although it is clear that, by then, the advantages of product-type SSB demodulation were well-known to both amateur and professional operators. SSB adapters using product-type demodulation that could be added to earlier existing communications receivers were noted by George Grammer, W1DF, of ARRL in his paper in that issue on the increasing use of SSB by radio amateurs: **Fig 6**.

HIGH-LEVEL MIXERS USING LEDs

D G Phillips, G8AAE, while searching the Internet came across an article





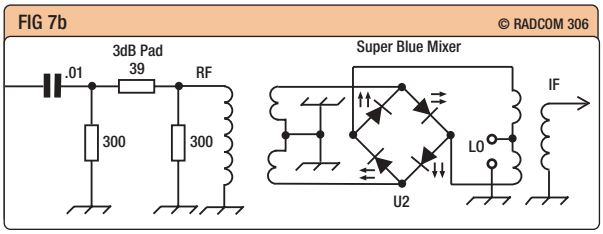
'Super-Blue Mixer', by David White, WN5Y, in the March 2004 newsletter of the Flying Pigs QRP Club (new to me). This led him to US Patent 6,111,452 'Wide Dynamic Range RF Mixers Using Wide Bandgap Semiconductors', which names the 'inventors' as Christian Fazi and Philip G Neudeck. The patent, filed February 21, 1997 was issued 29 August, 2000, is assigned to "The USA as represented by the Secretary of the Army".

To quote the patent abstract: "A wide dynamic range RF mixer is shown using wide bandgap semiconductors such as SiC, GaN, AlGaN or diamond instead of conventional narrow bandgap semiconductors. The use of wide bandgap semiconductors will permit RF mixers to operate in higher RF environments, be less susceptible to out-of-band jamming and interference, and be more effective in receiving weak RF signals in the presence of strong unwanted signals. RF receivers can be more closely co-located with transmitters and still receive weak signals without suffering intermodulation-distortion products."

The patent provides an excellent discussion on the operation of solid-state diode switching mixers stressing: "It is important that the mixer should not add an undesirable signal to the incoming wave, since it would be amplified indiscriminately with the desired signal. Low noise, strong nonlinearity, repeatable electrical properties from device to device, and adequate dynamic range are important characteristics in mixer design and selection. The useful dynamic range is bounded by the noise level of the mixer and the level at which the mixer can no longer linearly process the incoming RF waveform... Current methods to increase the saturated output level of mixers and thereby reduce IMD products have focused on increasing the LO power level of the device by increasing the number of diodes used in the mixer circuit... for example by increasing the number of diodes used in the mixer circuit, perhaps via multiple-diode balance circuits. Fabrication and matching of multiple diodes, however, is difficult... increasing the cost of such multiple-diode mixers."

Fig 6: Form of SSB Adapter as used with receivers not intended for SSB reception as noted by George Grammer, W1DF, in the classic 1954 SSB issue of Proc IRE.

Fig 7: Use of GaN LEDs in mixers/product detectors. (a) Singly-balanced detector with potentiometer, V, splitting the BFO signal to the two arms to improve balance of non-matched LEDs and provide better isolation of the BFO. (b) Super-blue LEDs in a doubly-balanced mixer.



It is noted that while most power semiconductor devices in use today are fabricated in monocrystalline silicon, monocrystalline silicon carbide, SiC, with a wide bandgap (above 3eV) is particularly well suited. In addition to SiC, another wide bandgap material, GaN, is becoming available. Currently GaN (gallium nitride) is being used to make blue-light-emitting diodes and should prove equally effective for the same reasons.

In the *QRP Newsletter*, KN5Y acknowledges that a friend, Pascal Nguyen in Australia, had suggested to him in 2000 that the diodes in a balanced or doubly-balanced (ring) diode mixer should be replaced by super-blue LEDs. KN5Y points out that one of the recognised ways of improving ring mixers using diodes such as 1N4148 or 1N914s (as commonly used in home-brew ring mixers) is to use additional diodes in each leg of the mixer. Since this raises the forward voltage drop in each leg, it shows that a higher voltage drop in a diode string does not stop the mixer from working but does require significantly-increased drive.

Blue LEDs are made of GaN and are now widely available from electronic stores and some surplus outlets: see 'TT' February, 2004. The patent provides a comparison between a conventional silicon diode ring mixer and a mixer using SiC diodes in the same environment. The results are impressive, although it should be noted that the LO power for the SiC mixer is 20dB higher to provide the same 10dB loss because of the higher turn-on voltage needed. KN5Y suggests that results should be similar using super-bright blue LEDs. It is thus not possible simply to replace the diodes in RF mixers or product detectors without providing significantly more LO drive.

KN5Y provides circuit details of his experimental 'Super-Blue Mixer', but I find some aspects rather confusing and feel it better just to show basic single- and doubly-balanced diode mixers fitted with LEDs, **Fig 7**. In forwarding this information on the use of super-blue LEDs in diode switching mixers, G8AAE stresses that the KN5Y mixer is clearly an experimental project with no performance measurements. However, he feels that the idea may be worth exploring by those with the necessary knowledge and test equipment.

While it is always worth pointing out that the issue of a patent is no guarantee that the idea will work as claimed, there seems no reason to doubt the validity of the US patent on wide bandgap semiconductors.

NO GUARANTEES

'TT' has always aimed at providing a launching pad for controversial experimental ideas and techniques. This inevitably means that some claimed results may not always prove reproducible, although in its 53 years I would claim that there have been very few real booboos in 'TT', although inevitably some minor errors. Reader contributions are not subject to peer review, although I retain the right to comment, sometimes adversely, on any material published in 'TT'.

Antenna topics are particularly difficult to assess, even by professionals. Indeed, of the very few 'TT' items with claims that subsequently proved impossible to reproduce, most have been drawn from professional journals where papers *are* subject to peer review. One such was the paper by American academics that extremely compact meander antennas with a span on 14MHz of only one-metre (August 1999) could have an efficiency and bandwidth virtually equal to that of a conventional half-wave dipole – an item drawn from

IEEE Trans on Antennas and Propagation.

I feel relieved that 'TT' has never accepted uncritically the claims made for the CFA, CFL or EH antennas, or the small loops claimed by G3LHZ to have radiation efficiencies >90%. Surely the G3LHZ claims have finally been put to rest by the comments from G3UUR, G8HQP and G0IJZ in the November *RadCom* (p100). If anyone is still in any doubt, there are further critical comments from G0GSF and VE2CV revealing further technical errors in the August and September articles. Personally, I feel happy to stick by my comments in the May 2004 'TT' (p42) in which I concluded that "G3LHZ should be encouraged to continue but to reconsider his >90% claims". Perhaps the most disturbing aspect of this 'controversy' is that his small loop beliefs were accepted without comment for publication in the IEE's *Electronic Letters* and were presented at an IEE Conference (2000) both subject to peer review by professional and academic engineers.

GERMAN & RUSSIAN HF RECEIVERS

The November notes on the wartime Telefunken E52-series of communication receivers has attracted some valid comments from readers. Richard Walker, G4PRI, points out that the illustration at the top of page 38 was of the E52 owned by Arthur Bauer, PA0AOB, and not, as captioned, an E52a. I had not grasped that the first model in the series was the E52 (U-boat TSK44), with the E52a as well as the E52b, E52c etc, later simplified versions. The lower illustration was of the E52a, although the internal view may well have been that of E52. G4PRI adds that PA0SE contributed a further two-part article on the 'exceptional' E52 receiver in *Radio Bygones*, issues 78 (August/September 2002) and 79 (October/November 2002) using the set owned by PA0CSC for illustration.

G4PRI notes the excellence of the German field radios. He owns (and shows on his QSL card) a Telefunken Tornister (knapsack) portable battery-operated TRF receiver, type Torn E.b. His model is based on the 1836/37 Spez. 976bs design which saw Wehrmacht wartime service as the Torn E.b/24b-305, and was also exported as the AE95. The equipment could be operated from dry batteries or vehicle batteries with vibrator unit EWb carried in the battery compartment.

G4PRI described this elegant receiver in *Radio Bygones*, No 82, April/May 2003, pp4 – 7. It used four similar pentode valves (RV2P800) in a 2-V-1 configuration (2 RF stages, regenerative detector and AF amplifier for use with headphones including an optional 900Hz filter) and covered 100kHz to 6670kHz in eight bands by means of a large turret coil pack. G4PRI wrote in RB: "It was my humble opinion that the German Torn E.b receiver was probably the most elegant TRF set ever made, if not the most elegant set overall. However, Arthur Bauer, PA0AOB, and Dick Rollema, PA0SE, have been at pains to point out to me that the Lorenz Lo.6K 39 was probably the most elegant TRF set. I also had to agree with them that 'the most elegant overall' was a title to be bestowed on the E52 [1943] series of receivers".

G4PRI's German Torn E.b TRF mechanically-elegant backpack receiver with large turret coil assembly, as illustrated on his QSL card.

Neil Clyne, G8LIU, noted in the November 'TT' for his *RB* article on the E52 – has written questioning my comment that "the influence of the E52 can be seen in post-war high American and UK professional models". [I had in mind the modular construction and 52in illuminated film scale of the R206 designed by AT&E, although this set was not capable of the performance achieved by the E52 some 20 years earlier].

G8LIU feels it was an opportunity missed: "I would suggest that, for at least several years after WWII, apart from a few scientific establishments such as Farnborough and a handful of fortunate radio amateurs, precious few folks in the UK and USA knew, let alone cared about, the electrical and mechanical qualities of 'enemy' radio equipment. Only one of the former Allies capitalised on the technology of the E52 in a big way after WWII – the USSR".

He notes that several of the desirable features of the E52 "such as the elaborate system of frequency display with coarse and fine tuning scales, the latter being of the illuminated optical projection type enabling clearly-legible scale resolution to 1kHz or better in some cases [calibration reset from internal crystal oscillator]. The bandpass-type single-crystal IF filter was widely adopted; some early receivers (R310, R311) also followed the Wehrmacht technique of using a single valve type for all functions, although later equipment contained several valve types". G8LIU also notes Russian use of the comprehensive metering of the early E52. Again, the modular style of the E52 was widely adopted, with several Russian models using the large coil turrets similar to those found in many German military sets such as the Torn E.b, although not in the E52.

G8LIU believes that much of the Russian equipment may have been made in other Iron Curtain countries, notably Hungary and what was then Czechoslovakia. [High performance communication receivers influenced by the E52 etc also emanated from East Germany – G3VA]. He adds: "Production probably began about 1950 and continued to the end of the valve era in the communist bloc in the late 1970s. At least one E52-inspired Russian design, the massive KROT receiver (allegedly favoured by the KGB) was closely copied by the Chinese for use by their military, as also was the AR88!

"One can only speculate as to the possible results had the technology of the E52 been adopted by the West. A variable-bandpass-type signal-crystal IF filter in the RA17 perhaps, or an optical-projection frequency display with 250Hz resolution in the venerable Collins R390A instead of a Veeder-Root counter? We shall never know."

HERE & THERE

George Cutsogeorge, W2VJN, recently sent me a copy of his excellent 72-page booklet *Managing Interstation Interference with Coaxial Stubs and Filters*, published in 2003 by International Radio Corporation, 13620 Tyee Road, Umpqua, OR 97486, USA (www.qth.com/inrad). In it, he sets out, in exceptionally clear terms, the basic problem of operating two or more transceivers in close proximity (applicable also when using an amateur transceiver very close to a broadcast or telecommunications transmitter or radar station) where there will usually be some level of interference involved. The level can vary from practically no problem to actually burning up components in the receiving radio (as noted in 'TT' November 2004, p39, in connection with the AR88 and HRO when co-sited with a transmitter). The purpose of W2VJN's book is to identify and quantify the various parameters that create the interference and to show methods involving coaxial stubs and filters that will reduce or eliminate it.

As usual, I am having to hold over a lot of material received from readers, but I must squeeze in a note that the massive (692 pages, A4 format, hard covers) *Wireless for the Warrior – Volume 4 – Clandestine Radio*, by Louis Meulstee, PA0PCR, and Rudolf F Staritz, DL3CS, was finally published in late October, 2004 by *Radio Bygones*. It provides technical information on some 230 sets used by Intelligence services, Special Forces, Partisans, Resistance circuits, Australian & Dutch coast watchers, intercept services etc, in and after WWII. A truly unique collection.

Peter Rovardi, G4HSB, of Rosedale, 8 Cambridge Road, Linthorpe, Middlesbrough, Cleveland TS5 5NQ (e-mail: info@grecobrothers.co.uk), has produced a useful, A4-size, laminated chart providing conversion of RMS voltage to peak-to-peak/dBm; power watts/dBm; and signal (based on 50Ω systems) S-units into dBμV (for under 30MHz and over 30MHz) together with explanatory notes. ♦

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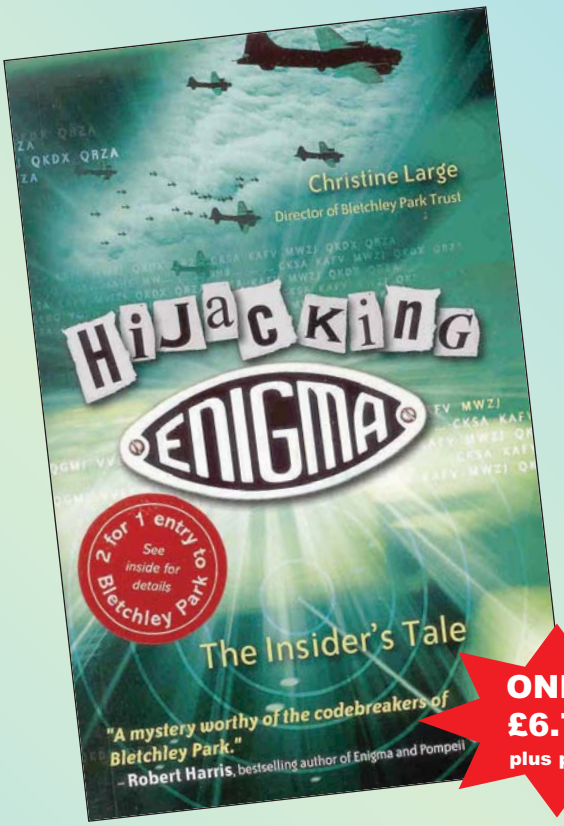

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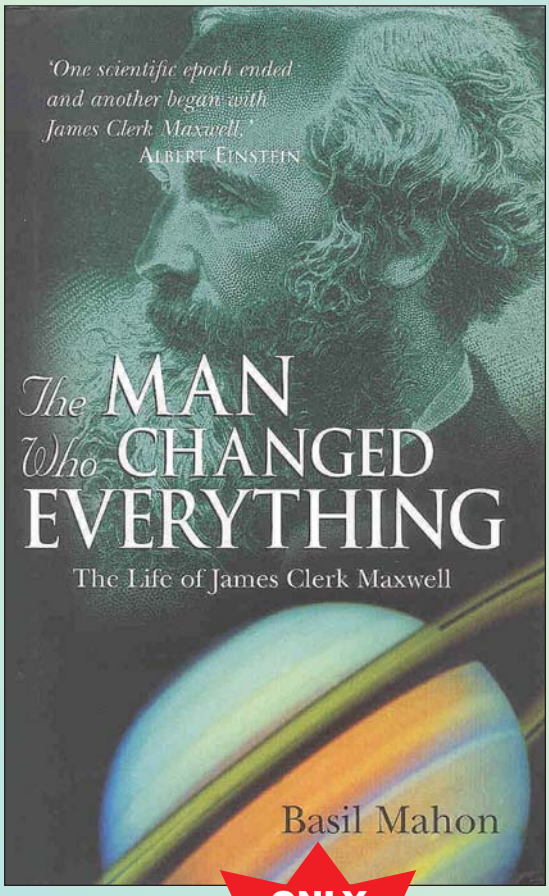

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In practice

A close look at how loading coils work, and tips on in-station RF grounding.

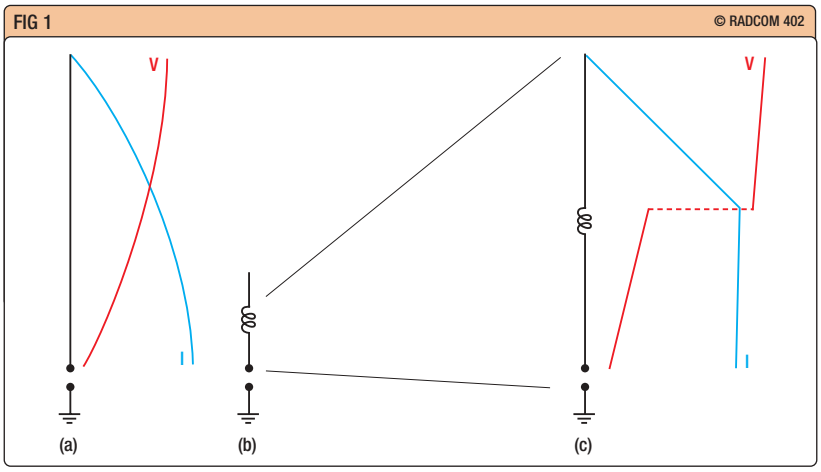


Fig 1: (a) Voltage and current profiles on a full-sized resonant quarter-wave antenna, fed against ground. (b) A much shorter mobile whip, resonated to the same frequency by a loading coil. (c) The voltage and current profiles on the loaded whip are very different from those of the full-sized antenna.

HOW LOADING COILS WORK

Q How can a loading coil replace a large portion of a full-sized antenna? Surely that's impossible?

A You're right – it *is* impossible! **Fig 1(a)** shows a full-size quarter-wave vertical antenna... let's say it is resonant at some frequency in the 80m band, so the total height is about 20m. **Fig 1(b)** shows a typical mobile whip that is only about 2m tall, resonated to the same frequency by a loading coil at about mid-height. Much of the confusion about loading coils is caused by imagining more similarities between these two antennas than actually exist. The loading coil makes the mobile whip resonant at the same frequency as the full-size quarter-wave, but it certainly doesn't 'replace' the missing 18m of vertical wire in other respects. To see what the loading coil does, it is much more helpful to focus on the *differences* between these two antennas.

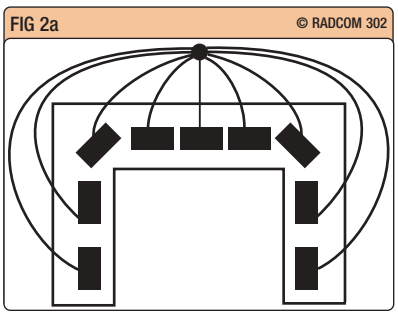
The difference in physical size is accompanied by equally large differences in the RF currents and voltages that ultimately determine the performance of each antenna. Superimposed on Fig 1(a) are the voltage and current variations along the height of the antenna. (If you are not familiar with this presentation, try turning the page 90° to the left. The voltage and current are drawn as graphs using the antenna itself as an axis.) Wherever there are variations in RF current along the length of a wire, there *must* also be variations in RF voltage, and that wire *must* be radiating electromagnetic waves – those three things come as a package.

On the full-size quarter-wavelength antenna of Fig 1(a), fed against ground at the base, the RF voltage is relatively small at the feed-point, and the voltage increases with height to reach its maximum at the top. The current profile is roughly opposite to the voltage – a voltage maximum is always a current minimum, and vice versa. Starting at the top of the antenna, the current here must be essentially zero, because the flow of electrons cannot continue beyond the physical end of the wire. Moving downward, the current increases to a maximum at the base, where the voltage is relatively low and the current is relatively high, so Ohm's law tells us that the feed impedance will be fairly low. The *shapes* of the current and voltage profiles are important too. Each is shaped roughly like one-quarter of a sine or cosine curve. Note in particular that the current changes very little with height near the bottom of the antenna, while near the top, the current tapers to zero in an almost straight line.

The mobile whip is a very different antenna – the contrast between Figs 1(a) and 1(b) is obvious, so there are bound to be major differences in the voltage and current profiles. **Fig 1(c)** is a magnified version of Fig 1(b), and as you can see, both profiles have changed dramatically from Fig 1(a). In particular, there is a large change in currents and voltages at the loading coil. Below the loading coil, we have low voltages and high currents. The voltage is rising gradually and almost linearly, and the current changes very little with height. In this respect, the 1m bottom section of the loaded whip is very similar to the first 1m section of the full-sized antenna; although the voltage/current ratio at the feed-point of the short whip is very much lower.

The RF voltage increases in a jump across the loading coil, and remains very high along the entire upper section of the whip. Meanwhile, the current tapers rapidly away to zero at the tip. The very high RF voltages are an inevitable consequence of this large change in RF current over a short distance, and so too is a very high electric field strength around the top section of the whip – even with modest RF power, the electric field strength around the top of a mobile whip for 80m or 160m will easily light a fluorescent tube.

Fig 1(c) shows a sharp jump in voltage across the loading inductance, and a sharp kink in the current profile at that point. This is contrary to many illustrations in amateur handbooks, which show a larger coil with a gradual variation in current through it. That is indeed the practical case for a real-life loading coil, as we'll see below, but most publications fail to point out that it is *not true* for loading by pure inductance alone: Kirchhoff's law tells us very firmly that the currents leaving and entering a pure inductance are *exactly equal*, as drawn in Fig 1(c). Some publications may also plot the current magnitudes in full-size and loaded verticals against a scale of *electrical* length, measured in degrees. When both antennas are adjusted to resonance, they both have an electrical length of 90°, so on this scale they both look 'equally



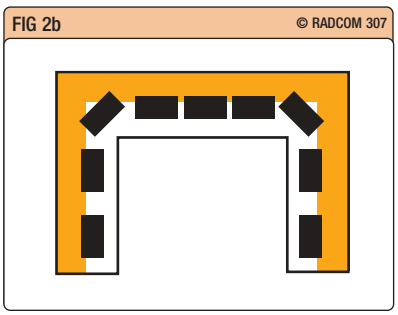


Fig 2: (a) 'Single-point' RF grounding won't work in this layout. (b) Very wide strips of PC board are probably the best practical solution.

tall'. That method of plotting tends to emphasise the way that the loading inductance 'replaces' most of the phase shift that occurs in the much longer full-size antenna; but that is only another way of saying that the inductance makes the shorter whip resonant. Even when current is plotted on the 0 – 90° scale, there is still no change in current magnitude or phase across a pure inductance – all the changes are in the magnitude and phase of the *voltage*.

There has been a long-running controversy on the Internet about current variations in loading coils. There definitely *are* current variations along the length of real-life loading coils, but the real question is: why? Another name for coils is 'inductors', because inductance is obviously their main property... yet we have just seen that loading by pure inductance would not show the observed change in current. So what does cause the variation?

The key to this problem is to be very clear about the difference between induct*ance*, which is solely an *electrical* property; and an induct*or*, which is a real-life physical object. The inductance of a coil is created by the magnetic interactions between its turns, which means that a real-life inductor has to take up some physical space. It then acquires several extra properties as well as inductance. As well as interacting magnetically, the turns will also interact by coupling of their electric fields, creating distributed capacitance within the coil. This is not important at LF, but distributed capacitance always becomes much more significant as the frequency increases. In a practical mobile whip, the loading coil can take up a significant fraction of the total height, so another way of looking at a real-life loading coil is as a short section of helical antenna. It will radiate RF in its own right; and that means it *must* have current variations along its length (remember that current variation, voltage variation and RF radiation come as a package).

You might expect a fairly smooth increase in RF current up the length of a real-life loading coil, but there can be further complications due to the distributed capacitance, and due to the very large increase in electric field strength between the top and the bottom. High-power operation reveals that the wire tends to get hotter at the bottom of the coil (I2R losses), although some designs may have a hot-spot closer to the middle of the coil, and computer modelling appears to confirm this. On the other hand, dielectric losses in the material of the coil former are likely to be greatest in the high electric field at the top of the coil. That means some loading coils will burn out their wire with high power, while others will catch fire, and a lucky few may even do both. Oh well, at least there's some satisfaction in understanding *why*...

IN-STATION GROUNDING

Q What is the best way to ground all the equipment in a large station with an L-shaped or U-shaped desk layout?

A The best solution to any RF grounding problem is to eliminate the causes. Work hard on your 'EMC housekeeping' and station layout, to minimise unwanted RF currents coming into the station. If you have any problems in this area, a clip-on RF current meter is an essential tool – see December 2003 and the 'In Practice' website for details.

FIG 3 © RADCOM 403

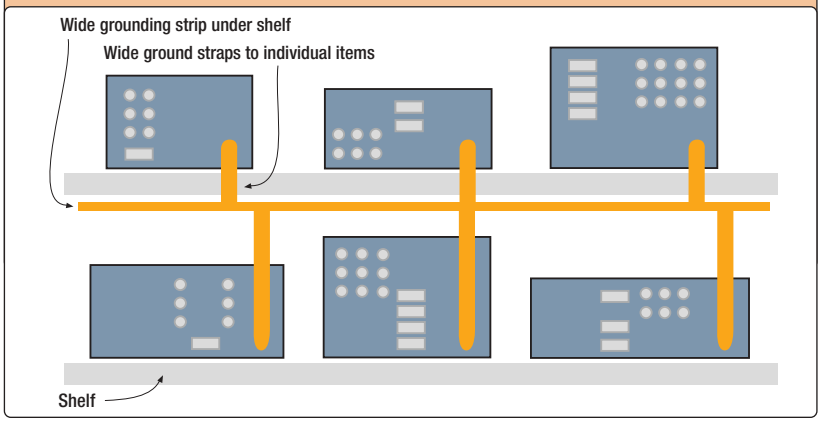


Fig 3: A two-level layout, with the RF grounding strip beneath the shelf.

For the remaining problems that you cannot eliminate at source, the solution is effective RF grounding within the station itself. Your goal is to minimise the differences in RF voltage between the metalwork of different items of equipment, because unwanted potential differences are what make the unwanted currents flow. However, in a large station layout there is no completely 'correct' solution.

So-called 'single point' or 'star' grounding (**Fig 2(a)**) is definitely not the answer, because it involves many long leads of different lengths. As well as an obvious tangle of ground wires, the mains earths and the interconnections between different items of equipment will create a bewildering tangle of ground loops. This is exactly the opposite of what you need! A partial solution is to run a heavy ground busbar around the back of the desks, and ground each item to the busbar with short straps. But this technique goes wrong if you lose sight of what you really need for RF grounding: you need low inductance, which comes from a very wide conductor. Since RF current only flows on the surface of a conductor, you don't need to spend a fortune on solid bar.

A wide strip of single-sided PC board is a very effective solution, and it's cheap – large sheets of slightly damaged board can often be found at very low cost. Make the strip at least 15cm (6in) wide, so you are creating something between a busbar and a small ground-plane. Obviously, the wider you can make the strip, the more it resembles a ground-plane, and the better your RF grounding is likely to be. I recommended this technique in the June 2003 column, and it really does help.

The lowest possible inductance becomes increasingly important in a large station, where the total run of grounding strip may have to be several metres (**Fig 2(b)**). The strip could be glued to the rear of the table, and one reason why I recommend PC board is that it's very easy to solder grounding straps onto the copper foil, exactly where you need them for the individual items of equipment. Many stations also use a long, continuous shelf to support an upper level of equipment and accessories, so why not attach the grounding strip to the underside of the shelf? This allows reasonably short strap connections to both levels (**Fig 3**). ♦

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Servicing early Yaesu and Trio/Kenwood HF equipment – part one

If you have confidence in your technical ability, and want to get on the air cheaply, it is possible to pick up an old but repairable Yaesu or Trio/Kenwood HF rig for well under £100. Alternatively, if you happen to have one of these 'good old timers', you may not feel like replacing it just because it develops a fault. G3LLL describes how you might go about repairing it.

It may surprise younger hams to hear that 20-year-old rigs, like the TS-830 or the FT-101ZD will outperform some much more modern equipment in the receive mode, and that, especially when a speech processor is *not* used, they seem to have more 'punch' on transmit. 'Progress', in the ham radio-manufacturing world, is not necessarily always about improved performance; in many cases it is more about adding facilities that few people want or understand, but which the makers think might just help sales.

SOME SALUTARY POINTS

A synthesiser may be more stable than a VFO, but the noise that some of the earlier ones produced did not help the CW note, or the close-in selectivity. The addition of a general-coverage receiver to a transceiver is a good example of taking two steps backwards to march one forward. Most general-coverage transceivers use fixed half-octave filters at the front end, whilst the older transceivers had tunable preselectors. On 14MHz, a ham-band-only rig with a preselector has a front-end bandwidth of a few hundred kilohertz, whilst a general coverage unit's front end can be up to 7MHz wide. In the 1960s, certain Hi-Fi manufacturers tried to make a virtue out of claiming ridiculously wide 'audio' frequency responses for their amplifiers, in some cases extending from near DC to beyond one MHz. To this nonsense, Peter Walker of the Acoustical Manufacturing Company (maker of the Quad equipment, and possibly quoting P Eckersley), commented "The wider you open the windows, the more the muck flies in". This is just as true in ham radio receivers as it is in Hi-Fi, and the dynamic range of a general coverage transceiver with a broadband front end, has to be very much better than that of the older ham-band-only units, just to give equal performance.

Service department costs are now very high, and handling equipment the resale value of which is not much more than a couple of hours work, is not really viable. I am now retired, but get dozens of requests for help, most of which (unless they are from someone fairly local) I regretfully have to refuse. Repairing most faults on the older equipment is not that difficult, and so I hope that I will be able to point readers in the right direction.

While the British company KW Electronics produced some excellent equipment, mass world-wide sales of ham radio SSB HF transceivers really took off when Yaesu and Kenwood entered the market in the late 1960s. Early Trio units such as the TS-500, TS-510, and TS-515 gave about 100W output from a pair of Japanese S2001 valves, (6146 equivalents) and used separate, rather heavy, mains power units. Yaesu units such as the FT-401, FT-500 and FT-560 of the same vintage, (some of which were marketed in Europe as 'Sommerkamp'), had built-in power supplies. Yaesu also produced the FT-200 that had a separate PSU, and which was aimed at the economy end of the market. (This was also marketed by the American importer as the 'Tempo One'). These rigs were intended mainly for home use, and used valves in the receive and transmit signal and power amplifying stages. Early Yaesu units (prior to the FT-901 and FT-101ZD) used colour TV line output valves in the power amplifier to keep costs down, and some generated up to 300W of RF output.

While I have repaired the odd Trio/Kenwood unit, 99% of my experience has been with the Yaesu equipment. The principles of operation (and non-operation!) are, however, basically similar, and so I hope that Trio/Kenwood users will not stop reading at this point.

BUYING AN OLD RIG

The condition of a piece of equipment depends very much upon the environment in which it has been used. This particularly applies to the rigs that use mainly valves. A 30-year-old FT-401 that has been used in a clean, heated shack may be worth considering if it is cheap enough; one that has been used by a heavy smoker and/or in an unheated shed is definitely not. By and large, hybrid rigs such as the Trio/Kenwood TS-520, TS-530, TS-820 and TS-830, and the Yaesu FT-101, FT-101ZD, FT-901 and FT-902 seem to suffer less from the ravages of age than the valve-only equipment. Condition being more important than age, it is still worth noting a few pointers, in case a seller tries to represent equipment as being much younger than it is.

The first really successful 'all-purpose semi-portable' rigs were Yaesu's FT-101 and Trio/Kenwood's TS-520. These were transistorised except for the driver and PA stages, and operated from the mains, or from 12V using the mains transformer as a power oscillator. Not all subsequent models had the DC option, but the system of using transistors in the low-level stages, with a valve driver and PA stage, became standard practice with both makers for many years.

The oldest TS-520 and FT-101 units were produced in the early 1970s and, while some had 160m

fitted by an importer, the oldest models did not have it stamped on the band switch; only later units had it factory-fitted. Ham radio equipment made prior to about 1980 was not fitted with the 10, 18 and 24MHz bands, so don't let anyone tell you that an FT-101ZD without these bands is only 20 years old!

BASIC PROBLEMS AND PREVENTIVE MAINTENANCE

While faults will develop on any equipment, however well it is made, 90% of the older HF rigs that I have had to scrap, have come to this point simply because someone has fitted the wrong value of fuse. Most pieces of ham radio equipment are made very much to a price, and items such as mains transformers are only just about large enough. If a rig is intended to be used with a 3A fuse, and you fit a 5A one, it will, of course, operate perfectly, but if a short circuit develops the mains transformer will almost certainly burn out. The most important thing you can do to ensure the long life of your equipment is to stop reading this article, and go and check the value of your fuses. The average 100W 230V mains-operated transceiver should be fitted with a 2.5A or 3A 'quick blow' fuse. Do be aware that a 'quick blow' fuse has a single piece of wire in a glass cartridge; those with an internal spring, or packed with powder are 'slow blow', and will not give the required protection. Often the fuse value stamped on the back of the rig is correct only for 115V operation, and is much too big to give protection on 230V, so check your manual. The spare fuses supplied may also be for 115V, or even worse may be rated at 20A for 12V operation. Do not presume that your dealer or previous owner has fitted the correct fuse, *have a look* now *and let me know what you find!*

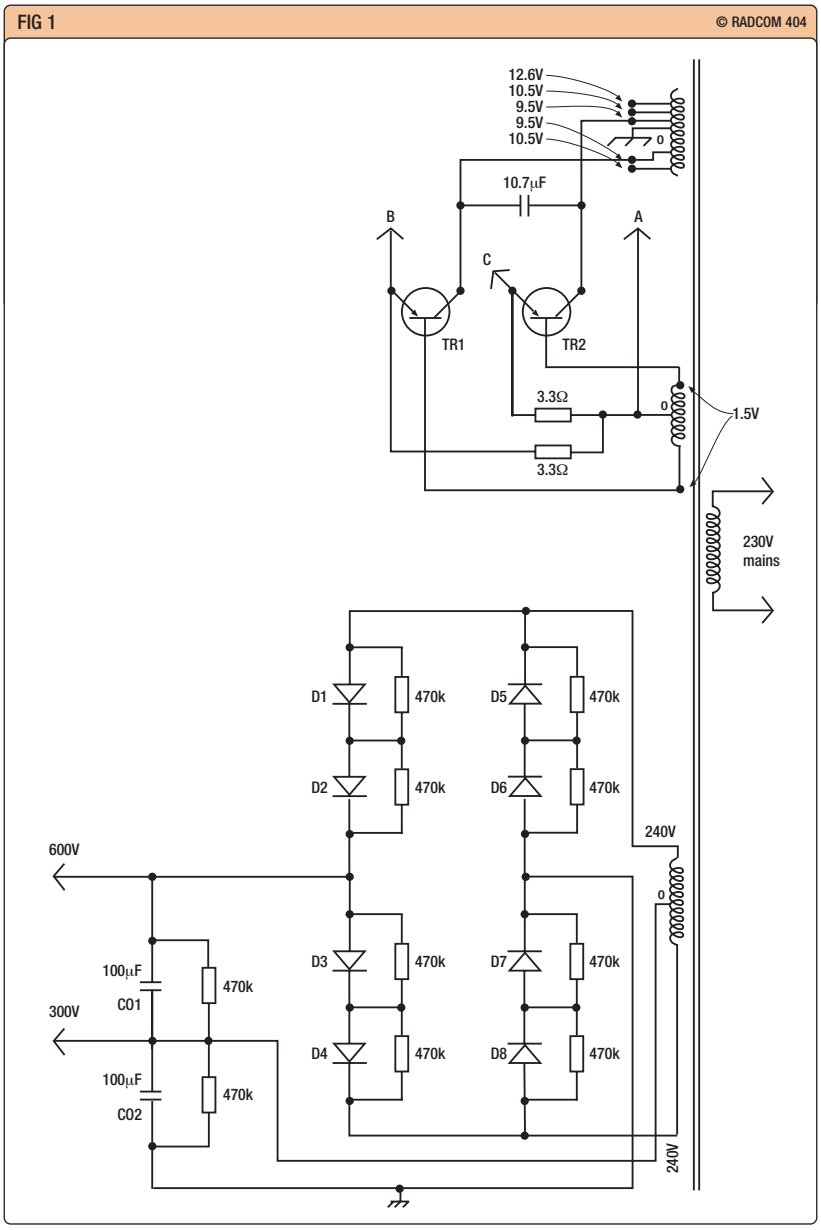
BLOWN FUSES

By far the most common complaint with valve-operated equipment is a blown fuse. The trick is finding out why the fuse has blown, without causing more damage. If the fuse blows, examine it carefully. If the wire inside the glass cartridge seems to have just sagged and parted, it may have died of old age, and it is worth trying a new one; make sure that this is a quick-blow fuse, and that it is a little too small rather than a little too large. If the wire has vaporised, however, there is a fault, and you may cause more damage even if you fit a correct replacement.

Why has the fuse blown?

Fig 1 shows a simplified circuit of the FT-101E power supply, which is similar to those used in most HF transceivers made in the 1970s and early 1980s. Note that the nominally 600V anode supply to the 6JS6C valves is generated by a voltage-doubler fed from the 240V winding on the mains transformer. C02 charges up to approximately 340V (peak value = √2 x RMS value, ie 1.414 x 240 ≅ 340V) on one rectified half-cycle of the AC input. The next half-cycle is rectified and fed to C01 which electrically 'stands on top of' the voltage on C02, and so adds an other 340V to give a total of 680V; this drops to around 600 on load. Half this voltage is made available from the positive end of C02 for operating the driver stage. The transistors TR1 and TR2 are used only during DC operation; on some equipment they may form part of an optional plug-in module, on others they are fitted as standard. Selection of DC or AC operation is decided by the wiring in the power plug which is fitted to the relevant AC and DC power leads.

Fig 1: Simplified circuit of the power supply of a Yaesu FT-101E (bias and 13.5V supply not shown). Note: AC / DC switching – When the DC power plug is inserted, 'A' is connected to chassis via a 470µF capacitor in parallel with a 220Ω resistor, and 'B' and 'C' are connected to the +12V input.



SAFETY

Valve-operated equipment uses high and potentially lethal voltages; make sure that you are aware of basic safety procedures, before working on this type of equipment. Note in particular that you must never fit new parts while the equipment is plugged into the mains supply, even if it is switched off; that you must never grip two metal parts at the same time; and that you must always discharge the high-voltage capacitors before touching internal wiring. [See RSGB *Radio Communication Handbook*, and my article 'Pull the Mains Plug Out', *RadCom*, July 2003, p67.]

FIG 2 © RADCOM 301

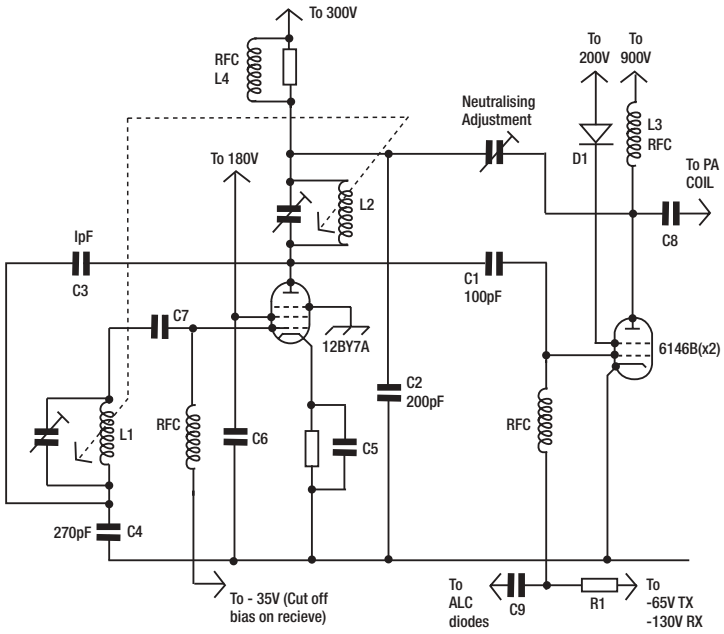


Fig 2: Simplified PA and driver stage. L1 & L2 are part of the preselector tuning mechanism.

A fuse can blow for a multitude of reasons, by far the most common being faulty high-voltage rectifiers. Check the forward and reverse resistances of D1 to D8, and nine times out of 10 you will find that the trouble is here, and that a couple of diodes are short-circuit. For replacements, you can use almost any 1A silicon diode, with a PIV of at least 1000V, such as the BY127. Note that each leg of the circuit contains two diodes in series with resistors across them. The resistors are used to equalise the voltages across the diodes. If there is a fault in this department, do not economise, but be sure to replace all the diodes and resistors. The exact value of the resistors does not matter, but they must be all the *same* value.

If the diodes are OK, the next items to check are the PA valves, and these should be physically examined. In most cases a 'fuse blowing fault' will have resulted in discoloration, warped internal electrodes, or cracked glass. If the valves do seem to be causing the trouble, remove them, and see if the equipment then operates normally. *Do not replace them* until you have checked that there is not a fault that has caused them to blow; fitting new valves to a faulty rig can cause horrendous damage. I will cover the subject of PA valve replacement later.

Following on from the PA valves, the next likely culprits are the smoothing capacitors C01 and C02, and these should be checked for short circuits. If you are unlucky and one of these is faulty, you may have a problem obtaining a replacement, as electrolytic capacitors of high working voltage are now very rare. There must be hundreds of scrap rigs around with these parts in them, so ask around at the local club. I am reliably informed that Chris Tredwell, G8CHW, of Mode Components (ctredwell@webleicester.co.uk, tel: 0121 233 3661), can usually source parts such as these; otherwise, if you are desperate, wire two 250 or 300VWKG capacitors of *twice* the correct capacity in series to replace C01, and the same to replace C02. If you do this, be sure also to fit a 1W resistor of about 470kΩ in parallel with each capacitor to equalise the voltages. Occasionally, TR1 or TR2 may be faulty; although they are not used in AC operation, they are still connected, and will still blow a fuse if they are short-circuit. If you do not plan to use the rig in the 12V mode, the cheapest way to cure and avoid this fault is simply to remove the transistors.

Fuse still blowing!

Trying to trace the cause, of a fuse that blows the moment you switch on, seems to be a 'catch 22' situation. If you fit a larger fuse 'to see where the smoke comes from' you will damage the equipment but, without power, one can only make resistance checks, which may not get you anywhere. The solution is to apply only a small AC input voltage, enough to make some tests, but not enough to cause damage.

My favourite way of tackling this problem is fit a new fuse and then to apply about 24VAC or 12VAC to the mains input from a small transformer or 'Variac'. I next check the AC and DC voltages in the PSU, which should then be about a tenth or a twentieth of their normal quoted levels. When I find a voltage that is less than this I know that I am getting near. By disconnecting components and feed-lines, I can then decide where the excess current is going, or if there are short-circuited turns on one winding of the mains transformer. (This method of fault tracing also work wonders when trying to find fuse-blowing faults in 12V power supplies, and in RF, AF and Hi-Fi amplifiers, provided they are powered by a normal mains transformer, and are not switch-mode operated.)

THE OUTPUT STAGE

As mentioned earlier, Yaesu used line output valves as PA valves in all models up to and including the FT-101E. This was discontinued in 1978, and was replaced by the FT-101ZD and the FT-901. The PA valves used in the earliest Kenwood rigs were Japanese S2001 running at around 900V, as did (possibly) the prototype FT-901 and FT-101ZD. Unfortunately, production of these valves ceased, and Yaesu and Kenwood had to substitute 'equivalent' American 6146B valves. If you care to look up the specification you will note that all versions of the 6146 are rated at 600V. (Therefore, technically, the guarantee is void the moment you switch on!) The circuit in **Fig 2** shows a simplified driver and output stage, complete with typical voltages. This is basically similar to that used in most Yaesu and Trio/Kenwood valve equipment. The first units that were fitted with the USA valves tended to produce smoke and exploding capacitors, as very occasionally the 900V supply would flash over inside a valve from the anode to the screen grid. Normally this should not do any lasting harm to the valve, but when 900V appeared on pin 3 on a 6146, it blew the 250 or 300VWKG capacitors in the screen supply circuit. Diode D1 was quickly added to stop current going the wrong way.

Example of old equipment suitable for home-servicing: the Yaesu FT-902DM.

When servicing older Yaesu or Trio/Kenwood equipment, you must ensure that a diode such as a BY127 is fitted in this position if American valves are to be fitted in place of the original S2001.

DON'T FIT NEW VALVES JUST YET

"I bought this rig from a 'silent key'; it seemed OK but, after a few weeks, the PA valves blew. I fitted new ones, but it then blew a fuse and I smelt burning". I must have heard that story dozens of times and, in all cases, the cause has been a leaky grid coupling capacitor, this is shown as C1 in Fig 2. The capacitor in this position is a common cause of trouble in all Yaesu and Trio/Kenwood rigs using valves, as it seems invariably to break down when a rig is put back into use after not being used for a while. Note that this disaster happens even if the rig is switched to receive; you should never switch the valve heaters on, on a rig that has not been used for a number of years, without checking this capacitor. *Also, before fitting new PA valves or putting an old rig back into service, you should check that the voltages on the various electrodes are correct according to the manual, in both the transmit and receive modes.*

Normally PA valves, depending on their type, have about -50V to -65V on their control grids in the transmit mode, and when receiving -70V to -130V to stop them conducting. If the grid coupling capacitor leaks, the grids are connected to the +300V supply, and the valves, especially if they are new, take an enormous current and are wrecked. This current can burn out everything in its path, turning a good piece of equipment into scrap; the grid coupling capacitor is somewhat prophetically designated 'C13' in the FT-101Mk1/Mk2/B and E! When servicing any of the older valve equipment, it is good practice either to replace the grid coupling capacitor, or to add a 0.01µF 1000VWKG disc ceramic in series with it to block any DC. Note also that, in the FT-101Mk2/B and E rigs, C131 is switched in parallel with the standard grid coupling capacitor when working on 160m. This also goes short-circuit, and will cause a burn-out if the rig is switched to this band for just a few moments, even on receive; either remove it if you do not use this band, it or replace it if you do.

WHEN YOU DO NOT NEED NEW PA VALVES?

Unlike the old soldier, PA valves do not often seem to fade away; normally they die after suffering some type of catastrophic failure, which results in a 'firework display' or a blown fuse. When I was doing full-time servicing, I noted that some customers seemed to view their rigs' PA valves in the same light as that of the oil in their car, and would often request that they were replaced, when there was no need. You do not need a new pair of PA valves just because they are 20 years old; unless you make a mistake and blow them, they will probably last another 20. Some types of valves are getting difficult to obtain, however, so that fitting a new matched pair (never fit odd valves) to keep the olds ones as spares is not such a bad idea.

WHAT 6146 VALVES DO YOU FIT?

6146A, 6146B, and 6146W valves are not intended to be run at nearly 1000V, but as nothing else is available there is no alternative. I have found that with Yaesu and Trio/Kenwood equipment, the American 'GE' and 'RCA' valves are usually OK. Other makes sometimes work, but occasionally produce 'hash' in the receiver on the 10m band. I have had some very bad experiences with Chinese 6146 valves. These have produced more output than the GE valves, have worked well for weeks, and then, in some cases, have suddenly gone dead short-circuit, doing quite a lot of damage. You cannot blame the valve manufacturers; they only rate the valves at 600V. At the moment, GE 6146W valves are being sold off quite cheaply. This version of the 6146 was made for the military, and seems to be a vibration-proof version of the 6146A, which is slightly less powerful than the 6146B. The net result is that they work OK, but give about 15% lower output than the 6146B. As the difference in signal at the receiving end is undetectable, and the price difference at the sending end definitely is, I tend to use the 6146W.

NEXT TIME

G3LLL continues his discussion with the use of line output valves, neutralising, and faults to look out for and overcome. ♦

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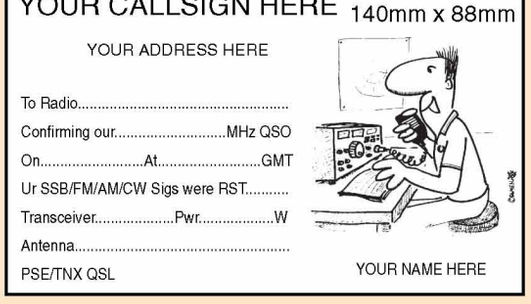

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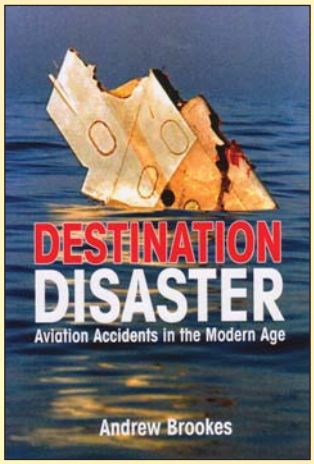

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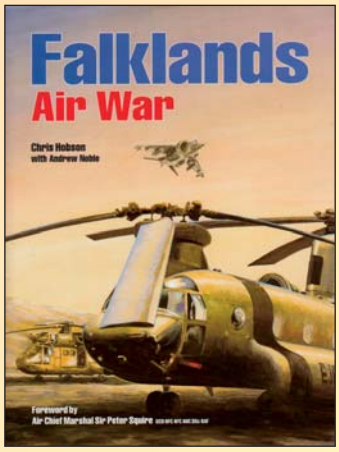

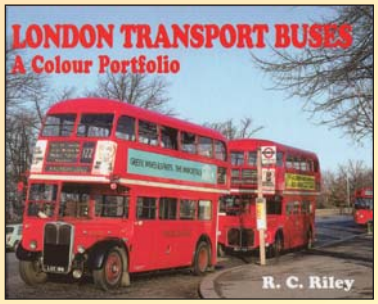

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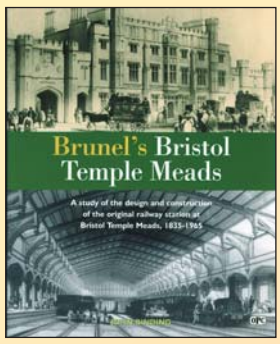

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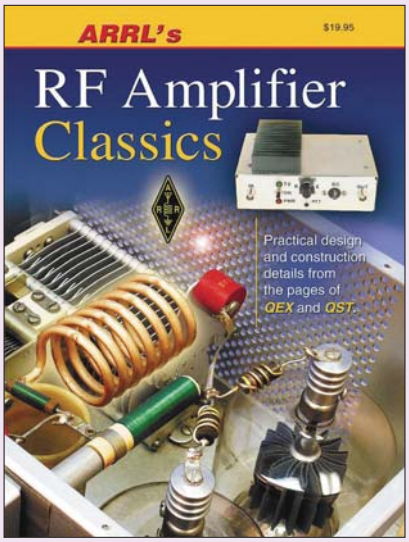

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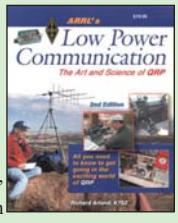

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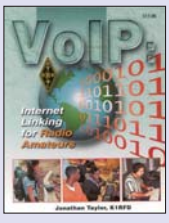

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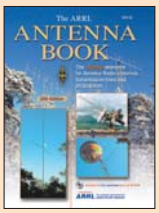

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Members' ads

FOR SALE

45ft lattice steel tower with ground post, rotator cage and two winches, £395 ono. Buyer must collect. 01455 822 519 (Leicester). E-mail: davesletterbox@mailkey.com

ALTRON SM-30 telescopic tilting mast, £250. Buyer collects. Kenwood SM-220 monitor scope, £150. Various rcvr valves, call me! 01256 781 932 (Basingstoke). E-mail: jonbikejoan2@aol.com

BIRD Thru-line wattmeter with six elements. Trio R-600 rcvr. Nevada TM-1000 ATU. Audon miniscope. BC-348 rcvr. Optoelectronics 3000 freq meter. No 10 xtal cal, class-D wavemeter. Offers please to, G3ZBM, 01270 568 693. (Crewe). E-mail: g3zbm@supanet.com

CUSHCRAFT MA-5B compact 3-ele beam antenna, Good cond. Instruction man, but no original packaging. Prefer buyer collects, £225. G7JCF, 01986 798 524 (Woodbridge). E-mail: steve@sboldvic.demon.co.uk

FT-1000MP, AC, £1050. FT-847, £795. IC-7000 base scanner, £425. Mirage B-320G 200W VHF amp, £265. Icom CT-17 Interface, £60. Yaesu FMP-1 message processor, £55. Ameritron ICP-240 soft-start, £55. All boxed, unmodified and as new. MFJ-969 ATU, £110. Yaesu FRV-8800 converter, £50. Hygain TH-11DX beam, boxed, unused, £750. Hygain Tailtwister 2 rotator + 120ft of cable, boxed, unused, £225. Yaesu MLS-100 spkr, unused, £15. SGC Powerclear DSP unit, £100. Mizuho KX2 ATU, £40. Mizuho PL-20 20m QRP amp, £45. Microwave Modules 50W UHF amp, £65. IC-706 sep cable + panel mount, £25. IC-735 electronic keyer, £65. IC-735 CTCSS encoder, £20. FT-100 DC power cable, new, £13. KAM all-mode TNC, £50. Alinco, EDXI ATU, as new, £110. Watton, 01953 884 305 or 07970 214 039.

IC-746 HF, 6m and 2m 100W on all bands tcvr. INRAD 250Hz CW filter fitted, £650 plus carriage. G4DBL, 07837 862 772 (Basingstoke).

ICOM 756, 6yrs old, exc cond, fitted SSB and CW filters, manual and boxed, £750 ono. 07990 950 461 (Birmingham). E-mail: vwhile@aol.com

ICOM IC-275H, £550. AT-230, £60. MFJ-948, £60. DTR, £50. Tiny-2 Mk2, £30. Altron 33ft mast GP req, Free if removed. Mike, G0KAS, 01372 810 612 (Epsom).

ICOM IC-706 MkII, DSP, MB-62 bracket, manual, box, mint, £470. Icom AT-180 auto ATU, box, cables, matches IC-706, excellent, £200. Icom R-7000 scanner rcvr, 25-2000MHz, manual, mint cond, £425. Steve, M0OXR, 01865 243 634 after 7pm (Oxford). E-mail: steve@earth.ox.ac.uk

ICOM IC-910HX with TCXO, main and sub CW filters, mint, £1050. Heil Proset Plus, £100. Heil FS-2 Footswitch, mint, £25. Icom adapter, £9. MFJ-434 digital voice keyer, mint, £120. All boxed. Buyer collects or pays postage. Paul, M0CVX, 01522 519 910 (Lincoln). E-mail: bradbeerfamily@aol.com

ICOM IC-W31E 2m/70cm h/h, boxed, instruction book, charger, spare battery case, unmarked, £115, to include UK postage. Steve, G0USH, 01803 554 556 (Devon).

KENWOOD SP-23 speaker, £45. AKD model 2001 2m rig, £95. Watson W-3A Power supply, £15. Samlec 23A power supply, £65. BNOS 2m linear amp, £119. Inac 22A power supply, £69. All the above are in mint cond and are in original boxes. Maynard, M1EGX, QTHR, 0121 351 2827. E-mail: mbeddard@hotmail.com KENWOOD TMD-700E, as new, £350. heavy duty rotator, G-1000 DXC brand new, still boxed, £400. Drum URM-67 low loss CO.AX, new, £50 (100m). G4LSP, QTHR, 01449 722 055 (Needham Market).

KENWOOD YK-455C-1 and YK-88SN-1 filters, £40 each plus postage. Yaesu FT-736R 6/2/70 boxed, non smoker, £700 ono. Collect or pay postage. Vehicle registration 'HF 02 UHF', realistic offers only. MW0AQZ (Anglesey). E-mail: mw0aqz@tiscali.co.uk

LIONEL J-36 bug key, £35. Gold-plated twin paddle iambic key, never used, £40. MFJ-1704 4way coax switch, £40. A-45 4-ele beam, £275. All plus postage. GW3KDB, QTHR, 01545 560 451 (Llandysul).

MFJ-1796 40 to 2m vertical, MFJ-989C tuner 3kW. Kenwood MC 90 Mic. Yaesu FT-290R all-mode tcvr and mobile eqpt. Offers on all, buyer collects. 01376 515 401 (Witham).

MILITARY UK/PRC-316, with mic, aerials, GWO, £350. Racal Syncal 30X with handset, whip, GWO, £350. Racal TA 940 100W linear, GWO, £100 (heavy). Ten-Tec Argosy 525, mic, GWO, £175. All have user manuals. Carriage extra. John, G3GTJ, 01963 240 319 (Somerset).

MILITARY wireless set A-41. Military freq meter BC-221T Russian tcvr R-1070155037501. Marconi CR-100/2 rcvr. Murphy 506 rcvr. Clark mast, needs attention. Military mast, can be loaded. Buyer to arrange collection. Info and prices from G8KVU, QTHR, 024 7659 7411 (Coventry). E-mail: madeley-smith@ntlworld.com

MORSE Transceive. Good for practising on, but also a main programme, 20 left, £5 each plus £1 post and packaging. 01297 23421. (Seaton). E-mail: poison-pen@poisonpen.freeserve.co.uk

SANTA'S been good to me, hence shack clearance. Yaesu FT-747GX HF tcvr. FRG-9600 VHF/UHF rcvr. Kenwood TS-430S HF tcvr, R-5000 HF/VHF rcvr. Realsitic DX-394 comms rcvr. MFJ-462B CW decoder. Tono-5000E CW/RTTY decoder/writer, boxed, in exc working order and appearance, sensible offers only please. Shipping by arrangement. 07932 584 504 (Birkenhead). E-mail: g7esm@tesco.net

SILENT key disposal. Katsumi EK-150 electronic keyer, £50. Microset PT-120 PSU 13V/20A , £50. Mustang 13V/6A PSU, £30. Hi-Mound manipulator (no base), £20. Two basic h/h: AOI/AT-18 2m/tcvr; Rexon RL-402 70cm/tcvr. Japanese bug key and J-38 key – offers? Sony SW/Broadcast PLL Synthesised rcvr model ICF-SW-7600GR (cost £150). Unused, realistic offers please. Prefer inspect/collect or carriage at cost. G3CVK, QTHR, 01684 562 552 (Malvern). E-mail: phbolton@onetel.com

SILENT key sale. FT-102 +FM, £250. FT-102, £200. FV-102DM VFO, £150. FT-209R, £120. Microwave Modules 2m linear 30W, BNOS PSU 25A, £80. SMC 10m FM tcvr, £25. Osker Block SWR meter, £30. G3MJK, 01256 389 439 (Basingstoke).

SILENT key sale. Trio TS-515 SSB, HF, 3-30MHz rig in pwo with matching PSU & spkr, £70. Complete working geostationary weather satellite system with the computer already set up c/w 80cm dish. It will receive orbital satellites, £300 the lot. G4RVH, 01946 811 418 (Cumbria). E-mail: g4rvhh@beckred27.freeserve.co.uk

SILENT key sale: FT-1000 gwo, £350. Bill Chewter, 020 8478 4758. E-mail: g0iqk@barkingradio.org.uk

SILENT KEYS

We regret to record the passing of the following radio amateurs:

G0CKQ	Mr D S Brown	11/09/04
G0DKT	Mr A Berry	08/04
G0IUL	Mr C Watson	29/10/04
G0LOM	Mr D G Cox	03/04
G3JBR	Mr D P Tipper	11/06/04
G3KQS	Mr E G Simpson	01/10/04
G3ZTM	Mr L F W Lawes	02/10/04
G4BYP	Mr A G Scott	09/04
G4CYM	Mr W J Stroud	10/04
G4OLC	Mr B Potts	10/11/04
G8IB	Mr D C Woodford	03/05/04
G8PX	Mr F A Jefferies	13/09/04
GM1AUZ	Mr I Crockford	15/10/04
GM4GAM	Mr J D Harrower	07/10/04
GM4ULS	Mr V M Thompson	22/11/04
GW4WPJ	Mr D D G Jones	01/10/04
KB0PFS	Mr I P Knowles	11/04
M0HNW	Mr W A Eyre	22/10/04
M1CCE	Mr D K Soutter	19/11/04
M1DQO	Mr D S Roberts	10/03
M5AGN	Mr J H Fry	2004
MW3RHW	Mr R H Whitfield	20/10/04
N2KWF	Mr M E Macleod	06/12/03
RS13129	Mr E Chester	
RS88773	Mr D R Blowers	

CONGRATULATIONS

to the following, whom our records show as having reached 70, 60 or 50 years' continuous RSGB membership:

70 years

G2DYM	Mr R Benham-Holman
G8GP	Mr E V Neal

60 years

G3FPN	Mr J R Davey

50 years

RS20842	Mr J H Birkett
G3KRT	Mr G L D Hodges

GB CALLS

These callsigns are valid for use from the date given, but the period of operation may vary from 1 – 28 days before or after the event date. Operating details are provided in an abbreviated form as follows: T = 160m; L = 80 or 40m; H = HF bands (30 – 10m); V = 6 and/or 4m; 2 = 2m; 7 = 70cm; S = satellite and P = packet. Please send operational details of your special event station to the RadCom office at least five weeks before publication. The only QSL Bureau sub-manager for special event station callsigns is as follows: Mike Evans, 322 Heol Gwyrosydd, Penlan, Swansea SA5 7BR, e-mail mw0cna@ntlworld.com. Will organisers of special event stations please ensure that they lodge plenty of envelopes with their sub-manager?

1 Nov	GB90STD: 90th Anniversary St Dunstans. LHV2 (G3SEJ)
3 Jan	GB4BLC: Bedworth Lions Club. LH2 (G8GMU)
6 Jan	GB2ATC: Air Training Corps. 2 (G4PSH)
8 Jan	GB5RSR: Ribble Steam Railway. LH27 (G1PIE)
10 Jan	GB6BOB: Battle Of the Bulge. LH (G4OHX)
13 Jan	GB4YOU: Youlbury (Scout & Guide Radio). TLH27P (G0REL)
	GB4YOU: Youlbury (Scout & Guide Radio). (G0RJX)

TENNAMAST 10m Adaptamast (luffable). As new, never installed. Complete with winches, brackets and all fixings. Buyer collects, £250 ono. 01582 769 078 (Harpenden).

UK Linear Amp Ranger 811H, under 10 hours' use. New Cond. Plus 4 new spare valves, £675. G0VNH, 01482 655 501 (Hull).

VERSATOWER fixed base mounted 40ft – 20ft lowered, inc head fitting. Buyer collect / inspect. H Haden, G4GWF, 01942 888 782 (Leigh). E-mail: gwfmkm@aol.com

VERSATOWER P-60 with rocket head and thrust bearings, £200 (no ground post). Kenpro 600RC rotator, £75. TET HB-35C 5-ele Yagi for 10/15/20, £75 or £300 the lot. Buyer arranges dismantling and collection. Kenwood TH-78E for 2 & 70, BC-15 & 15A chargers, spkrs, mic, new batteries, wall charger, £75. 01527 459 354 (Redditch). E-mail: g3sah@aol.com

W2IHY 8-band audio equaliser, virtually brand new, mint cond. Includes Yaesu mic lead, free p/p, £165 ovno. M0OPV, 01983 755 595 (Isle of Wight). E-mail: m0opv@aol.com

YAESU 920AF exc cond, £550. For quick sale. Yaesu FP-1030A, £50. MFJ-949E, £30. Kenwood 255E 2m m/mode, £300, scratch on case. M0TIN, QTHR, 01943 816 316, 07885 446 406 (Ilkley). E-mail: dave.legrove@talk21.com

YAESU complete HF setup. FT-757GX HF tcvr, matching FP-757HD heavy-duty PSU and matching FC-757 fully auto ATU. In good cond with orig boxes, packaging and all manuals, owned by non-smoker.

100W o/p with wide band rcvr and entendable transmit (will cover 5MHz NoV & 7MHz band extension), £475 plus post and package. Keith, 01449 767 888 (Suffolk). E-mail: g0fea@gls.net

YAESU FT-280/480 2m m/mode, £70. Yaesu FT-707, FP-707, FC-707 HF tcvr, £240. MML-144/100W lin amp, £70. Microset RV-45 lin amp 50W o/p, £40. Diamond SX-200 SWR/PWR meter, £30. Yupiteru MVT-7100 scanner, all mode, £90. Dymar 2000 converter PMR 2m £15. TH-79E dual-band h/h plus acc, £120. Terry, G4OXD, 01462 43524 (Hitchin). E-mail: tm.rose@tiscali.co.uk

WANTED

5-pin mains/power connector for B-28/CR-100 supply lead, for restoration project. Have panel section, need cable part. G4GWJ, 0118 966 6844 (Reading). E-mail: wlfireman@tesco.net

ACCESSORIES for Drake TR-7, general comms rcvr, R-1000, FRG-7700 etc & accessories. IC-735 & accessories. IC-202, 01788 334 471 (Rugby). E-mail: keith@jpl.co.uk

AEA HF Analyst model SWR-121. Western PM-20000A. Address of someone willing to make aluminium castings, sand method. EA5SX. E-mail: hal@villa-spain.com

ALL spy, Clandestine, special forces' radio sets wanted by private collector. WWII SOE suitcase sets. British, German, Russian, Polish, American also in complete units, spares, keys for same. Cash waiting, can collect or will pay carriage. Ring Bill anytime. 020 8505 0838 (London).

COLLINS ATV-180S. Must be in good cond. G3GBB, 01379 783 657 (nr Diss, Norfolk).

DRAKE tcvr TR-4C or earlier, rcvr R-4A or earlier. M5FLY, 01226 288 718.

FAN of old days seeks pre-1970 QSL cards, log books magazines. Mike, 8 Windsor Road, Reydon, Southwold, Suffolk IP18 6PQ.

GW3JSV requires Ten-Tec Hercules II solid-state amplifier with PSU. Must be in first class cond. Please call. 01686 640 388 (Welshpool). E-mail: gw3jsv@btinternet.com

LOWE PR-150 preselector. Phone anytime please. Bob, G8LAN, 01275 343 665 (Clevedon). E-mail: bob.garner@virgin.net

MORSE keys wanted please. Early brass keys, especially by Marconi, GPO etc, but all considered. John, G0RDO, 01626 206 090 (Newton Abbot). E-mail: john@morse-mad.com

TECHNICAL manuals for Heathkit valve-voltmeter model IM-13U, signal generator tech model TE-20D, Hartley Electronics oscilloscope CT-436. Ray, G3RSV, QTHR, 01553 671 307 (King's Lynn). E-mail: raydowselt@supanet.com

EXCHANGE

TEN-TEC Corsair II, Ten-Tec PSU, Ten-Tec VFO, radio & PSU boxed with mans, swap for Elecraft K2 with options, built, or your unfinished project. Snowy, G0HZE, QTHR, 01737 342 439 (Peterborough). E-mail: snowy.howell@bt.com

RALLIES

TI – Talk-In; **CP** – Car Park; **£** – admission; **OT** – Opening Time – time for disabled visitors appears first, eg (10.30/11am); **TS** – Trade Stands; **FM** – Flea Market; **CBS** – Car Boot Sale; **B&B** – Bring and Buy; **A** – Auction; **SIG** – Special Interest Groups; **MT** – Morse Tests; **MA** – Foundation Morse Assessments; **LB** – Licensed Bar; **C** – Catering; **DF** – Disabled Facilities; **WIN** – prize draw, raffle; **LEC** – LECtures/ seminars; **FAM** – FAMily attractions; **CS** – Camp Site.

6 / 7 NOVEMBER 2004

18th North Wales Radio, Electronics & Computer Show – Aboard Viking Line MS Gabriella, on circular trip Helsinki – Stockholm – Helsinki. LEC, C, LB. Proceedings in English. [www.qsl.net/ccf/ and www.vikingline.fi/onboard/gabriella/]

23 JANUARY 2005

OLDHAM ARC Rally – Oldham Sports Centre, Lord Street, in the centre of Oldham. OT 10.30 / 11am. TS, B&B, TI on 145.550MHz via GB4ORC starting 7.30am. Full details and maps on website. [www.oarc.org.uk]

30 JANUARY 2005

FENLAND REPEATER GROUP Horncastle Winter Amateur Radio Rally – Horncastle Youth Centre, The Old School, Cagthorpe, Horncastle, Lincs (nr Horncastle Police Station). OT 10 / 10.30am, £1. C, Horncastle bacon butties, TS. Tony, G3ZPU, 07717 312 558.

6 FEBRUARY 2005

SOUTH ESSEX ARS Radio Rally – The Paddocks, Long Road, Canvey Island,

Essex, at the southernmost extremity of the A130. Radio, computers and electronics. OT 10.30am. C (home-made), CP free, DF, TS. Brian, G7IIO, 01268 756 331 or briang7iio@yahoo.com [www.southessex.ars.btinternet.co.uk]

13 FEBRUARY 2005

HARWELL ARS Rally – Didcot Leisure Centre, Mereland Road, Didcot, Oxon. Signposted from A34. OT 10.15 / 10.30am, CP free. B&B, C, LB, TS, SIG, DF, TI on 145.550MHz. Ann, G8NVI, 01235 816 379, ann.stevens@btinternet.com. [www.hamradio.harwell.com]

WAKEFIELD & DRS 14th Northern Cross Radio Rally – Thornes Park Athletics Stadium, Wakefield, W Yorkshire. Just out of town on the Horbury Road. Easy access from M1 jns 39 and 40 – well signposted. OT 10.15 / 10.30am, £2.50. B&B, TI on 145.550MHz. John, G7JTH, 01924 251 822 or g7jth@wdrs.org.uk [www.wdrs.org.uk]

20 FEBRUARY 2005

SOUTHGATE ARC Stevenage Radio & Electronics Show – Stevenage Arts & Leisure Centre, Lytton Way, Stevenage, Herts. Close to A1 & GNER mainline. OT 9.30 / 10am, £3. TI, CP, DF, TS, SIG, B&B, LB, C. Steve G4UKR, 07950 327 822, stevenageshow@dsl.pipex.com [www.stevenageshow.dsl.pipex.com]

27 FEBRUARY 2005

SWANSEA ARS Amateur Radio & Computer Show – Afan Lido, Aberavon seafront, Port Talbot, 1 mile from jn 41, M4. OT 10.30am. TS, B&B, SIG, repeater groups, TI on 145.550MHz. Roger, GW4HSH, 01792 404 422.

6 MARCH 2005

TYNE & WEAR REPEATER GROUP Auction – Community Centre, Front Street, Great Lumley, Chester-le-Street. OT 11am, £1. C. Nancy, 0191 477 0036, or 07990 760 920, or nancybone2001@yahoo.co.uk

13 MARCH 2005

ABERYSTWYTH Amateur Radio & Computer Rally – Penweddig Secondary School, Aberystwyth, next door to Aberystwyth Swimming Pool and Leisure Centre (signposted). OT 10am,

£1. HF and VHF demonstrations, hobbies, TS, computers, B&B, clubs, SIG, C, model railway and aircraft, dolls' houses. TI on 145.550MHz. Ray, GW7AGG, 01970 611 432, or ray@clocktower.go-plus.net

BOURNEMOUTH RS 17th Annual Sale – Kinson Community Association Centre, Pelhams Park, Millhams Road, Kinson. OT 10am, £1.50. TI, TS, B&B, SIG, CP, C (light). John, G0HAT, 07719 700 771, johncbales@yahoo.co.uk [www.brsweb-site.freeserve.co.uk]

BREDHURST RECEIVING & TRANSMITTING SOCIETY 18th Rainham Radio Rally – Rainham School for Girls, Derwent Way, Rainham, Kent. OT 9.30 / 10am, £2, under 14s free. TS, SIG, C, TI on 145.550MHz via GB4RRR, CP off-road. Mike, 01634 313 905.

WYTHALL RC Radio & Computer Rally – Woodrush Sports Centre, Shawhurst Lane, Hollywood, nr Birmingham, on the A435, two miles from jn3, M42. OT 10am, £1.50. TS, C, B&B, CP,TI on 145.550MHz. Chris, G0EYO, 07710 412 819 or g0eyo@blueyonder.co.uk [www.wrcrally.co.uk]

19 MARCH 2005

BRAC Foundation of VERON 30th Annual Dutch National Radio Fleamarket, – Autotron, Rosmalen ('s-Hertogenbosch). Look for signs to the Autotron. OT 9am, 6 Euro. C, TI via PI4SHB on 145.250MHz. pi4shb@amsat.org [www.qsl.net/pi4shb]
20 MARCH 2005

CAMBRIDGE & DARC Rally – Britten Arena, Wood Green Animal Shelter, on the A1198 Godmanchester, off A14. OT 9.45 / 10am, £2, conc. DF, TI on 145.550MHz, B&B, CP free, C, LB, FAM. Bring own tables. John, G0GKP, 01954 200 072.

NORTHERN AMATEUR RADIO SOCIETIES' ASSOCIATION (NARSA) Norbreck Blackpool Rally – Norbreck Castle Exhibition Centre, Blackpool. Peter, G6CGF, 0151 630 5790, g6cgf.peter@ntlworld.com

3 APRIL 2005

Northern Mobile Rally (Harrogate) – Gerald, G0UFI, 07734 478 080. [www.harrogaterally.co.uk]

10 APRIL 2005

21st Yeovil QRP Convention – George Davis, 01935 425 669, george@mud-ford.fstnet.co.uk
24 APRIL 2005

ALDRIDGE & BARR BEACON ARC Annual Surplus Radio & Electrical Sale – Doug, 01543 571 269. [www.goneq.co.uk]

ANDOVER RAC Spring Boot Sale – Terry, G8ALR, 01980 629 346, g8alr@ukgateway.net
West London Radio & Electronics Rally – Paul, M0CJX, 01737 279 108, m0cjx@radiofairs.co.uk [www.radio-fairs.co.uk]

2 MAY 2005

DARTMOOR RC Radio Rally – Ron, G7LLG, 01822 852 586.

MID-CHESHIRE ARS Rally – Civic Hall, Winsford. David, G4XUV, 01606 77787.
15 MAY 2005

MIDLAND ARS Drayton Manor Radio & Computer Rally – Norman, G8BHE, 0121 422 9787 or 07808 078 003, nlgutteridge@aol.co.uk [www.midam-radio.co.uk]

5 JUNE 2005

SPALDING & DARS Annual Rally – Ambrose, M0DJA, 07989 636 520, or John, 07946 302 815. [www.sdars.org.uk]

19 JUNE 2005

NEWBURY & DARS Car Boot Sale – [www.nadars.org.uk]

26 JUNE 2005

SEVERNSIDE TV GROUP West of England Radio Rally – Shaun, G8VPG, 01225 873 098. [www.westrally.org.uk]

3 JULY 2005

NORFOLK ARC Barford Radio Rally – David, G7URP, 01953 457 322 or 01953 458 844, radio@dcpmicro.com [www.norfolkamateurradio.org]

7 AUGUST 2005

FLIGHT REFUELLING ARS Hamfest – Mike, M0MJS, 01202 883 479, ham-fest@frars.org.uk [www.frars.org.uk]

KING'S LYNN ARC 16th Great Eastern Radio Rally and Car Boot Sale – andy-jackson@2e1klp.freeserve.co.uk

12 AUGUST 2005

COCKENZIE & PORT SETON ARC Annual Junk Night – Bob, GM4UYZ, 01875 811 723, bob.gm4uyz@btinter-net.com

10/11 SEPTEMBER 2005

50th Weinheim VHF Convention – df1gw@amsat.org

11 SEPTEMBER 2005

LINCOLN SWC Hamfest – Roger, 01522 693 848, hamfest2005@mail.com

RSGB MEMBERS' ADVERTISEMENTS

RSGB Members wishing to place an advertisement in this section should use the official form printed in *RadCom* each month. No acknowledgment will be sent. Ads not clearly worded, or which do not comply with these conditions will be returned. If an ad is cancelled no refund will be due. An advertisement longer than 60 words will be charged *pro rata*. **The RSGB believes that it is inappropriate for members trading in whatever way in radio equipment to place members' advertisements. We therefore regret that we are unable to take such advertisements, although we do welcome these in the 'Classified' advertising section of *RadCom*.**

The editor reserves the right to refuse any advertisement for any reason. In such matters, the editor's decision is final and no correspondence will be entered into.

The RSGB accepts no responsibility for errors or omissions, or for the quality of goods for sale or exchange. Each advertisement must be accompanied by the correct remittance, as a credit card payment, cheque or postal order made payable to the Radio Society of Great Britain. Please note that because this is a subsidised service to members, no correspondence can be entered into. Licensed members are asked to use their callsigns and QTHR, provided their addresses in the current edition of the RSGB Yearbook are correct. RS members will have to provide their names and addresses or telephone numbers. Please include your town and phone number in the free boxes provided to assist readers. Advertisements will be placed in the first available edition. Please do not send members' advertisements to Danby Advertising (advertising agents). The closing date for copy is the first day of the month prior to publication, eg the deadline for the May issue is 1 April.

Warning: ***Members are advised to ensure that the equipment they intend to purchase is not subject to a current hire purchase agreement. The 'purchase' of goods legally owned by a finance company could result in the 'purchaser' losing both the goods and the cash paid. Members' Ads also appear on the members-only website: www.rsgb.org/membersonly/membersads***

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The last word

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Thanks for 40m extension - and everything!

From: Julian Moss, G4ILO

After having spent the last few days enjoying some very pleasant QSOs on our new 40m allocation with amateurs new and old, of all licence classes, I wanted to write and thank those who made it possible.

While I'm at it, I'd also like to express my thanks for the work the RSGB has done in recent years to modernise the licensing structure and revitalise the hobby, even though many of the changes have been of no personal benefit to me. New licence classes, the removal of the Morse requirement, the GB4FUN initiative, these can only bring new people with new ideas into the hobby, which it sorely needs. We have had early access to 5MHz, and now the extra allocation on 40m just when we need it. What more can I say?

British amateurs must be the envy of the world to have such a progressive, far-sighted and energetic organisation working for them, and all for a subscription fee that is worth the cost just for the magazine. Too many of the letters published in *RadCom* are from the whingers and moaners, so I'd like to redress the balance by saying (after first turning up the power beyond my usual QRP levels) *WELL DONE RSGB!*

Net defends "our chosen frequency"

From: David Morris Moodie, GM4FOZ

In reply to what I feel is a scurrilous letter by GM6LYJ ('The last word', December), I notice that he does not name the organisation in question, nor any of its members by callsign. I wonder why not - does he fear the natural, verbal retaliation that would surely follow? What is to be done in the event of deliberate, prolonged and unrelenting deliberate 'crud', initiated by a few wretched operators within the UK - whose sole intention is to gain morbid satisfaction from the disruption of established nets? Does he also feel that we as a group ought to turn the other cheek, roll over and succumb to such aggressive tactics on the part of a few malcontents? We, as a legitimate compact group, operating on a single frequency within each of the bands, have the right to expect other users to respect our chosen frequency as we respect theirs. I also notice that GM6LYJ does not actively condemn the perpetrators of this unwarranted and deliberate 'crud' on 40m within the UK - so am I to understand that he actually condones its use?

As to the operating habits of some of our continental friends, they do have a marked propensity to transmit on any frequency they so desire and habitually do so and, to the detriment and forced expulsion of any single operator or group who originally sought and occupied a given frequency using only 100W. No licensed operator worth his salt would allow himself to be 'elbowed-out' by the blatant use of uncontrolled linear power. We have every right to defend our chosen frequency!

In view of the poor health of GM6LYJ, I do wish him well along with a speedy return to full fitness, but find it rather surprising that he should concern himself with what he feels are contentious issues, especially over extraneous matters in which he plays no part. I also find it rather sad that he attempts to reinforce his bitter tirade by trying to elicit sympathy for his unfortunate state of health and that of other SWLs. That is a very cheap ploy! If listening to disciplined and properly conducted 'military-style' nets is anathema to him, why does he not exercise his democratic prerogative and just 'switch-off'. I, for one, have never understood flagellant behaviour!

Slow Morse

From: Ian Keyser, G3ROO

I am on most nights of the week (usually about five out of seven) for about 30 minutes during the winter months on 3562kHz at 1830 local. I call "CQ QRS NET" at 12WPM and reply at the speed at which I am called or at 12WPM if the other chap replies at greater than that. This not only gives my students Morse practice, but also demonstrates QSO formats. It is also far more interesting for me compared to a block of text!

Appeal for help

From: Steve Barker, G0MVW

I am writing to ask your help in a doctoral study at Oxford Brookes University of people who have been made involuntarily redundant in the past but now have jobs. The study is an effort to understand how the experience of involuntary redundancy may affect peoples' attitudes towards work when they re-enter employment. If you have been made involuntarily redundant in the past but are now in employment, you are invited to take part in this important research. This involves filling in an online survey form which should take 15 - 20 minutes to complete, and if you wish, volunteering to be interviewed. Total confidentiality is guaranteed. For further details and the online survey please go to www.surveymonkey.com/s.asp?u=27727717354 or e-mail me at sbarker@brookes.ac.uk

Thank you very much for helping with this very important study.

On having two addresses

From: Brian Podmore, GW3INQ (G3INQ)

I read with great interest the letter from R C Hills, G3HRH/P ('The last word', December 2004). I am in the same predicament but in my case there is one slight difference. I have my Station Address details included in my licence Validation Certificate. What this means is that I now operate GW3INQ with no suffix and I have two addresses of which the mailing address is the one included in the *Yearbook*. The RSGB has not now for some time included 'other details'. I did see the reasoning for that when it was explained to me. Some may say, "put your mailing address as your station address" as is the norm. Well in my case that cannot be done, for Royal Mail will not deliver to the Station Address.

From: John Tye, G4BYV

. . . I agree with Mr Hills that to call the station at his second home 'portable' is ridiculous, but is he right to blame the /P suffix? I don't think so. Under BR68 para 1(11)(b) he is clearly at a "Temporary Location", being "a location, other than the Main Station Address, in the UK, and in a fixed position". For identification purposes he is required under para 7(3)(a) "to use the suffix /P with his callsign . . ." Nowhere in these requirements is there any mention whatsoever of 'portability'!

So how has the widespread (mis)-

use of the term "/Portable" come about? Is it due to sloppy operating by those who should know better, ignorance of the licence, or an example of the 'everyone does it so it must be right' syndrome?

Araldite and RF

From: John Tye, G4BYV

I was interested in Ian White's 'In Practice' on sealant (*RadCom* December 2004). Both *Dubus* and *VHF Communications* warn against using two part adhesives like Araldite at RF. I remember some years ago at the antenna range at the Ipswich rally a chap sealed the coax joints with Araldite and couldn't make out why the gain was so low. He removed the Araldite and all was well. Silicone rubber or if you need a small amount of bath sealant, but they need to be cured in the open air. I sealed a cable entry hole and put the lid on the box and the PC board corroded - as Ian says, it's acetic acid.

[John's letter was forwarded to Ian White and Ian will be returning to this subject in a future 'In Practice' column - *Ed.*]

Courageous work

From: H R Henly, C Eng, FIEE, MBCS, G3IHR

"There is nothing new to be discovered in physics now, all that remains is more and more precise measurement" (Lord Kelvin, undated, probably ca1900). Mike Underwood's, G3LHZ, articles in recent issues of *RadCom* are but two of several in various journals and conferences in recent years. He has courageously tackled a subject that like one or two others are anathema to the antenna and physics 'establishment' who see the world sharply in black and white and resist rocking the boat of accepted theories - albeit well-established theories, sometimes over a century, but nevertheless theories and not inviolable. I am no physicist, just a horny-handed professional engineer, but I learned at an early stage in my long career of R&D both to be sceptical and to be inquisitive and both paid off. Retired, I can now afford to indulge the latter.

The development of a small, efficient single or multiband antenna would be a God-send to the many amateurs who have little or no space for conventional antennas. Mike's work is not the only work in this field and I do not necessarily agree with everything he has written but I applaud the fact that he is doing it.

Mike's approach reigns supreme with his work firmly entrenched in measurement and observation and then interpretation and finally explanation. In the amateur world one would expect to find many who would want to experiment with these developments regardless of what the critics might say - we are not all button-pushers with the latest black box. Amateur radio has spawned and developed many techniques that might otherwise have lain dormant and continues to do so.

In the present climate any success with a small antenna that maybe challenges accepted limitations will, I believe, only emerge from work done within the amateur community.

Developments in this and related fields should be welcomed and published, not suppressed because it cannot be endorsed by technical committees, if necessary resorting to the Internet as our last bastion of free speech.

Keep it simple: the balun problem

From: Derek Love, G0DRA

I was interested in the December 'Antennas' column and Peter Dodd's method of feeding his delta loop. I also am a loop enthusiast and erect one at a holiday bungalow in Wales each year on a portable telescopic fibreglass mast, with good results. However, I use my 7MHz delta loop as a half-wave loop for 3.7MHz and connect a suitable length of 300 ohm ladder feed to the centre of the bottom loop wire, which transforms the high feed impedance down to a reasonable level. I then connect the feeder directly to my T-match ATU inside the bungalow, then from the ATU to the transceiver with coax.

You may say, do you not get current flowing on the coax by connecting a balanced antenna system into an unbalanced ATU, thus inducing RF back into the transceiver? I used to worry about this until a couple of years ago I discovered a simple method by making a current choke balun, thought out by W2DU and which Pat Hawker mentioned in December's 'TT'. I threaded 50 ferrite beads on to the coax cable and hey presto! No longer any problem. I am convinced that baluns work best, with lowest losses, when they operate on a feeder which has already been matched, ie with a low SWR.

'What's in a prefix?'

From: W R Atkins, 2E0AJT

I consider the youngsters with Foundation licences are very privileged to have a prefix in a series which was always [used] for RAE Full licence callsigns. The new M prefix is known by our European and American amateurs *immediately* as a UK call, whether it be an M3, M0 or M5.

The weekend course of the Foundation licence was very basic by comparison, with the 15 two-and-a-half hour sessions of the Intermediate licence holders a *far* more comprehensive course - and don't forget the Morse.

Therefore, considering all these points, why were the 2E0s and 2E1s not upgraded to M2? They were left 'out in the cold'. Ask any American or European what country is a 2E0?

It was not considered with care. If an M3 does not 'move upwards' because of academic ambitions or pursuits, he will always hold the M prefix. It is unjust and unfair that we Intermediate holders don't have that same privilege.

[In fact M2 prefix callsigns are not available as they are used by other services - *Ed.*]

Vive la difference!

From: Phil J Brown, M5BTB

I recently had the pleasure of visiting Paris, and the substantial radio museum situated within the *Maison de Radio France*. After three visits to the museum, I was finally escorted into the building for an escorted visit. Note that I had to convince the museum attendant that my French and radio knowledge were adequate for understanding the function of the museum exhibits. Maxwell, Hertz, Branly, Popov, Marconi and Lee de Forest were adequately covered by the museum, though it was stated that Marconi was just an innovator not an inventor. This may conflict with our interpretation of early radio development.

Joining pipes

From: Ron Wilson, G3DSV

I have been reading the interesting article by Peter Dodd, G3LDO, in the November issue of RadCom. I should like to sound a word of warning re the making of capillary joints. For some years I was a technical representative with Yorkshire Copper Works, now Yorkshire Imperial. We had an unexplained failure of some of our joints on a large estate in Woolwich, London. After a considerable lot of work our laboratory realised the 'odd' failures were due to the ends of the copper tubes being cleaned with emery paper. The emery paper left a very fine layer of a graphite on the surface of the tube. Joints made this way could be pulled apart under tensile stress, whereas joints made with sandpaper or steel wool as the cleaning agent, broke at about the same stress as a tube by itself. The ohmic value was increased by a large margin. Joints made with emery as the cleaning agent for the tubes were actually 'stuck' to the fittings, rather than bonded as they should have been. The instructions with the fittings was clear and only sandpaper or steel wool should be used for cleaning the ends of the tubes. ♦

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HS-1800 PRO

80-10m Mobile Antenna

The HS-1800/Pro is High Sierra's very latest version of their "all-band" 80m to 10m variable frequency mobile whip, available in black or grey. With a coil nearly 5cm (2in) diameter, and a matching unit built into the Universal Mount Bracket, nothing out performs it and nothing approaches its standard of engineering. This really does radiate a potent signal. With 100 Watts, contacts are as easy as from a base station. The secret is in its amazing efficiency. We measured up to 6dB power gain compared with a simple helical - and you don't have to get out of the car to change bands!

£379.95 C

Carriage Charges: A=£2.75, B=£6, C=£10

WEB ORDERING
www.wsplc.com

PRICE MATCH

THE ONLY THING WE CUSTOMER SERVICE WON'T DISCOUNT

WATSON W-10AM PSU £59.95 C

One of our best selling power supplies due to its versatile spec.
*Output 0-15V DC, 10A
*Over current protected
*Dual meters *3 sets of terminals *Front panel fuse
*Supply 230V AC 50Hz.

WATSON W-25XM PSU NEW £99.95 C

New compact, variable voltage, switch-mode power supply. About the size of an IC-706, this hunky low-noise supply will power any 100 Watt transceiver.

*9.7 - 17V DC (13.8v notch)
*Input 230V DC or 115V AC
*25 Amps peak, 22 Amps cont.
*Fan cooled
*Dual output terminals
*Dual metering volts & current
*Over voltage & current protect
*Removable AC lead
*Illuminated metering
*Protection warning light
*1.65kg, 170w x 180d x 65h mm

WATSON W-25SM PSU £79.95 B

Very popular budget switch mode power supply. *Output voltage 13.8V DC *Output current of 22A (25A peak) *Front panel output terminals *Over current & voltage protection *Quiet operation

WATSON W-5A PSU £29.95 B

DC power supply for the shack and low power QRP transceivers.
*Output voltage 13.8V DC
*Output current of 5A (7A peak) *Front panel output terminals *Over current protection

MANSON EP-925 PSU £99.95 C

A general purpose 3-15V DC, 25A (30A peak) power supply able to provide the needs of the modern 100W HF transceiver. *Dual analogue meters *Over current protection *Large power terminals for rigs *Quick snap connectors for ancillaries

AVAIR VSWR Meters ALL NEW

AV-201 £49.95 B

Ideal for HF and VHF operation. It features high power handling up to 1kW * 1.8-160MHz * 5W, 20W, 200W, 1kW * Av or PEP

Two sensors used for HF and VHF/UHF operation.
* 1.8-160MHz, 140-525MHz
* 5W, 20W, 200W, 1kW * Av or PEP

AV-601 £69.95 B

AV-1000 £79.95 B

* Covers 23cm * 2 Sensors
* 1.8-160MHz, 430-450MHz, 800-930MHz, 1240-1300MHz
* 5W, 20W, 200W, 400W
* Av or PEP

NEW SGC Master Antenna Controller

MAC-200 £259.95 C *New Low Price!*

* Automatic ATU
* 1.8-60MHz
* 5-Way Selector
* Coax or Balanced
* Long Wire

The MAC-200 will work with any HF transceiver up to 200W output. It has 3 outputs for coax and one each for wire and balanced - all switch selected. 168 revolving memory bins lets it remember for quick QSY. With an impedance range from 2 - 5000 Ohms, and built-in VSWR and power metering, it is all you are ever likely to need! Requires 12V DC.

WEST MOUNTAIN RIGBLASTERS

RIGblaster pro	Data interface 8-pin/mod, Cd & cables	**£209.95**	B
RIGblaster Plus	Data interface 8-pin/mod, Cd & cables	**£119.95**	B
RIGblaster M8	Data interface 8-pin, software & cables	**£89.95**	B
4T8-KIT *NEW*	Conversion Kit from M8 or Plus to 4pin	**£19.95**	A
RIGblaster nomic	Data interface 8-pin/RJ-45, software & cables (Extra Cables available.)	**£59.95**	B
FT100-CBL	Adapts all units to FT100 input	**£12.95**	A
RB-CD	Standard RIGblaster program CD	**£9.95**	A

FREQUENCY COUNTERS

WATSON

The **FC-130** is an ideal frequency counter for the shack, mobile or portable use. Supplied complete with Ni-Cads, charger and telescopic whip.

Super Searcher	RF finder & freq. cnter 10MHz-3GHz	**£99.95**	B
Super Hunter	Frequency counter 10Hz-3GHz	**£149.95**	B
Hunter	Frequency counter 10MHz-3GHz	**£49.95**	B
FC-130	Frequency counter 1MHz-3GHz	**£59.95**	B

OPTOELECTRONICS

Top-of-the-range product from Optoelectronics, the **X-Sweeper** is a fully featured nearfield receiver that displays frequencies analogue signals in spectrum format on a 64x128 graphical display. It has 20 memory banks storing 100 freqs in each.

X-Sweeper *NEW*	Nearfield Receiver 30MHz-3GHz	**£1399.95**	C
Xplorer	Freq. cnter / CTCSS/DTMF decode	**£659.95**	B
Digital-Scout	Digital Freq. counter 60MHz-2.6GHz	**£429.95**	C
Scout	Freq. finder 10MHz-1.4GHz	**£299.95**	B
M1	Freq. cntr 50Hz - 40MHz	**£229.95**	B
M1-TCX0	M1 + temp controlled crystal oscillator	**£249.95**	B
Cub	Mini counter 1-2.8GHz	**£129.95**	B

COAX SWITCHES

CS-600 2-way coax switch rated over 1kw (HF) and up to 600MHz @100W. Fitted SO-239 sockets. **£12.95 A**

MFJ-1704 4-way coax switch rated over 1kw (HF) and up to 600MHz @100W. Fitted SO-239 sockets. **£69.95 A**

CON-K COAX CONNECTOR KIT £49.95 B

Kit comprises:

2 x N sockets	2 x N plugs
2 x BNC sockets	2 x BNC plugs
2 x SO-239 sockets	2 x PL-259 plugs
2 x SMA sockets	2 x SMA plugs
2 x mini UHF sockets	2 x Mini UHF plugs
2 x TNC plugs	2 x TNC sockets
	6 x interconnectors

The kit comprises a set of coax cable connector adaptors. Six threaded interconnectors enable any of the supplied plugs and sockets to be assembled back to back to form the adaptor of your choice. The centre pins of all the connectors are gold plated.

W2IHY 8-BAND GRAPHIC EQUALISER NEW

The W2IHY is an 8-band graphic equaliser, plus noise gate specifically designed with radio communications in mind. The graphic equaliser covers 8-bands between 50Hz and 3200Hz - the typical range for SSB. This enables you to finely adjust the audio response to improve your mic and match your radio.

- *8-Band Graphic Equaliser (Bands below)*
- *59/100/200/400/800/1600/2400/3200Hz*
- *Noise Gate (adjustable level/delay)*
- *Mic input impedance 200/600 Ohms or High*
- *Headphone monitor*
- *LED level indicators*
- *Input: 8-pin, phono or XLR*
- *Straight through options*
- *Supply: 12V DC*
- *DC cable included*
- *Size 207 x 70rear/40front x 130mm*
- *Weight 750g*

Output leads for Yaesu, Kenwood or Icom £19.95

£229.95 C

NEW New Tailored Audio Base-Station Speaker

Designed for radio communications and speech. This heavy duty unit is built into a black cast alloy case and has a tailored frequency response which is ideal for SSB. It matches the colour of branded HF transceivers and is supplied with 3.5mm lead.
Size 12W x 18H x 11D cm.
Weight 0.85kg.

SP-2B **£29.95 C**

New Graphic Equaliser & Mixer UB-802A

Dual Mic graphic equaliser with dual **variable 60dB pre-amps** plus 2 x mon/stereo line inputs.Configure to adjust both tx & rx audio and monitor both through phones. Professional quality features low-mid-hi, tape in/out, 1/4" jack and XLR sockets, 48V for condenser mics etc. **Plus FREE AC adaptor.**

£54.95 C

In/out adaptor sets for 8-pin mics: K-802, Y-802, I802 £19.95

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VISIT OUR NEW WEBSITE
We have totally redesigned our website to offer you much quicker navigation and access to our product range.

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PERFECT PARTNERS

FC-40

Automatic Matching 100 Memory Antenna Tuner

Automatic Matching for FT-857/897

Compact Size 236 x 175 x 53mm

Rugged Waterproof Case

100W Power Handling

FT-857

Ultra Compact

Rugged, High Output

High Resolution Display

High Performance Receiver

Wide RX Frequency Coverage

Enhanced Performance (DSP)

HF, 50MHz, 144MHz and 430MHz

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Choice of the World's top DX'ers

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