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RadCom

The Radio Society of Great Britain Members' Magazine

£3.95 Vol 80 No. 11 November 2004

Inside this month's *RadCom*: Five RCF Charity Raffle tickets

WIN!

An Icom IC-703, Kenwood TM-D700, Yaesu FT-817, or other great prizes.

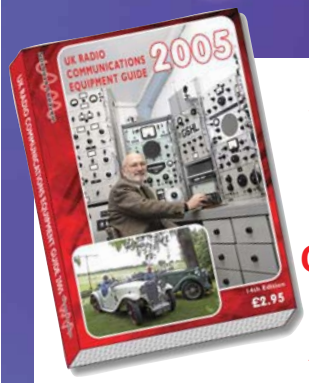
RCF
RADIO COMMUNICATIONS FOUNDATION

INSIDE YOUR 116-PAGE *RADCOM*

WATERS & STANTON

ZERO DEPOS

NO DEPOSIT NOTHING TO PAY



The *New* Waters & Stanton 2005 Catalogue Now Available

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

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.

carriage charges:
A=£2.75, B=£6, C=£10

NEW IC-7800 In Stock!

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.

If you can find a better advertised deal we will match it!

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 CALULATED 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.

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 £1599 C

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

NEW

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.
TS-480SAT £999 C

The **TS-480HX** is the 200W version of this new HF+6m transceiver. **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

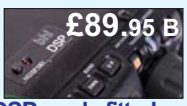
1.8 to 440MHz, this all-in-one transceiver offers unbeatable value. 100W on HF plus 6m, and 50W on 2m and 70cm. You get genuine RF clipping on SSB for up to 6dB gain and there are 4 separate antenna sockets.

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

bhi NE-DSP1061 Module available!



160m - 70cms. Up to 5W output all modes. ***Ours includes*** **battery and charger.** **Add £90 for DSP ready fitted.**

NEW DSP Module

There is NO new FT-817 DSP! The fact is that the UK manufacturers, **bhi**, (of whom we are their largest distributor), have produced a lovely 4-stage DSP module that can be fitted inside the FT-817. The NE-DSP1061 module costs £89 plus a fitting charge of £25 for retro-fitting to existing models. This includes installing a mini switch and LED on top cover.

TOKYO HY-POWER HL-50B £269.95 C

Last few!

This Linear Amplifier has been specifically designed for use with the FT-817. Enjoy up to 50 Watts output

SIT ZERO INTEREST

FOR 12 MONTHS ON SELECTED ITEMS MARKED BY £

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ICOM IC-E208 NEW £279 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!

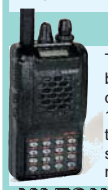
YAESU VX-7R £299 B

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 £249 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 199 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.

MFJ-267

1.5kW Dummy Load & VSWR Meter

Combined dummy load and in-line watt meter. Just switch between one or the other. **1.8 - 54MHz *300/3000W/3kW *50 Ohms *SWR/Wattmeter *3in Cross-needle meter VSWR/PWR *Reads PEP or AVG *Load: 1.5kW 10secs - 100W 1min *SO-239 x2 Sockets *9V int or 12V DC ext *Size 110 x 80 x 265mm *Weight 1kg*

£139.95 B

MFJ-1704

4-Way Coax Switch

**4-Way *Connections S)-239 / N *Power 2.5kW *Range DC - >500MHz *Isolation 60dB at 30MHz / 50dB at 500MHz *Centre Earth Position *Static Discharge Protector*

£69.95 B

MFJ-971

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

£99.95 B

MFJ-969

The latest design from MFJ, this unit features an active power meter for really accurate PEP measurements. Powered by an internal PP3 battery (not supplied) or an external 12V source. This is one of the most popular 300W models, having a very wide frequency range an excellent power and VSWR accuracy.

£199.95 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

WEB ORDERING
www.wsplc.com

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01702 206835/204965
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FAX: 01702 205843

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WATERS & STANTON

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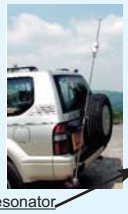
VERTICAL ANTENNAS

Hustler Mobiles

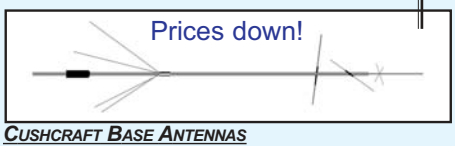
Get top performance when on the move. Purchase the **MO-3 base** (137cm) for **£24.95** or the **MO-4 base** (68cm) for **£22.95**. Then add the resonator of your choice. **RM-10, RM-12, RM-15**, all **£19.95** ea. **RM-17, RM-20 £24.95** ea. **RM-40 £26.95, RM-80 £29.95**
Carriage £6



Resonator

MA5V Base vertical
No radials needed

Base section MO-3 or MO-4



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

Prices down! CUSHCRAFT

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

In Tune with MFJ...

MFJ-993

**Auto ATU with digital data dis[play*1.8-30MHz *Long wire, coax & balanced line *300W SSB, 150W CW *Cross needle metering *Size 255 x 70 x 235mm *Weight 1.8kg*

The auto ATU that has a digital data display and can even handle wires!

£249.95 C

MFJ-991

Similar to the MFJ-993 but handles 150W SSB/100W CW and matches 6-3200 Ohms. Does not have digital VSWR meter LCD readout aural VSWR, antenna switch or 4:1 balun.

Auto ATU
£209.95 B

MFJ-941E

A great budget ATU. All the great MFJ features that make it ideal for base station use. **1.8-30MHz *300W *Cross needle meter *VSWR & PWR 30/300W *Terminals for wires and bal. lines *Internal 4:1 balun *Ext. Dummy load socket *SO-239 sockets *Size 260 x 180 x 70mm*

Manual ATU
£129.95 B

MFJ-974H

A true balanced line ATU that is ready made for open wire feeder. Extremely accurate balancing provides optimum performance. It can also be used for long wires and coax. Great for all-band doublets. **1.8-54MHz (MFJ-974H) *300W *Balanced, wire or coax *SO-239 sockets *Size 195 x 155 x 220mm *Weight 2.05kg*

£179.95 C

MFJ-904H

Just the job for portable use. It's so small! **3.5-30MHz (80 - 10m) *150W wire, coax, balanced *Internal 4:1 balun *SO-239 sockets *Size 180w x 60h x 80d (mm) *Weight 650g*

Manual ATU
Mobile and portable use **£129.95 B**

MFJ-962D

Ideal for use with linears. Gandles balanced, coax and wire. **1.8-30MHz *1.5kW Roller Coaster *VSWR meter *6-way antenna/load switch *Buit-in 4:1 balun *2 coax positions *Size: 270x375x115mm*

Manual ATU
£279.95 C

MFJ-989C

3kW 1.8 - 30MHz. Wire, balanced and coax feed. Full metering and switching.

£359.95 C

MFJ-986

3kW fast differential tuning design. 1.8 - 30MHz. Wire balanced and coax systems. Full metering and switching.

£329.95 C

MFJ-949E

1.8 - 30MHz. 300W wire, balanced and coax. Inc dummy load, metering and antenna selector.

£159.95 B

MFJ-948E

Similar to the MFJ-949E, but without internal dummy load. One of the most popular ATUs in the world!

£139.95 B

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.
£149.95 C

5BTV
80-40-20-15-10m. 7.64m high. Full band coverage (100kHz on 80m).
£179.95 C

6BTV
80-40-30-20-15-10m. 7.3m high. Full band coverage (100KHz on 80m).
£209.95 C

BATTERIES & CHARGER

Ni-Cad and Ni-MH Charger with four Nickel Metal Hydride (Ni-MH) batteries. The charger can charge up to four Ni-Cad/Ni-MH AA, AAA cells or one or two PP3 rechargeable batteries.
The Ni-MH AA cells provided are 1.2V @ 1550mAh. These do not have memory effect and are a direct replacement for use in most equipment.

Order As V-2888 DEAL
£9.95 + £2P&P

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.wsplc.com

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OF GREAT BRITAIN

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WHICH REPRESENTS UK
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IOTA.HQ@rsgb.org.uk (Islands On The Air)
GM.Dept@rsgb.org.uk (managerial)

Website: www.rsgb.org
WebPlus: Members-only web site **www.rsgb.org/membersonly** Use your callsign in lower case as the user name, and your membership number (see RadCom address label) as the password.

RSGB matters

7MHz BAND EXTENSION

Ofcom is proposing to vary the Foundation, Intermediate and Full amateur radio licences to permit UK amateurs to operate in the band 7100 - 7200kHz. The band would be allocated to the Amateur Service on a Secondary basis, and would be available on the basis of non-interference to other services, inside or outside the United Kingdom. Ofcom announced a one-month consultation period beginning on 23 September and all licence-holders are invited to make representations to this proposal in writing or by e-mail. Responses should be sent to Denise Carter, Ofcom, 2 -130 Riverside House, 2a Southwark Bridge Road, London SE1 9HA or e-mailed to amateurcb@ofcom.org.uk, to arrive *not later than 23 October*. The text of the notification of the proposed change is on the Ofcom website at www.ofcom.org.uk/licensing_numbering/radiocomms/am_radio/a_r_news/20040923

INTERNET-LINKING NoVs: NEW PROCEDURES ANNOUNCED

New procedures have been announced by Ofcom for the issuing of Internet-linking Notices of Variation. Following a period of consultation, the following new procedures have been agreed between Ofcom and the RSGB. All current Internet linking NoVs will expire on 31 December 2004. Existing NoV-holders and new applicants are able to apply for new NoVs from 1 October. The three-month period between 1 October and 31 December allows for the continuity of the present network to be maintained. *If you currently hold an Internet linking NoV and you wish to continue providing an Internet gateway beyond 31 December now is the time to apply for your new NoV.* If you do *not* apply for a new NoV, the service you currently provide to the amateur radio community *must cease on 31 December*. The method of application is totally web-based. Go to www.dcc.rsgb.org/gateway_online_app.htm and follow the instructions there. You will be able to complete the procedures in a single transaction.

Do you need a Notice of Variation?

Under the new scheme NoV holders will be expected to provide a gateway service, the details of which can be found online at www.dcc.rsgb.org/gateway-los.htm

It is recognised that Internet linking activities fall into three categories:

- those who use the gateways for their own self training in Internet linking for its technical merit or personal use via a hand-held radio rather than directly into a computer sound card;
- those gateways directly attached to existing voice repeaters;
- those who wish to provide a gateway service for their fellow amateurs.

You need to decide which category you fall into. It is planned that those falling into the first category can be catered for at low power, thus avoiding the need for frequency co-ordination and without the need of a separate NoV. However, it is important to understand that for the present, if your operations fall into this category, you will still require a NoV to permit this operation.

Currently those falling into the second and third categories will continue to need a NoV. *At this stage, those holding NoVs which permit Internet linking of GB3xx voice repeaters will continue unaffected.*

Why is there a charge?

Although the NoV comes free, there is an administration charge of £12.00. In the past the administration costs of providing the service have been subsidised by the Radiocommunications Agency, now Ofcom. Ofcom is no longer prepared to subsidise the service, therefore the costs have to be passed on to the customer. The £12.00 charge covers the RSGB operating costs for the provision of the service. The fee covers the cost of the NoV irrespective of how many bands / frequencies are requested and allocated to the applicant.

Do I need to renew annually?

Yes you do: NoVs will be renewable annually at a charge of £12.00. You will receive your renewal reminder via e-mail one month prior to your renewal date. You will be able to renew your NoV at any time during that month. The expiry date of your new NoV will be 1 year from your due renewal date; you will not lose out by applying early.

Do I have to pay for changes or amendments?

Yes. This is because the costs of producing a changed or amended NoV are precisely the same as those associated with producing a new NoV. However, the replacement NoV will be valid for a full 12 months from the date of issue.

What happens if I don't renew?

Your NoV will lapse and you will no longer be authorised to operate your Internet gateway. If you wish to start operating a gateway again you will need to complete a fresh application.

What happens if I change my address?

An NoV is only valid for use at the address for which it was issued. You cannot move house and take it with you. Because part of the criteria for issue of a NoV is a frequency co-ordination assessment, this will be affected by a change of location, and the work will have to be done again. You will need to make a fresh application.

What happens if I change my callsign (or name, etc)?

If the only change is to an item or items which do not affect the RF performance of your gateway we will issue an amended NoV free of charge. The expiry date of this will remain the same as the original.

What do I do next?

Go to www.dcc.rsgb.org and visit the 'Internet Linking' section of the site. Requests for NoVs from existing NoV holders and new applicants are being accepted from 1 October.

CONGRATULATIONS!

Congratulations go to the following RSGB members who successfully upgraded from **Intermediate to Full** licence by taking the Advanced exam in August:

Fadel Derry, 2E0SFD; Albert Durber, 2W0TDU; John Clapperton, 2E0AVR; Dennis Dearman, 2E0GTX; Kent Royce, 2E0KNT; Andreas Macrides, 2E0FXB; Bryan Moore, 2E0BAM; David Donohoe, 2E0LRS; Andrew Hamer, 2E0AKH; Reuben Howes, 2W0AXV; John Egleton, 2E0JEE; Peter Crewe, 2E0AJX; Frederick Wagstaff, M3ZZY; John Houghton, 2E0PAY; Steve Packman; David Southwell.

The following members successfully upgraded from **Foundation to Intermediate** licence by taking the Intermediate exam in September:

Ronald Scholefield, M3FSH; Brian Harris, M3KPT; David Humphrey, M3PRD; Adam Brookes, M3HKY; Lionel Roithmeir, MU3GSY; Nathan Thomas, MU3NTH; Mark Wilkinson, M3FII; Gordon Bourne, M3GHB; Stephen Stanhope, M3GHS; Clive Warren, M3OTF; Michael Whitehead, M3YLJ; James Morris, MM3BRK; Philip Davies, MW3HBN; Frank Jackson, M3JSZ; Maurice Ballard, M3FCV; Kevin Wilson, M3CLO; and Ivo Wengraf, M3HFP.

RSGB ON THE ISLE OF MAN

The Isle of Man Amateur Radio Society invited Angus Annan, MM1CCR, the Chair of the RSGB EMC Committee, to support them at a meeting with the Manx Electricity Authority about the ongoing trials of PLT on the island; these trials will be extended during the following 12 months. The picture shows a small group from the well-attended meeting relaxing in the pub later.

Left to right: Harry, MD3HEB; Bill, GD0PLR;Angus, MM1CCR; Steve, GD7DUZ; John, GD0NFN; and Stan, GD3LSF.

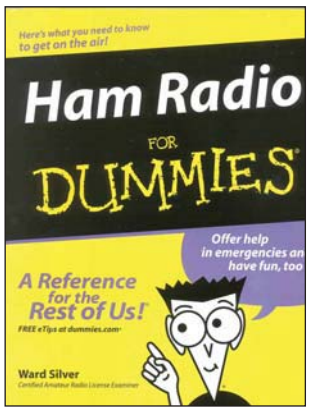
RCE INSTRUCTOR REGISTER PROVES A SUCCESS

The policy of registering all radio amateurs who teach the Radio Communications Examination syllabus is proving to be a success in the administration of the examination scheme. Under the City & Guilds / RA umbrella only Intermediate licence course instructors were registered. The new examination structure which the RSGB operates on behalf of Ofcom requires all instructors to be registered.

The registration process includes the taking up of references and random checking of applicants through the Home Office Criminal Records Bureau. This process has already led to a number of applicants having their applications declined. The register also gives guidance as to those instructors who run courses on a regular basis. This is of benefit when placing candidate enquiries to a course near their home location. The register is reviewed on a regular basis and inactive instructors are removed and informed accordingly.

AROS TALKS

The RSGB Amateur Radio Observation Service coordinator, Barry Scarisbrick, G4ACK, is giving a talk on the work of AROS at the Burnham Beeches RC on 15 November. For further details please contact Ian, M1FHU, tel: 07767 342169 or e-mail: bbrcinfo@btconnect.com



COMPETITION WINNERS

The five winners of the *Ham Radio for Dummies* book competition in the August *RadCom* were: R A White, G6XCA; John Rose, M3FZU; Rob Eardley, M3RFK; P Taylor, G1FET; and H Temperley, M1DXN. Your books have already been despatched to you.

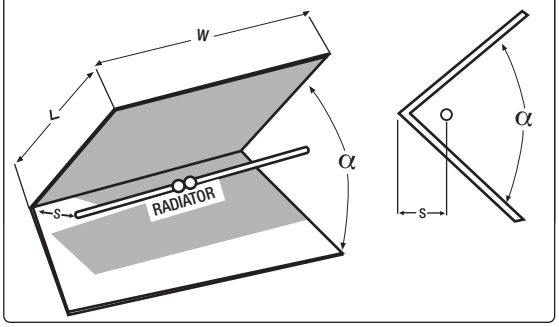
The lucky winner of the High Sierra 1800/Pro mobile antenna competition in the September RadCom is Mr S R Parker, G8TLC, of Syston, Leicestershire. Congratulations to all winners.

CORRECTION

'Technical Topics' October 2004

Due to circumstances beyond our control, some mistakes appeared in Pat Hawker's October 'TT' column. Fig 1(b) should have been the diagram shown below. Also, in Fig 6, there should be a horizontal connection from pin 4 of the NE602 to the input of the crystal filter, with the line below the right-hand crystal being deleted. The decoupling capacitor in the top left corner should be earthed at its lower end, and the capacitor paralleled with the 47µF on the supply line should be 10n not 2n2. From pin 6 of the NE602, there should be a capacitor immediately below the label '150p'. We apologise to all for these errors.

FIG 1b © RADCOM 278



Corrected diagram to be inserted as Fig 1(b) on p45 of the October *RadCom*.

QSL BUREAU NEWS

George Anderson, GM0SYU, has now given up as RSGB QSL Bureau Sub-Manager for the GM2AA- GM3ZZ and the GM2AAA-GM3ZZZ callsign series. Clive O'Hennessy, GM4VVX, Savalbeg, Challenger Estate, Lairg, Scotland IV27 4ED, has now taken over.

OFCOM PUBLISHES ANNUAL REPORT

Ofcom published its Annual Report and Accounts for 2003 - 2004 on 16 September. The Report and Accounts cover two types of activity during the 2003 - 04 financial year. Between 1 April 2003 and 28 December 2003, Ofcom was in its set-up phase prior to assuming its powers on 29 December. The Report and Accounts then provide details of the first period of Ofcom's operations as regulator between 29 December 2003 and the end of the financial year on 31 March 2004. The Annual Report and Accounts can be read on the Ofcom website at www.ofcom.org.uk/about_ofcom/reports_plans/annrep20034

G6NZ CALLSIGN ALIVE & WELL

Mrs Margaret Newnham, G6NZ, writes that due to an error her callsign was omitted from the listing provided by the Radio Licensing Centre for the 2005 *RSGB Yearbook*. In consequence, several people have thought that the callsign had lapsed or the holder had become a silent key. Margaret, formerly G4HSV, has held the callsign of her late husband Leon for 10 years. She is regularly on the air and is very much alive! Leon Newnham was first licensed in 1921 and was President of the Society in 1958.

OUT NOW !

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Edited by Steve White, G3ZVW

If you want a complete list of all of the UK licences on issue combined with a 176 pages of invaluable information about amateur radio the 2005 RSGB Yearbook is for you.

Bigger than ever the 2005 RSGB Yearbook has had every page reviewed and updated from the 2004 edition. The contents reflect the current state of the hobby, with pages devoted to contesting, awards, satellites and propagation. New for this edition are the 'Contesting Guide', your complete guide to RSGB contests from HF to microwave. You will also find features on Top Band Direction Finding and Mills Weekend. The section devoted to licensing now contains a huge list of all the Foundation, Intermediate and Advanced amateur radio courses available, plus a list of Examination Centres. IOTA receives extensive coverage, with a feature on IOTA's 40th Anniversary, information on the awards scheme, the Honour Roll and Annual Listing. Additionally there is the callsign listing for the Irish Republic, for short wave listeners and short contest callsigns, plus surname and postcode listings. As you would expect there is also much, much more included.

All-in-all it adds up to a reference book that no radio amateur should be without. Everything you need at your fingertips, with 476 A4 pages this book is excellent value.

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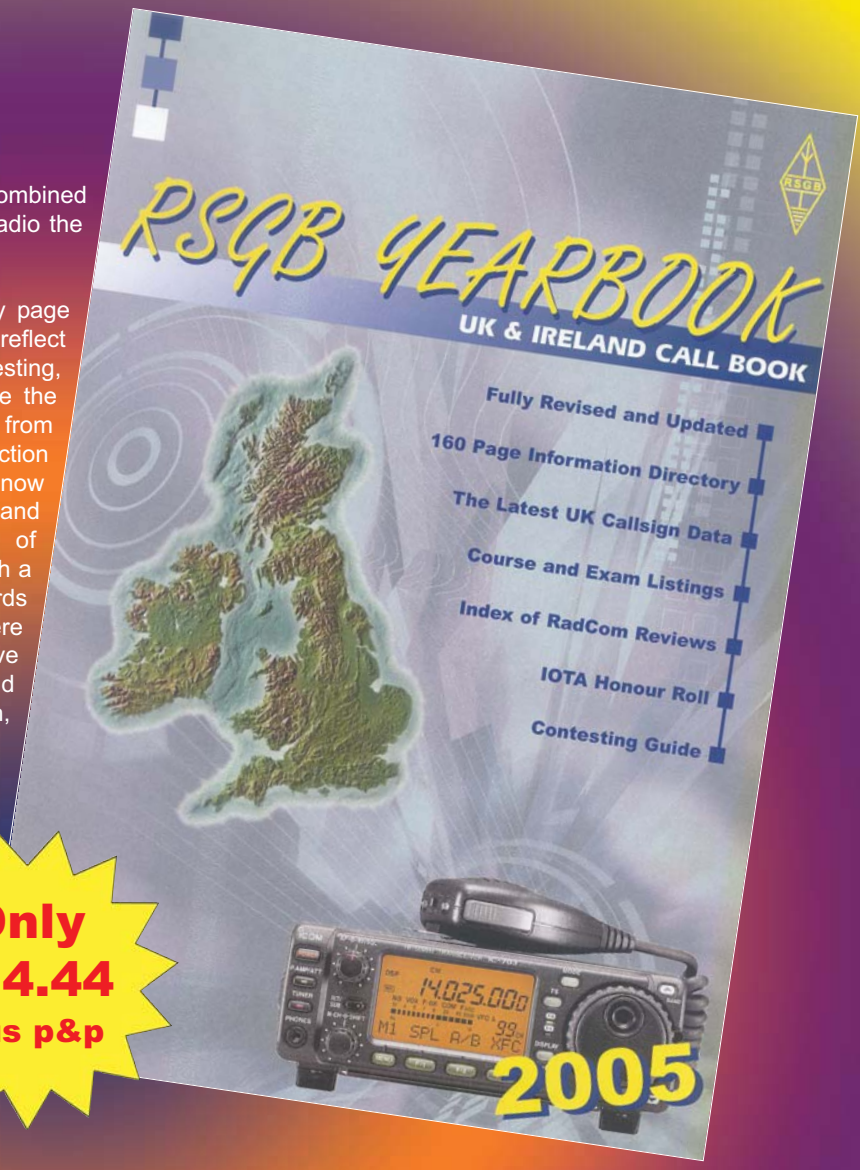

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All the information pages of the Yearbook are included in PDF format. This means that by using the Adobe Acrobat Reader included you can see on screen or via your printer every page exactly as it appears in the printed Yearbook.

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www.rsgb.org/shop

Order today from the RSGB Bookshop
www.rsgb.org/shop or Tel: 0870 904 7373
RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE

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RadCom

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RSGB MEMBERSHIP – Annual Rates

Home Corporate	£42.50
Overseas Corporate	£42.50
Corporate (Senior Citizens) (Applications should provide proof of age at last renewal date)	£33.50
Corporate (50 years membership)	50% DISCOUNT
Corporate (60 years membership)	FREE
Family member (Must reside with existing member. Does not include RadCom)	£18.50
Student Members (Applications should include evidence of full-time student status)	£28.50
HamClub (under 18)	£18.50
Affiliated Societies (UK or Overseas)	£42.50

Subscriptions include VAT where applicable.
Special arrangements exist for blind and disabled persons. Details and membership application forms are available from RSGB HQ.

East Europeans take all the top honours

Brits face tough competition at World ARDF Championship

It was an East European whitewash at the World Radio Orienteering Championships in Brno, Czech Republic, in September. With five men's age classes, four women's and competitions using both the 144 and 3.5MHz bands, there were 54 individual podium places up for grabs. Only three of these were taken by amateurs from countries outside the former Eastern bloc.

The RSGB entered teams in the men's 50+ and men's 60+ classes with ARDF Committee Chairman Geoffrey Foster, G8UKT, running with Steve Stone, BRS 193217, in M50 and Bob Titterington, G3ORY, and Robert Vickers, G3ORI, in M60. Bob achieved the best individual result with a 17th place in the 144MHz race and 15th in the 3.5MHz race. However, it has to be said that all the Brits were outclassed by the top Ukrainians and Russians. The M60 winner on 144MHz from the Ukraine romped home in an unbelievable 44 minutes while Bob took 105 and Robert 127minutes.

In the M60 team competition the RSGB were 7th on 144MHz but overtook the USA to place 6th on 3.5MHz. Indeed, just seven minutes faster would have catapulted them into 4th place, but a podium place was always way out of reach. The M60 British team also managed to beat Slovenia, Hungary, Croatia and Japan, amongst others.

Our M50 competitors found things hard, but Steve Stone snatched a 30th place in the 3.5MHz race ahead of some very experienced opposition.

Radio Orienteering or ARDF has a wide appeal on the world stage, with many more women and young people participating than here in the UK. Full results are at www.wch2004ardf.com Details of the next UK event (144MHz on 10 November) are at www.ardf.btinternet.co.uk

The RSGB team at the start of the opening ceremony. Left to right: Bob Titterington, G3ORY; Steve Stone, RS193217; Geoffrey Foster, G8UKT, and Robert Vickers, G3ORI.

British astronaut of the future?

Vikki Moran, MM3VHM, recently returned from a 10-day trip to the Johnson Space Centre in Houston, Texas. The 16-year old from Coatbridge, Lanarkshire, was a member of a 25-strong student party who all won places at the Scottish Space Foundation (www.space-foundation-scotland.org.uk/sept04update.html) schools' summer camp in Houston. During her stay at the space centre Vikki and the other students gave presentations to staff to earn cash to build various pieces of space hardware for later challenges. The challenges took the form of team-based engineering feats including the building of a lunar rover vehicle and a small unmanned rocket. Vikki met some of the elite of the US space programme including the director of the Apollo space missions, Gene Kranz, and astronauts Bonny Dunbar and Mike Baker. Treats such as barbeques at the astronauts' homes contributed to this being the trip of a lifetime for Vikki.

Vikki (front row, centre) with fellow students and staff at the Johnson Space Centre.

QRPp tests

If you are interested in low power and narrowband experimentation on HF, make a note of the following dates: Sunday 21 November 2004; 26 December 2004; 16 January 2005. These are the dates for the Belgian UBA 2nd 'Candlelight Test', with several stations transmitting simultaneously on different bands (80, 40, 30m) running power levels from 100mW down to 5mW. The challenge is for participating radio amateurs to copy the code words embedded in the transmitted messages. Further details are at www.uba.be/actual/candlelight/candlelight_en.html

UI-View developer G4IDE, silent key

Roger Barker, G4IDE, who developed the *UI-View APRS* software, became a Silent Key on 9 September. He had recently been awarded the first TAPR Lifetime Achievement Award for his services to digital communications (see *RadCom* October p11).

GB0AWS at All Wales Scout Camp

GB0AWS was active from a Forestry Commission log cabin at the Builth Wells Showground during the All Wales Scout Camp 2004. One part of the cabin was used to show a Science Week video to the Scouts and Leaders whilst the other was used as the radio shack with two rigs. There were about 650 Scouts on site and at times the shack was crowded with Scouts and Leaders listening - and some eager to operate.

One memorable contact was with Les Mitchell, G3BHK, the founder of Jamboree On The Air in 1958. Thanks to Rod, Islwyn, Dave and Nigel from the Carmarthen Amateur Radio Society for putting on the station.

GB0AWS on the air from the All Wales Scout Camp 2004.

Dr Ron Harkness OBE, GM3THI / 8P9AO, the hon sec of the Perth & DARG, recently celebrated his 70th birthday. His two daughters surprised him with this birthday cake. Knowing nothing of amateur radio, they colluded with the confectioner to get the CW and terminology correct.

NEWS BRIEFS

- After nine years at Belper, AOR / Ten-Tec Direct have moved business location to Matlock, Derbyshire. The new location provides ground floor access with external antennas for improved displays. The phone and fax numbers have changed but the Internet address remains the same: AOR UK Ltd, Unit 9, Dimple Road Business Centre, Dimple Road, Matlock, Derbyshire DE4 3JX; tel: 01629 581222; fax: 01629 580070; e-mail: info@aoruk.com; website: www.aoruk.com
- Kenwood UK has been selected as one of the few 'Superbrands' in the UK. Superbrands Ltd (www.superbrands.org) is the independent arbiter on branding. The organisation promotes the discipline of branding and pays tribute to exceptional brands; its programmes operate in over 25 countries. Only brands that are scored highly by the independent judging panel qualify for Superbrand status.
- The value of today's modern radio equipment has led to Setprotectors designing and producing covers and cases for base and mobile HF amateur radio equipment as well as CB equipment. Equipment covered (forgive the pun) includes the Icom IC-703 / 706 series and the Yaesu FT-817. See www.Setprotectors. com for further details.
- RAOTA, the Radio Amateur Old Timers Association, now has its own Internet domain name. The RAOTA website can now be found at www.raota.org

Recycle mobile phones, printer cartridges

Janine Drew, the Fundraising Manager of the Roy Castle Lung Cancer Foundation, writes: "It occurred to me that many of your readers will have an old mobile phone or printer cartridge tucked away in a drawer at home or at work. What they may not realise is that their unwanted items can benefit the Roy Castle Lung Cancer Foundation. Old mobiles and empty printer cartridges can be recycled and the proceeds will be used to help fund vital research into the early detection, diagnosis and treatment of lung cancer as well as providing support for sufferers and their families." For further details tel: 08712 50 50 50, visit www.recyclingappeal.com/roy castle or just post unwanted items to Roy Castle Recycling Appeal (EL), 31-37 Etna Road, Falkirk FK2 9EG.

New amateur radio discussion forums

'Amateur Radio UK' (www.aruk.org.uk) is a new open news and discussion forum set up by Steve, 2E0NSP, with the aim of becoming the UK alternative to sites such as the American eham.net It is intended for all amateur radio enthusiasts, whether you are yet to get your licence or have held it for 50 years.

♦ Gary Lucas, M3EXE, has launched the 'World Amateur Radio Forum' (http://m3exe.net/v-web/bulletin/bb/index.php) The forum is broken down into the RSGB Regions, plus one for the rest of the world. There is also a QSL section to allow QSL managers to keep in touch with members who may have many cards awaiting collection. The forum can be viewed without membership, but requires membership to post.

Calling all young ops

The Young Amateur Radio Operators Club is a new club for radio amateurs up to the age of 25. The club was founded by Toby White, M3GGV, and Oliver Staines, 2E0AYB, and is aimed at young radio operators around the world. Using the Internet and ICQ, members of the club meet every two weeks between 1830 and 2100UTC. It is hoped to launch a newsletter, to be sent to members by e-mail. There is also a webring where members can add their personal websites. Go to http://yaroc.fateback.com where you can view and print a registration form. If you do not have access to the Internet please send an SASE to: Toby White, 25 Vicarage Close, Shillington, Hitchin, Herts SG5 3LS.

Medical pioneer G6JY, silent key

Prof Frank Farmer, G6JY, has become a silent key at the age of 91. He was born in Bexleyheath, Kent, on 18 September 1912 and studied electrical engineering at King's College London, from where he graduated with first-class honours, followed by a PhD in radio-wave propagation at Cambridge. He continued research at the Marconi Laboratory in Chelmsford and during the war started work in the radiotherapy department at Middlesex Hospital. His career was devoted to the treatment of cancer and he introduced new treatments including the X-ray linear accelerator, used for over two decades.

Licensed in the 1930s, he was a member of the RSGB for over half a century. Frank was interested in HF DX and made numerous contacts with amateurs in Australia. He had lived most of his life in Newcastle upon Tyne, where he died on 16 July.

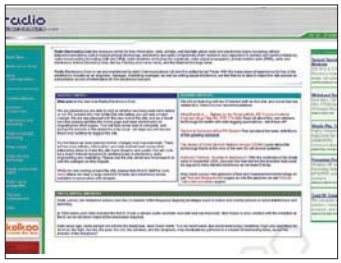
Snap!

PHOTE: G3XZ.

Geoff Anderson, G3NPA, visited the Telford Rally at RAF Cosford on 5 September. While there, he spotted a car with a registration plate almost identical to his own (see photo). Geoff says, "I had never even spoken to G4NPA before, so this was *not* a set-up!"

Website relaunch: Radio-electronics.com

Adrio Communications Ltd, owner of the Radio-Electronics.Com website



(www.radio-electronics.com) has re-launched the site as a resource of free information, data and tutorials for those in the radio and electronics industries. The site covers a variety of topics including radio receivers, propagation, test and measurement techniques and electronics components. The site also includes up-to-the-minute technology news and further areas of coverage are planned for the future.

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

KILMARNOCK & LOUDOUN ARC
9, Proven Engineering wind turbines, Gordon Proven.
23, T33C Banaba DXpedition, Tom, GM4FDM. Len, GM0ONX, 01563 534383.811723.
LOTHIANS RS
8, DXpedition to Banaba, Tom, GM4FDM.
22, LAN Wireless Networking, John Thomson. Toby, MM0TSS, 07739 742 367, tobysigouin@onetel.net.uk
PAISLEY (YMCA) ARC
10, The Banaba DXpedition, Tom, GM4FDM.
24, Next generation repeater logic, GM4COX. Jim, GM3UWX.

2 Scotland North & Northern Isles

No club details received.

3 North West

CHESTER & DARS
2, Bring and Tell.
16, Talk TBA by Bill Silversides.
23, Data Modes, Gary McElvie.
30, Construction Competition. Chris, MW3TWI, 01244 683629 or Bruce, 01244 343825.
OLDHAM ARC
25, Raynet, Jon, G7JKK, Greater Manchester County Controller. Mike, M1CVL, 01706 367454, m1cvl@thersgb.net
SOUTH MANCHESTER R & CC
5, Club's TS-830 transceiver demo.
12, 'Railway Signalling Developments', John, G4IRB.
19, 'Maritime Operating', Chris, G3UAU & Dave, G3YQD.
26, 'DXpedition to Antarctica', Ron, VP8LK. Ed, 0161 969 1964.
THORNTON CLEVELEYS ARS
1, On air. 8, Auction.
15, Tech Talk TBA.
22, Talk TBA by Rob, M3FFS.
29, Video / photo talk. Jack, G4BFH, jack.duddington@btinternet.com
WEST MANCHESTER RC
11, Auction, Steve, G6BVN.
18, Quiz, Jim, G0TFP.
25, 'How to ebay,' Steve, G6BVN. Trevor, G0TEE, 07973 827257.

4 North East

GREAT LUMLEY AR & ES
3, Transmitting techniques.
10, On air.
17, Quiz.
24, On air. Nancy, 0191 447 0036, 07990 760920, nancybone2001@yahoo.co.uk
HALIFAX & DARS
16, Farne Islands, John, G4RCG. Tom, M0TKA, 01484 715079.
HORNSEA ARC
10, Activity night.
17, Inductive archaeology.
24, Frequency measurements and standards, Bill, G3RMX. Richard, G4YTV, 01964 562498, g4ytv@aol.com
KEIGHLEY ARS
4, Social evening.
11, On air.
18, Social evening.
25, Broadcast radio, Roy Benbow. Kath, G0OSA, 01535 656155.
NORTH WAKEFIELD RC
4, GX4NOK on air.
11, Surplus equipment sale, pie & peas.
18, 25, GX4NOK on air. No contact details supplied.
SHEFFIELD ARC
8, VHF radio.
15, Miniature radio demo, Dick, G0UUE.
22, HF radio. Nick, G4FAL, 0114 255 2893.

5 West Midlands

BROMSGROVE & DARS
5, 12, Club contest.
26, Data modes. Chris, M0BQE, 01905 776869.
CHELTENHAM ARA
5, The 3B9C DXpedition, Tim, G4VXE. Ron, G3SZS, 01452 713761.
COVENTRY ARS
5, Bangers & mash.
12, On air, Intermediate, Morse practice.
19, Night out TBA.
26, On air, Intermediate, Morse practice. John, G8SEQ, 024 7627 3190, johng8seq@ntlworld.com
GLOUCESTER AR & ES
1, 'Oscillators in Amateur Radio'.
8, 15, 22, On air HF / workshop.
29, Classic radio books: bring, show and chat. Tony, 01452 618930 daytime.
HILLCREST ARS
4, Natter night.
18, Junk sale. Stuart, M0SJV, 01384 232457, m0sjvstuart@supanet.com
KIDDERMINSTER & DARS
2, Short talks: mobile update & military vehicles. Tony, G1OZB, 01299 400172.
MID-WARWICKSHIRE ARS
9, Video evening, Roy, G8XDL.
23, '20 years of change in amateur radio', Rod, G0FBY. Bernard, M1AUK, 01926 420913.
SALOP ARS
11, Trip to Powys club junk sale.
25, Portable activities, Dave, G8VZT. Fred, G3NSY, 01743 790457.
ST LEONARD'S ARS
4, Construction competition.
11, Shack night. Derek, G0EYX, 01785 604904.
STRATFORD UPON AVON DRS
8, Test equipment evening, John, G0JUQ.
22, PSK31 principles, John, G8SEQ. Terry, G3MXH, 01789 294387.
TELFORD & DARS
3, Open evening, HF on air.
10, Pirate radio: a blast from the past, G0VXG.
17, Telford Amateur Radio Rally Group AGM.
24, Video. Mike, G3JKX, 01952 299677, mjstreetg3jkx@aol.com

6 North Wales

DRAGON ARC
1, Surplus equipment sale.
15, AGM. Les, MW0AQZ, 01407 760986.
MEIRION ARS
7, Annual dinner. Martyn, GW4XZJ

7 South Wales

No club details received.

8 Northern Ireland

BANGOR & DARS
8, Annual surplus sale . Mike, GI4XSF, 028 4277 2383, www.bdars.com
GLENGORMLEY E & ARS
1, Annual radio equipment auction, Knockagh Lodge, Greenisland. secretary@gn0xyz.com

9 London & Thames Valley

AYLESBURY VALE RS
10, Discussion evening, on air. Roger, G3MEH, 01442 826651, roger@g3meh.com
BROMLEY & DARS
14, RNLI talk / video presentation. Alan, G0TLK, 020 8777 0420 www.bdars.org or voicemail / fax on 01689 818582.
CRAY VALLEY RS
18, Surplus sale. Richard, G7GLW, 07831 715797, rcains@btinternet.com
CRYSTAL PALACE R & EC
5, German army radios of WWII, Brian, G8DIU. Bob, G3OOU, 01737 552170 or Victor, G1PKS, 020 8653 2946.
DORKING & DRS
23, Digital Radio Mondiale, talk / demo, Graham Mytton. John, G3AEZ, 01306 631236.
MAIDENHEAD & DARC
4, Informal meeting.
16, K2 transceiver, Stewart, G3RXQ. John, G8RYW, 01628 628463.
NEWBURY & DARS
24, The Great Egg Race. Kevin, G6FOP, 01635 826397, g5xv@ntlworld.com
RS OF HARROW
5, German evening: German food, wine & QSOs.
7, GB2DHH operating day.
12, DXpedition video TBA.
19, Worked All Britain, Robert, G4OBE.
26, Informal: meet at 'The Moon and Sixpence.' Jim, G0AOT, 01895 476933, g0aot@blueyonder.co.uk
READING & DARC
11, History of Wood & Douglas, Alan Wood, G4EEE.
25, BBC Monitoring, Caversham, Al, G4VSQ. Pete, G8FRC, 01189 695 697.
SHEFFORD & DARS
4, CQWW debrief / inquest.
11, Building a pipe organ, Brian Elliott.
18, Hints & Kinks. David, G8UOD, 01234 742757.
SILVERTHORN RC
26, On air. Les, G0CIB, 07980 275081.
SOUTHGATE ARC
11, Club 4m net, aerials, transceivers. Mike, M0ASA, 020 8366 0698.
WIMBLEDON & DARS
12, Club projects construction.
26, Surplus equipment sale. Jim, M0CON, 020 8874 7456.

10 South & South East

BASINGSTOKE ARC
1, First club night.
14, ARDF: radio-orienteering at Black Wood.
28, ARDF 'foxhunt. Frank, M0AEU, barc@2lo.info
FAREHAM & DARS
3, On air.
10, 'How does it work? The Global Positioning System', Graham, G0UUS.
17, RF measurements by comparative method, Mick, G4ITF.
24, Final quiz of year, Peter, G8TXK. enquiries@fareham-darc.co.uk
HARWELL ARS
9, 'More Truth About Loops', Mike, G3LHZ. Guests must register with John, G6LNU, 01235 223250 by 8.00pm 7 November. Angus, G0UGO, 01235 522858.
HASTINGS E & RC
17, Nostalgia evening. Gordon, 01424 431909, gordon@gsweet.fsnet.co.uk, www.g4cus.freeserve.co.uk
HORNDEAN & DARC
2, Social evening.
23, 'The equation of time', Hugh, M0SOP. Stuart, G0FYX, 023 9247 2846.
HORSHAM ARC
4, 'How electricity gets to the home', John Narborough from Amberley Museum. David, G4JHI, 01403 252202.
ITCHEN VALLEY RC
12, Sentrarond.
26, Wildlife sounds and slides. Sheila, G0VNI, 023 8081 3827, sheila.williams@ivarc.org.uk
SOUTHDOWN ARS
1, Digimodes, talk / demo, Phil, G4UDU. John, G3DQY, 01424 424 319, vaughdqy@aol.com
TROWBRIDGE & DARC
3, Judging of constructor's cup entries. Ian, G0GRI, 01225 864698 evenings / weekends.
WORTHING & DARC
3, Story of a piece of wire, G0WZS.
10, Computer aerial analysis.
17, Club awards and your station.
24, Questions and answers evening. Roy, G4GPX, 01903 753893.

11 South West & Channel Islands

APPLEDORE & DARC
22, Bring and buy auction. Brian, M0BRB, brian.jewell@ic24.net

BOURNEMOUTH RS
5, 'All: look what I've made!'.
19, Contesting, Colin, G6MXL. Chris, M5AGG, 01202 893126, www.brswebsite.freeserve.co.uk
CITY OF BRISTOL RSGB GROUP
29, 'Beginner's guide to astronomy', Charles & Maggy Daniell. Martyn, G3RFX, 0117 973 6419.
CORNISH RAC
5, Surplus sale; Raynet, Keith, G3XFL.
8, Computer section; Driving, Warren Hastings. John, G4LJY, 01872 863849.
EXMOUTH ARC
10, PCB construction, Dean, G0UIL.
24, Make your own PCB, Dean, G0UIL. Mike, G1GZG, 01395 274172.
NORTH BRISTOL ARC
12, Power supplies, Warwick, G8CLS.
26, Prize quiz. Dick, G0XAY, 01454 218362; Jon, 0117 941 4602.
PLYMOUTH RADIO CLUB
19, Annual dinner, Frank, G7LUL. Den, G7NMA, 01752 346158.
POLDHU ARC
9, Digital modes, Mike, G4WQL. Keith, G0WYS, 01326 574441.
SOUTH BRISTOL ARC
3, Computer & software clinic, David, G7PKJ.
10, Start of the Christmas raffle, G0UQT.
17, AGM, Len, G4RZY.
24, On air. Len, G4RZY, 01275 834282.
SOUTH DORSET RS
9, 'RSGB: it's aims for the future', Barry, G4ACK. Carol, 2E1RBH, 01305 820400, carolonfraggle@tiscali.co.uk
TORBAY ARS
19, 'RSGB latest', Pam, G7SME, Devon DRRM. Dave, G6FSP, dave.helliwell@tesco.net
WEST SOMERSET ARC
2, GPS. Jean, G0SZO, 01984 633060.
WESTON-SUPER-MARE ARS
1, The RNLI. D Welch, G0ATD.

12 East & East Anglia

BRAINTREE & DARS
8, Club net.
15, Filters talk / testing.
22, Club net.
29, Club net on GB3BZ. John, M5AJB, 01787 460947.
CAMBRIDGE & DARC
12, Pump-up mast care, Mark, M1MPW.
26, Digital Radio Mondiale, Simon, BBC
WS. Ian, G4AKD, 01954 782974.
FELIXSTOWE & DARS
15, Speaker from MRS Microwave Round Table.
29, Video. Paul, G4YQC, paul.whiting@bt.com
HARWICH ARIG
10, 'The challenges of providing training
for the current licensing scheme', Frank, G3FIJ. Tony, G4EYE, 01255 886065.
HAVERING RADIO CLUB
3, 3B9C video.
10, On air.
17, DXing, Martin, G3VOF.
24, On air. Oliver, G3TPJ, 01708 746677, www.haveringradioclub.co.uk
LEISTON ARC
2, AGM. Paul, M3MIG, 01728 746044, m3mig@aol.com
NORFOLK ARC
3, Members' forum. 10, Tuition / construction / informal. Reg, G0VDO, 01603 429269, www.norfolkamateurradio.org

13 East Midlands

EAGLE RADIO GROUP
9, Tracking radio interference and radio pirates in the 1960s, Cyril, M3FQT. Terry, G0SWS, 07979 733640.
HUCKNALL ROLLS-ROYCE ARC
5, On air.
12, Equipment check for 160m Club Calls Contest.
13, Club Calls Contest.
19, Open evening.
26, Stethoscopes talk / demo, Carl, M0XBE. Keith, G6NHY, 0792 991 6642, hrrarc@ntlworld.com
LINCOLN SW CLUB
3, G5FZ on air, construction contest final.
17, Video.
24, Annual dinner. John, G1TSL, 01526 323153.
LOUGHBOROUGH & DARC
2, Vintage radio & HRO receiver.
9, Open forum: recent items in RadCom.
16, Valves and their uses, G8SNF.
23, Visit: Ulverscroft model railway.
30, On air. Chris, G1ETZ, 01509 504319.
SOUTH NORMANTON, ALFRETON & DARC
1, IOTA DXpedition, Ken Frankcom.
8, Bonfire night fireworks & BBQ: all family welcome.
15, Junk sale.
22, Weather satellite & facsimile, Brian, G7TYP. 29, On air. Mike, M0RMJ, 01949 876523, mike.jeffs@ntlworld.com, www.qsl.net/snadarc

CHARLIE DELTA CLUB

The latest Foundation course at the Charlie Delta ARC, which meets in Bilston, West Midlands, was a success. This course was held over a weekend, 25 / 26 September, which was easier for those candidates who work during the week. A lot of fun was had over the weekend, and the candidates wish to thank Lead Instructor Dave, M0DCM, and Assistant Instructor Dave, G0MJY, for the hard work they put in. The club is thinking of holding a weekend Foundation course on the last weekend of each month, and if anyone is interested or knows of someone who wishes to take the course over a weekend can get in touch with M0DCM Dave either by phone 01902 635244, by e-mail m0dcm@blueyonder.co.uk, or via packet m0dcm@gb7max.#28.gbr.eu

NEW CDXC COMMITTEE

At the recent AGM of CDXC (Chiltern DX Club), The UK DX Foundation (www.cdxc.org.uk) the following committee was elected: President: Neville Cheadle, G3NUG; Chairman: John Butcher, G3LAS; Secretary: Peter Hart, G3SJX; Treasurer: Nigel Cawthorne, G3TXF; Digest Editor: Martyn Phillips, G3RFX. Ordinary committee members are G3RTE, G3UEG and M0DXR. CDXC is a national Affiliated Society of the RSGB.

PORTLAND LIGHTHOUSE WEEKEND

This year Portland Amateur Radio Club (PARC - www.portland-amateur-radio-club.org.uk) was pleased to welcome Charles, G4VSZ; Jean, G1DLL; Neil, M0FSH, and Jo, 2E0JSH, from the Bredhurst Receiving And Transmitting Society (BRATS - www.the-brats.net) to the Portland Bill Lighthouse. Two stations were in operation for the 'lighthouses on the air' event using the club's permanent special event callsign, GB2PBL.

A display station was set up in the lighthouse visitor's centre and the many visitors to the lighthouse over the weekend were able to see amateur radio in operation close up. As well as phone operation, digital modes were demonstrated, including PSK31 and 'real' RTTY using a vintage Creed 7B teleprinter. A weather satellite station gave visitors a 'birds-eye' view of weather conditions over the weekend.

The field day expertise of the BRATS team was much appreciated and an impressive array of wire antennas were hung from the lighthouse tower.

This year was one of the best as regards the number and variety of contacts made: PARC member Russell, G5XW, operating from a station at the lighthouse, had QSOs with 32 different countries between Sunday morning and mid-afternoon.

The BRATS guests at the Portland Bill Lighthouse.

NEWS FROM DUNDEE

The Dundee Amateur Radio Club (www.dundee-amateur-radio.co.uk) operated during the International Lighthouses and Lightships Weekend on 40m using the club call GM4AAF and on 20m using the call GB2NCL. DX worked included Senegal, USA (several times on CW using only 25 watts), and Canada.

The club held its 2004 AGM in September at the Dundee Graham Street College Campus where retiring president, George Duncan, MM0GGD, handed over the badge of office and hammer and gavel to the club's new president Tom Harrison, GM3NHQ. Tom will be President for the next one to two years. Alec Ferguson, GM7IIL, was elected as vice-president.

The Dundee Amateur Radio Club will be starting its next Foundation and Intermediate training courses in early October. Full details are on the club website.

Tom Harrison, GM3NHQ, receives the chain of office and gavel from George Duncan, MM0GGD.

The Andover Radio Amateur Club boot sale was held at Tangley Village Hall, Wildhern, near Andover on 5 September. As can be seen, the weather was magnificent.

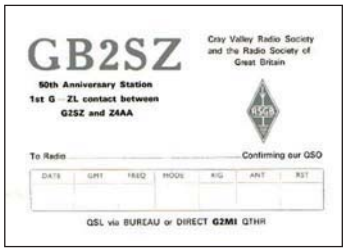
LIGHTHOUSE WEEKEND IN NORTH WALES

Liz Cabban, GW0ETU, the RSGB Regional Manager for North Wales, visited all three lighthouses activated in her region during the International Lighthouse weekend on 20/21 August. She started with Penmon on the Island of Anglesey (Ynys Mon), where GB2TD (Trwyn Du) was manned by members of the Dragon ARC. Dewi Roberts, GW0ABL, assisted by Dave, MW0DAA, Patrick and his wife Sandra, had many contacts & worked some good DX. Then it was on to Holyhead and South Stack where Ian, GW0VML, and John, MW1VCD, were activating GB1SSL. Liz writes: "409 steps down to the lighthouse needed some refreshment before taking a turn operating . . . then it was 409 back up!" Finally, she visited the Great Orme, above Llandudno, where members of North Wales RS had put on multiple stations for GB2GOL. Kept going by Jenny's, MW0BET, constant supply of tea and coffee, the stations were well attended by club members. Those who braved Friday night's gales to set up were rewarded by good DX. Tomas Magyla, LY1DF, who is currently working in the UK, joined the station for the weekend. He caused some confusion by transmitting in Russian, which added to the interest.

Liz Cabban, GW0ETU, visiting South Stack Lighthouse.

. . . AND THIS WAS A QUIET YEAR!

2004 has been a fairly quiet year for the Cray Valley RS but it have still been one of our most active Affiliated Societies. Not only was the club well represented in the 80m Club Championship, members also entered VHF Field Day as the Kentish Hills' Contest Group with Addiscombe Radio Club and again took part in HF SSB Field Day, having won the Restricted section in 2003. They are most grateful to Icom (UK) who loaned an IC-7400 transceiver to use on 144MHz in VHF NFD when the radio they were going to use became unavailable.



The 30-year old GB2SZ QSL card.

In July, the Society operated from the Isles of Scilly and last month members operated two special event stations on the same weekend: GB2BF for the British Wireless for the Blind Fund's 'Transmission 2004' (having raised over £4000 for the Fund in the last three years), and GB2SJS to celebrate the 1400th Anniversary of Christian teaching and communication at St John's Church, Sidcup.

The committee of the Cray Valley RC was surprised that the article marking the 80th anniversary of the first G to ZL QSO ('The ultimate DX', RadCom October 2004) did not refer to the station that the Society and the Cray Valley RS set up to celebrate its 50th anniversary. The station was organised by the late Arthur Milne, G2MI, and Cray Valley members manned GB2SZ using Arthur's station.

WELCOME BACK, HAVERING

Martin Foster, G3VOF, is the newly-appointed public relations officer of the Havering Radio Club, G4HRC. He comments that it is a long time since news of the Havering club appeared in *RadCom*, and promises to fix that. Martin is to give a talk at the club on his own area of expertise, TV studio lighting, on 20 October (details received too late for inclusion in October *RadCom*).

The club recently took part in the Havering Town Show with a display of amateur radio to the public. Two operational stations were set up in a marquee, one on HF SSB and the other running QRP PSK31 on 20m. In addition, there were displays of amateur TV by John, G0PIA; equipment and Morse keys by Oliver, G3TPJ; and a Van de Graaff generator by Neil, 2E0NEV.

Anybody wishing to join the club should contact founder member and hon sec Oliver Tillet, G3TPJ, tel: 01708 746677.

Martin Foster, G3VOF, achieves a creditable second place in the ITN Channel 4 News snazzy tie competition, with hot favourite Jon Snow retaining first place.

FLYING HIGH AT BRAINTREE

Nine-year old Foundation licence-holder and keen aircraft enthusiast Ben, M3EUO, met another Foundation licensee and aircraft enthusiast recently when Les Sayer, M3HDT, visited the Braintree club as guest speaker to talk of his exploits flying Swordfish Torpedo Bombers during WWII. There is just the small difference of 80 years between the two amateurs. Les, 89, a veteran of the pre-war Fleet Air Arm as a Telegraphist / Air Gunner, gave an interesting talk on his flying exploits, including his part on the torpedo attack on the German battleship *Bismarck* when that ship was hunted down by the Home Fleet after the destruction of *HMS Hood*.

On the same evening the club was celebrating its 400th Monday evening net and Les and Ben were invited to cut the cake baked by Melvin, G0EMK, to mark the event.

G0EMK, M3HDT and M3EUO cut the cake.

NEWS IN BRIEF

♦ The Fareham and District Amateur Radio Club now has a website at www.fareham-darc.co.uk The new contact details are enquiries@fareham-darc.co.uk

♦ Following successful completion of the club's first Foundation licence course, the Reading and District Amateur Radio Club (RADARC) is proposing to run another in November. For further details contact Harry Hogg, G3NGX, tel: 01491 872919 or e-mail judithhogg@waitrose.com Alternatively contact any committee member via the club's website www.radarc.org

♦ The Coulsdon Amateur Transmitting Society is holding its annual 'radio bazaar' on Sunday 21 November between 10.00am and 1.00pm at the 1st Coulsdon Scout HQ, located at the rear of Lion Green Road public car park, Lion Green Road, Coulsdon, Surrey. For further information or to reserve a table, please contact Dave Young, G8VXB, tel: 07880 740385 or e-mail: dyoung@photo-scan.com

The Radio Communications Foundation Grand Christmas raffle

Full details of the Grand Christmas raffle being held by the RSGB to raise funds for the Radio Communications Foundation charity.

In order to raise funds for the Radio Communications Foundation charity, the RSGB is holding a Grand Christmas raffle on behalf of the RCF. Icom (UK), Yaesu (UK) and Kenwood (UK) have kindly donated the three Star Prizes for the raffle.

The three Star Prizes are an Icom IC-703 transceiver, a Yaesu FT-817 transceiver and a Kenwood TM-D700 transceiver. In addition, there is a number of other prizes, including RSGB books.

ICOM IC-703

The Icom IC-703 is a full-featured HF / 6m portable transceiver (reviewed by Peter Hart, G3SJX, and Tom Robinson, G0SBW, in *RadCom* October 2003) with a maximum of 10W output, making it a perfect rig for the Foundation licensee. Depending on the supply voltage, the IC-703 can also be configured to 5W maximum output, which also makes it absolutely ideal for the dedicated QRP operator.

YAESU FT-817

The Yaesu FT-817 was reviewed by Peter Hart in the June 2001 *RadCom*. It is still the smallest all-band (HF, 6m, 2m and 70cm) multi-mode transceiver in production. With a maximum of 5W out, it is ideal for QRP operators, but also for anyone who wants a 'go-anywhere, do-everything' transceiver.

KENWOOD TM-D700

The Kenwood TM-D700 is a dual-band (2m / 70cm) FM mobile transceiver. It provides 50W output on VHF and 35W out on UHF. It features APRS capability for transmission and reception of position / directional data, as well as a built-in 1200/9600bps TNC, compliant with AX25 protocol and KISS mode plus DX *PacketCluster* capability with a 'last 10 spots' memory.

HOW TO ENTER

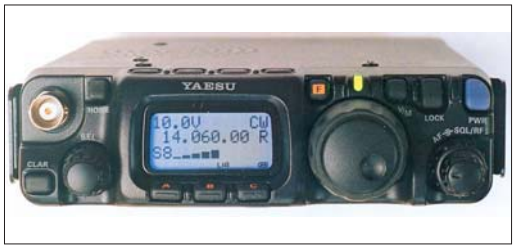
It's easy! In this issue of *RadCom*, you should have received five raffle tickets. The tickets cost £1 each. All you have to do to enter the raffle is to return the counterfoils clearly marked with your name, callsign (if applicable) and address, along with a cheque for the appropriate amount.

If for some reason you did not receive any tickets in this issue of *RadCom*, don't worry! Tickets are available on-line at www.rsgb.org/shop or on request from RSGB HQ. You may buy any number of tickets you wish and additional tickets can also be purchased on-line or from RSGB HQ.

You do *not* have to be an RSGB member to enter, and members can help the important work of the Radio Communications Foundation by selling raffle tickets to non-members of the Society.

Send your cheque and the counterfoils to "Radio Communications Foundation Raffle", c/o RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE to arrive not later than Tuesday 30 November.

The draw will take place at the Annual General Meeting of the Radio Society of Great Britain, to be held in London on 4 December and it is planned that the prizes will be delivered to the winners in good time before Christmas. Note that the winners of the three Star Prizes *must* have an amateur radio licence before transmitting on the air. ♦



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.

Mrs C E Sanderson, 2E1BRG
R Howes, 2W0AXV
R Macfarlane BEM, 7Q7RM
F Erken, DG4KAS / RS101298
D J Walsh, EI5CD
D I Layne, G0AHK
R A Marsden, G0BZK
H Kay, G0FAB
A D V Trusler, G0FIG
M J Holdsworth, G0FOH
D J Marjoram, G0JVT
C J Smith, G0LIN
L C V Duncan, G0OLK
G J Withers, G0VAP
D Napier, G1LEV
E Fenlon, G1YZT
A Williams, G2DQW
J Vaughan, G3DQY
R A Lord, G3DSK
K J Ottrey, G3ECS
E R Tudor, G3INY
M Watson, G3JME
I D Brown, G3TLH
E T Clarke, G3UYD
G H S Jones, G3VKV
M G Foster, G3VOF
P C Swann, G3WWX
B A Castle, G3ZJX
C J Hoare, G4AJA
K G Cooper, G4AQN
G J Smith, G4EBK
P McKee, G4EGJ
H S Charlesworth, G4FMQ
W Hughes, G4LVY
R A Charlesworth, G4UNL
M H Lemin, G4UUB
R Ball, G4UXB
B Crow, G4UYJ
E D Macpherson, G4WMT
M R Law, G6OKU
P H Phelps, G6UDF
J A Newman, G6ZQE
A Newell, G7CFX
J W V Denton, G7CWM
M K Parkyn, G7EYM
A J Cox, G8NJF
J M Short, G8OQN
J Hopper, G8XML
G L Clarke, G8XXV
R White, GI4DOH
R Smith, GM0BWU
Mrs P J Mackenzie, GM0HNV
W J H Eaton, GM3KIG
D J Simpson, GM3LVA
J B Macphee, GM3VNW
A Forbes, GM7RJG
M Bell, GM8TCH
A G Powell, GW0UKG
G A Parsons, GW1RJU
M Holland, GW3IWM
C A Long, GW4OJT
G C May, GW8TIX
T O Bevan, M0ACV
D E F J Cusack, M0BFJ
D E Francis, M0CDV
J M Dilks, M0CJW
R N Hannigan, M0DER
H Hing, M0ENA
K Brown, M0TCP
M A Sanderson, M1AQI
A King, M3EGP
Mrs C I Law, M3OKT
R Hyslop, MM3FFR
R Foulds, MM3MTO
D Hulin, MM3XPG / 2M0XPG
D J Turner, MW0DJT
M Okazaki, MW0GMB / M0GMB
E W Roberts, MW3EWR
W A Smith, RS184390
R T Ellis, RS184410
J Bennett, RS190133
A C Munday, RS193414
T Hogg, RS193470
H M S Cochrane, RS39187
D Johnstone, RS54163
R L Dries, RS8137
A F Walker, RS91042
I Dobnik, S51DI
P F Gostick, VK4DPG
R R Bushnell, W1JAC
Dr R L Winslow, W2DAP

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.

By Quin Collier, G3WRR

19 Grangecliffe Gardens, London SE25 6SY.

E-mail: q.g.collier@btinternet.com

National Field Day 2004

National Field Day provides an opportunity for all local radio club members to get together at a fine location out in the countryside during a summer weekend in order to operate radio, as our new adjudicator Quin Collier, G3WRR, describes . . .

There appears to be a broad spectrum of reasons why clubs enter NFD. At one extreme are the dedicated contest groups, some of which travel large distances with astonishing amounts of hardware to take advantage of favourable locations, through clubs who, using sites closer to home, try to involve as many members as possible in the event (perhaps by putting on a second station to allow more recently-licensed members to 'have a go') to groups for which the social side is as important as the contest, and who hold ***al fresco*** meals on site. There is a place for ***all*** these types of entries, and others, within HF NFD.

It is clear that many entrants are not simply content to repeat the previous year's set up, with a number of groups taking the opportunity to try different sites or antenna configurations this year. This may account for the fact that several stations reported increased or best-ever scores despite the fact that conditions were not the best. One team stated that they were intending to do some computer modelling of their antennas for next year. In a competitive event like NFD, antenna performance can be a paramount factor, and after all experimentation has always been, and continues to be, one of the key facets of amateur radio. The adjudicator is a great believer in antenna modelling and has spent many hours during April and May in the last few years with ***EZNEC*** and spreadsheet. However, other members of his club, faced with a new monstrosity at the Field Day site every year, are less convinced and argue that (a) conditions vary so much from year to year that comparisons don't really tell you anything, and that (b) although the modelling software knows how the antennas should perform, the antennas themselves appear not to!

It was good to have an entrant from Northern Ireland taking part for the first time in a number of years. Only the absence of the Channel Islands prevented a clean sweep of UK prefix areas. Because the Field Day weekend is coordinated across IARU Region 1, NFD has always been well supported by European portable stations, particularly from Germany, and this year was no exception. There has also been a substantial increase in participation from portable stations in both European and Asiatic Russia. In addition many fixed stations, with some of the less common countries (eg JY and 7Q) conspicuous, were actively handing out points.

Operators at G4FUH/P by night.

NUMBER OF ENTRIES

Last year, the decline in the number of stations taking part in HF NFD which had been evident over a period of several years was reversed. It is pleasing to report that this trend has continued, with 57 stations submitting entries this year, two up on 2003. 46 stations registered to take part and all but two of these got on the air. It was also gratifying to have entries from 13 stations who had not pre-registered: it may be that a last-minute decision to participate was made on the basis of the excellent weather that seemed to cover nearly all of the UK for Field Day weekend. Hopefully these stations will be encouraged to come on next year as well, as will the two or three UK portables who were active but did not submit an entry.

There was a 50% increase in the number of stations entering the QRP section. Several entrants commented on the fact that it is growing increasingly difficult to find enough support within their clubs to put on an NFD station, and found that the QRP section with its reduced demands on equipment and personnel allowed them to put on a viable station. The increase in QRP entries was offset by a small fall in the number of entrants in the Open section, with the number in the Restricted section remaining static.

LOGS

This year, all logs except one were received in electronic format, which greatly eased the adjudicator's task. Of the electronic logs, over 90% were submitted in Cabrillo format as preferred by the HF Contests Committee: the rest were in RSGB or ADI format (which were converted to Cabrillo using a column editor) or in Word format. In addition to participants' logs, 11 check logs from as far afield as the USA and Australia were received, and thanks are due to all who submitted them.

After conversion to Cabrillo, checking consisted of two phases. Firstly, all logs were rescored to a common standard using EI5DI's ***SDR*** programme: two stations should be pleased with the outcome of this activity, as they had neglected to claim double points on 160 and 10 metres! Secondly, the logs were run through a suite of programs written by Chris, G3VHB, which allow QSOs to be cross-checked. All error reports produced by the checking software were then manually checked to establish whether or not deduction of points was appropriate. This year, logs were exchanged with the organisers of the German Field Day, so that in addition to checking the 60 or so UK logs against each other, it was possible to further validate against more than 150 overseas logs. So any operators who (heaven forbid) take a ***laissez faire*** attitude towards ensuring they have correct callsigns and serial numbers from overseas stations should beware in future!

All stations lost points in the checking process: half had loss rates of less than 2%, but in the case of two stations losses exceeded 10%. Examination of the pattern of loss in many cases shows them coming in short bursts or more extended clusters, suggesting that they could either be associated with transient high levels of QRM, or perhaps with a particular operator. It is also clear that in some instances, logs are being submitted without any kind of manual 'sanity check' being carried out first. Such a check allows obvious mistakes such as letter O instead of numeral 0, 1 for I, and callsigns that simply couldn't be (at least two G9 calls appeared in this year's logs) to be picked out and loss of points avoided. Similarly, cross checking for consistency of callsigns across the bands is a very effective way of weeding out call errors: for example working GM0AAA/P on three bands and GW0AAA/P on another is a strong candidate for a mistake. But the best policy remains making sure that the operator gets the details correct at the time of the QSO!

A single station inspection was carried out this year. All was found to be in order, but just to be on the safe side, the station being inspected kept on the good side of the inspector by plying him with chocolate and coffee.

STATIONS AND PROBLEMS

In setting up and operating their stations, a number of common themes come across from the entrants. First is the dominance of the FT-1000 transceiver in its various variants. Although not all entrants provided details of equipment used, seven FT-1000s are listed compared with four rigs of other

types. Second is the fact that generators continue to be a weak point in station reliability, with three stations reporting problems. Thirdly, computers can cause as many problems as they solve (although one group used the technology creatively by having a Wide Area Network on site, allowing visitors in the tea tent to observe what was happening in the operating tent).

Finally, there are the perils of the great outdoors. Problems were reported with cattle (by two stations, one of which nonetheless went on to become a band leader), midges, clay pigeon shooters, QRM from a cuckoo (perhaps this group could have offered the clay pigeon shooters a more challenging target?) and lastly the group which discovered that the farmer who usually ported the gear to the operating site with tractor and trailer was on holiday, and had to find one of their members who could drive a tractor. Who said that amateur radio doesn't broaden your horizons?

CONDITIONS

As far as conditions go, nearly all entrants felt this was not a classic year. 10 and 15 metres were disappointing, with the result that 20 and 40 metres carried the bulk of the contest traffic. Nonetheless several stations reported either increased or best-ever scores.

10m conditions were best at the start of the contest but deteriorated thereafter and there was relatively little activity on the Sunday. A fair number of European stations were worked via Sporadic E but it was noticeable that stations away from centres of activity who were out of ground wave range of other UK portables found the going slow. The band leader was G0IVZ/P with 70 QSOs. 15m was reported by many entrants as disappointing. However, two GMs exceeded 100 QSOs (mostly with Europe and Russia) suggesting that the skip was too long for the majority of UK stations to be in range of the main centres of European activity. Band leader was GM3POI/P with 110 QSOs.

On 20m, although conditions were nothing special, contacts were available for most of the contest period, and the leading 20m station (a single band entry from GW0GEI/P) was able to make 654 QSOs. These were mostly European or Russian stations with a sprinkling of DX, but with a run to the USA between 2330 and 0200 and a nice opening to JA in the last half hour. It was possible to make contacts on 40m throughout the 24 hours, providing contacts when the other bands were not open. Contacts were mostly Europe and Russia, but a fair number of USA stations were worked during the night. Band leader was GD0EMG/P with 384 QSOs.

80m offered a high scoring rate during the hours of darkness, with significant activity between around 1930 and 0500. The trick seemed to be frequent band changes, interspersing periods on

The station crew at GI6YM/P.

80m with 160m and also 40m. Leading station was G3NKC/P with 231 QSOs.

Several stations reported 160m to be in excellent shape, with a lower static level than usual. As is normal on this band, activity was fast and furious between about 2000 and 0230, with little traffic outside that period. The leading station was G3RIR/P who made 215 QSOs on the band.

OPEN SECTION

The Manx Kippers team of G4XUM, G1GEY, G0HSS and G4MJS operating GD0EMG/P are to be congratulated on winning the National Field Day Trophy once again, holding Lichfield ARS (G3NKC/P) in second place for the second year running, but by a reduced margin. East Notts CG (G3TBK/P) moved up from sixth place to third, moving last year's third placed station Bristol CG (G6YB/P) down one place.

Most stations in the Open section who provided details of their antennas used beams for the HF bands backed up by wire antennas for LF. However, GD0EMG/P really went to town and their impressive array of antennas must have been a major contributor to their success. Their set-up consisted of separate beams for HF (8-element for 10m, 5-element for 15m and 4-element for 20m), backed up by dipoles for the low bands.

Two stations in the Open section put on single band entries on 20m, and the Dragon ARC / Contest Cymru Group (GW0GEI/P) won the Frank Hoosen G3YF Trophy with 1957 points from 654 QSOs.

RESTRICTED

Antennas in the Restricted section are by definition less ambitious than those for the Open section. The most common appears to be a doublet with open wire feeder of length between 190 and 280ft, sometimes in inverted-V configuration or with plug links. It is therefore surprising that the leading score in the Restricted section was less than 8% lower than that of the Open section.

The leading two stations last year have changed places for 2004. The winners this time were the Flying Pigs CG (G0IVZ/P) operated by G0IVZ, G4EDG and G4TSH, displacing Orkney ARC (GM3POI/P) to second place. Gravesend RS maintained third place, snapping closely at the heels of the leaders.

QRP

Perhaps because of generator reliability problems (as noted above), several stations in the QRP section decided to use batteries as a power source. However, one of these reported battery failure and, after an attempt to continue by torchlight, had to close down until daylight when they were able to reconfigure their power system. This did not seem to have a major adverse effect, as the station in question went on to win the section! Antennas in the QRP section seem to have been similar to those used in the Restricted section.

Last year's winner of the QRP section moved to the Restricted section this year, leaving the field open. Their place was taken by the GM DX Group (England) (G4OBK/P), operated by G4OBK and G4RWD, representing a return to NFD after a break of 14 years. Bracknell ARC (G4BRA/P) maintained the second place they achieved last year. Reading & DARC 'A' (G3ULT/P) moved up one place to third, moving last year's third place entry (Stevenage & DARS, G3SAD/P) down to fourth. Reading have stated their wish to bring their QRP Trophy back to Reading, so they are certainly moving in the right direction!

SOAPBOX

The only significant oversight was a shortage of beer on the Sunday! (G0IVZ/P). For once everything worked - no equipment problems at all for the entire weekend! We even had resonant antennas on all bands (G3GHN/P). We think this is our best ever QSO total, despite poor conditions on 10 and 15m (G3GRS/P). Remind me never to use an end-fed wire again. Matching is a nightmare (G3PJT/P). Last year bothered by people dog training: moved this year and people setting-up clay pigeon shooting. . . as it goes probably doing NFD 2005 from a central reservation on M25 as it may be safer! Still enjoyed it and an increased score to boot (G3SAD/P). The QRP section suits the smaller two or three man teams like ours (G4OBK/P). Very good weather over the weekend. Sunburn on the Isle of Man is unheard of! (GD0EMG/P). An enjoyable contest. As three of the group were NFD regulars in the 1960s it was in a sense a reunion to activate N Ireland using its oldest callsign (GI6YM/P). It was probably the only location in the UK that had no sunshine the entire weekend. Just cloud and drizzle (GM0AAA/P).

AND FINALLY

Many thanks to all who took part in NFD 2004, as operators, helpers or visitors to the site. The HFCC looks forward to seeing this year's participants (and others) again next year - so please put the weekend of 4 / 5 June 2005 into your diaries now! ♦

TROPHIES

Congratulations to the winners of the trophies, which are awarded as follows:

The National Field Day Trophy to the Manx Kippers, GD0EMG/P;
The Bristol Trophy to the Flying Pigs Contest Group, G0IVZ/P;
The Reading QRP Trophy to the GM DX Group (England), G4OBK/P;
The Scottish NFD Trophy to the Orkney ARC, GM3POI/P;
The Gravesend Trophy to the Orkney ARC, GM3POI/P;
The G6ZR Memorial Trophy to the Lichfield ARS, G3NKC/P;
The Frank Hoosen G3YF Trophy to the Dragon ARC / Contest Cymru Group, GW0GEI/P.

OPEN SECTION

Pos	Call	Club	160 QSOs / pts	80 QSOs / pts	40 QSOs / pts	20 QSOs / pts	15 QSOs / pts	10 QSOs / pts	Total QSOs / pts
1 ***	GD0EMG/P	Manx Kippers	142 / 1042	209 / 710	384 / 1176	593 / 1705	88 / 255	20/ 128	1436 / 5016
2 ***	G3NKC/P	Lichfield ARS	183 / 1286	231 / 777	348 / 1147	377 / 1130	91/ 255	36 / 232	1266 / 4827
3 **	G3TBK/P	East Notts CG	192 / 1322	207 / 682	301 / 951	331 / 975	81 / 230	47 / 324	1159 / 4484
4	G6YB/P	Bristol CG	135 / 984	149 / 535	296 / 952	420 / 1290	62/ 183	26/ 196	1088 / 4140
5	G5LO/P	Oxford & DARS	103 / 784	135 / 492	228 / 751	329 / 1039	48 / 155	45/ 316	888 / 3537
6	G4NOK/P	North Wakefield RC	72 / 564	200 / 651	345 / 1086	259 / 749	28 / 79	28 / 180	932 / 3309
7	G4FUH/P	Scunthorpe Steel ARC	134 / 1000	174 / 564	280 / 914	164 / 487	37 / 104	16/ 100	805 / 3169
8	GM3JKS/P	Knockycoid CG	139 / 980	118 / 400	182 / 596	291 / 886	60 / 190	2 / 12	792 / 3064
9	G3XRT/P	Ilford RSGB Group	117 / 896	114 / 440	249 / 775	181 / 547	36 / 112	43/ 278	740 / 3048
10	M5MDX/P	Stockport RS	97 / 736	110 / 407	190 / 625	269 / 807	41 / 127	19 / 138	726 / 2838
11	G3CNX/P	Grimsby ARS	148 / 1076	139 / 511	206 / 629	162 / 469	26 / 79	3 / 24	684 / 2788
12	G3ASR/P	Edgware & DRS	128 / 948	98 / 361	126 / 421	141 / 426	33 / 104	28/ 168	554 / 2428
13	G3GHN/P	Clifton ARS	103 / 816	109 / 374	164 / 534	110 / 311	26/ 68	17 / 108	529 / 2211
14	G0RGH/P	Harwich ARIG	75 / 600	80 / 312	159 / 483	179 / 496	36 / 112	11 / 76	540 / 2079
15	G4HRC/P	Havering & DARC	73 / 532	100 / 373	163 / 518	116 / 339	37 / 117	26 / 190	515 / 2069
16 *	GW0GEI/P	Dragon ARC/Contest Cymru	0 / 0	0 / 0	0 / 0	654 / 1957	0 / 0	0 / 0	654 / 1957
17	GM3TKV/P	Moray Firth ARS	64 / 504	90 / 320	136 / 424	132 / 445	2 / 4	0 / 0	424 / 1697
18	G3SDC/P	De Montfort UARS A	0 / 0	0 / 0	0 / 0	515 / 1571	0 / 0	0 / 0	515 / 1571
19 *	G3RIR/P	De Montfort UARS B	215 / 1462	0 / 0	30 / 100	0 / 0	0 / 0	0 / 0	245 / 1562

RESTRICTED SECTION

Pos	Call	Club	160 QSOs / pts	80 QSOs / pts	40 QSOs / pts	20 QSOs / pts	15 QSOs / pts	10 QSOs / pts	Total QSOs / pts
1 ***	G0IVZ/P	Flying Pigs CG	189 / 1360	201 / 689	314 / 997	285 / 885	86 / 273	70 / 444	1145 / 4648
2 **	GM3POI/P	Orkney ARC	174 / 1224	176 / 610	304 / 989	421 / 1268	110 / 372	3 / 20	1188 / 4483
3 **	G3GRS/P	Gravesend RS	159 / 1156	206 / 710	317 / 1033	314 / 981	66 / 219	45/ 300	1107 / 4399
4 *	G3IZD/P	Contest Cumbria	169 / 1196	173 / 608	322 / 1000	423 / 1304	31/ 96	0 / 0	1118 / 4204
5	GM0AAA/P	3As CG	150 / 1084	123 / 460	280 / 908	424 / 1276	107 /354	5 / 32	1089 / 4114
6	G4BJM/P	Mid Beds Contest Assoc	141 / 1016	200 / 697	287 / 969	221 / 668	84 / 283	33/ 232	966 / 3865
7 *	GM4ZRR/P	Cockenzie & Port Seton ARS	155 / 1136	154 / 529	334 / 1080	276 / 825	35 / 103	8 / 54	962 / 3727
8	G4FNL/P	Sussex Downs CG	156 / 1116	184 / 643	224 / 760	217 / 673	70 / 209	35 / 232	886 / 3633
9	G3UES/P	Echelford ARS	137 / 996	157 / 563	247 / 823	206 / 628	76 / 242	41/ 276	864 / 3528
10	G4ALE/P	Addiscombe ARC A	144 / 1044	173 / 608	255 / 834	182 / 561	52 / 155	43 / 268	849 / 3470
11	GI6YM/P	GI Brasspounders CG	134 / 976	130 / 459	290 / 945	308 / 937	37/ 130	2 / 12	901 / 3459
12	G5XV/P	Newbury & DARS	97 / 628	114 / 401	287 / 889	336 / 1031	52/ 150	34 / 228	920 / 3327
13	G3GLL/P	Tollesbury CG	137 / 984	141 / 497	309 / 1018	132 / 405	39 / 113	28/ 200	786 / 3217
14	G3WRR/P	Addiscombe ARC B	121 / 852	126 / 457	306 / 992	235 / 750	24 / 71	11 / 80	823 / 3205
15	G3KLH/P	Christchurch & DARS	145 / 1060	140 / 488	204 / 655	185 / 555	27 / 78	9 / 56	710 / 2892
16	G4ARN/P	Norfolk ARC A	101 / 788	132 / 493	245 / 777	165 / 547	45/ 127	17/ 112	705 / 2844
17	G5RS/P	Guildford & DARS	120 / 898	128 / 475	167 / 560	169 / 540	32 / 106	30/ 200	646 / 2779
18	G3TRF/P	Maidstone ARS	140 / 992	159 / 558	170 / 545	106 / 329	38/ 123	30/ 204	643 / 2751
19	GM4AGG/P	West of Scotland ARS	107 / 792	113 / 410	128 / 429	330 / 998	22 / 70	0 / 0	700 / 2699
20	G4FRS/P	Farnborough & DRS	134 / 1000	118 / 409	210 / 692	105 / 304	11/ 37	24/ 180	602 / 2622
21	G3WKX/P	Maidenhead & DARC	154 / 1116	89 / 328	162 / 534	168 / 505	15 / 47	1 / 8	589 / 2538
22	G4BP/P	Scarborough ARS	112 / 872	163 / 578	224 / 723	78 / 225	7/ 20	0 / 0	584 / 2418
23	G4AYM/P	Gloucester AR & E Society	92 / 704	104 / 399	145 / 473	220 / 679	8 / 25	10 / 68	579 / 2348
24	G0FBB/P	Windmill CG	95 / 732	100 / 378	150 / 515	79 / 239	49/ 153	40/ 268	513 / 2285
25	G8FC/P	RAFARS	106 / 808	122 / 441	178 / 603	103 / 323	8/ 26	6/ 44	523 / 2245
26	G2AA/P	Leicester RS	38 / 296	0 / 0	122 / 436	117 / 380	14 / 37	1/ 4	292 / 1153

QRP SECTION

Pos	Call	Club	160 QSOs / pts	80 QSOs / pts	40 QSOs / pts	20 QSOs / pts	15 QSOs / pts	10 QSOs / pts	Total QSOs / pts
1 ***	G4OBK/P	GM DX Group (England)	104 / 796	75 / 258	127 / 427	98 / 327	24 / 74	7 / 44	435 / 1926
2 **	G4BRA/P	Bracknell ARC	104 / 776	115 / 416	69 / 227	50 / 71	2 / 6	12/ 92	352 / 1588
3 ***	G3ULT/P	Reading & DARC A	70 / 552	78 / 292	126 / 429	31 / 89	12 / 33	22/ 168	339 / 1563
4	G3SAD/P	Stevenage & DARS	98 / 732	99 / 365	62 / 214	43 / 134	5 / 18	8 / 60	315 / 1523
5	G3PJT/P	G3PJT	61 / 452	36 / 130	122 / 399	68 / 224	11 / 36	19 / 124	317 / 1365
6 *	M0ARC/P	East Yorkshire CG	54 / 404	54 / 196	89 / 336	68 / 236	23 / 84	12 / 2	290 / 1268
7	G0SOA/P	Stratford upon Avon & DRS	30 / 240	92 / 336	100 / 321	70 / 211	12 / 37	4 / 1	305 / 1149
8	G3JRM/P	Lowestoft D & Pye ARC	0 / 0	18 / 66	61 / 220	69 / 225	29 / 81	17 / 104	194 / 696
9	M0EEE/P	Reading & DARC B	0 / 0	24 / 88	61 / 214	52 / 172	1 / 3	2 / 12	140 / 489
10	G6NRC/P	Norfolk ARC B	0 / 0	19 / 72	90 / 311	12 / 36	0 / 0	0 / 0	121 / 419
11	M0RHI/P	Finningley CG	0 / 0	36 / 144	40 / 136	32 / 101	0 / 0	0 / 0	108 / 381
12	G3HKO/P	G3HKO	16 / 128	22 / 76	34 / 126	12 / 38	3 / 8	0 / 0	87 / 376

* Certificate winner. Check logs are gratefully acknowledged from F/G4PIQ/P, G2DPQ/P, G3VQO*, G3YDD, G3ZDD, GM4FAM, GW4LZP, K2PS, K3ZO*, OZ0F, VK8AV*.

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.

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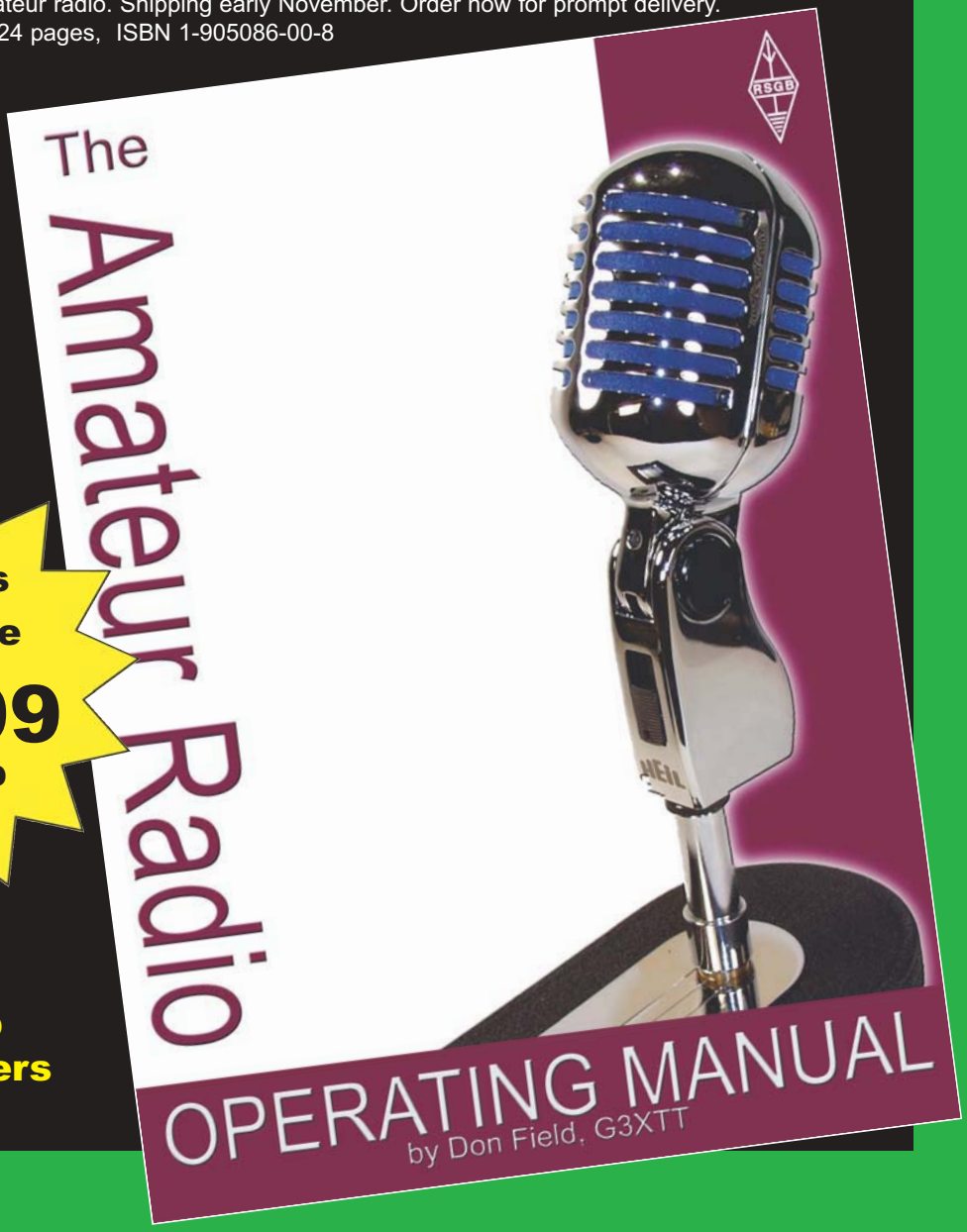

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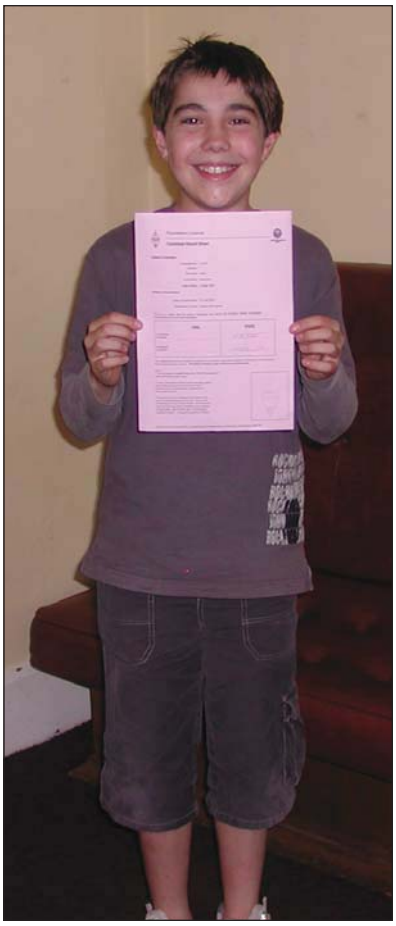

Laurence Justin looks justifiably proud of his achievement (see 'Harrow Success Continues')

Whilst away on holiday I spent a little more time than usual on the bands. Amongst the stations I heard were two Foundation licence holders having a chat on 18MHz. I was very interested to hear them say that they thought the band was dead but, as I was located between Cognac and Bordeaux and they were back in the UK, that was clearly not the case. I tried to break in and give them a report but they were so quick on the overs that I could not make myself heard. I have sent them 'listener' QSL cards to confirm that I heard them and suggesting that listening between overs would not go amiss, especially on the HF bands!

HARROW SUCCESS CONTINUE

Donald Lamb, G0ACK, keeps us up to date with events at the Radio Society of Harrow. Back in the April column Don reported news of young Alexander Justin who gained his Full licence aged 14. Not wishing to be outdone by his big brother, Laurence Justin, aged 12, is now sharing the success having passed the Foundation licence examination.

Laurence is now the youngest person to pass any of the Radio Communications Examinations at Harrow. The Society also hosted an Intermediate examination at the same time and all four members passed. What is it they say about success breeding success? Keep up the good work Don and everyone else at Harrow.

MAX MOVES UP

Max White, now 2E0RGO, passed the Intermediate exam in June along with John, 2E0BGH, at the young age of 83. Max has been good enough to send in some feedback and thoughts about his experience at the Cheltenham Radio Club.

Whilst Max found the book *Intermediate Licence - Building on the Foundation* covered the subject matter he says that he found it useful to have a tutor to guide him through the material. Roger, G3REB, helped them through weekly sessions between last October and May this year. I would definitely endorse that sentiment; a tutor can bring the printed word to life and hopefully demonstrate some of the concepts covered. That said, the book was written to allow those who cannot access direct help to teach themselves, so the absence of a tutor should not prevent anyone from preparing for the Intermediate assessments.

The practice papers made available through this column helped Max and John to prepare for the real thing and Max also accessed the American Radio Relay League (ARRL) Technician question bank, which is available through their website. Max says he believes practicing answering questions is an excellent way to revise and asked if the UK question bank will be made available through the web. As I understand it, Ofcom, who own the UK question bank, are not opposed to the idea in principle. However, they have said that there is not yet a sufficient number of questions in the bank to allow its publication. Any willing question writers should contact Alan Betts at Ofcom for details – you will be paid for your efforts!

The June exam saw Max and John passing with flying colours even though Max thought some of the questions were "offbeat and ambiguous". Not having seen the paper I cannot comment on the specifics but students should be aware that questions do become less straightforward as you move up the examination ladder. Quite often you will find questions with two answers that appear to be correct; the trick is spotting which is 'more correct'. That was also true of the old City & Guilds examinations. These are not 'trick' questions, they are intended to test the depth of a candidate's knowledge and / or understanding.

Max has started to look at the next stage and is reading through *Advance! - The Full Licence Manual.* There is no Advanced course running near him so he intends to make use of the open learning material that is available. He says that he has found some tutors reluctant to teach in their own homes and suitable premises hard to find. We use a school classroom at £7.50 per hour, which can prove expensive for small numbers. I wonder if any readers have any good suggestions of cheap room hire options?

BACKPACKERS AT RISK

I enjoy portable VHF contesting; that is, taking a battery powered rig and a small antenna up on to some high ground and seeing what I can work. I was delighted to find I had won first place in my section of the 50MHz Backpacker Contest held in June this year but then disappointed to find that I was the only entrant in that class! I was further saddened to see that the VHF Contest Committee has said that unless the contest is better supported next year it will be scrapped.

I have worked quite a few newcomers during 144MHz contests but not many on 50MHz. I find this surprising with the number of rigs around that cover the band. You do not need an expensive antenna - I have worked Italy with 500mW into a delta loop antenna in my loft.

If you have never tried contesting the Backpackers are quite friendly affairs that allow you to test your equipment and sharpen up your operating skills. Why not give it a go? I for one would hate to see these annual events disappear. I wonder if a prize for the highest placed Newcomer (licensed for less than two years) might help to encourage participation ♦

By Lee Volante, G0MTN

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World Wide Young Contesters first international meeting

The future of amateur radio is in safe hands, if the enthusiasm of the youngsters who make up WWYC is any guide. These guys - and girls - may be 'newcomers', since most of them have been licensed for only a few years, but they're already experts in their field. Lee Volante reports from the club's first international get-together which took place in Croatia during the summer.

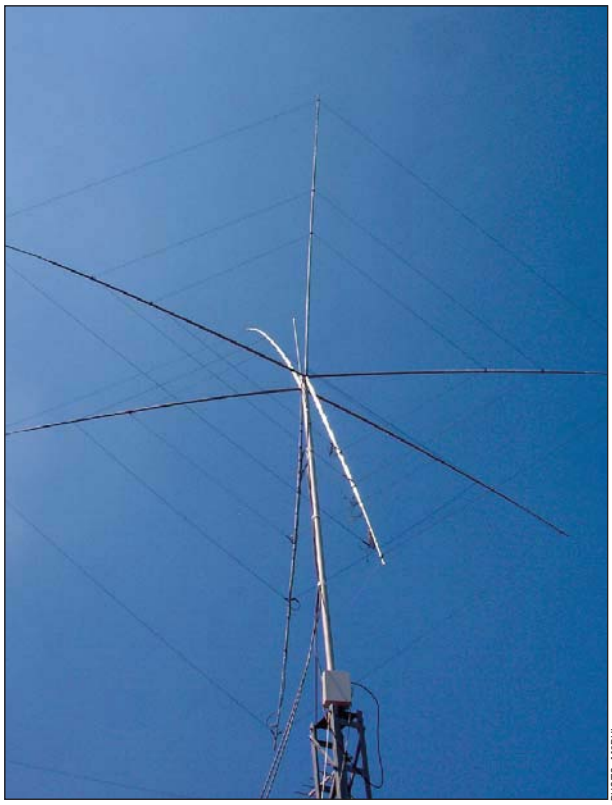


PHOTO: M0RHI.

The Pazin Radio Club, 9A7P, quad.

The World Wide Young Contesters (WWYC) club was started by a group of five European teenagers in 1999. The aim of the club is simply to encourage young contesters around the world to become more active. Today there are over 400 members, with membership open to anyone under 30 years old who has an interest in HF or VHF contesting. Upon reaching 30, as I did myself this year, members graduate to the WWYC 'Hall of Fame'. There are around 25 members from the UK, including several Foundation licensees.

Initially most of the contact between club members was via an Internet mailing list. This was followed by a bi-monthly on-line newsletter. While some members are just starting to explore radio contesting, the membership also includes operators from many top-flight contest teams. The main 'meeting place' of the club is now on Internet Relay Chat, channel #wwyc using irc.worldirc.org At times there have been up to 40 members present at once, resulting in a lot of frantic good-natured chat, plus help and support if it's required.

On contest result scoreboards on the Internet, the name WWYC has become more widespread and well known in recent years. A small number of contests aggregate club scores from its members, and for those that do not impose a geographic limit, eg CQWW and the Russian DX Contest, the WWYC has enjoyed some high placings.

In 2003, a small group of WWYC members from Germany, Poland and Yugoslavia paid a visit to the Pazin Radio Club, 9A7P, home of several active WWYC members, including one of its founders, Hrle, 9A6XX. It was a success, and so it was decided that an official meeting be organised for summer 2004, with a full programme of presentations, trips and games.

2004 MEETING

I attended the event with 17-year old Royce, M0RHI. We flew from London to Klagenfurt in Austria, where we were welcomed by WWYC members Chris, OE8CIQ, and Gaby, OE8YDQ. Then we began the drive through the Austrian mountains into the Slovenian countryside. The route took us through Ljubljana, itself having fond memories for contesters for hosting the 2000 World Radio Team Championship, and finally to Pazin, just half an hour from the Adriatic Sea. This was to be home to around 40 contesters and their friends from 14 DXCC countries for the next six days.

The opening ceremony and the following day's presentations were made in the main lecture theatre at the local high school. At the opening ceremony the mayor of Pazin spoke a few words, as well as Petar Milicic, 9A6A, President of HRS, the Croatian national society. They spoke of the importance of meetings like this to maintain the future for amateur radio. The town of Pazin was pleased to welcome its visitors from other countries - the meeting featured on the local television news, radio and newspapers.

After the official welcome, the presentations started with a look back at the growth of the club over its five-year history by Hrle, 9A6XX, and what it hopes to achieve in future. One aim is to reach out to the large numbers of young contesters in Russia, most of whom presently do not have easy Internet access, and so may not be aware of the club.

Other presentations included personal experiences of DX and contest operations from HC8N, C56R, 5U5Z and K1B, and a European expedition to LX, where WWYC members had taken part. There was a presentation from Goran, YT7AW, and Marko, 4N1JA, about the fourth IARU Region 1 High Speed Telegraphy Championships. Later in the week I had an interesting talk with Goran about the techniques he uses to copy CW at peak speeds of up to 130 words per minute.

One particularly relevant presentation was by Timo Klimoff, OH1NOA, who gave an account of how new contesters with little experience, and perhaps little chance to own or build a competitive station of their own, could become successful. He suggested joining clubs, or contacting local well-known stations, and asking to operate their stations, or join in with their multi-operator activities. "Remember, asking costs nothing," noted Timo. After some experience has been gained it should be possible to build up relationships with stations in DX locations, where contest-winning scores could be within reach. In the second half of his presentation Timo showed how he had put this advice into practice with his operations during the CQWW DX CW contest. Operating as CT8T from Portugal, Timo has won the European Single Operator High Power trophy several times, and is the current record-holder.

Later Paolo Cortese, I2UIY, made a presentation on the popular European Sprint contests. Describing how he and some friends (including our own Dave Lawley, G4BUO) had successfully adapted the North American Sprint Contest for Europe, Paolo noted that that entry levels for Europe are now approaching that of its big brother. The contest seems to be a favourite amongst the WWYC with its unique requirement to hop continually between frequencies and cope with a long exchange, including a nickname. WWYC members currently represent some 10% of the whole entry. One trait of the WWYC group

PHOTO: M0RHI.

The 9A2004YC IOTA team.

is to use 'lid' as a greeting - a little different to its normal use on the HF bands! A recent Sprint contest included a gang of young 'lids' entering. Indeed, Paolo in his presentation encouraged some more unusual nicknames to be used in future just to add to the fun.

PAZIN RADIO CLUB, 9A7P

Following the day's activities, and after a meal in the pleasant evening sunshine at a local café, the group adjourned to Pazin Radio Club, 9A7P. The club is based on the top floor of a building in the centre of town. On the floors below are local government offices. A 'homebrew' 2-element quad is mounted on a tower on the roof, and there are dipoles for 40m and 80m. It is a little surprising that the radio performance is so good considering the town is surrounded by hills in most directions. Over 2000 QSOs were made during the evenings using the special callsign 9A2004YC.

The town provides the rooms for the radio club free of charge. It also doubles as a youth club, with many non-licensed young Croatian men and women chatting and listening to music just next door to the radio shack. This combination could be a good model for amateur radio in other countries. Even if there is no real interest in amateur radio for these guys, everyone is aware of what amateur radio is all about. I think 9A7P must be unique in being the only radio club in the world with an on-site disco! Similarly, I doubt if at any other DX meeting you could find amateurs from five DXCC countries singing a Beatles medley at 1.00am on a rooftop terrace. Finally, in the very small hours, the groups departed either to the high school dormitory, or for those that could not keep up with the pace of the partying, a nearby hotel. Evidence of the same ethos can be found in the radio shack itself - along one wall are several impressive trophies, plaques and awards, and along the opposite wall is a poster of Britney Spears!

I had another surprise whilst checking my e-mail on one of the club PCs. I was astounded to hear that the connection was not as I suspected via a fixed line through to the offices below, but via packet radio on 23cm. A high-speed megabit network has been developed in Slovenia and Croatia, with the results not being very different to that achieved with my dial-up modem at home.

After the day of presentations, the whole party boarded a coach and went on a tour around Istra, stopping off at the towns of Porec and Rovinj. We were guided by Donata, SP5HNK, and Hrle, 9A6XX, who gave us a history lesson. Later we boarded a boat and sailed up the Lim Fjord, doing some IOTA spotting and having some fun on the beach and in the sea for the rest of the afternoon.

IOTA CONTEST

On the Saturday morning, Royce and I joined a nine-strong IOTA contest team led by Mario, S56A, and travelled by boat to Sv Andrija in the EU-110 IOTA group. The other operators were Oli, DH2WQ;

PHOTO: OE8CIQ / OE8YDQ.

The late night rooftop Beatles singalong.

Stefan, DK1MM; Chris, DK9TN; Chris, OE8CIQ; Gaby, OE8YDQ, and Donata, SP5HNK. Seven of the nine were under 30 years old, and we also had two YL operators - quite unusual statistics. The antennas were an FD4 Windom and multiband vertical, quickly put up in the grounds of the Hotel Istra. We used an FT-1000MP, an IC-706, and two networked computers using *Writelog*. Apart from some inter-station interference (which will be cured for next time using bandpass filters) everything seemed to work well.

Conditions were not great for the contest, following a coronal mass ejection from the sun, but we were pleased to achieve 1100 QSOs, and almost 2 million points in the 100W DXpedition category of the contest. This was despite using the 9A2004YC callsign, which could be said to be less than perfect for snappy contest operation. Having so many operators gave plenty of time for walking around the island and relaxing with other team members. I remember remarking it was the most pleasant contest activity I'd ever participated in - much better than the cold, rain and wind I normally experience.

Two others from the WWYC group, Zoli, HA1AG, and Timo, OH1NOA, left to join the 9A0CI team on neighbouring Sv Nikola island, also part of the EU-110 group, who had built up an impressive high-power station with many monoband antennas with other visiting Hungarian amateurs. They also had a successful contest, and we were pleased to exchange EU-110 with each other on all the possible band / mode combinations.

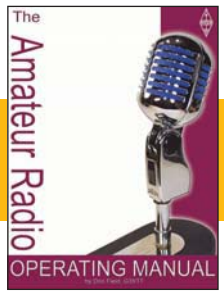
Meanwhile, the main party enjoyed a picnic, more time on the beach, and some unique 'ham' competitions. One of these was a Morse keying competition with a twist. A 4ft-long straight key had been constructed, and you needed to send Morse using your foot. Ironically, high speed Morse man Goran, YT7AW, was the winner!

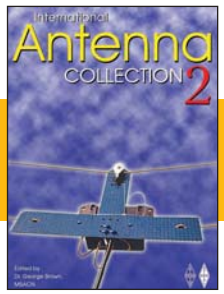
SAYING GOODBYE

After a final party on the Sunday evening, complete with speeches and prize giving, Monday morning soon rolled around. Everyone said their goodbyes and started their journey home. For the small group of guys from Croatia, almost all in their early 20s, to have organised the whole event so well, on a small budget, and with relatively little outside support, is a fantastic achievement. The WWYC was very pleased to receive the ARRL Colvin Award to help fund travel costs for visitors from some countries. Another summer meeting next year seems to be a certainty, with everyone hoping to make it even bigger and better. One challenge will be to find a location that is accessible to the largest number of WWYC members possible.

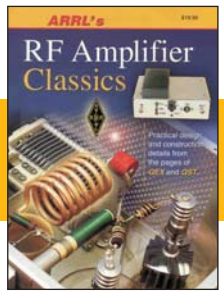
I took away a lot of very happy memories, made many new friends, and planned some future contest operations. I am looking forward to the next meeting, even if I have to wear an 'old man' badge rather than a 'lid' badge next year! ♦

WEB SEARCH	
WWYC:	www.wwyc.net





Book review



THE RSGB AMATEUR RADIO OPERATING MANUAL, 6th EDITION
By Don Field, G3XTT

The *RSGB Operating Manual* was first published in 1979, the most recent edition appearing in 2000. The task of updating it fell to *RadCom* columnist Don Field, G3XTT, probably best-known as an HF operator but with experience in many other areas of the hobby including VHF and datacomms. Don has made substantial changes, both in content and style. He points out that the Internet has had a major impact in the past few years so that this edition includes, for example, material on Voice over IP (linking VHF nodes and repeaters around the world) for the first time. There is an extensive new chapter on the use of PCs in the shack. And, as you would expect, many of the references are to websites rather than books and magazines.

Don also says that he has tried to make the book relevant in the context of recent licence changes. So there is, for example, a new introductory chapter, easing the reader into the need for correct operating procedures and setting the scene for the rest of the book. The chapter on licensing takes the reader step by step through UK licence requirements, for example in respect of logging and third party transmissions.

There is a vast amount of other new material as well. The 136kHz and 5MHz allocations are covered for the first time, the satellite and space chapter has been completely rewritten, and a new chapter on operating modes is a recognition that the historical division between voice, CW, data and image modes has become blurred now that most of them can be handled by your PC sound card and appropriate software. As you would expect, this chapter includes information about the WSJT suite of programs which have transformed weak-signal working on the VHF bands.

To fit all this new material into just over 200 pages, something had to give, and the number of Appendices has been reduced on the basis that much of the time-sensitive information (repeater lists, beacons, etc) is updated annually nowadays in the RSGB Yearbook.

THE RSGB AMATEUR RADIO OPERATING MANUAL, 6th EDITION
By Don Field, G3XTT
RSGB, 2004
224 pages (210 x 297mm)
ISBN 1-905086-00-8
Members' price £16.99 (non-members £19.99).

INTERNATIONAL ANTENNA COLLECTION 2
Edited by George Brown, M5ACN

This new book, a follow-up to the original *International Antenna Collection*, is another interesting selection of articles about antennas originating from various parts of the world. Antennas are described for most of the bands between 136kHz and 2.4GHz, transmitting and receiving, mobile and fixed.

Some of the articles are very short and describe monoband antennas, while others are very long and may be more technical than practical. All are, however, packed with useful information on the design and construction of a multitude of antennas.

As before, a quick look-up table enables you to find designs for a given band within a few seconds – no mind-numbing trawls through indexes. This is a really useful idea that more books should adopt.

Readers will appreciate that it is by no means an exhaustive collection – there is a limit to how many articles can be crammed into a small book! It is a personal selection and is, therefore, subjective. International Antenna Collection 2 follows the lead of the original book in that the graphics within each article are taken (with permission) from the magazines in which the articles first appeared. Although the texts have been edited to a uniform style, the diagrams are the originals, and gives the book an added flair when opened.

The book contains one invited article, 'Your Tuner *Does* Tune Your Aerial', by Kurt N Sterba, the irascible author of the 'Aerials' column in the American amateur radio magazine *WorldRadio*. He takes his usual unique look at the transceiver-to-aerial interface, and debunks the myths surrounding it. There is no excuse for any more myths to be propounded, because he describes an experiment for you to carry out which will prove his point.

This book deserves the same success as its predecessor. There is something in it for everyone

INTERNATIONAL ANTENNA COLLECTION 2
Edited by George Brown, M5ACN
RSGB / ARRL publication, 2004
200 pages (200 x 273mm)
ISBN 1-905086-01-6
Members' price £10.19 (non-members £11.99).

RF AMPLIFIER CLASSICS
Compiled by Steve Ford, WB8IMY
Reviewed by RSGB HQ Staff

If you are even thinking about building an RF amplifier (or 'linear amp') for any band from 160m to 13cm this book is a 'must'. It is in three main sections: HF / MF / VHF; VHF / UHF (including amplifiers for the American 220 and 903MHz bands); and Microwave amplifiers. These three sections are followed by a useful article by the well-known writer Ward Silver, N0AX (the author of *Ham Radio for Dummies* reviewed in the August *RadCom*), on 'Amplifier care and maintenance'.

There is something in this book for everyone. While the term 'linear amplifier' may conjure up images of large valves and high-voltage PSUs, many of the articles are of much more modest fare. Over half the articles involve the use of solid-state devices of which some are suitable for relative newcomers to construction. For example, there is a simple 1.8 - 54MHz 5W amplifier and a broadband 1W in, 40W out HF amplifier using power MOSFETs and a 28V DC power supply. At the other end of the scale there's a grounded-grid kilowatt amplifier for 432MHz and a 1500W output 8877 HF linear: neither of these should be tackled by the beginner, if only for safety reasons! For the experimenter there are numerous ideas and techniques which can be adapted.

RF Amplifier Classics is compiled from articles that have been published either in the ARRL's monthly magazine *QST* or in the League's 'experimenter's journal', *QEX*. Some are indeed classics, dating back to the late '70s and '80s, while others are undoubtedly future classics and were first published as recently as 2003.

As the ARRL says, "Turn [your] dreams of constructing your first amp into reality!"

RF AMPLIFIER CLASSICS
ARRL, 2004
169 pages (208 x 276mm)
ISBN 0-87259-931-0
Members' price £11.89 (non-members £13.99). ♦

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MB-72 Handle £9.95
OPC-581 Sep Cab . £32.99
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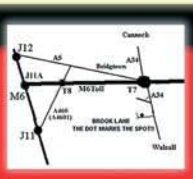

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One-Plug Power is the internal FT-817 battery solution you have been waiting for until now.

OPP-817
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One BIG Punch (OBP) is a custom add-on accessory for the Yaesu MH-31 microphone commonly used with many Yaesu amateur radios

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

Hand Mike
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OBF
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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***

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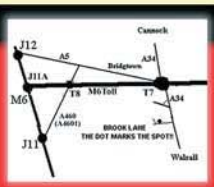

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Home-brew HF Beams	11.30am
Propagation Simplified	12.15pm
Instant Morse	1.00pm
Show closes	4.15pm

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RSGB sponsors Kempton Rally 'byte-sized' lectures

The RSGB is sponsoring a series of lectures at the Radio Fairs West London Radio & Electronics Fair at Kempton Park on Sunday 14 November. There are four fascinating lectures by top speakers . . .

After the successful series of mini-lectures sponsored by the RSGB and presented at the West London Radio & Electronics Fair in April this year, the organisers, Radio Fairs, and the RSGB have once again got their heads together to present another set of 'byte-sized' lectures in the main grandstand of the Kempton Park Racecourse on Sunday 14 November. These short, easily digestible, talks are aimed at beginners and 'improvers', although even the 'old hands' are bound to find something to interest them too. The lectures are free to attend and will be run throughout the Radio & Electronics Fair.

Terry Giles, G4CDY: internet linking.

INTERNET LINKING

Kicking things off at 10.45am will be Terry Giles, G4CDY, who will be revealing the mysteries of Internet Linking. He will be explaining the differences between the various amateur radio Internet linking protocols and also providing a live *EchoLink* node which will be available throughout the day, enabling users to make contacts across the world using just their 2m handheld transceivers.

First licensed as G8AWQ in 1966, Terry was very active building and operating equipment for VHF / UHF contests. In the late '70s and early '80s he was a member of the RSGB Technical and Publications Committee and published a number of articles and equipment reviews. Running his own design and consultancy company, Terry has brought his fertile mind to bear on many complex commercial problems including emergency communications for fire-fighters all over the globe. The amateur radio bug bit again some four years ago and Terry became involved in the new technology of Internet linking. He was particularly interested in this as a way of encouraging youngsters into the hobby - especially after his self-confessed failure to get his own son interested in radio!

Mark Marsden, G4AXX: practical home-brew HF beams.

PRACTICAL HOME-BREW HF BEAMS

Following Terry at 11.30am will be Mark Marsden, G4AXX, who will be describing the techniques used to design and build effective, lightweight HF beam antennas used in contests and DXpeditions. Practical examples built by Mark include 3-element Yagis for 15 and 20m, a 2-element phased vertical array for 40m and a Field Day rotatable double-extended Zepp for 80 to 10m.

Mark was first licensed in 1972 at the age of 16. At university he was the chairman of the University College of Wales, Swansea, Amateur Radio Society and operated from the club station of GW3UWS. In 1976 Mark's work took him to South Africa, where he operated as ZS6BQP and got hooked on contesting when operating with ZS6BPL in the 1979 CQWW SSB contest. In 1981 he moved to Cape Town and operated as ZS1QC. Whilst working for Plessey a lot of home-brew amateur projects were built. He completed an MSc at Cape Town University in 1987. In 1990 he returned to the UK and later became a founder member of the Granta Contest Group. Earlier this year he was a team member of the 7Q7MM DXpedition to Malawi. Mark works as a Consultant with Plextek Ltd, Electronics Design & Consultancy.

PROPAGATION SIMPLIFIED

Next in the hot seat at 12.15pm will be Gwyn Williams, G4FKH, presenting 'Propagation Simplified'.

First licensed in 1975 following his tenure in the RAF where he was a telegraphist, Gwyn has been a member of the RSGB Propagation Studies Committee for about 12 years and Vice-Chairman for six of those. He has written many articles for *RadCom* and the propagation predictions in the magazine are his work.

Gwyn will be outlining the basics of propagation and summarising various causes and effects. There will be a question and answer session providing a golden opportunity to mine Gwyn's wealth of knowledge and in-depth experience of just how our signals find themselves many thousands of miles from where they set off!

INSTANT MORSE

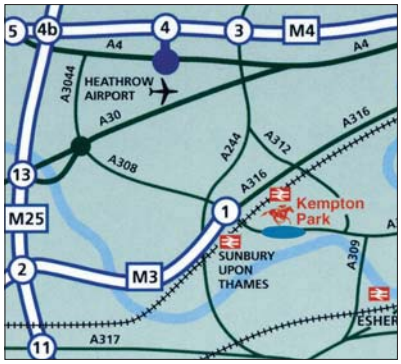
Last but by no means least, Steve White, G3ZVW, will, at 1.00 pm, be presenting an unmissable talk entitled 'Instant Morse'. If people telling you how difficult they found it have put you off learning Morse, or you have struggled or given up trying to learn the basics yourself, this talk is for you. Aimed primarily at those who have no knowledge of Morse, but invariably found fascinating by those who do, 'Instant Morse' is an interactive demonstration of how to learn the dots and dashes of the 26 letters of the alphabet in an astonishingly short amount of time.

Licensed for over 30 years, Steve has experience of teaching the RAE and Morse. A keen contest operator and VHF DXer, he also makes some of his own equipment. As a former editor of *RadCom*, Steve now makes regular contributions to *RadCom* and the RSGB book programme.

So, come along and listen to these four excellent speakers. Kempton Park is easy to get to, being located close to junction 1 of the M3 and close to Kempton Park, Sunbury upon Thames and Esher railway stations (see map). ♦

Gwyn Williams, G4FKH: propagation simplified.

Steve White, G3ZVW: instant Morse.



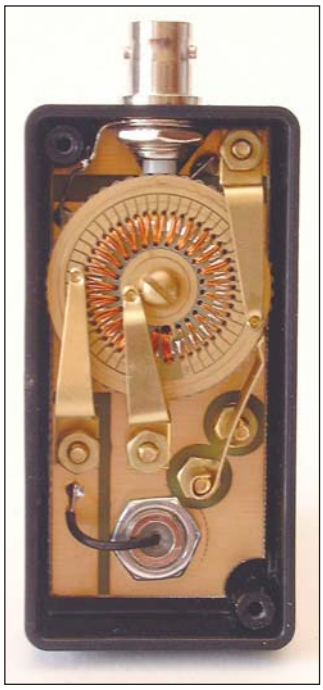
Reviewed by Chris Lorek, G4HCL

PO Box 400, Eastleigh SO53 4ZF.

E-mail: g4hcl@rsgb.org.uk

The 'Miracle Ducker' reviewed

Last month Chris Lorek reviewed the QPak Precision Tuner. Now, he looks at an alternative way of allowing you to get on the air from portable locations or hotel bedrooms where it is impossible to put up substantial aerials.



The 'Miracle Whip', which was reviewed in the February 2002 issue of *RadCom*, has already proved itself a very popular accessory for many self-contained HF 'carry around' radios. The 'Miracle Ducker' goes one step further, and rather than having an attached telescopic whip it comes instead with a BNC socket for the antenna, allowing you to plug in an antenna of your choice. As its name suggests, this could be a 'rubber duck' helical whip, which of course can be at lot easier to carry around than an easily-broken telescopic. There's nothing to stop you attaching a telescopic whip of course, and my tests included using such a whip terminated with a BNC socket, one which I had originally put together for use with a desk-top scanner receiver.

FREQUENCY RANGE

I don't want simply to repeat the text of the earlier 'Miracle Whip' review, but in case you missed this, it's functionally an end-fed antenna matching unit, covering a stepped range from around 3 to 30MHz, together with a 'straight through' position for VHF use. A PL-259 plug is used to connect to your transceiver's rear panel antenna socket, and with the 'Miracle Ducker' you simply attach your portable antenna to the BNC connector and rotate the click-step knob for maximum signal strength on receive. Simple as that! This setting will usually correspond with a good VSWR match, but on transmit you may find a slightly better VSWR by rotating the knob one click either clockwise or anticlockwise. As it's an end-fed matching unit, the antenna system becomes effectively independent of a ground plane, which for an HF portable transceiver can otherwise be rather an encumbrance.

CONSTRUCTION

Like the 'Miracle Whip', an outer plastic case hides the beautifully-constructed internal circuitry. Here, a ferrite-cored multi-tapped RF transformer is used, together with a precision-built multi-way rotary switch assembly with hard gold-plated contacts. The power limit for the Miracle Ducker is 10W CW or 25W PEP on SSB. Don't try to exceed this because if you do you're likely to damage severely the internal circuitry - not just the switch contacts but also the ferrite, which can saturate and overheat. It's not designed for 100W HF rigs! But for something like an FT-817 or similar, it can be absolutely ideal.

IN USE

I started off by using a 2m-band helical whip around 15cm long as the antenna element. Remarkably, I found that, with the rotary switch appropriately adjusted, I could use this with the Miracle Ducker across virtually the entire HF range for listening purposes. The click-step knob adjustment was nicely 'sharp' on receive, with signal levels increasing and decreasing over just a few clicks. This normally coincided with a 'best match' on transmit as well, with a typical resultant VSWR of between around 3:1 and 2:1 on most amateur bands. On 80m the best result I could get was over 7:1, ie not a good match at all. It was OK for listening but it certainly didn't give an effective transmitted signal. But then, you can't really expect something like a 2m-band helical to work very well on 80m!

I found the helical gave reasonable results, considering its diminutive size, on 20m and above. Reports on my transmitted signal here were naturally not up to that of, say, a full-sized dipole. But even so, I did manage to get contacts when otherwise I believe I just wouldn't have stood a chance with a 'walk around' transportable station. Whilst out mobile, comparisons were typically just a couple of S-points below those received when the same transceiver was connected to my multi-band mobile whip. Using a 1m long telescopic whip instead of the 2m helical did improve signals, not dramatically but typically by a few extra decibels of radiated signal level. What I did find, though, was that I could connect a length of insulated wire, terminated to the centre pin of a BNC plug, and use this for 'fixed portable' use. With an antenna length of even just a few metres thrown out of a hotel window, this gave a remarkable improvement, especially on 80m which is one of my favourite bands. I eventually ended up using a helical when on the move, and either a telescopic or length of wire when operating in 'fixed' mode, with excellent results all-round.

CONCLUSION

An excellent accessory for a transportable HF / VHF rig, allowing you to use a tiny antenna system when needed but still with good on-air results.

The Miracle Ducker is currently priced at £119.99, and our thanks go to Martin Lynch & Sons for the loan of the review equipment. ♦

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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 Å349.95, 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 Å1,599. ACOM2000A automatic 2KW no-tune (160-10m) Å4,295. ACOM 1006 (6m) Å1,299**

Rotators & Filters

PST rotators have a worm-wheel which drives the final gear directly, unlike other worm-drive units that drive planetary gears. This gives a **non-reversible brake, and enormous torque.** All gears are in ball or roller bearings in an oil-bath. No other amateur rotators come near this quality of engineering. **NEW IMPROVED CONTROL UNITS** are digital-readout with preset control and **NOW direct RS-232 interface**. Priced from Å499 (med duty HF) to Å1399 (EME / 80m yagis!) there is a model for everyone. PST 2051 + controller- Å 579 - is pictured here.

NEW FROM INRAD - Roofing filters for FT1000MP series. The FT1000MP is a great radio but has a fairly wide front end to permit FM operation. The new INRAD roofing filter narrows the front end and improves the radio. FM is still possible on the sub-receiver. We also offer **I.F. Filters** for nearly all transceivers and kits to improve the **FT1000MP noise and gain performance** for Å54.95 inc postage.

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New - HF mini-beam

From Germany, the **Optibeam OB6-3M** consists of a Moxon Rectangle for 20m, and yagis for 15 and 10m. Maximum performance is packed into a turning radius of only 14ft, with a 10ft boom. Optibeamôs feed system gives a VSWR of less than 1.6:1 at band edges. An external tuner also gives good results on 17 and 12 m.

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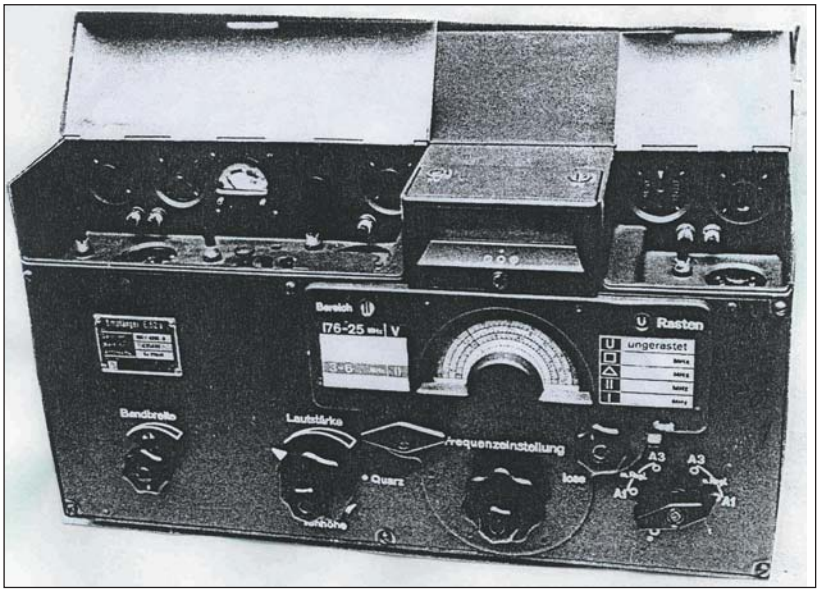
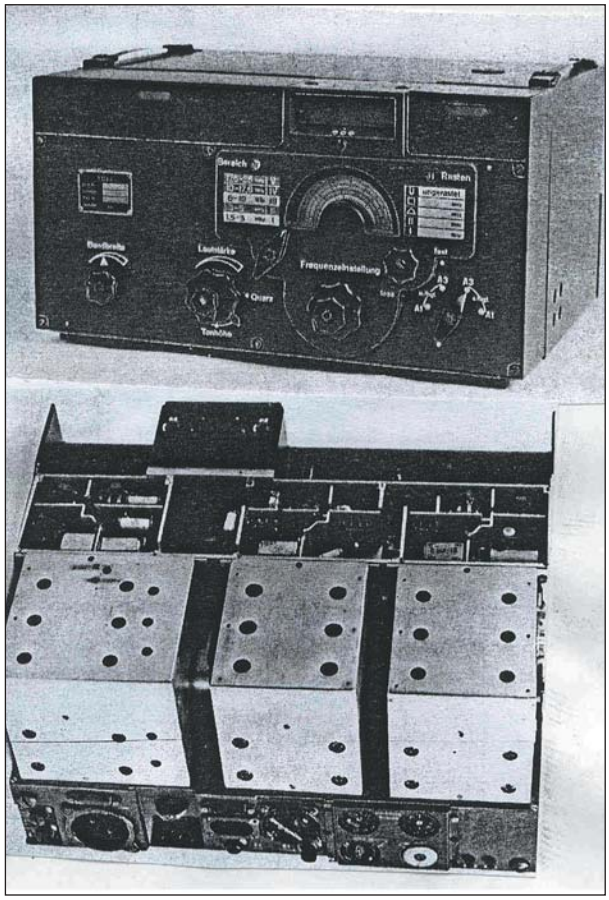
Are we making the most of the 'self-training' aspect of our hobby? ♦ A simple well-behaved crystal oscillator ♦ The great receivers of the past – the HRO, DST100, AR88 and E52 ♦ Some tips for easy PCB preparation



The German wartime type E52a ('Köln') receiver, with the hinged upper flaps opened to disclose the valves and metering facilities. The frequency to which the set is tuned is projected optically on the ground glass screen above the rough tuning dial. A good example of an ergonomically well-designed front panel. (Source: PA0SE).

The E52a with top flaps closed . The lower illustration shows the modular form of construction. (Source: Telefunken).



LOOKING BACK – LOOKING FORWARD

Tim Beaumont, M3SDE ('The Last Word', August 2004, p95), believes that there is more to 'self training' than 'Technical Topics' and urges us to remember that "Not all hams are into building VFOs, tuners and crystal sets… Learning how to build a radio set was all-important [when] equipment was not as affordable as it is today or as widely available to the consumer… We need to shift from the technical and mathematical side of the exams to more on air-training and the practical side… There is far too much looking back to the old days… We are missing the perfect opportunity to encourage the public to join our hobby."

Perhaps M3SDE is right. The UK is no longer a major design or production centre for radio communications equipment or indeed for most other electronics. The demand is more for engineers trained in digital electronics than in analogue RF engineering. Schools report a serious drop in pupils taking physics and mathematics.

So what, it can be argued, is the point of understanding what is in the 'black boxes' or automatic tuning units that stem from overseas? The technical need is only to select the right switch or knob – or is it? What is the point of Peter Hart, G3SJX, providing detailed measurements in his reviews when readers are no longer conversant with the operational significance of such terms as third-order intermodulation or the logarithmic nature of the decibel or AC/RF measurements based on impedance, reactance and complex quantities? But then one could argue what is the point of striving to work DX on fickle HF in an era of mobile phones linked by Internet, satellite communications and wideband ocean cables? We live now in an era of global telecommunications that meets the ultimate aim of being able to speak to any one, any where, any time – *except under emergency conditions!*

Nobody expects or suggests that the newly licensed amateur should necessarily have a deep understanding of radio technology – but, surely, that he should find it interesting and become anxious to learn and so create a lasting interest in the hobby. Yes, it may be a 'fun' hobby but there is a serious side to it. Surely, it should continue to be the aim of the amateur radio journals and hand-

books to provide an insight into the technology and how this has progressed over the years – not always wisely!

We should not ignore the value of combining theory (and some simple mathematics) with practical experimentation. Alan Turing, pioneer of modern computing, believed that radio engineering was basically mathematics. In his 1946 proposals for an Automatic Computing Machine at NPL (no comparable document then existed anywhere else in the world) he wrote: "These circuits have not yet been tried out and I have too much experience of electronic circuits to believe that they will work just as they stand. The amount of mathematical argument required to get a reliable prophecy of the behaviour of a circuit is out of proportion to the small trouble required to try it out. In practice, one compromises with a rough mathematical argument and then follows up with experiment. The cussedness (of electronic circuits) lies more in the minds dealing with the problem than in the electronic circuits themselves."

If any further advances are to be made in HF radio communication engineering, it will depend on a combination of theory and experiment and a willingness to draw on past experience. Today, the professional engineers have largely departed from developing the HF spectrum for communications. The high performance professional receivers of the 1950-70 era drew upon the best WWII practices (see below) and were developed largely for such applications as surveillance (SIGINT), diplomatic HF networks etc that have progressively disappeared with the ending of the Cold War and the progress in satellite communications, HF is being increasingly left to the amateurs, the broadcasters (although with diminishing interest), HF radar and some tactical military communications. But the raison d'être for amateur radio must surely be the continued creation of a body of people with a practical knowledge of radio communication, both theoretical and operational.

To quote Randy Pirle, N6GN, 'A Farewell to HF', QST, September 1999: "Technology will undoubtedly improve, but the vagaries of HF communications will remain a welcome challenge. What makes DXing on the short-waves fun is, paradoxically, the very inconsistency that many call its downfall"

The next step in radio receivers will almost certainly be the development of 'software-defined radio' (SDR) in which the analogue-digital conversion and subsequent digital signal processing takes place at the signal frequency, rather than as now common at a low IF or at AF. It is claimed that SDR promises great hope for radio communications by offering ease of design and flexibility not previously possible. Angsuman Rudra (RF Design, July 2003) adds "The push is to place the analogue-to-digital converter (ADC) as close as possible to the antenna, thereby performing a variety of receive functionalities in the digital domain. This ensures ease of design and flexibility". He shows that, whereas conventional Nyquist sampling requires that the sampling frequency must be more than twice the highest frequency of the signal to be digitised, it is possible to use undersampling (sub-Nyquist) at about half the highest frequency. He shows that, for example, a frequency band between 170 and 180MHz can be sampled at 80MHz to provide digital down conversion to 15MHz provided that suitable anti-aliasing band pass filters are fitted. For the HF spectrum, it would now be possible to digitise at the full Nyquist rate of 60MHz. But can we hope to understand what is happening without a smattering of theory and some mathematics?

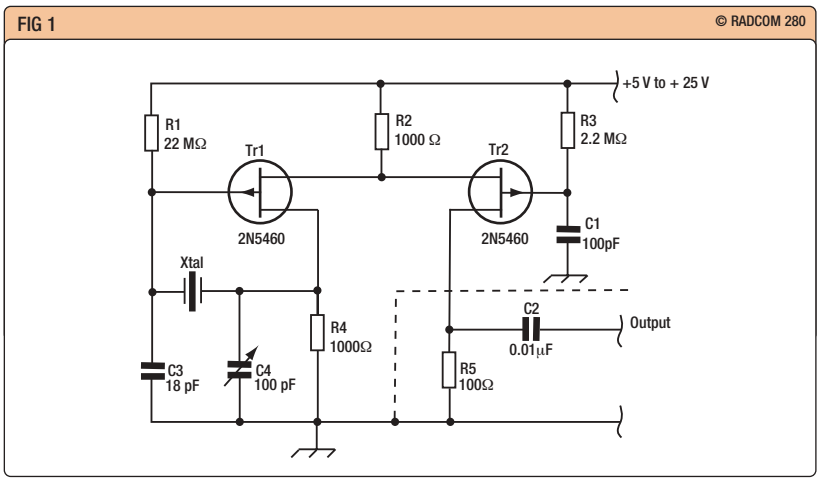


Fig 1
K2AOP's "well-behaved" FET crystal oscillator with buffer isolating amplifier. (QST)

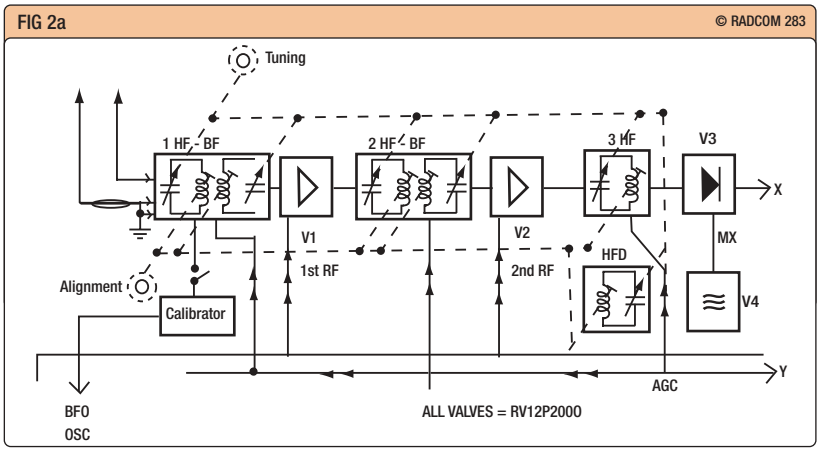
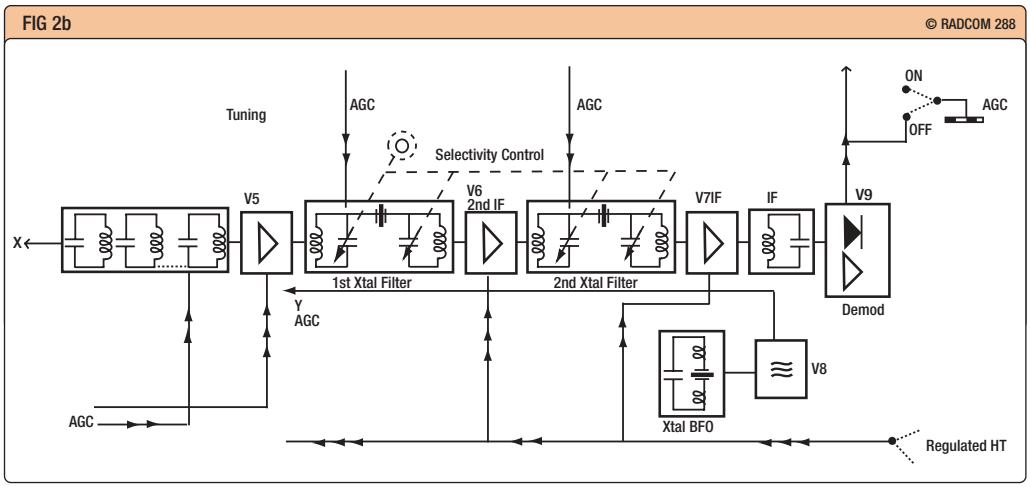


Fig 2
Block diagrams of selected sections of the German E52 wartime receivers. (a) Signal frequency section with five pre-mixer tuned circuits. The resonant circuits in the two band-pass SF circuits are link-coupled. Tuning control is a six-gang variable capacitor with well-engineered mechanical gearing.



(b) 1MHz IF strip with initial six-pole LC filter followed by two stages with variable selectivity crystal filters, quartz stabilised BFO (also provides 1MHz calibration markers) and output IF filter.

WELL-BEHAVED CRYSTAL OSCILLATOR

Is it looking back or looking forward to describe a 'simple, well-behaved crystal oscillator'? For some 70 years, the crystal oscillator has been one of the building blocks of radio engineering – and continues to be,

yet continues to present problems. The oscillator shown in **Fig 1**, is described by John A Clark, K2AOP, in the 'Technical Correspondence' column of QST, September 2004, p67, as well-behaved and reliable.

K2AOP writes: "This oscillator configuration has evolved in the long quest for a simple and reliable crystal oscillator with good frequency stability. Many versions of oscillators were tested and evaluated. Most came up short because of excessive frequency change and erratic operation from power supply variations, susceptibility to loading changes or because they were too complicated to be practicable".

Briefly, the p-channel FET (2N5460) Pierce oscillator puts the critical components at (or near) earth potential and is fully isolated from the output by the p-channel FET grounded-gate buffer. It is claimed that frequency and output amplitude remain quite constant over the range of 5 to 40V supply voltages because the FET has a drain characteristic that minimises change in current and gain with supply voltage. The price that is paid for the wide range is an output of only 0.8V p-p and the lack of a perfect sine-wave shape. A tuned transformer in place of the 1kΩ output resistor and capacitor could correct this. Oscillation begins with a supply voltage of 2V. It works with fundamental crystal frequencies between 1 and 20MHz with reasonably constant output amplitude from 5 to 40VDC. The crystal should be a parallel-resonance type and made for use with a load capacitance of 18 to 24pF.

THE WARTIME GREATS – HRO, DST100, AR88 & E52

Now definitely looking back - but hopefully of interest/nostalgia to both newcomers and old-timers plus a lesson on receiver fundamentals. Following on from recent items on the National HRO receiver that still has many admirers, several readers point out that other wartime receivers deserve an honoured place in the Parthenon of classic models.

Alan Morriss, G4GEN, writes: "I have owned and operated both the HRO and AR88 for some fifty years or more, and still operate both regularly. Considering when the HRO was designed [1934], it is a fantastic technical achievement, and has not greatly been surpassed since. I suppose it is like the wheelbarrow – how do you make it better?

"I have never been able to decide which is better, the AR88 [designed 1941] or the HRO. They both have their strengths and weaknesses. The HRO drifts more from cold, but if switched on about an hour before needed, it is very stable. Mine was made in 1937, and has the optional noise-limiter kit fitted. It also has the British PSU made by the Quartz Crystal Company [set up by Ernie Dedman, G2NH, and N H R Munday, G5MA], which is greatly superior to the original. I believe mine was used by the Diplomatic Wireless Service (DWS) [probably originally by MI6 Section VIII – G3VA] as was my Mk33 transmitter which I use with it every Sunday morning on 3577kHz. The AR88 is used with my Canadian W/S 53 and is the standard by which I tend to judge all other receivers.

"I feel that there were many wonderful communications receivers made during that era, a plateau in the development of HF communications. For example, I have one of the Canadian VRL double-conversion receivers, model DST100, undoubtedly one of the highest-grade receivers used by the Allied services, although I have not yet got mine going properly. In some ways it seems a hybrid of the HRO and AR88 and I look forward to comparing its performance with them.

"However, in my opinion, the German Telefunken E52 Köln (Cologne) leaves all the Allied receivers in the shade. I recently obtained one from Russia where it is supposed to have come from a U-boat that was dismantled there. Once I had got it going, I was amazed both by its performance and by its design and construction. It stands comparison with my modern Drake 4245 and seems better on 14MHz. The AGC is a bit weak and the audio a little low, but I cannot imagine ever parting with it."

I have never personally seen or used the E52 but G4GEN is not alone in praising this unique receiver, covering 1.5 to 25MHz in five bands, designed and produced 1941-3. Dick Rollema, PA0SE, in his series 'German World War II Communications Receivers – Technical Perfection From a Nearby Past', devoted Part IV, *CQ,* August 1981, pp74-79 entirely to the E52. He wrote: "There can be no doubt that the E52 is the ultimate German receiver design of WWII days". One could go further and state that the various E52 models were the most advanced and almost certainly the best HF receivers produced by either side in WWII.

Fritz Trenkle in his book 'Die Deutschen Funknachrichternanlagen bi 1945 – Band 2: Der Zweite Weltkrieg' shows that, in 1941, Telefunken began work on a series of four communications receivers planned to cover between them from 40kHz to 150MHz. E51 was the 'Leipzig' LF/MF receiver (40 –1600kHz); E52 the 'Köln' (eventually several versions E52a, E52b etc) was the HF model; E53 the 'Ulm' low VHF (24 – 65MHz); and the E54 'Kulm' VHF 60 – 150MHz (this project seems to have been abandoned in favour of a Ulm B model covering (21.5 to 120MHz). Originally the E52a (see the illustrations) was used as a Luftwaffe ground-station receiver, but its performance soon resulted in its use in U-Boats (TSK44), and for signals-intelligence including interception, direction-finding, etc. Later E52b, c, d models were progressively less complex to facilitate wartime production. Ease of serviceability was a major consideration. The lack of 28MHz coverage is a disadvantage from the amateur viewpoint.

The E52 models weighed variously from about 90 to 105lb and were thus directly comparable in weight with the AR88, but incorporated features not found in any Allied designs. They were single-conversion superhets with a 1MHz IF, two RF stages providing five signal-frequency tuned circuits in front of the pentode mixer plus the local oscillator tuned circuit, all controlled by a six-gang variable capacitor: **Fig 2(a)**. Unlike many other German designs, the bands were switched rather than using a coil turret. Like many other German receivers, the input circuits were protected by means of a small neon tube (the HRO input coil could easily be burnt out by a co-sited transmitter as I recall happening in Brussels in 1944 – 45; a problem also with the AR88).

Continuously-variable selectivity is provided in the three IF stages, two of which incorporated single-crystal symmetrical-response crystal filters controlled by a four-gang variable capacitor The initial IF filter is a high-grade six-resonant-circuit LC filter. A block outline of the IF stages is shown in **Fig 2(b)**.

The pentode second-detector/AGC rectifier/AF amplifier is shown in **Fig 3**. This was followed by a further pentode as an final amplifier for headphones output. All the 10 receiver valves were of the same Telefunken military type RV12P2000, simplifying the supply of spares. This miniature valve has a reasonably high slope (1.5mA/V, 2000 amplification factor), with the unique Telefunken side-contact base and inserted upside-down, with a bakelite extractor handle that can be screwed into the valve base. It has a 12.6V, 75mA heater. The HT bus is a stabilised 140V (all stages) from two

RG12D60 full-wave (60mA) diode rectifiers, a metallised voltage stabiliser and a rare-earth current regulator (used to provide a stabilised negative grid bias for use with the manual gain control when the AGC is switched off). The set can be operated from 110/220VAC mains or 12VDC batteries (with built-in vibrator unit), consumption 60-90W. A description of the differences between the various E52a, b etc models and a basic circuit diagram are given by G8LIU in his 1990 *RB* article. Further information on the E52 controllable selectivity curves, IF strip etc can be found in 'TT' September, 1999 (PA0AOB) and January 2000 (DJ6EV).

Rough calibration is provided on the small tuning window, but a finer resolution (10kHz on the highest band, 1 kHz on the lowest band) is projected by optical means onto a ground glass screen at the top of the front panel. As PA0SE puts it: "To achieve this, the shaft of the tuning capacitor carries a glass disc on which the calibration for each frequency range has been deposited by photographic means, like a microfilm. A small lamp illuminates the disc from behind, projecting the frequency to which the set is tuned by means of a lens system". An internal spare light bulb could be switched on if the first failed. The E52a model incorporates motor-driven tuning that provides an accurate 'memory' of four pre-set frequencies.

The electrical specification puts the E52 well ahead of the AR88 and the earlier HRO. Image rejection better than 86dB at 25MHz (94dB at 19MHz). Symmetrical bandwidth continuously variable from 200Hz to 10kHz: narrow ±200Hz (-2dB) ±2kHz (-60dB); wide ±5.25kHz (-2dB) to ±15kHz (-60dB).

The destruction by the Allies of a vast amount of German military equipment at the end of WWII has meant that many of these superbly-engineered models (still capable of outperforming the run of modern solid-state equipment) are difficult and usually costly to acquire in the UK. German HF receiver expertise was continued post-war by such firms as R/S, and by production in East Germany for diplomatic networks etc.

The influence of the E52 can be seen in post-war high-grade American and UK professional models. Pat McAlister, G3YFK, has provided a review of such models, agreeing with G8MOB that the Racal RA1792 comes top for ergonomics. I will refer another month to his interesting letter.

But in all countries, receiver design and development incurs compromises with 'progress' often involving, at least for a time, steps back as well as forwards. The search for production economies, the change from valves to semiconductors, phase-noisy frequency synthesis, digital signal processing – have initially, at least, all presented problems. One could even quote the excellent performance of the 1930s TRF models, degraded (for CW) with the adoption of the early 'noisy' superhets!

EASY CIRCUIT BOARD PREPARATION

Jack Thomas in the August 2004 *QST* 'Hints & Kinks' feature edited by Bob Schetgen, KU7G, writes: "For the past 30 years, I've been making printed circuit boards using a method that is both simple and inexpensive, although only suitable for a few boards. It's very simple and works beautifully every time. There's no need for computers or programs. I've never seen anyone else use this method (at least in print). A quick step-by-step descriptions follows:

"(1) Make a 1:1 scale drawing of the board. (2) Photocopy the scale drawing. (3) Cut the PC board to size. (4) Coat the PC board with a tin coat of rubber glue. (5) Cut out the photocopy, which should fit the PC board, and coat it with rubber glue. Wait for both the PC board and photocopy to dry. (6) Carefully place the photocopy on the PC board cop-copper and rub it down. (7) Using a hobby knife, cut out the tracings. Even unsteady hands become steady because the knife is always on the paper. (8) Peel the cut tracings off. (9) Rub off the excess dried rubber glue. (10) Coat the exposed copper with fingernail polish. I use red because it's easy to see. (11) Peel off the rest of the photocopy paper. (12) Etch.

"I've been able to make dozens of boards using this method with no mistakes and no badly etched boards. Lines as close as 1mm can be accommodated. Try it and you'll see that it's simple, easy, and costs little, particularly when you keep the rubber glue. I've used it for all varieties of circuitry."

ERRORS

Several errors crept into the October issue (see 'RSGB Matters' in this issue), but I accept the blame for an error spotted by Bob Margolis, G4TTZ, in the text on p46. A quarter-wavelength for 900MHz is 8.33cm (not 22mm). ♦

FIG 3 © RADCOM 282

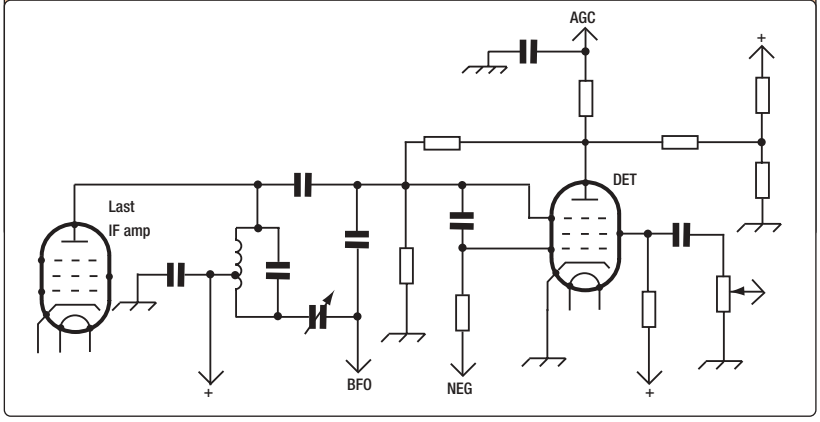
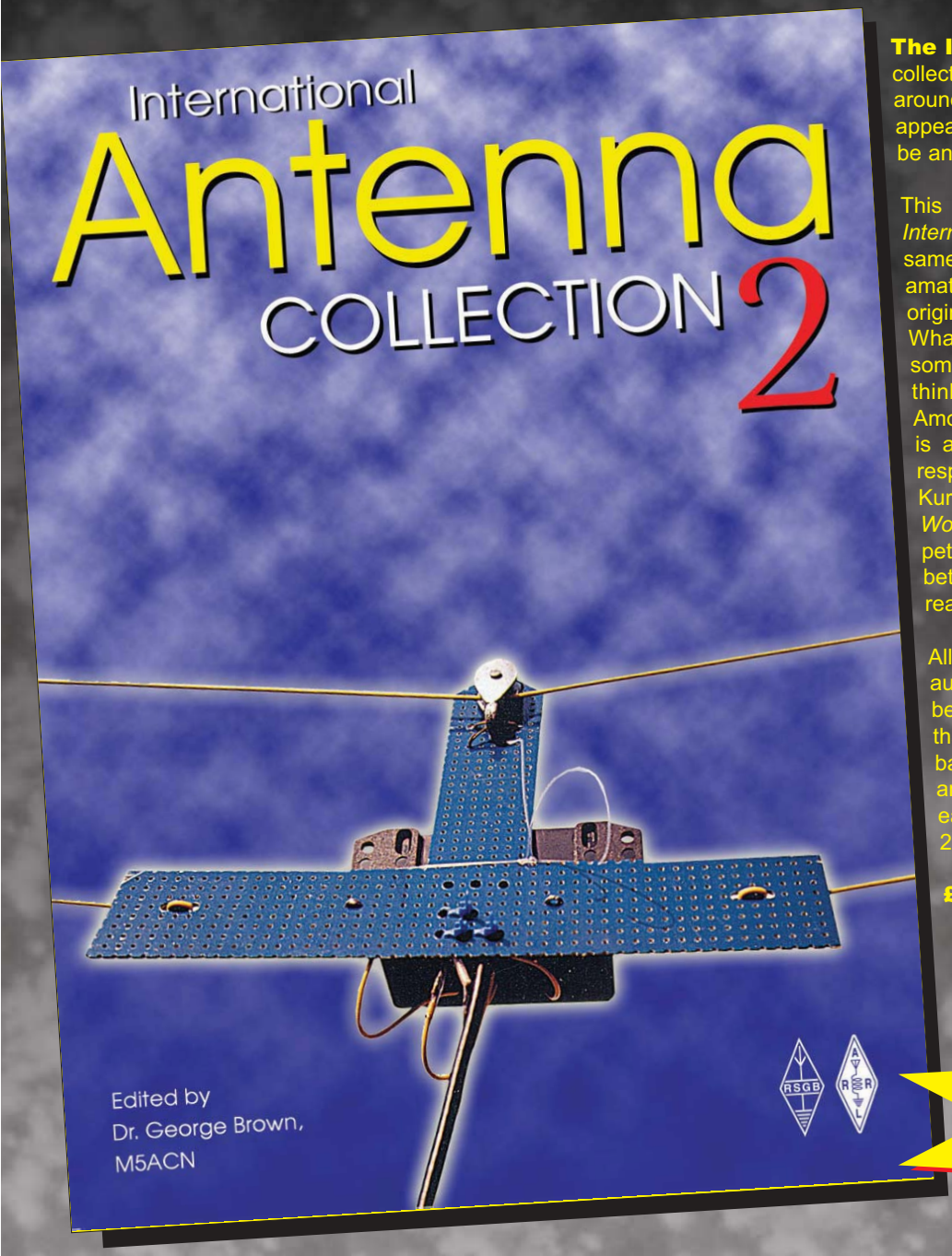


Fig 3
Simplified diagram showing essentials of the RV12P2000 pentode detector/AF amplifier/rectifier stage.

GREAT NEW TITLE



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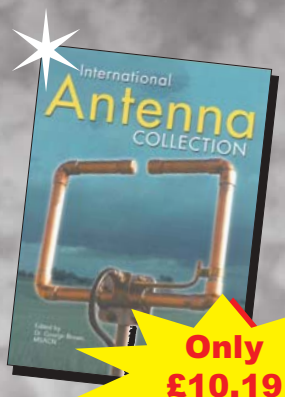

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Antennas

G3LDO describes the construction of a simple antenna which he is using to track down interference

The loop shown operating with a Yaesu FT-817.

I recently received an e-mail asking if I knew of a design for a loop antenna suitable for tracking down some electrical QRM. Apparently, this QRM manifests itself as a broadband rasping sound, very much like a Morse spark transmitter and centred roughly within the low end of 14MHz. By chance I, together with other local radio amateurs, have also suffered from the same QRM, which was described in detail in [1].

One of the advantages of a small self-powered transceiver like the FT-817 is that it can be used as a field strength meter for detecting QRM. A small tunable antenna is required and suitable candidates include the Wonder Wand, reviewed in [2], and the Miracle Whip. I used my bicycle-mobile equipment described in [3] and, while this was fine for detecting patches of the QRM in the vicinity, it was not good enough for locating the actual source of the interference.

LOOP PROBE ANTENNA

A small antenna with directivity was called for that could be used to locate or probe into less accessible QRM sources. The dimensions the loop that was constructed to were, to some extent, influenced by the size of the bits of 15mm OD copper tubing left over from a recent new kitchen installation. The loop had to tune the higher HF bands and the final 'design' comprised a square loop with outside dimensions 390mm and tuned with a broadcast receiver air-spaced dual-gang tuning capacitor of unknown pedigree. With one capacitor section of around 200pF, the loop easily covered all HF bands from 20 to 10m. The coax feed to the loop was shunt-coupled via a length of 2mm tinned copper wire.

The loop proved to be a sensitive receiving antenna and, while tuning up the antenna a couple of mornings ago, I received several VK3s and VK4s on 14MHz. The loop exhibited a conventional polar diagram pattern with approximately 20dB nulls.

CONSTRUCTION

The loop is constructed using standard 15mm copper plumbing fittings. The support structure comprises a 140mm length of 15mm copper tubing with a plumbing T-piece which forms part of the loop as shown in the photograph. The lower part of the support tube was soldered to a 22mm pole via a 15mm to 22mm adapter to form the 'handle' of the loop probe. Using four 90° angle couplings and lengths of 15mm copper tubing, a square loop was constructed with a 20mm gap in the top section of the square.

Short lengths of 2mm tinned copper wire were soldered to the ends of the copper tubing at the gap in the loop to take the variable capacitor. A further length of 2mm tinned copper wire was soldered to the T-piece on the lower section of the loop to support the terminal block used to connect the coax feeder to the loop. All the soldering described here was done using a small propane blowtorch.

All plumbing connection surfaces must be cleaned with emery cloth or wire wool and smeared with flux. The joint is heated with a blowtorch until the applied solder runs freely and into the joint through capillary action. Most large DIY stores have leaflets on how to make good plumbing soldered joints.

The variable capacitor was soldered to the wire ends on the loop gap using a 60W soldering iron. The coax braid was joined to the T-connector via a connector block and the short length of 2mm wire previously soldered to the T-connector. This arrangement also served to support the coax connector at the loop. The centre of the coax is connected to the shunt wire via the connecting block.

ADJUSTMENT

The only adjustment required is to match the coax feeder to the loop, and this is done by the usual method measuring the SWR using an MFJ-259 SWR Analyser. Obtaining a low SWR is not really necessary for an antenna that is to be used for receive-only, but if a good match is achievable without to much effort then it seemed sensible to go for it.

The best match was achieved using the shunt matching arrangement shown in the photograph. It comprises a short length of 2mm tinned copper wire whose connection to the copper tube element is made using a hose clamp; the position of this connection is selected at the point of minimum SWR. The spacing of the shunt connecting wire to the copper tube element also affected the SWR; the spacing in this case was 30mm. The minimum SWR was 1.2:1 on all bands, with 3:1 SWR bandwidths of 14.12MHz to 14.14MHz and 28.35MHz to 2850MHz.

FINALLY

At the time of writing, I had still not identified the cause or source of the interference. The reason is that it radiates from some underground source which, in turn, is re-radiated by other services such as telephone lines and even water pipes. I am still working on it. Reports of the type of interference described earlier, in your area, would be much appreciated. ♦

REFERENCES

[1] A 14MHz Mystery, 'EMC', *RadCom*, August 2004
[2] Miracle Whip reviewed, *RadCom*, June 2004
[3] 'Antennas', *RadCom*, August 2004

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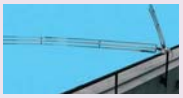

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For more details nearer the time, check it out under 'News' on our web-site.

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As Featured in October RadCom 2004

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Loads: Coax, random wire, balanced lines, verticals
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MFJ-941E

The MFJ-941E gives you a 300 Watt antenna tuner that covers everything from 1.8 - 30 MHz -- plus you get a lighted Cross-Needle meter with on/off switch (light uses 12 VDC or 110 VAC with MFJ-1312D), antenna switch and a 4:1 balun... MFJ's lighted Cross-Needle meter shows SWR, forward and reflected power all at a glance in 300/60 and 30/6 watt ranges, 8 position antenna switch lets you select 2 coax lines, random wire/balanced line or dummy load (direct or through).
£129.96

MFJ-969

The MFJ-969 Antenna Tuner gives you MFJ's superb AirCore Roller Inductor and full 6 meteres through 160 Metre coverage!. **£199.00**

"Classic" Finance example: Kenwood TMD-700E. RRP: £519. Payment illustration: Zero deposit and 48 payments of £12.99 per month. Total amount payable: £623.52. APR: 19.9%. ML&S is a licenced credit broker. Finance offered subject to status. Full written details on request. E&OE

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In practice

Are you using the best soldering techniques for modern PC boards?

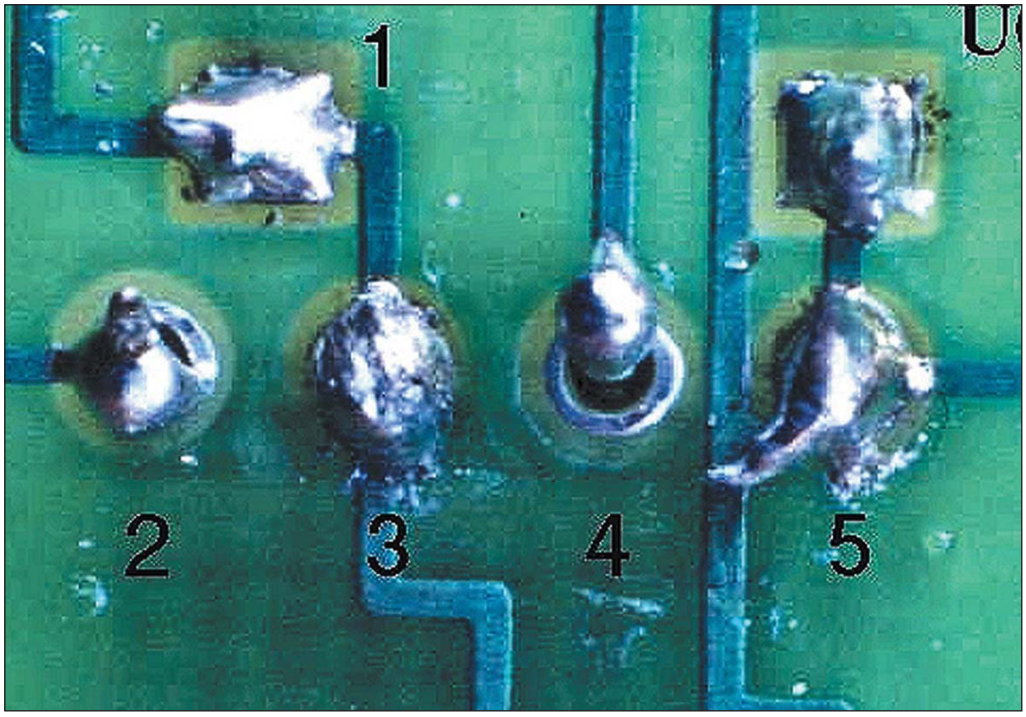


Photo 1 (above) Five ways to make a bad solder joint. (Source: University of Hertfordshire)

Photo 2 (right) The positions of the component lead, solder and soldering-iron tip prior to making the joint.

SOLDERING TO PC BOARDS

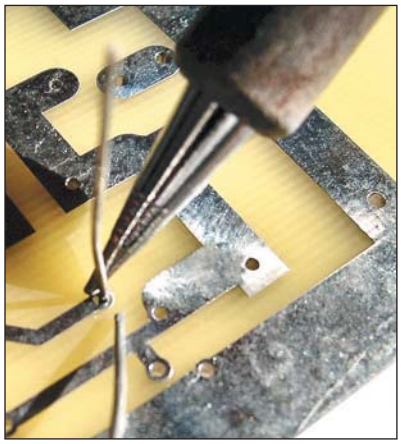
It's worth spending a whole month's column on this highly practical subject – and **this is not only for beginners**. Many highly-experienced amateurs are not adapting well to the smaller scale of modern electronics. Soldering technique that was perfected in the era of valves and tag-strips is just not right for modern PC boards with very small solder pads.

Experienced users of a soldering iron tend not to make most of the mistakes in **Photo 1**. These examples come from a web page prepared by David Lauder, G0SNO (*RadCom*'s 'EMC' columnist), for his degree students [1]. Example **1** is the least bad: it may be electrically OK, but there's too much solder. This may also be an 'experienced mistake', and we'll come back to it later. Example **2** has the opposite problem: there isn't enough solder to flow all around the pad. Example **3** looks as if the wire had moved while the solder was still cooling down through its 'plastic' phase, so it has been broken up into a semi-crystalline form. This joint may work at first, but it will quickly become unreliable. Example **4** is not a joint at all – the solder is only on the wire, which may not even be touching the pad. Example **5** shows two faults. The obvious one is the solder bridge to an adjacent track, caused by dragging the iron off sideways. Less obvious is that the joint has been 'stewed' by holding the iron on too long, until all the flux has boiled away and the solder has started to oxidise. Only dirty solder can be pulled out into a string like that. Clean molten solder has very high surface tension, and will always pull itself together into a smooth, compact shape.

Most of the problems of Photo 1 can be avoided by better soldering technique. **Photo 2** is a posed setup to demonstrate several important points:

1. Use a soldering-iron tip that is cone-shaped and tapers to a sharp point, or as close as you can find. This example is a Weller PTH7 tip which actually tapers to a 0.8mm flat. A short cone shape puts the largest possible mass of hot copper immediately behind the point.
2. Apply the iron *behind* the pad, resting against both the pad and the component lead, so that it heats them *both together*. The tip needs just a little molten solder on it, to wet both surfaces and transfer the heat better.
3. Apply the solder from the *opposite* side from the iron (coming in from the bottom of the picture), right into the corner between the wire and the pad. This is the only way to be sure that both the wire and the pad are hot enough to melt solder and make a good joint.
4. *Use thin solder* – about the same thickness as the component lead. The solder shown in the photograph is 0.7mm diameter.

Experienced amateurs tend to come unstuck on points 1 and 4. The tip of an older-style soldering iron is far too big for this fine work; and too many of us are still using the giant reel of 16SWG solder that we bought at a rally as a 'lifetime investment'. The problem is that 16SWG melts about four times faster, so it's almost impossible to control the quantity you apply. The result is generally a humped-up blob of solder, like example 1 in Photo 1, but often worse. (I recently had the ghastly experience of removing about 50 grams of excess solder from a small double-sided board – in old money, that's two whole ounces! Not only was solder humped up on every pad, but extra solder had then been deliberately and meticulously run onto every track. Incredible...) On a modern board with close spacings between tracks and pads, a habit of using too much solder is an invitation to solder bridges like example 5.



If you recognise a solder joint like any of the examples in Photo 1, you'll need to rework it. Basically you re-solder it as shown in Photo 2. However, in most cases you'll end up with too much solder, which then needs to be removed. The easiest way is often to tilt the board so that the excess solder runs down the component lead, which you're going to snip off anyway. Alternatively, you can let

the solder run onto the tip of the iron and carry it away (wipe almost all of it off before you use the tip again). When removing excess solder, don't worry too much about the quantity that's left on the joint itself - in the vast majority of cases, the joint will keep exactly as much solder as it really needs.

The other way to remove excess solder is to use desoldering braid **(Photo 3)**, which is thin copper braid impregnated with flux. The excess solder is sucked up into the loose braid, and it's incredibly effective – if you let it go all the way, desoldering braid can suck PCB pads almost completely dry, so the components simply fall out without damaging the board. If you're only pulling off some of the solder, the braid is applying flux so you're also reworking the joint at the same time. Here are a few practical hints to get the best out of desoldering braid. As shown in Photo 3, place the end of the braid on the pad, as close as possible to the component lead. Bring the soldering iron in at a shallow angle, and press the side of the tip down on the braid, to minimise unnecessary heating of the pad. When the braid becomes loaded with solder and isn't sucking any more, snip the loaded end off and repeat the process. Snip the braid where there's a little solder inside the cut end, because it will speed up the heat transfer. When you're finished with the desoldering braid, seal it in a small plastic bag and squeeze out the excess air; even mild atmospheric corrosion of the copper strands makes the braid far less effective.

Having started to use desoldering braid, I hardly ever reach for the old desoldering pump any more. The braid is easier to apply, doesn't spatter solder that could create track bridges, and above all, it's much more effective than the pump.

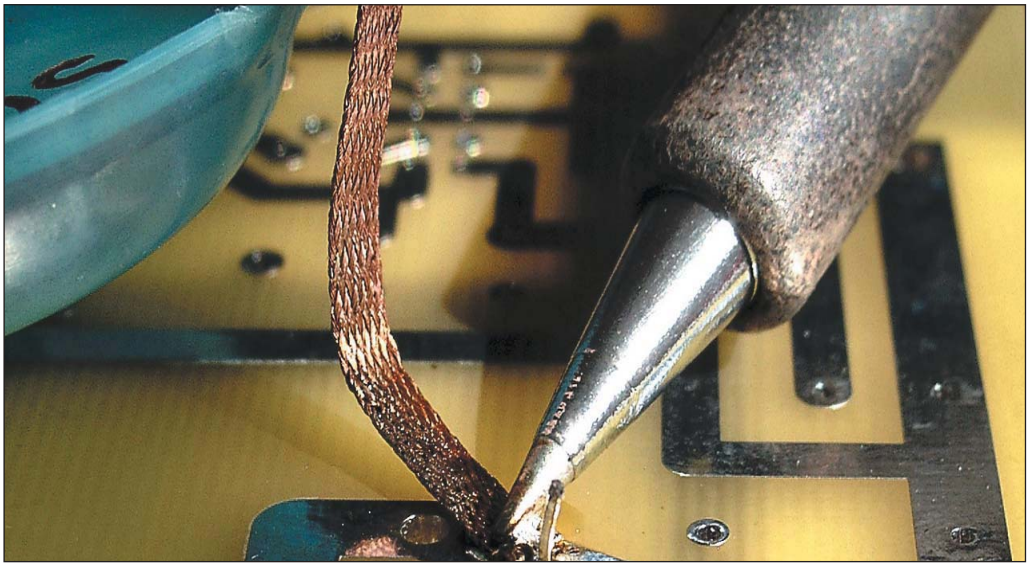


Photo 3
How to use desoldering braid.

DELAYED SOLDERING FAILURES

Q Why do particular solder joints on PC boards seem to fail after some time, but not others?

A It is certainly true that individual joints on PC boards can fail after some time in use, despite having passed all the visual and electrical checks during manufacture. Experienced service engineers know exactly where to look for these failures on particular models. The puzzle is: why just these joints? Why are nearby and apparently identical joints not affected?

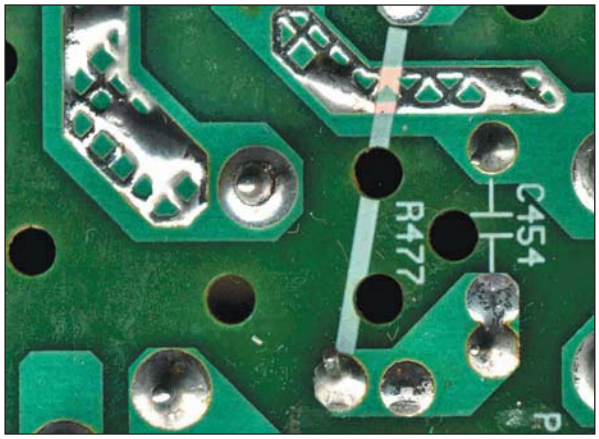
All the examples of faulty joints in Photo 1 were bad from the outset. But what do you make of **Photo 4**? It comes from a computer monitor that failed after several hundred hours, and you may have to look very carefully to find the problem. It's on that pad near the centre of the picture – see that dark ring around the wire? The solder joint has crystallised and parted around that ring, in effect leaving the wire just poking through the hole. Depending on the current and voltage at that point, the failure might be followed by arcing and a deposit of soot. A search on the web found several other examples, all of which had failed with that characteristic ring pattern.

These failures often seem to be associated with high currents, that might cause heating within the joint itself, but there's usually something else that is trying to cause microscopic movements within the joint. This could be vibration, and/or a hot environment that causes repeated expansion-contraction cycles in the board and its components. After some time, these factors combine to work the joint apart, by a process of crystallisation rather like metal fatigue. Not surprisingly, PC boards in computer monitors, road vehicles, central heating boilers and washing machines are particularly vulnerable. But why do only some joints fail – and equally, why do other joints that are apparently identical not fail?

I believe the answer is inside the joint itself. A good joint between a component lead and a PCB pad is formed into its familiar smoothed-out cone shape by the forces of surface wetting and surface tension in the molten solder. But if the hole in the pad is not touching the component lead, these same forces will make the solder cone hollow inside. If there is only barely enough solder, the outside of the joint looks just the same but it will be fatally thinned inside – right where the break occurs in Photo 4. This thinning will be a complex function of two variables: the exact geometry of the hole and the component lead, and the total quantity of solder that is left on the joint after automated wave soldering. If a delayed failure problem is being stored up in one particular joint, then every board from that production run will be vulnerable, which is why these faults tend always to occur in the same locations. This is an area where skilled hand soldering scores over automatic assembly. If we see a PCB pin that is a loose fit in its hole, we almost instinctively apply a little more solder – which is exactly the right thing to do.

The *wrong* thing would be to use too much solder on the vast majority of other joints that *don't* need it. ♦

Photo 4
Delayed failure of one isolated joint in a computer monitor.
(Source: G0SNO)



REFERENCES

[1] For details, follow the links from the 'In Practice' website (URL above).

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Whatever next

Icom upgrades the IC-756PROII – it's now the IC-756PROIII, and includes some of the IC-7800 technology • More details on the three new memory types introduced last month

Although the IC-7800 has only just started to be delivered in Britain, Icom unveiled yet another new main station transceiver at the recent Tokyo Ham Fair – the IC-756PROIII. This new model, which looks the same as the IC-756PROII, obviously has some of the technology of the IC-7800 in it, because it boasts a +30dBm third-order intercept point (up from the +22dBm of the PROII). Obviously, this is not as good as the +40dBm of the IC-7800, but it isn't in the same league price-wise.

Features of the PROIII include the same 'Mini-scope' function adopted from the IC-7800; improved SSB transmit bandwidth adjustment; improved BPF and 1st filter, for reduced distortion; a different type of pre-amp, to reduce second-order distortion; improved saturation characteristics of the mixer and surrounding circuits; plus clock and screen-saver functions.and screensaver functions.

The new Icom IC-756 PROIII looks like the PROII (shown), but has improved front-end performance and several added features.

FIG 2

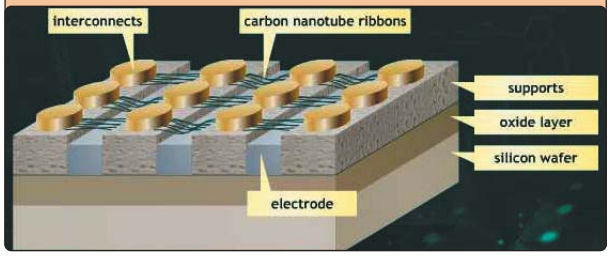


Fig 2
Magnetic RAM works by putting a 'spin' on magnetic material. (Source: IBM)

FIG 3

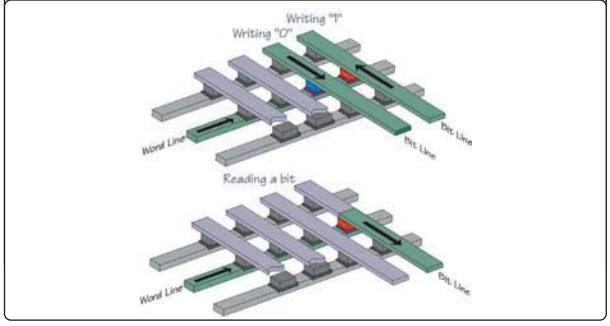


Fig 3
Detail of Nanotube-based / Non-volatile RAM – NRAM – where sagging carbon nanotubes are used as mechanical switches (Source: Nantero). For those interested in more detail, there is an illustrated movie on the Nantero website.

MORE MEMORY MATTERS

Last month, I gave a brief overview of three up-and-coming memory technologies. This month I would like to delve a little deeper into each of them.

Phase-change memory works in a very similar way to current optical discs (CDs/DVDs), by changing the state of 'chalcongenide' material between crystalline and amorphous. On an optical disc, a laser beam with different intensities is used to heat small volumes to switch the material between crystalline and amorphous states, the memory state being determined by the reflectivity of the material. In phase-change memory (Fig 1), electric currents of different magnitudes are passed from a heater element to the material and local heating is used to change its state around the contact region. High current and fast quenching freezes the material to an amorphous state with high resistance, medium current and slower quenching switches it to a crystalline state with low resistance, and low current is used to detect which state it is in. A document from Intel states that there is no technical reason why this type of memory should not be scaled down to 22nm in size.

FIG 1 © RADCOM 290

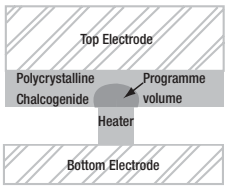


Fig 1
Phase-change memory works by heating a tiny blob of chalcongenide material and changing its state between amorphous and crystalline.

Meanwhile, IBM has teamed-up with Infineon Corporation to develop Magnetic RAM chips, which they say 'have the potential to replace all computer memory RAM technologies in use today, and can lead to instant-on computers and longer battery life for pervasive devices'. The top part of Fig 2 shows how the direction of current flow along the 'bit' line causes the magnetic material between it and the 'row' line to become magnetised in a given way. The bottom half shows how the reading detects the state of the magnetised material. Magnetic RAM holds the promise of the density of DRAM, the speed of SRAM, and is less expensive to make than today's non-volatile Flash memory.

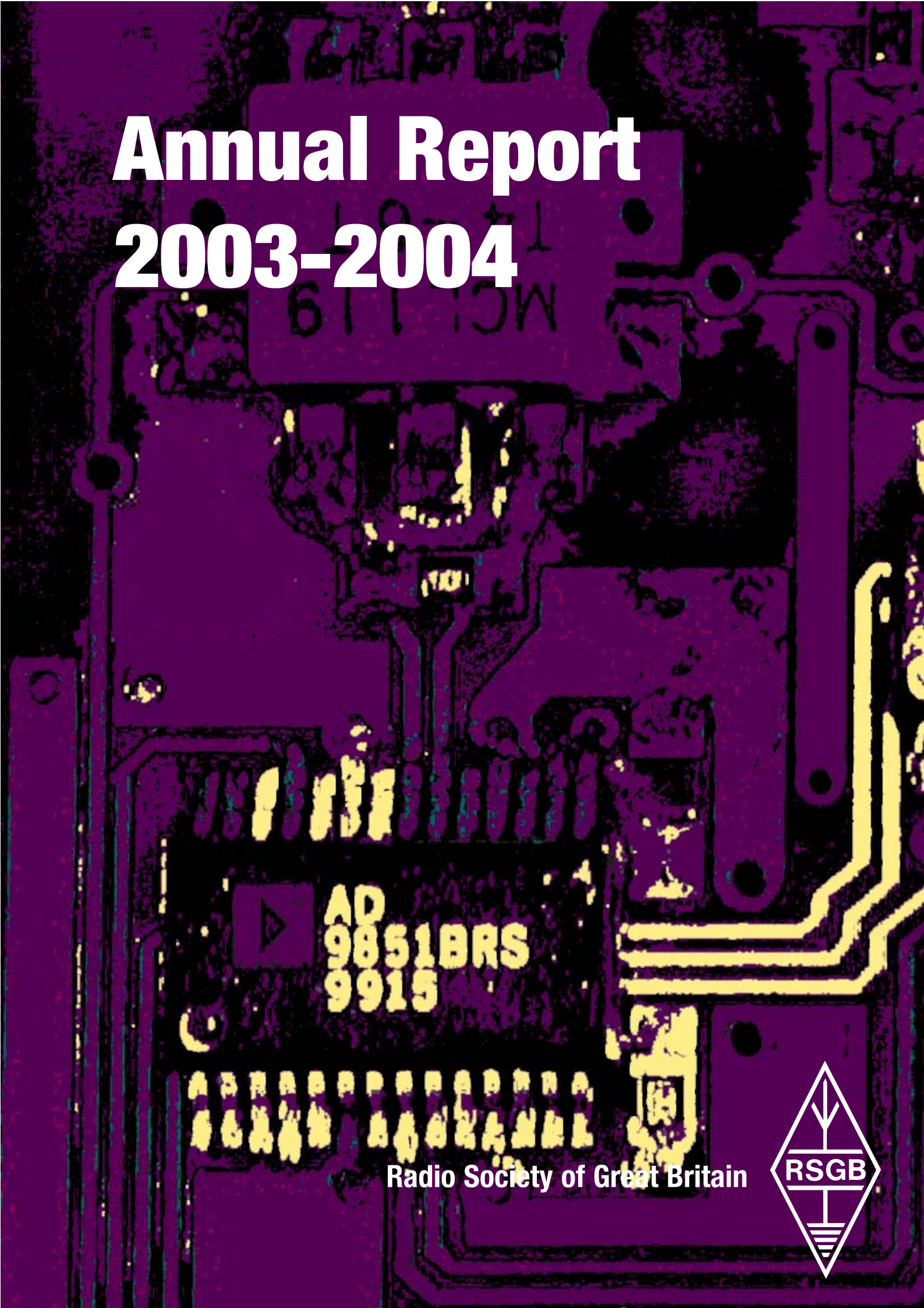
Finally, Nantero is building a high-density non-volatile RAM chip they say could not only replace all current memory types, but ultimately hard disks as well. Their product is called NRAM™ (Nanotube-based / Non-volatile RAM) and was developed using proprietary concepts and methods derived from leading-edge research in nanotechnology. Basically, it involves stringing carbon nanotube filaments across a gap. When exposed to one type of electrical field the filaments sag and close a switch. They remain there even when the field that caused them to sag is removed. A different type of field causes the nanotubes to return to their original shape, opening the switch. Hey presto, non-volatile digital '1's and '0's! Nantero have already created multiple prototype devices, including an array of ten billion suspended nanotube junctions on a single silicon wafer.

Which of these will become the dominant technology of the next generation of memory chips, I cannot say. If someone comes along with a better method it may not be any of them. In any case, I'm sure we would all like computers that didn't have to boot from disc. Only one thing is certain… nothing stays the same. ♦

WEB SEARCH

Icom IC-756 PROIII	www.icomamerica.com/products/amateur/756proIII/
Phase-change memory	www.intel.com/research/documents/Stefan-IEDM-1203-paper.pdf
Magnetic RAM	www.research.ibm.com/resources/news/20001207_mramimages.shtml
Nanotube RAM	www.nantero.com/mission.html

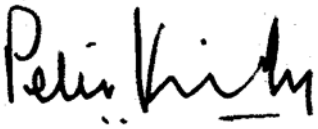
Annual Report 2003-2004



Radio Society of Great Britain

RSGB

Introduction from the General Manager



"Amateur radio is experiencing a boom"

Five years ago I never envisaged being in a position to make that kind of statement. Today I feel confident in making such an observation. This last year has encompassed a number of changes that will affect amateur radio for many years into the future. You could argue that this year we secured the future of amateur radio for the next generation and future generations to enjoy. Following decisions taken at WRC-03 we have seen the cessation of Morse testing: the one single issue that polarised amateur radio for many years. The last City & Guilds RAE took place in December 2003 to be replaced by the progressive three-tier Radio Communications Examination. The Radiocommunications Agency has closed down and a new telecommunications and broadcasting administration Ofcom has been established.

Numbers taking the entry level Foundation licence have been maintained with just under 3000 examinations taking place during the reporting period.

On the home front, Society membership has increased by over 1000. We have established the charitable arm of the Society, the Radio Communications Foundation, which finally received its charitable registration in November 2003.

The modernisation and reorganisation of your Society has continued with the standing down of the three spectrum committees - HF, VHF and Microwave - to be replaced by a more focussed loose body, the Spectrum Forum, which brings together not just the RSGB but other outside specialist groups such as AMSAT-UK, BARTG, Raynet, CDXC, the G-QRP Club, all of whom have an interest and input into spectrum matters.

On the housekeeping front we have made a modest profit and completed the second phase of the refurbishment of the Society's HQ Lambda House.

What is there to look forward to? At around the time that this report is published we should all be enjoying operating on the long-awaited 40m band extension. And those who are interested in Internet-linking technology will know that the future of this mode of operation has been secured.

The RSGB is a truly representative organisation and we will continue to make this our first priority. However, being membership based, the success we achieve in looking after your interests could not be done without the army of volunteers who work diligently in supporting the Society in many roles from Board level down to the grassroots. We should all be indebted to them for their dedication and unselfish commitment to all facets of amateur radio. This is your Society and this is a report produced for you, which highlights the work we have done on your behalf over the past 12 months. I hope that you feel that we are on the right course and that we have been successful.

Peter Kirby, G0TWW
General Manager

Review of the year by the President

2004 seems to have passed very quickly and with it the first year of my two-year term as President. One of the most pleasing aspects has been the opportunity to see the final part of the Radio Communications Examinations become reality with the launch of the Advanced examination pilot schemes. The complete scheme of Foundation, Intermediate and Advanced is now up and running and with it the opportunity for newcomers to our hobby to develop their skills base by progressing through all the exam stages.

As I write this review, for the first time in the history of the RSGB, all the volunteers representing amateur radio in the Regional scheme have been given the opportunity to gather for a concentrated training day in Leicester. Every participant ensured that the day was a resounding success and more importantly established a benchmark for good representation between the RSGB, the clubs and all our members across the UK. This important milestone reinforces the determination of the Board and National Council that control of your Society is to be more and more in your hands, clubs and individual members, through the new Regional scheme, ie local amateurs elected in the Regions to represent your views.

During this year the newly-established national regulator, Ofcom, has begun to advise the RSGB of some of the changes to the administration of amateur radio which Ofcom believes will become reality. I am sure that most members will be aware that the Radiocommunications Agency (RA) commissioned the RSGB to administer certain aspects of our hobby. Some examples might be the issuing of special event callsigns, NoVs for BBSs, nodes, beacons, 5MHz experiments, LF experiments and many more. The RA paid the RSGB a fee for these services and many members saw this as a welcome addition to our funds, almost like a subsidy. Ofcom is determined to operate a 'light touch' in respect of amateur radio and intends to remove these 'subsidies' over a period of time. In its place they envisage the RSGB offering these services to the amateur radio community but without any subsidy. To their credit, Ofcom does not intend to enforce these changes in a dramatic fashion, but to introduce them, step by step, over a two to four year time scale to enable us to cope with change as seamlessly as possible.

We are a 'not for profit' organisation, but equally we are also a 'not for loss' society. This means that change is coming and that that change must be responsibly managed. Already we have had to raise the fee for examinations. We had begun to slide down a slippery slope where we were subsidising the Foundation licence exam and in danger of incurring run-away losses. That has been corrected and we envisage fee charges being introduced for the other services mentioned.

We are continuing the process of open governance and have begun to put the minutes of the Board and the Regional Council on the website for all to see. We continue to be involved in international representation through our membership of IARU and the enormous pool of friendship that exists in that organisation. We intend to continue supporting IARU and seek to improve further the representative machinery at the highest levels of the IARU.

I extend my thanks to the many volunteers who serve on committees or who support the membership tirelessly and selflessly. Finally, I wish to thank all members of the HQ staff without whose coordination and support of the volunteer arm very little would be achieved.

On the following pages please find the reports from the Society's Regional Managers, committee chairmen and honorary officers. I commend them to you.

Jeff Smith, MI0AEX
President

RSGB REGIONAL MANAGERS' REPORT

The Regional Scheme was conceived in 2001 in order to progress the communications between HQ and the rest of the United Kingdom into the 21st century. It was also developed to dispel the impressions of some members that the Society was concentrated in the London area. To this end, the scheme was set up with the initial 12 regions, each to be looked after by a Regional Manager (RRM). The regions were further divided, each into four districts and each with a Deputy Regional Manager (DRRM) responsible to the Regional Manager. Subsequently there have been some adjustments made to these numbers, due to geographic and demographic reasons. A new Region 13 was created to split the original Midlands Region into East and West, thus making it more manageable. Scotland was conceived with an East/West split but after discussion and agreement between the two Regional Managers the split is now North/South which they both believe will result in a more suitable and convenient structure. The number of districts in some regions has also been revised as appropriate.

Too often, in the past, the links through the Zonal and Regional Liaison Officers (RLOs) system failed to work efficiently. The philosophy to develop better links across the United Kingdom between headquarters and the Regions, through the Regional Scheme by liaison via the RRMs is working well. Each RRM produces regular reports on activities / issues in their region and it's encouraging to note there are very few instances of issues between clubs and the Society. Those that are raised are resolved speedily and hopefully amicably, by the RRM concerned with the help of other parties as required.

The role of the RRM is to liaise between headquarters, the DRRMs, the clubs and members in his/her Region. The RRM presents a high profile and visits clubs to present the RSGB and answer members' questions, as will the DRRMs. In some regions the RRM is more heavily reliant on his / her DRRMs due to the large number of clubs. The DRRM will also visit clubs in his / her district and report any problems needing attention to the RRM, so these can be resolved in an efficient manner. The RRM has the back-up of HQ and other informed contacts when finding solutions to members' problems.

HIGHLIGHTS 2003 - 2004

Party in the Park

All regions took part in the 90-year birthday celebrations of the Society with most districts running an event over one or both days of the weekend. Some districts had more than one event on the day. Despite the less than kind weather in some regions the event was a huge success, and was well supported by clubs and members alike; perhaps the celebratory ale had something to do with that?

President

The announcement that the President for 2004 - 2005 was to be Jeff Smith, MI0AEX, reflects the importance of the Regional Scheme. Prior to his election as President, Jeff was the Regional Manager for Northern Ireland and was one of the original Regional Council members when the scheme was implemented in 2001. One of Jeff's aims during his presidency includes the further development of the Regional Scheme and the empowerment of the Regional Managers and their Deputies.

HQ and Council Activities

Regional Council meetings are usually held at HQ though a number have been held in the regions to coincide with rallies etc in the locality of the meeting. This will be expanded in coming years through co-operation with rally organisers as required. The arrangements for these meetings are undertaken by the regional teams concerned. Events such as the AGM, 'Train the Trainers' and HF Convention have also been held around the regions - usually with the assistance of the regional teams concerned. Another example of this co-operation was the 50th anniversary of Raynet which was celebrated in Birmingham with the Society holding a Raynet Convention. The West Midlands Region was a key player in its organisation and execution, and sported one of the founder members of Raynet, who is still active as a DRRM!

In regular reports received from RRMs it is pleasing to see that in some regions new clubs have been formed with the assistance of the regional teams. Due to publicising training courses, a number of clubs have increased their membership, indeed the influx of new amateurs into the hobby through the Foundation / Intermediate / Advanced training courses has resulted in a number of clubs increasing their membership to a level to make the club viable whereas before they may have been down to only a handful of members and on the verge of closing down.

The Regional Scheme is still developing, with further goals to achieve. It is hoped that in the future the regions will move towards taking more control of their own destiny and involve members in that process. All the time it must be remembered that the main purpose of the scheme is to increase the visibility of the Society to its members and the general public - if you feel this isn't happening in your particular area please contact either of the Board representatives.

Kath Wilson, M1CNY, with husband Dave Wilson, M0OBW, receiving a trophy from 2002 - 2003 President Bob Whelan, G3PJT, at the 2003 AGM.

AMATEUR RADIO DIRECTION FINDING (ARDF) COMMITTEE

IARU style events:

These are events in which competitors are split into age groups and have to find between three and five transmitters. The transmitters are located in a wooded area with a course length of four to eight kilometres. After the good start to this type of competition in 2002-3, events were organized in 2003-4 by Bob Titterington, G3ORY, and his band of helpers in Burbage and Kinver Million and by the Basingstoke ARC in Harewood Forest, Benyons Enclosure and Hermitage Woods, the latter on the same day as, and near to, the Newbury car boot sale. Altogether five events were held using 2m and one of these (Kinver Million) included an 80m trial competition using equipment built by Bob, G3ORY. An 80m competition was held in Crawfordsburn Country Park, Northern Ireland, organised by Dr David Hutchinson, GI4FUM, and the Antrim & DARS. With an increasing number of competitors at each venue the future for this type of event in the United Kingdom looks

bright.

On the international scene the RSGB was represented by three competitors, Robert Vickers, G3ORI, and Bob Titterington, G3ORY, in the German National Championships and by Robert Vickers, G3ORI, and David Williams, RS190108, at the European Championships in Poland.

160m Direction Finding:
Eight Qualifying Events for participation in the National Final were organised by the Chelmsford / Colchester, South Manchester, Coventry, Torbay, Salisbury, Mid-Thames, Echelford and Northampton clubs. The National Final was organised by Graham Nicholls, G4DLB, and his team of helpers from Banbury. The winner was Phil Cunningham, G0NXH, who was presented with the RSGB 1950 Council Trophy and the Bert Simmons Rose Bowl for his performances in the Qualifying Events. The Collier Cup was won by Peter Lisle, the Gage Tyler Cup by Steve Stone, the Bill North Trophy by Peter Lisle, the Eric Mollart Memorial Trophy by Graham Phillips, G3XTZ, and the South Manchester Radio Club Winter series by Chris Plummer, G8APB.

2m Direction Finding:
Many regular 2m events were organised by clubs such as Swansea and Bromsgrove for their members. A special mention should go to Basingstoke who not only have regular events once a month but two weekends away in the New Forest which end with a barbecue in the evening. Presentations on direction finding were given to several clubs during the year. It is hoped that these will encourage more members to participate in this healthy, outdoor branch of amateur radio.
Geoffrey Foster, G8UKT

GB2RS NEWS MANAGER

Next year the GB2RS news service will celebrate its 50th anniversary. It has always been transmitted on a Sunday, and may be likened to a weekly newspaper. Back in 1955 it was radiated on 80 metres, although some tests had been carried out previously on 40 metres. Currently, it is read every Sunday morning and evening by a team of about 125 readers (including standby operators) on nine different amateur bands - namely 1.9, 3.6, 5.4, 7.0, 50, 70, 144/145, 433 and 1300MHz, the latter being a networked ATV transmission on the South Coast. Because of the current low state of the sunspot cycle, the 7MHz band largely presents skip propagation into Europe, but the last reading of the day on 1990kHz provides excellent UK coverage. The experimental news bulletin on 5.405MHz (nominal) USB at 1230 has proved to be extremely popular, and has enabled many 5MHz NoV holders to carry out regular propagation checks and antenna assessments throughout the year.

During 2004 both 5MHz and 1.99MHz have also been used for direct point-to-point data transmissions of GB2RS news texts using MT63-1kHz MT63-2kHz and MFSK16 modes. These equate to 100, 200 and 40WPM (similar to RTTY) respectively, whilst voice transmissions are usually between 160 and 170WPM. In order to assist the experimental data transmissions a schedule on 3590kHz is being added. The traffic is always sent between two participating operators and is presented in a 'Raynet-style' message format. It is hoped that this will also assist evaluation of these data modes for use in a possible national amateur traffic system (NATS) emergency standby network. Reception reports may be sent to gx0baa@ntlworld.com or to NATS-UK@ntlworld.com

Jeremy Boot, G4NJH, continues to put out an RSGB-approved voice newsreading on the Internet which includes MP3 Real Audio. This is employed in various countries in order to enhance their own news services. An example of this usage may be heard emanating from Tasmania via the URL liveaudio.irlp.net:8004 A selection of news sources including GB2RS can also be viewed on the Tasmanian 'Spectrum' news home page www.vk7ax.tassie.net.au/spectrum

The RSGB news script is posted to about 35% of the newsreaders, whilst the majority now receive it by direct e-mail or download it from the RSGB website. The latter version is presented for viewing rather than reading out aloud, and contains a number of iconic illustrations.

A rally survey of potential listeners has been carried out during the year. This revealed that about 65% of rally attendees make use of GB2RS news in one of its guises. It would therefore appear that GB2RS is still a much-valued facility, which is provided by the RSGB to all radio amateurs, short wave listeners and Internet surfers.
Gordon L Adams, G3LEQ

Left to right: Radio Communications Voluntary Services National Coordinator Paul Gaskell, G4MWO; GB2RS News Manager Gordon Adams, G3LEQ; and AGM regular Harry Bellfield, G3SBV, at last year's Annual Meeting.

INTRUDER WATCH

Complaints regarding faulty broadcast transmitters appear to have reduced in comparison with those of recent years. Radio Pakistan with a transmitter just above the 21MHz band causing splatter down to 21400kHz, and Radio Romania with a harmonic on 14270kHz, were the main problems of this kind reported during the period under review. A harmonic of Virgin Radio on 1215kHz caused local problems on 3645kHz but was cleared up fairly quickly. The Ofcom monitoring station at Baldock responded rapidly to information regarding these problems and assured that they caused the minimum of disruption on the amateur bands.

Two broadcasting stations, Voice of Vietnam and Voice of Turkey, started transmitting on 7100kHz but were persuaded to move following a coordinated international effort by a number of official monitoring stations and Intruder Watch organisations.

A number of complaints regarding the appearance of unmodulated carriers on 14001kHz were received over the year. They were traced to a number of NATO installations operated by the US Navy. These were in locations as diverse as Reykjavik (Iceland), Sigonella (Sicily), and Diego Garcia in the Indian Ocean. The problem appears to be due to a particular modem and transmitter combination, which if not closed down correctly, transmits a 1kHz tone on a default frequency of 14000kHz! Once the site is identified and the appropriate authorities contacted by Baldock, the carrier usually disappears fairly quickly.

Another type of military transmission which has caused short term problems is the NATO STANAG 4285 modem. One appeared on 14200kHz and was found to be coming from Athens: it disappeared within 15

minutes of a complaint being made. A second STANAG 4285 caused problems with a wide signal around 14300kHz, this was a spur from a defective transmitter above 14400kHz. In all cases, the agencies operating these transmissions are grateful for the information received as it is in their interests to correct the problems as soon as possible.

Chris Cummings, G4BOH

PROPAGATION STUDIES COMMITTEE (PSC)

Much of PSC's activity remains on a long-term, continuing basis. These include the weekly solar report and propagation forecast for GB2RS, initially prepared by G0CAS for the postal script and website and updated every Saturday by G3USF for the Web and newsreaders with e-mail. The circulation of the later version grows steadily but has not increased in step with the number of newsreaders with e-mail. G4FKH's propagation predictions appeared monthly in *RadCom* and were refreshed with later data and substantially expanded on the web. He also sustained web versions of the Carrington Rotation chart. G3USF maintained regularly updated lists of HF beacons, which are widely used around the world, as well as a Propagation Page on the web, a comprehensive compilation of links to a wide range of sites connected with radio propagation. G0AEV and G3USF continued to publish the monthly Six and Ten Report tracking and discussing propagation on those two bands, to which PSC members and others contributed. G0AEV continued to run the HF beacon mailing list, through which beacon keepers and monitors exchange information and ideas about beacon reception and operation. G0CAS's SunMag provided monthly compilations of solar data. Progress was also made with the four-band beacon constructed by G2AHU.

PSC members worked on individual projects, which were discussed by the Committee. These included G3NYK's work on geomagnetic effects on propagation at LF/VLF, studies of non-ducting tropospheric propagation by M1BWR and by G0KYA on greyline propagation. The Committee extended its international contacts with an additional Associate, DF5AI, notable for his plotting and analysis of VHF Sporadic E openings and aurora events.

Martin Harrison, G3USF

RADIO COMMUNICATIONS VOLUNTARY SERVICES

Far from amateur radio emergency communications' role appearing to lessen in these days of 'instant - anywhere' communications, this year Raynet has been 'called out' six times and put on 'standby' on three occasions. Incidents included missing person searches involving Essex Raynet, the BT underground fire in Manchester involving Greater Manchester, Cheshire and Derbyshire groups, and a number of evacuations to rest centres involving Lancashire groups, mostly due to fire but, in one case, an unexploded WWII bomb. This is apart from numerous exercises and events throughout the year in the UK.

Raynet has also been able to make a significant technical contribution – during a multi-user simulated disaster exercise in the Pennine Standedge tunnel complex, the use of 23cm equipment resolved through-tunnel communications problems. Raynet groups continue to develop technological applications for their use, particularly APRS and SSTV.

2003 saw Raynet's 50th anniversary commencing with a trilogy of articles in *RadCom*. The high point was the 50th anniversary Emergency Communications Convention at Birmingham in October. This featured amateur, emergency planning and RA speakers. It was well-supported by the main amateur radio retailers, who in addition to providing raffle prizes, loaned equipment for the special event station GB50RAEN. Again, our thanks to all who made it so successful. Celebrations continued the following week at the Radio Amateurs' Emergency Network AGM in Durham.

This leads into another important event - the signing of a Memorandum of Understanding (MoU) between the RSGB and the Radio Amateurs' Emergency Network in April. The document, which recognises the respective strengths of both organisations, reflects the desire of both The Network and the RSGB to work together to further a common interest in amateur radio in general and emergency communications in particular and is the result of nearly a year's work by both organisations. It can be viewed on The Network's or RSGB Emergency Communications websites.

As full HF access is now available, hopefully groups and members will add HF to their more 'traditional' VHF/UHF facilities to provide extra communications channels, particularly the experimental 5MHz frequencies – and their advantageous propagation characteristics. Examples include groundwave propagation on 1.9MHz during the Standedge tunnel exercise and 5MHz NVIS, used by Manchester Scouts Raynet during Lake District fell races for valley-to-valley communications – thus avoiding manned talkthrough on exposed fell-tops. For more on HF Emercomms, visit the Raynet HF team's website at www.raynet-hf.net

Participating in amateur radio emergency and public service communications gives an equal sense of achievement to that experienced in other well-known areas of the hobby (many Raynet members are also involved in those as well!) Additionally, it is a visible and readily understandable demonstration of amateur radio and its usefulness. To find out more visit the emergency communications web pages at www.rsgb.org/emergency or contact the RCVS National Coordinator, Paul Gaskell, G4MWO, at rcvs@rsgb.org.uk or via RSGB HQ.

Paul Gaskell, G4MWO

Raynet on duty at the simulated disaster exercise in the Pennine Standedge tunnel.

SPECTRUM FORUM

Much has happened since the last report, perhaps the most significant from the UK radio amateur point of view is the early access to the extended 7MHz band from 7100 - 7200kHz. This development was mooted last year and the Society must offer its thanks yet again to the staff of what was the Radiocommunications Agency and what is now Ofcom for their help in guiding this application through to a successful conclusion. The early access to the segment of spectrum

was granted on a secondary non-interference basis from the end of October 2004. It will not be until 2009, however, until the segment become an amateur service primary allocation. In the meantime IARU Region I HF Managers have agreed that this additional allocation should be used for Morse and telephony modes pending the majority of societies in the Region gaining early access.

The issue of 5MHz NoVs was resumed in September 2003 and although the uptake has been slower than that for Phase 1 there have been almost 1100 NoVs issued for this band. The establishment of the GB3RAL beacon at Rutherford Appleton Laboratories has helped activity and software has been written to enable remote monitoring of this beacon. Thanks are due to Peter Martinez, G3PLX, for this. It is hoped to establish a further two beacons on this band by the end of summer 2004.

The 2003 HF Convention was held in Manchester on a trial basis and although a success in itself there was disappointment at the low turnout of day visitors from the north of England. The 2004 Convention is to be held near Gatwick Airport and will coincide with the 40th Anniversary of IOTA.

The G5RP Trophy for rapid progress in HF DXing, awarded jointly by the Vale of White Horse Radio Society and the HF Committee, was awarded to Richard Pollard, M0RJP, who was nominated by the Eagle Radio Group, while the RSGB ROTAB Trophy for outstanding and consistent DX work was awarded to Andy Chadwick, G3AB. The Nevada Cup is awarded for the most significant contribution, by any RSGB member, towards scientific or engineering development of receiver and / or transmitter design, modulation technique, aerial design or propagation on the 136kHz UK amateur allocations. In 2003 it was awarded to Laurence Howell, GM4DMA, more recently active from Alaska as KL1X.

As mentioned in the report for last year, re-organisation of the Spectrum Committees has meant the creation of the Spectrum Forum which embraces not only the work of these committees but also brings on board a number of the Special Interest Groups. This report has only covered the HF aspect of this work as other reports will cover other work being carried out but after only six months of existence the Spectrum Forum appears to have been accepted as a positive move forward.

Colin J Thomas, G3PSM

TECHNICAL COMMITTEE

During the course of the year the committee changed its name from the Technical and Publications Advisory Committee (TAPAC) to the RSGB Technical Committee. This change of name forms part of a more significant series of changes to the functions of the committee which will be taking place in the near future. Since the last report the committee has been pleased to welcome two new members to its ranks, these being Dave Roberts, G8KBB, and John Button, G8JMB. Dave and John have brought additional expertise to the committee which now has 17 members.

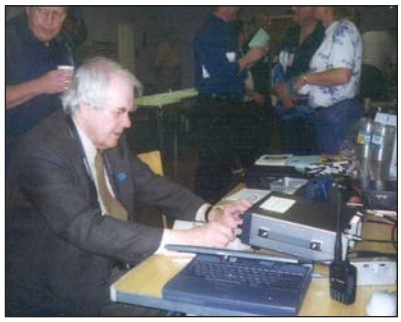
As in previous years, the main activities of the committee have been reviewing technical articles prior to publication in *RadCom* and generating nominations for four of the Society's trophies and prizes (Ostermayer, Courtney-Price, Norman Keith Adams and Wortley-Talbot).

One problem with any article review procedure is that it can sometimes make it difficult for the more controversial type of article to be published. A recent innovation has been to accept articles of a controversial nature with only the minimum of review activity. Examples in the last year have been the pair of articles by G3HAT and G3PLX putting the arguments for and against the CFA concept; and the articles by VE2CV and G3LHZ discussing their opposing views on the theory behind small transmitting loops. We hope to be able to publish similar articles in the future with the aim of stimulating debates on such topics.

The Technical Committee is also responsible for answering queries of a technical nature raised by members of the RSGB. Although we do not guarantee being able to provide an answer, the breadth of knowledge covered by the members of the committee is such that it is very rare for us not to be able at least to provide a pointer to one. It has to be said that the task is not one that occupies much time because few members take advantage of the service.

A page covering sources of technical support is now included on the EMC Committee's website and this gives details of that provided by the Technical Committee. Few members, however, have so far taken advantage of the opportunity offered. Those members who wish to raise technical questions should send them to technical@rsgb.org.uk or to g3nxc@hotmail.com - for those without access to e-mail, G3NXC's address is correct in any edition of the *RSGB Yearbook*.

Tony Plant, G3NXC



Tony Plant, G3NXC, Chairman of the Technical Committee, gets on the air during the July 2003 'Party in the Park' event.

The 'Party in the Park' celebrated the RSGB's 90th anniversary in July 2003.

RADIO SOCIETY OF GREAT BRITAIN

(A Company Limited by Guarantee Registered in England No 216431)

Report of the Board for the Year Ending 30 June 2004

The Board of the Radio Society of Great Britain ("the Society") presents its Annual Report and the audited financial statements for the year ended the 30 June 2004.

Principal Activities

The principal activities of the Society are to provide services to members who are radio amateurs, short wave listeners or others with interests in radio communications. The Society represents the interests of all UK licensed radio amateurs to the regulatory authority in the UK, Ofcom and via the IARU to other international bodies.

Each year brings fresh challenges and this year the Society has had to address a number of important issues. Principal amongst these were the ending of the City & Guilds involvement in amateur radio examinations, the introduction of the new three tiered Radio Communications Examination structure which came on stream on 1 January 2004, the registration of the Society's charity the Radio Communications Foundation, the closure of the Radiocommunications Agency and the formation of the new telecommunications 'watchdog' Ofcom.

Interest in amateur radio continues to grow in the UK and the numbers taking the Foundation licence have again exceeded all expectations. The UK now has, for the first time, a truly progressive amateur radio licensing structure and it is encouraging to note that many Foundation licence holders are now migrating through the system and taking the Intermediate and Advanced examinations.

The Radio Communications Foundation was granted its charity registration in November 2003. Set up as an independent educational trust, the charity has already entered into an agreement with the Arkwright Trust to provide educational bursaries to 6th form students taking science based A-levels.

GB4FUN has again undertaken a full programme of school visits and due to the success of the project, which is now being copied in other countries, the Board has approved the acquisition of a second mobile classroom that should be available for the 2005 season.

Strong links have been established with Ofcom and both organisations are working to ensure that amateur radio continues to be recognised as a scientific hobby that has a role to play in education and in shaping the future radio communications workforce in the UK. Ofcom has also indicated that in future amateur radio will be more self-governing than it has been in the past, with the RSGB expected to take a leading role in the administration of the hobby. The Society's membership on 30 June 2004 stood at 25,469 compared with 24,460 at the start of the financial year.

The second phase of the refurbishment of Lambda House was completed in December 2003. This work included the modernisation of the office spaces, the provision of new lighting and furniture and a complete redecoration of the second floor of the headquarters.

Financial Report

The financial result for the year, after non-recurring items and interest income, was a surplus of £4,917 compared with a surplus of £1,474 in the previous year.

Subscription income increased during the year due to the increase in membership fees. Overall, the number of members increased due to the introductory offer last August of membership for a Guinea. This was a key anniversary promotion that proved, understandably, to be very popular with an encouraging number renewing their membership for the forthcoming year.

Book income showed a very slight increase during the year. The introduction of historical interest and computer books has stimulated a lot of interest and efforts continue to identify authors and titles for the Society's own book programme.

The reduction in advertising income has been addressed with the appointment of a new advertising representative who has an interest in amateur radio. Early indications are that the position will not deteriorate further during the next financial year.

The popularity of the Foundation licence has exceeded expectations. Interest in the Intermediate examination was slow to begin with but the last few months of the financial year showed a marked improvement that has continued. The Advanced examination began in April 2004, and early indications are that candidate numbers will increase significantly during the next financial year.

The Society always plans for a break-even position that, despite budget contingencies, can be affected by non-recurring items. For the year to 30 June 2005 this objective continues.

Outlook

The review of the regional scheme reported last year is under way with a regional teams' forum meeting being held in October 2004.

Consolidation of the Radio Communications Examination scheme will continue and discussions with the educational establishment to get the examinations recognised as a vocational qualification are ongoing. It is planned to have both the Intermediate and Advanced examinations available at short notice before the end of this current year. The Society will introduce in late 2004 an international examination service targeted at Commonwealth countries and former UK dependencies. This will replace the service formerly available through the City & Guilds.

The Society continues to lead the opposition against the introduction of power lines telecommunications systems and is pro-active in highlighting the threat of PLT to other spectrum user services.

Consequent upon the decision by Ofcom to encourage greater involvement by the Society in the management of amateur radio some significant changes to the administration of NoVs may soon take place. The first of these changes will affect NoVs for Internet Gateways and discussions are ongoing with all interested parties. Articles and announcements in *RadCom* will keep all members informed.

The launch of the second promotional video *RSGB Today* is expected in October 2004. The number of membership classes and the fees generated by those classes are being examined. Some changes to the fee structure may be announced later this year or early in 2005.

Remedial action has been taken to deal with a backlog of cards in the QSL Bureau and the operation of the Bureau is being examined to ensure that it continues to give value for money to the wider membership. Further improvements may be introduced once this exercise has been concluded.

The RSGB continues to take a lead role in the work of the IARU and the Board and Management Committee will exercise strong financial controls to ensure that the Society is able to meet all its obligations to its members and the amateur radio community at large.

Personnel

The Society maintains a headquarters establishment of 27 salaried staff. The Society is an equal opportunities employer and gives full and fair consideration to employment applications for disabled persons.

The work of the Society is supported by a large number of volunteers who work tirelessly for the benefit of the members. Their efforts are greatly appreciated.

All references to "The Board" throughout the financial statements should be considered to be the equivalent to " The Directors" under the Companies Act 1985.

J D Smith, MI0AEX — ***President***

P A Kirby, G0TWW — ***Company Secretary***

Board and Regional Council Members from 1 July 2003 to 30 June 2004

President	**J D Smith**	**MI0AEX (From 1 January 2004)**	
	Dr R C Whelan	**G3PJT (From 1 July to 31 December 2003)**	
Hon Treasurer	**K Ashcroft**	**G3MSW (Retired 31 December 2003)**	
Board of Directors			
G L Adams**	G3LEQ		5/6*
A Annan	MM1CCR	(Co-opted 1 January 2004)	3/3
E Cabban	GW0ETU		6/6
R Constantine**	G3UGF		3/6
F Handscombe**	G4BWP	(Resigned 31 December 2003)	1/3
D Hicks**	G6IFA		6/6
R M Page-Jones**	G3JWI	(Retired 31 December 2003)	3/3
J D Smith**	MI0AEX	(President from 1 January 2004)	6/6
E Taylor**	G3SQX		5/6
C Thomas	G3PSM	(Co-opted 1 January 2004)	2/3
K Wilson	M1CNY	(From 1 January 2004)	3/3
		* Denotes number of Board meetings attended	
		** Statutory directors	
Regional Council			
P Berkeley	M0CJX		
E Cabban	GW0ETU		
R Clarke	G8AYD		
G Darby	G7GJU		
K Frankcom	G3OCA	(Co-opted May 2004)	
G Hunter	GM3ULP		
B Llewellyn	G4DEZ	(Resigned May 2004)	
P Lowrie	MI5JYK	(From 1 January 2004)	
R Ricketts	GW7AGG		
I Rosevear	G3GKC	(Co-opted 1 January 2004)	
M Salmon	G3XVV		
J D Smith	MI0AEX	(Stood down 31 December 2003)	
P Thompson	GM1XEA		
K Wilson	M1CNY		

Political and charitable contributions

The Society made no political or charitable donations during the year (2002/3: £nil).

Annual General Meeting

The 78th Annual General Meeting of the Society will be held at The English Heritage Lecture Theatre, Saville Row, London on Saturday 4 December 2004, commencing at 12 noon.

Auditors

KPMGLLP were re-appointed auditors on 6 December 2003. A resolution for the reappointment of KPMGLLP as auditors of the company is to be proposed at the forthcoming Annual General Meeting.

By order of the Board — ***Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE***

J D Smith, MI0AEX, Chairman — ***P A Kirby, G0TWW, Company Secretary***

Statement of Directors' responsibilities

Company law requires the Directors to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the Society and of the surplus or deficit for that period. In preparing those financial statements, the directors are required to;

(a) select suitable accounting policies and then apply them consistently:
(b) make judgements and estimates that are reasonable prudent;
(c) prepare the financial statements on the going concern basis, unless it is inappropriate to presume that the Society will continue in business.

The directors are responsible for keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the Society to enable it to ensure that the financial statements comply with the Companies Act 1985. The directors have general responsibility for taking such steps as are reasonably open to them to safeguard the assets of the Society and to prevent and detect fraud and other irregularities.

START OF AUDITED ACCOUNTS

Income and Expenditure Account for the Year Ended 30 June 2004

	note	2004 £000	2003 £000
Gross income from all sources	3	1,554	1,543
Direct costs (cost of books and products sold)		(160)	(162)
Gross surplus		1,394	1,381
Administrative expenses:			
Sales and distribution expenses		(289)	(236)
Other operating expenses:		(1,102)	(1,152)
Operating surplus / (deficit)		3	(7)
Other interest receivable and similar income	6	13	17
Interest payable and similar charges	7	(11)	(9)
Surplus on ordinary activities before taxation	4	5	1
Tax on surplus on ordinary activites	8	-	-
Retained surplus for the financial year	13	5	1

All income and expenses for both years have been derived from continuing operations. There were no recognised gains or losses in both years other than the surplus for the year. There is no significant difference between the above and the historical cost profit. The movement in the income and expenditure account is shown in note 13.

Balance Sheet at 30 June 2004

	note	2004 £000	2003 £000
FIXED ASSETS:			
Tangible assets	9	660	547
CURRENT ASSETS:			
Stocks	10	71	89
Trade debtors		82	35
Other debtors		5	3
Prepayments and accrued income		78	136
Cash at bank and in hand		387	430
		623	693
CREDITORS: amounts falling due within one year			
Obligations under finance leases	11	(11)	(11)
Trade creditors		(86)	(131)
Other taxation and social security		(20)	(12)
Other creditors		(39)	(45)
Accruals and deferred income		(464)	(465)
		(620)	(664)
NET CURRENT ASSETS		3	29
TOTAL ASSETS LESS CURRENT LIABILITIES		663	576
CREDITORS: amount falling due after more than one year			
Obligations under finance leases	11	(6)	(9)
NET ASSETS		657	567
CAPITAL AND RESERVES:			
Income and expenditure account	13	376	371
Restricted funds	13	6	24
Revaluation reserve	13	275	172
MEMBERS' FUNDS		657	567

These financial statements were approved by the Board on 25 September 2004 and signed on its behalf by J D Smith, MI0AEX, President, and P A Kirby, G0TWW, Company Secretary.

Statement of total recognised gains and losses

for the year ended 30 June 2004

	2004 £000	2003 £000
Surplus for the financial year	5	1
Unrealised surplus on revaluation of properties	103	-
Total recognised gains and losses relating to the financial year	108	1

Report of the independent auditors to the members of the Radio Society of Great Britain

(A company limited by guarantee)

We have audited the financial statements on pages 56 to 59.

This report is made solely to the company's members, as a body, in accordance with section 235 of the Companies Act 1985. Our audit work has been undertaken so that we might state to the company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the company and the company's members as a body, for our audit work, for this report, or for the opinions we have formed.

Respective responsibilities of directors and auditor

The directors are responsible for preparing the directors' report and, as described on page 56, the financial statements in accordance with applicable United Kingdom law and accounting standards. Our responsibilities, as independent auditor, are established in the United Kingdom by statute, the Auditing Practices Board and by our profession's ethical guidance.

We report to you our opinion as to whether the financial statements give a true and fair view and are properly prepared in accordance with the Companies Act 1985. We also report to you if, in our opinion, the directors' report is not consistent with the financial statements, if the Society has not kept proper accounting records, if we have not received all the information and explanations we require for our audit, or if information specified by law regarding directors' remuneration and transactions with the Society is not disclosed.

Basis of audit opinion

We conducted our audit in accordance with Auditing Standards issued by the Auditing Practices Board. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures in the financial statements. It also includes an assessment of the significant estimates and judgements made by the directors in the preparation of the financial statements, and of whether the accounting policies are appropriate to the Society's circumstances, consistently applied and adequately disclosed.

We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In our opinion the financial statements give a true and fair view of the state of the Society's affairs as at 30 June 2004 and of its surplus for the year then ended and have been properly prepared in accordance with the Companies Act 1985.

KPMG LLP, Chartered Accountants, Registered Auditor

Notes (forming part of the financial statements)

1. STATUS

The Radio Society of Great Britain is a private company limited by guarantee and does not have a share capital. Every member of the Society undertakes to contribute to the assets if it should be wound up while he is a member or within one year after he ceases to be a member for payment of the liabilities of the Society contracted before he ceases to be a member. Every member also undertakes to contribute to the costs, charges and expenses of winding up the same, and for the adjustment of the rights of the contributories amongst themselves, such amount as may be required not exceeding one pound.

2. ACCOUNTING POLICIES

The following accounting policies have been applied consistently in dealing with items which are considered material in relation to the Society's financial statements. The financial statements have been prepared in accordance with applicable accounting standards and under the historical cost accounting rules, modified to include the revaluation of land and buildings.

The Society revalued its land and buildings in the year ended 30th June 2004. The difference between the depreciation based on the historical cost and revalued amount is not material. As a result no note of historical costs profits and losses has been shown.

Under Financial Reporting Standard 1 the company is exempt from the requirement to prepare a cash flow statement on the grounds of its size.

Fixed assets and depreciation: Depreciation is provided to write off the cost or valuation less the residual value of tangible fixed assets (except freehold land which is not depreciated) by equal instalments over their estimated useful economic lives as follows: Freehold buildings: 2%; Computer hardware and purchased software: 20%-33%; Fixtures and fittings: 10%; Furniture and equipment: 20%-25%; Leased assets (motor vehicles): over the period of the lease.

Stocks: Stocks and work-in-progress are stated at the lower of cost and net realisable value.

Taxation: The charge for taxation is based on the surplus for the year and takes into account taxation deferred because of timing differences between the treatment of certain items for taxation and accounting purposes. Deferred tax is recognised, without discounting, in respect of all timing differences between the treatment of certain items for taxation and accounting purposes which have arisen but not reversed by the balance sheet date, except as otherwise required by FRS19.

Turnover: Turnover represents the invoiced amounts of goods sold and services provided, net of Value Added Tax and trade discounts. Turnover comprises subscription income, book income, advertising income and exam income. Subscription income is recognised on a monthly basis over the duration of the subscription; book income is recognised on despatch of books; advertising income is recognised on publication date; and exam income is recognised on date of exam.

Leases: Assets acquired under finance leases are capitalised and the outstanding future lease obligations are shown in creditors.

Post retirement benefits: The Society contributes to group personal pension policies to provide benefits for employees on a defined contribution basis.The assets of the policies are held separately from those of the Society in independently administered funds. The amount charged to the income and expenditure account represents the contributions payable to the policies in respect of the accounting period.

3. ANALYSIS OF INCOME

	2004 £000	2003 £000
Subscription income	877	867
RadCom advertising income	167	176
Book sales	314	312
Other income	196	188
	1,554	1,543
Other income comprises the following:		
Morse tests	-	9
Rallies and exhibition fees	19	19
Repeaters	22	22
Foundation Licence	56	54
Intermediate Licence	19	16
Mailbox agreement	22	23
Special event callsigns	5	5
Newsletters	2	2
Sundry income	51	38
	196	188

4. SURPLUS ON ORDINARY ACTIVITIES BEFORE TAXATION

Surplus on ordinary activities before taxation is stated after charging:	2004 £000	2003 £000
Auditors' remuneration:		
Audit	10	10
Other services	2	2
Depreciation and other amounts written off tangible fixed assets:		
Owned assets	37	26
Leased assets	15	16
After crediting		
Profit on disposal of fixed assets	10	-
Board and Committee expenses:		
Board expenses	18	13
Committee expenses	11	16
Other expenses	13	13
Total Board and Committee expenses	42	42

5. STAFF NUMBERS AND COSTS

Directors serve in a voluntary capacity and are not remunerated for their services.

The average number of persons employed by the Society excluding directors (see Board report for directors' headcount) during the year was as follows:

	Number of employees 2004	2003
Headquarters staff	23	24

The aggregate of payroll costs of these persons were as follows:	2004 £000	2003 £000
Wages and salaries	462	469
Social security costs	43	42
Other pension costs (see note 15)	14	15
	519	526

6. OTHER INTEREST RECEIVABLE AND SIMILAR INCOME

	2004 £000	2003 £000
Bank deposit interest	13	17

7. INTEREST PAYABLE AND SIMILAR CHARGES

	2004 £000	2003 £000
Bank charges	11	9

8. TAXATION

	2004 £000	2003 £000
Analysis of charge in period		
UK corporation tax	-	-

Factors affecting the tax charge for the current period

The current tax charge for the period is lower than (2003: equal to) the standard rate of corporation tax in the UK (30%, 2003: 30%). The differences are explained below:

	2004 £000	2003 £000
Current tax reconciliation		
Surplus on ordinary activities before tax	5	1
Current tax at 30%	2	-
Effects of:		
Disallowed items	4	5
Utilisation of tax losses	(4)	(5)
Capital allowances in excess of depreciation	(8)	(5)
Non-taxable profit	(110)	(92)
Loss for the current year carried forward	118	97
Total current tax charge	-	-

9. TANGIBLE FIXED ASSETS

Cost or valuation:	Freehold land & buildings £000	Computer equipment £000	Fixtures & fittings £000	Furniture & equipment £000	Motor vehicle £000	Total £000
At beginning of year	490	225	100	119	46	980
Additions	-	30	-	14	18	62
Disposals	-	-	-	-	(19)	(19)
Revaluations	60	-	-	-	-	60
At end of year	550	255	100	133	45	1,083
Depreciation:						
At beginning of year	34	209	55	112	23	433
Charge for year	9	17	6	5	15	52
Disposals	-	-	-	-	(19)	(19)
Revaluations	(43)	-	-	-	-	(43)
At end of year	-	226	61	117	19	423
Net Book Value						
30 June 2004	**550**	**29**	**39**	**16**	**26**	**660**
30 June 2003	456	16	45	7	23	547

Freehold land included above and not depreciated amounts to £ 207,000 (2003: £207,000).

Included in the total net book value of motor vehicles is £26,000 (2003: £23,000) in respect of assets held under finance leases. Depreciation for the year on these assets was £15,000 (2003: £16,000).

The freehold land and buildings (comprising Lambda House, Cranborne Road, Potters Bar, Hertfordshire EN6 3JE) were professionally valued on 30 June 2004. The valuation was performed by AC Marriott, FRICS ACIArb of Wright and Partners Chartered Surveyors. The valuation was in accordance with the RICS Statements of Asset Valuation Practice and Guidance Notes. Based upon that valuation, the Board concluded that the property should be valued at £550,000.

The following information relates to land and buildings carried on the basis of revaluation in accordance with FRS15 *Tangible fixed assets.*

	2004 £000	2003 £000
Historical cost of revalued assets	422	422
Aggregate depreciation thereon	(162)	(154)
Historical cost net book value	**260**	**268**

10. STOCKS

	2004 £000	2003 £000
Consumable stock	2	4
Work in progress	2	3
Goods held for resale	67	82
	71	89

11. OBLIGATIONS UNDER FINANCE LEASES

	2004 £000	2003 £000
Gross obligations under finance leases	19	23
Less: finance charges allocated to future periods	(2)	(3)
	17	20
Due within one year	11	11
Due within the second to fifth years inclusive	6	9
	17	20

12. UN-PROVIDED DEFERRED TAX ASSET

	2004 Unprovided (Asset)/liability £000	2003 Unprovided (Asset)/liability £000
Difference between accumulated depreciation and capital allowances	1	9
Tax lossses	(774)	(657)
Undiscounted, in-provided deferred tax asset	(773)	(648)

Deferred tax asset is not recognised because of unlikelihood of utilising trading losses brought forward in the light of current trading condition.

13. RECONCILIATION OF MOVEMENTS IN MEMBERS' FUNDS

	Restricted funds £000	Income and expenditure account £000	Revaluation Reserve £000
Opening members' funds	24	371	172
Surplus for the financial year	2	5	103
Transferred asset	(20)	-	-
Closing members' funds	6	376	275

14. COMMITMENTS

There were no unprovided capital commitments at the end of the financial year (2003 : nil)

15. PENSION SCHEME

The company operates a defined contribution pension scheme. The pension cost charged for the year represents contributions payable by the company to the scheme and amounted to £14,000 (2003 : £15,000). There were no outstanding contributions at the year end (2003 : £nil).

16. RELATED PARTY DISCLOSURE

On the 13 November 2003 the Radio Communications Foundation was registered as a charity, number 1100694. R J Constantine, a director of the Society, Dr R J Whelan, past president and two officers of the Society are Trustees of the charity. Since its inception, the Society has provided the Foundation with management services at no cost. At the 30 June 2004, there was a sum of £4,744 due to the Society for the reimbursement of exhibition fees and materials.

END OF AUDITED ACCOUNTS

Prize and Memorial funds

RESTRICTED FUNDS	Balance on 30 June 2004 £	2003 £
The J Fraser Shepherd Prize Fund	1,015	983
DXpedition Fund	3,968	2,010
K M Bennett Legacy Fund	932	944
Radio Communications Foundation	-	20,096
Total Restricted funds	5,915	24,033

TRUST FUNDS	Balance on 30 June 2004 £	2003 £
The Pilot Officer Norman Keith Adams Prize Fund	977	938
The Legacy fund	12,352	12,185
Total Trust funds	13,329	13,123

The Radio Communications Foundation bank account became an asset of the Radio Communications Foundation, charity number 1100694, on 13 November 2003.

Candidates for election to RSGB board

RICHARD CONSTANTINE, G3UGF (DOB 28.09.48)

CURRICULUM VITAE

Licensed in 1965, former committee member and twice chairperson of a local radio club, contest and expedition organiser.

1969 to 1974 Marine Radio Officer operating Maritime Mobile on both HF and VHF. Involved in establishment of GB3WY Repeater. 1979 to 1989 amateur retailer and importer. 1989 to 2003 director of two national companies in mobile communications and vehicle location systems.

Amateur licence instructor at Rishworth School for 15 years. Trustee of STELAR and RCF charities. RSGB Board Member for Education. QRP operator and constructor, active 160 to 432.

PERSONAL STATEMENT

I have been licensed for 38 years and a Society member for 43 years. Until recently I earned my living in radio as a direct result of boyhood interest. I have been a Board member for three years and am passionate about the value of radio as an educational tool, at all levels. As Director of Education and Training I have worked to establish stronger links with mainstream education, through contact with Association for Science Education, Institute of Physics and Curriculum Authority. There is much work still to be done and I would welcome re-election to enable me to carry on this work.

I have been involved with the new licence structure, 'train the trainers' initiatives, liaison with STELAR and RCF.

My aim is that working to revalue amateur radio's educational credentials will allow the Society and its members to secure the future of the hobby for the next generation.

better use of web technology, further expand its links with youth movements and make serious efforts to improve the public understanding of amateur radio.

RICHARD CONSTANTINE, G3UGF, NOMINATED BY:

Name, Callsign	Town	Known for (years)
Colin Thomas, G3PSM	Totton, Hants	25
George Dobbs, G3RJV	Rochdale	20
Edwin Taylor, G3SQX	Birmingham	5
Anthony Vinters, G0WFG	Sowerby Bridge	15+
L L Cobb, G3UI	Halifax	40
Maurice Firth, G3MMK	Halifax	40
Esde P Tyler, G0AEC	Hebden Bridge	24
Roy Smith, G3NBI	Sowerby Bridge	40
Richard Hardy, G3TIX	Bradford	41
George Neil Glover, G3AAV	Halifax	10

ANGUS ANNAN, MM1CCR (DOB 02.06.42)

CURRICULUM VITAE

I have had a lifetime interest in radio, electronics and IT. As an SWL, I was a member of the Belfast YMCA Radio Club, GI6YM, when I passed the RAE. More recently I have returned to my involvement in amateur radio and I was licensed in 1998.

I was appointed as the Chair of RSGB EMC Committee in 2001 and co-opted to the RSGB Board in 2003 as the Board member responsible for the Technical (Environmental) Portfolio.

I am a Chartered Engineer and a Member of the IEE, with extensive technical and management experience in Higher Education.

PERSONAL STATEMENT

As the Chair of the EMC Committee, I have had a leading role in the task of protecting the amateur bands from potential interference from PLT. This effort has now entered a crucial stage as the RSGB moves on to address the PR issues and I believe that I am well placed to continue with this work at Board level. My professional experience, in managing large scale IT installations, including networks and broadband, means that I am uniquely positioned to deal with the impact of broadband rollout and digital technologies on the RF spectrum.

I believe that the priorities for the RSGB now are to protect the amateur bands and to expand participation further in the hobby. The Society also needs to encourage technical innovations, make better use of web technology, further expand its links with youth movements and make serious efforts to improve the public understanding of amateur radio.

ANGUS ANNAN, MM1CCR, NOMINATED BY:

Name, Callsign	Town	Known for (years)
Hilary Claytonsmith, G4JKS	Church Stretton	4
Alexander D Patterson, GI3KYP	Belfast	40
R M Page-Jones, G3JWI	Brentwood	2.5
David Hicks, G6IFA	Chester	1
D F Beattie,G3BJ	Church Stretton	4
Michael Turner, G3LYE	Loughborough	30
John Pink, G8MM	Rickmansworth	4
Edward S Ellis, GD3LSF	Laxey	3
William J Smith, GD0PLR	Douglas	1
R C Marshall, G3SBA	Harpenden	4

COLIN THOMAS, G3PSM (DOB 29.08.40)

CURRICULUM VITAE

Joined RSGB in 1958 as BRS22249. Licensed as ZC4CT in 1960, GW3PSM in 1961, DL2CT in 1964 and ZB2BS in 1969. Member RSGB Intruder Watch 1961 - 1980. Awarded Founders' Trophy in 1973 and 2003. Founding member and co-ordinator IARU Monitoring System until 1981. RSGB Council 1976 - 81, past member Licence Advisory and IARU Committees, past Chairman HF Committee. Served as advisor to UK delegation at WRC-03 on amateur radio matters. Currently the HF Manager and Spectrum Forum Chairman. Elected as Life Vice-President in 2003.

PERSONAL STATEMENT

The changing face of world-wide communications means that there are increasing commercial pressures on frequencies used by the amateur radio and amateur radio satellite services. Having served on both CEPT and ITU working groups on the run up to WRC-03 I feel I have the necessary knowledge to help protect those services. Using the expertise available through the Spectrum Forum and other accredited experts the threats posed by the likes of UWB and anti-collision radars to the amateur satellite service in particular will need to be addressed.

COLIN THOMAS, G3PSM, NOMINATED BY:

Name, Callsign	Town	Known for (years)
Bob Treacher, BRS32525	London SE9	15
David Butler, G4ASR	Lower Maescoed	8
Neville Cheadle, G3NUG	Leominster	12
Dave Lawley, G4BUO	Penshurst, Kent	20+
John Dunnington, G3LZQ	Brough, E Yorks	20+
Martyn Phillips, G3RFX	Bristol	6
Robert W Ferguson, GM3YTS	Dunblane	20+
Michael W Dixon, G3PFR	Frodsham	15+
Frederick Handscombe, G4BWP	Bury St Edmunds	15
R C Whelan, G3PJT	Cambridge	20+

DAVE WILSON, M0OBW (DOB 03.03.50)

CURRICULUM VITAE

Became licensed 1993, joined RSGB 1994. Past Secretary and Chairman, currently Treasurer - Widnes & Runcorn ARC. Member - South Cheshire ARS. Past Secretary, currently Chairman - UKFM Group (Western) Repeater Group. Repeater Keeper - GB3MP.

Novice Instructor 1994, Senior Novice Instructor in 2000 before demise of role. Member Cheshire CATT (Cheshire Communication and Technology Team), formally Cheshire Radio Scouting. Member of Repeater Management Committee of RSGB. Registered Foundation and Intermediate Instructor. DRRM – Cheshire and Merseyside. Member of Amateur Radio Development Committee of RSGB. Member of HF Convention Organising Committee.

PERSONAL STATEMENT

As DRRM for Cheshire and Merseyside I've presented the Society to radio clubs, members and non-members alike hopefully making them aware of what the RSGB offers. Organising and taking part in training courses enabling new blood to join, and progress through, this fascinating hobby brings with it a sense of satisfaction and pride.

As a consequence I feel I'm in an ideal position to offer enthusiasm and experience to the Society as a Board member. If elected I'd endeavour to expand on the work described above and work to strengthen the links between RSGB and education. I feel a more sustained approach is required when it comes to presenting what amateur radio can offer the youth of today, from a technical and a social skills standpoint. Building on the role GB4FUN currently plays in presenting the hobby I'd encourage Regional Teams to become more closely involved and hence offer follow-up.

DAVE WILSON, M0OBW, NOMINATED BY:

Name, Callsign	Town	Known for (years)
Mike Isherwood, G4VSS	Warrington	10
Liz Cabban, GW0ETU	Llanrwst	5
Peter Cabban, G4OST	Bristol	4
Jeff Smith, MI0AEX	Kircubbin, Co Down	5
Gordon Hunter, GM3ULP	Motherwell	3
Peter Lowrie, MI5JYK	Newtownabbey	5
Stephen Sparkes, M0DFD	Wilmslow	5
Jane Smith, MI0JSJ	Kirkiston, Co Down	5
Roy Clarke, G8AYD	Newport, Shropshire	4
Gordon Adams, G3LEQ	Knutsford	12

Candidates for election as Regional Managers

KATH WILSON, M1CNY (DOB 28.10.51)

(CANDIDATE FOR ELECTION AS REGIONAL MANAGER FOR REGION 3 - NORTH WEST ENGLAND)

CURRICULUM VITAE

First licensed as Novice in 1994, joined RSGB 1994. Passed RAE and became M1CNY in December 1997. Membership Secretary since 1995 – UKFM Group (Western) Repeater Group. Membership Secretary – Widnes & Runcorn ARC. Member Cheshire CATT (Cheshire Communication and Technology Team), formally Cheshire Radio Scouting. Member – South Cheshire ARS. Member of HF Convention Organising Committee. Co-opted Regional Manager North West England 2001. Elected Regional Manager December 2001. Board Member - elected by Regional Council 2004.

PERSONAL STATEMENT

During my term as Regional Manager for North West England I've met with many amateurs, listened to and discussed with them their thoughts, comments – both positive and negative – complaints etc regarding the hobby and the RSGB etc. Hopefully I've managed to deal with their problems, concerns and issues in an efficient, timely and satisfactory manner.

If re-elected I realise I'm part of a team and as a team member I will continue to improve the links between the other regional teams and their members, RSGB members, clubs and societies, with the aim of bringing amateur radio to schools, youth and the 'not so youth' organisations.

In order to carry out this role I will continue to be available by phone, e-mail, radio etc and be available at all rallies within the Region.

KATH WILSON, M1CNY, NOMINATED BY:

Name, Callsign	Town	Known for (years)
S Batchelor, M1HLL	Manchester	5
Julian Woolvin, M0JPW	Liverpool	4
Hugh Morgan-Jones, M1NTO	Tyldesley	3
Norman Williams, M0CRM	Whitehaven	5
Bruce Sutherland, M0CVP	Chester	10

GEOFF DARBY, G7GJU (DOB 26.05.45)

(CANDIDATE FOR ELECTION AS REGIONAL MANAGER FOR REGION 4 - NORTH EAST ENGLAND)

CURRICULUM VITAE

First licensed in 1990. Became a member of North West Durham Raynet in the same year and am still a member, now being Deputy Group Controller. Have been a member of RSGB since 1995, shortly after becoming a GB2RS newsreader, a job I still do. Since about 1997 I have been RLO for Durham. I then became a Deputy Regional Manager for District 41 in Region 4. When Peter Sheppard, G4EJP, had his accident I was co-opted as temporary Regional Manager until elected in 2001.

PERSONAL STATEMENT

If re-elected I hope to create a greater affinity between the schools and the radio clubs within the Region then hopefully to other Regions. I also hope that I can continue to foster the interest of courses and exams with the clubs, which is where the schools come in. It is my intention, wherever and whenever possible, to promote the Society in the best way possible, which includes the presence of myself and / or my Deputies at all the rallies in the Region together with the book and information stand. There are a number of new and I hope exciting ideas on the agenda some of which are already in the planning stage and my deputies will be taking the lead in a lot of cases.

GEOFF DARBY, G7GJU, NOMINATED BY:

Name, Callsign	Town	Known for (years)
K R Cass, G3WVO	York	-
Richard Guttridge, G4YTV	Hull	11
Peter Leadill, M1EHD	York	5
Charles Quinnin, G0ECQ	Ashington	5
Derek Oldham, G0TAP	Tynemouth	14

LIZ CABBAN, GW0ETU

(CANDIDATE FOR ELECTION AS REGIONAL MANAGER FOR REGION 6 - NORTH WALES)

CURRICULUM VITAE

First licensed as G6ETU in 1983, I subsequently gained my 'A' licence in 1985. I am interested mainly in HF and VHF SSB operating. My interests include contesting, and I have been involved with several contest groups over the years, and DXpeditions, including visits to Morukulien, Jersey and Ynys Enlli. I have also been involved in many special event stations, including JOTA, TDOTA, lighthouse, windmill and museum activations. I have recently taken an interest in SOTA. I have been involved with several clubs holding positions of Chairman, Secretary and events organiser. I currently represent the Regional Council on the Board.

PERSONAL STATEMENT

Over the past three years I have had regular contact with all the clubs in the Region and have seen many develop and grow with the advent of the new entry system to the hobby. It has been pleasing to see the number of young people entering the hobby and the profile changing. I feel the Regional Scheme is working well in the Region and the team of RRM and DRRMs is promoting good links between the members and HQ, a practice I intent to continue. My main aims over the next three years, if elected, are to foster inter-club activities and improve the Region's website to provide up to date information for potential entrants to the hobby and visitors to the Region. Dw i'n siarad Cymraeg ond dim yn rhugl. Dw i wedi pasio lefel 'O' Cymraeg eleni a dw i'n parhau yn dysgu yr iaith.

LIZ CABBAN, GW0ETU, NOMINATED BY:

Name, Callsign	Town	Known for (years)
John E T Lawrence, GW3JGA	Prestatyn	5
Dewi E Roberts, GW0ABL	Llanfairpwll	4
John Roberts, GW3RBM	Mold	5
Robert Russell, GW3HUJ	Conwy	5
J Derek Jones, GW6NSG	Wrexham	5

PHILLIP BROOKS, G4NZQ (DOB 23.01.45)

(CANDIDATE FOR ELECTION AS REGIONAL MANAGER FOR REGION 12 - EAST & EAST ANGLIA)

CURRICULUM VITAE

Married with grown-up sons living away from home. One is licensed as G7MKP. Retired from a career in the public sector concerned with publishing and government communication. First licensed as G8XSQ in 1980 and later G4NZQ in 1982. Joined the GB2RS news service in 1994 and presented more than 550 bulletins. Appointed Deputy Regional Manager for Norfolk and Suffolk in 2001. Member of RSGB, G-QRP Club, BATC and Norfolk Amateur Radio Club. Other associations include membership of the Institute of Administrative Management (Advanced Diploma) and Communicators in Business (CiB).

PERSONAL STATEMENT

As the Chair of the EMC Committee, I have had a leading role in the task of protecting the amateur bands from potential interference from PLT. This effort has now entered a crucial stage as the RSGB moves on to address the PR issues and I believe that I am well placed to continue with this work at Board level. My professional experience, in managing large scale IT installations, including networks and broadband, means that I am uniquely positioned to deal with the impact of broadband roll-out and digital technologies on the RF spectrum.

I believe that the priorities for the RSGB now are to protect the amateur bands and to expand participation further in the hobby. The Society also needs to encourage technical innovations, make better use of web technology, further expand its links with youth movements and make serious efforts to improve the public understanding of amateur radio.

PHILLIP BROOKS, G4NZQ, NOMINATED BY:

Name, Callsign	Town	Known for (years)
Michael J Cooke, G4DYC	Norwich	15
S J Line, G3XYO	Norwich	2
David Catchpole, G0PFN	Norwich	4
Malcolm Prestwood, G3PDH	Norwich	3
Roger Cooke, G3LDI	Swardeston Common	5+

Election of Board and Regional Council for 2005 - 2007

Radio Society of Great Britain
(A Company Limited by Guarantee. Registered in England No 216431) Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE

There are four vacancies on the Board and six vacancies on the Regional Council. There being four candidates for election to the Board, and four candidates for election to the Regional Council (each in different Regions), no election is called this year. The following members are therefore elected:

RSGB Board

Angus Annan, MM1CCR, Elected Unopposed
Richard Constantine, G3UGF, Elected Unopposed
Colin Thomas, G3PSM, Elected Unopposed
Dave Wilson, M0OBW, Elected Unopposed

Regional Council

Region 3 (North West England) - Kath Wilson, M1CNY, Elected Unopposed
Region 4 (North East England) - Geoff Darby, G7GJU, Elected Unopposed
Region 6 (North Wales) - Liz Cabban, GW0ETU, Elected Unopposed
Region 12 (East & East Anglia) - Phillip Brooks, G4NZQ, Elected Unopposed

Note: No nominations were received for the vacancies in Region 10 (South and South East England) and Region 13 (East Midlands).

Proxy for use at RSGB Annual General Meeting

Radio Society of Great Britain
(A Company Limited by Guarantee. Registered in England No 216431) Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE

I, *..... Call / RS.....
of .....

a member of the above named Society hereby appoint

..... Call / RS .....
of .....

or failing him / her..... Call / RS .....
of.....

as my proxy to vote for me on my behalf at the Annual General Meeting of the Society to be held on Saturday 4 December 2004 and at any adjournment thereof as indicated below.

*** Full name and address to be inserted in block capitals.**

In the event of no proxy being named or of your nominated proxies failing to attend the Annual General Meeting the proxy will automatically revert to the chair of the meeting.

Please indicate with an 'X' how you wish your vote to be cast; otherwise the Proxy will abstain or vote at his or her discretion.

ANNUAL GENERAL MEETING	FOR	AGAINST
RESOLUTION 1 To receive and, if approved, confirm the minutes of the 77th Annual General Meeting as circulated to all members with the November 2004 RadCom.		
RESOLUTION 2 To appoint the auditors KPMG LLP and to authorise the Board to fix their remuneration.		

Signature **Dated** **2004**

NOTES
1. Members may appoint any member OR non member as their proxy holder. However, the following are willing to act as proxies:The President Mr J D Smith, 54A Blackstaff Road, The Quarter, Kirkistown, Co Down BT22 1AF, The General Manager and Company Secretary P A Kirby, G0TWW, RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE.
2. The proxy form must be signed by either the fully paid up corporate member or by his or her attorney duly authorised in writing.
3. Articles 37 to 49 inclusive refer to proxy votes and the calling of a poll.
4. In order to be valid this form MUST reach the Society's registered office not later than 11.00am on Friday 26 November 2004. It should be posted to: The Company Secretary, Radio Society of Great Britain, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE.

Back of Proxy Form

Formal minutes of the 77th Annual General Meeting of the Radio Society of Great Britain

Held on 6 December 2003 at the University of Wolverhampton - Telford Campus.

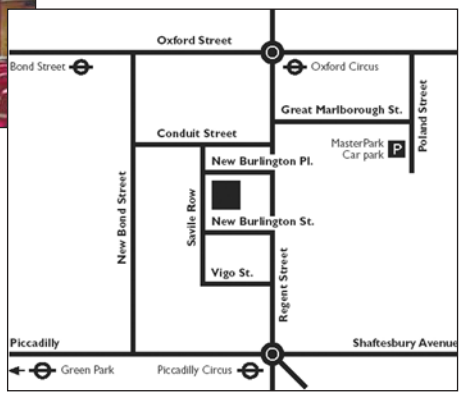
Resolution 1
To receive and, if approved, confirm the minutes of the 76th Annual General Meeting.
Proposed: Roy Clarke, G8AYD.
Seconded: Mike Street, G3JKX.
The motion was carried unanimously.

Resolution 2
To re-appoint the auditors KPMG LLP and to authorise the Board to fix their remuneration.
Proposed: Bob Whelan, G3PJT.
Seconded: Gordon Adams, G3LEQ.
The motion was carried unanimously.

A report of the informal proceedings of the meeting was published in the March 2004 edition of *RadCom*.

Peter A Kirby, G0TWW
Company Secretary

Annual Meeting



Radio Society of Great Britain

(A Company Limited by Guarantee. Registered in England No 216431) Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE

Annual General Meeting
Notice is hereby given that the 78th Annual General Meeting of the Radio Society of Great Britain will be held at the English Heritage Lecture Theatre, New Burlington Place, London W1, on Saturday 4 December 2004, commencing at 12.00 noon for the transaction of the undermentioned business:

Agenda
1. To receive and, if approved, confirm the minutes of the 77th Annual Meeting circulated to all members with the November 2004 edition of *RadCom*. (Resolution 1).
2. To receive and consider the accounts for the year ending 30 June 2004 and the reports of the Board and auditors thereon.
3. To announce the names of members to serve on the Board and Regional Council for the year 2005.
4. To call for volunteer scrutineers for the 2005 Board and Regional Council Election.
5. To appoint the auditors KPMG LLP and to authorise the Board to fix their remuneration. (Resolution 2).

Notes
(a) Members are asked to attend no later than 11.45am. Doors will open at 11.00am. Refreshments will be available.
(b) A Society bookstall will be open from 11.00am - 2.00pm.
(c) The Society will make available for sale an audio tape recording of the proceedings. The use of video recording equipment will not be permitted at the meeting.
(d) Members entitled to attend and vote at the meeting may appoint a proxy to attend and, on a poll, vote on his or her behalf. The proxy need not be a member of the Society, but is not allowed to speak at the meeting other than to join in the demand for a poll.
By Order of the Board -
P A Kirby, Company Secretary
6 October 2004

On Completion of the AGM
1. Presentation of awards.
2. President's address.

A buffet lunch will be available at 1.00pm. Lunch tickets, price £3.50, will be available on the day.

Open Forum
The Open Forum will commence at 2.00pm and end at 4.00pm or shortly thereafter.

The Committees of the Board

The name and callsign of each Chairman is shown in bold. The President is an ex-officio member of all committees. Committee members listed served during the period 1 July 2003 to 30 June 2004.

AMATEUR RADIO DEVELOPMENT: **Ed Taylor, G3SQX**; S Hartley, G0FUW; A Betts, G0HIQ; P Steed, G0VEP; Dr J Craig, G3SGR; D Cutter, G3UNA; J Linford, G3WGV; J Wayman, G4DRS; D Wilson, M0OBW; B Reay, G8OSN.

ARDF: **Geoff C Foster, G8UKT**; C Mott-Gotobed, G4ODM; G Nicholls, G4DLB; D C Holland, G3WFT; D Pechey, G8NMO; C D Plummer, G8APB; D A Burleigh, G4WIZ; G W Dover, G4AFJ; M P Hawkins, G3WMM.

DATA COMMUNICATIONS: **Iain Philipps, G0RDI**; J M Green, M0BMD; S A Morton, G8SFR; M J Salmon, G3XVV; P R Maile, MI0BME; R G Harris, G3ZFR; D J Koopman, G1TLH; J Flynn, G7OCD; R W Compton, G1ZPU; R G Whittering, G3URA; A R Horsman, G0MBA; A C Talbot, G4JNT; R M Page-Jones, G3JWI.

EMC: **Angus Annan, MM1CCR**; J Pink, G8MM; D M Lauder, G0SNO; R M Page-Jones, G3JWI; R C Marshall, G3SBA; D W McQue, G4NJU; C Elliott, G4UJW; M J Culling, G8VCP; R D Watson, G0MKG; K J Hendry, G0BBN; A Armstrong, G0FBW; P Daly, G0GTE; R Petri, G0OAT; K Treasure, G0SYI; R A Gilchrist, G0TUE; J Greenwell, G3AEZ; K N Watkins, G3AIK; G Halse, G3GRV; R P Smith, G3SVW; A D Maish, G4ADM; R Caine, G4IWS; R P Harrison, G4UJS; H A Pearson, G7KET; L J Parry, G8AMK; N Hooper, G8NLY; E S Ellis, GD3LSF; S T Dimmock, GD8COH; T W G Menzies, GM1GEQ; D Cossar, GM3WIL; D E Morris, GM3YEW; R Adam, GM4ILS; G G Brooks, GM4NHX; Rev S J G Bennie, GM4PTQ; Dr C Barnes, GW4BZD; G Taylor, MM5JDZ. EMC COORDINATORS: K J Hendry, G0BBN; R A Gilchrist, G0TUE; D Baxter, G0WBX; K N Watkins, G3AIK; G Halse, G3GRV; D Pinnock, G3HVA; J Ellerton, G3NCN; R P Smith, G3SVW; A D Maish, G4ADM; P Goodfellow, G4KUQ; D McQue, G4NJU; R P Harrison, G4UJS; G A Vallely, G4YRS; H A Pearson, G7KET; L J Parry, G8AMK; J P Ceresole, G8BSD; E S Ellis, GD3LSF; P A Bertram, GJ8PVL; T W G Menzies, GM1GEQ; D Cossar, GM3WIL; D E Morris, GM3YEW; R Adam, GM4ILS; G G Brooks, GM4NHX; Rev S J G Bennie, GM4PTQ; J Clifford, GW4BVE; Dr C Barnes, GW4BZD; D Evans, GW4GTE; R Ricketts, GW7AGG; S Constable, M0CHW; P Brown, M5BTB; D Burrows, MW1DSB.

HF CONTESTS: **Justin Snow, G4TSH**; D Lawley, G4BUO; A Hydes, G3XSV; L Volante, G0MTN; J Fisher, G0IVZ; S Knowles, G3UFY; L Mason, G4HTD; D Field, G3XTT (IOTA Contest Manager); D Sharred, G3NKC; H Owen, G2HLU; T Wylie, GM4FDM; T Kirby, G4VXE; R Everitt, G4ZFE; R Treacher, BRS32525; D Beattie, G3BJ.

INTRUDER WATCH: **Chris Cummings, G4BOH**; R Wilkin, G0UKX; W J Bolton, G3FBN; D G Pinnock, G3HVA; N Thompson, RS174906.

IOTA: **Martin Atherton, G3ZAY**; R Balister, G3KMA (IOTA Manager); M Pregliasco, I1JQJ; D Chamberlain, W9DC; J Kellaway, G3RTE; S Lawman, G0UIH; A Williamson, G0NWG; R Williams, G4LVQ / EA7FGS; F Handscombe, G4BWP (Board Liaison).

MANAGEMENT: **John Butcher, G3LAS (to 31/12/03)**; **Ken Ashcroft, G3MSW (from 1/1/04)**; Bob Whelan, G3PJT; Dave McQue, G4NJU; Ed Taylor, G3SQX; Peter Kirby, G0TWW, General Manager, RSGB HQ; Mark Allgar, M1MPA, RSGB HQ; Marilyn Slade, RSGB HQ; Jim Norton, G8HJH; Jorgen Faxholm, M0AXP.

PLANNING ADVISORY: **Stephen Purser, G4SHF**; R J Amblin, G3LYN; D F Beattie, G3BJ; J W E Jackson, G3TZZ; B K Sankey, G7RWY; L F G Thomas, GW4ZXG. Panel Members: G4SHF, G3LYN, G3TZZ, GW4ZXG, M0AVP, M5AJK, G4BWV, G4YRS, GW3YTL, MI3GTO, GM0ONX

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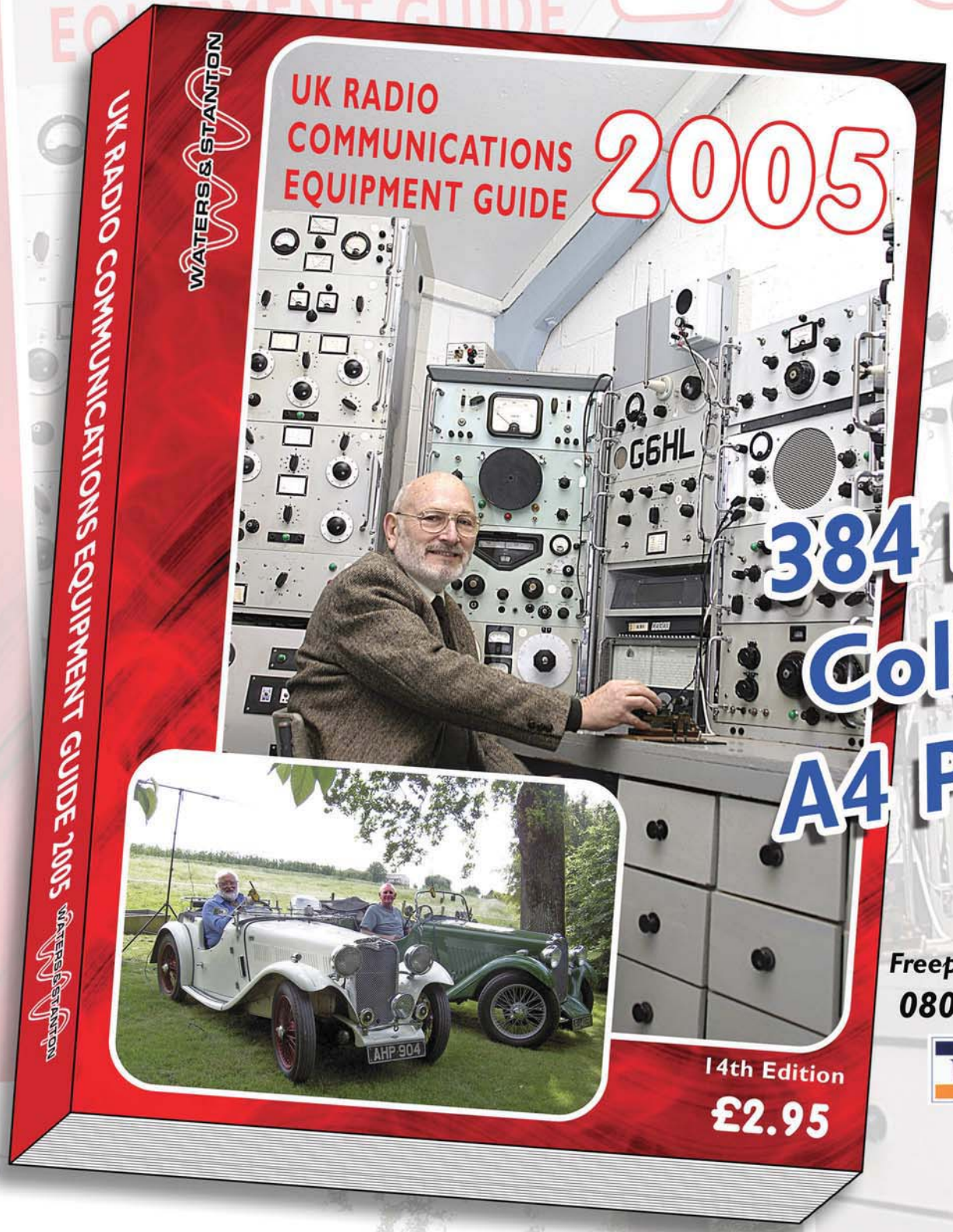

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Switch-mode mains power

The first part of a two-part article explaining how to understand, repair and even modify, an old PC power supply.

FIG 1 © RADCOM 285

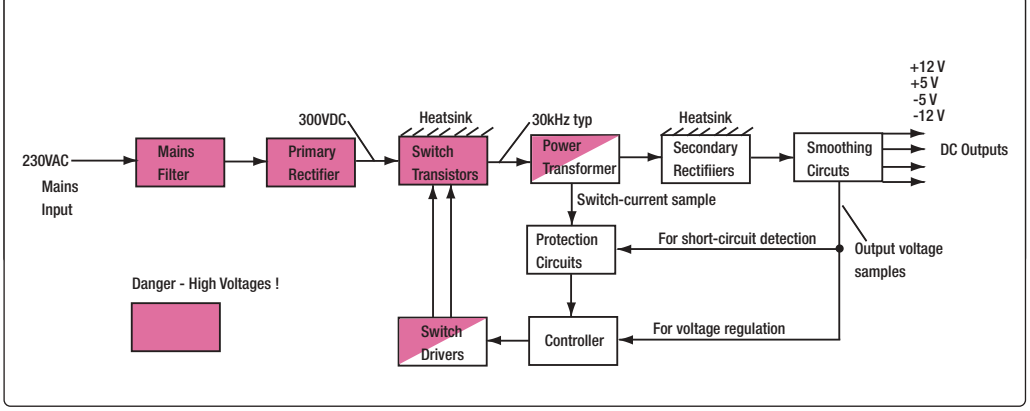


Fig 1 Electronic block diagram of a typical PSU for ATX-style PCs.

Switch-mode mains power supplies are smaller, lighter and often cheaper to manufacture than traditional 'linear' supplies that use a 50Hz mains transformer. But switch-mode supplies are also more complex and less familiar, so this article sets out to explain some of the mysteries. Out of the many different varieties, I will focus on one of the most common – the mains power supplies for ATX-style PCs from around the late 1990s. By then, the circuit design had evolved into predictable patterns, but the more recent complications of remote control and additional output voltages were only just emerging. Also, construction was still based on single-sided PC boards which are easy to work on. Once you have found your way around this particular type of PSU, you will be much better placed to understand the more complex modern variants.

First of all, a few sensible warnings. The insides of these PSUs are **dangerous**! Read the '**DANGER – HIGH VOLTAGE**' panel, and don't go in there unless you have the competence and the equipment to do it safely. Also be sensible about how you spend your time and money. The most frequently-needed repairs are not too difficult; but a shiny new ATX supply only costs about £20, so how much time and trouble is a broken-down box full of dust and dead spiders *really* worth? If it looks like being more than an evening's work, or might cost more than a few pounds to repair, then do yourself a favour: *force* yourself to throw the whole thing away!

This will be a two-part article. The first part will explain what's inside these PSUs, in enough detail to allow an experienced amateur to identify the parts that are most likely to need repair. The second part will move on to consider repairs in more detail, and the potential for conversion to produce a high-current output at 13.8V DC. Switch-mode PSU design is a vast subject, so I can only skim the surface. This article is based upon some very useful web links (see below), and for background I also recommend Marty Brown's *Power Supply Cookbook* which is available from the RSGB Shop.

THE BASICS

Welcome to the world of modern consumer electronics. Your PC PSU comes with no circuit diagram and no user manual, so you have to find your own way around. Some sections of the PSU are very simple, and are easy to repair or modify. Other sections only *look* simple, but in fact are deceptively clever. You will need to learn what you can reasonably work on, and what to leave well alone! Fortunately, the simple sections of the PSU contain most of the components that are likely to fail, and for the moment we can safely ignore the rest. However, some of the modifications described in Part 2 will require us to go into those more complex areas in more detail.

Fig 1 is a block diagram that applies to just about all switch-mode PC PSUs. The basic strategy is:

1. The 230V AC mains input is rectified and smoothed to develop about 300V DC on-load.
2. The power switch transistors chop the DC into an alternating waveform at about 30kHz. This high frequency allows the use of a tiny ferrite-cored power transformer, dramatically reducing the size and weight of the whole unit.
3. Rectify the multiple secondary voltages from this transformer. Thanks to the high frequency, only very small smoothing capacitors and a compact toroidal inductor will be needed.
4. Add the control and protection electronics needed to make everything work reliably. Switch-mode PSUs operate perpetually on the edge of disaster, and are totally dependent on their control circuits. Most of the tricky stuff has been condensed into a single controller IC, and the rest of the support electronics has converged towards an almost standard cookbook design.

The mechanical specification for the ATX format standardises the size of the PSU and the location of its mains input, fan and DC outputs. These standard mechanical requirements combine with the standard electronic block diagram (Fig 1) to make the internal layouts of all ATX PSUs very similar. There is very little choice about the size of the main PC board, or where the heat-sensitive components have to be placed in order to benefit from the cooling airflow from the fan. Although the component layout will vary in detail from one model to the next, you can expect to find almost the same major components in almost the same places. **Fig 2** shows a typical ATX PSU, and identifies the major features from Fig 1; almost all other models will be fairly similar.

THE MAINS SIDE

As Fig 1 shows, the function of the

supplies – part one

FIG 2 © RADCOM 284

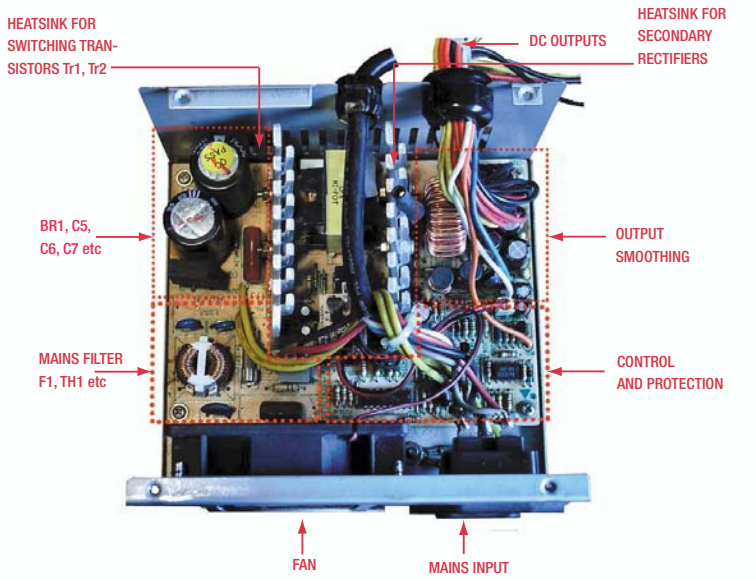


Fig 2
Major areas of a typical ATX PSU.

FIG 3 © RADCOM 286

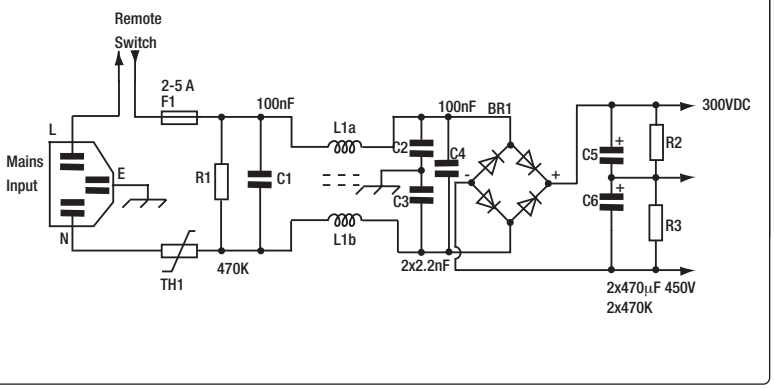


Fig 3
Outline circuit of mains input side. All component values are 'typical' only. All mains-connected components must be rated specifically for this service.

mains side of the PSU is to generate about 300V DC from the 230V mains, chop it at about 30kHz and then deliver it to the transformer. Don't forget that almost all this circuitry is 'live' and lethal - see '**DANGER – HIGH VOLTAGE'.**

Fig 3 is a typical circuit. This example shows the older, simpler type of mains switching; more recent supplies are remotely controlled to power-up 'on demand'. The mains filter is mostly to prevent unwanted switching transients from escaping back from the PSU into the mains. The double-wound filter inductor L1a,b will either be a toroid or it may look like a little rectangular transformer. The PSU case is connected to the mains earth, and the filter capacitors C2 and C3 are typically connected to that same earth by the nearby PCB mounting screw. This is the *only* earth connection on the mains side - everything else is 'live' and must *not* be

DANGER – HIGH VOLTAGE

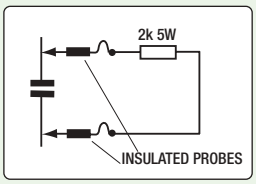
These power supplies can kill you! The label on the box is absolutely right to warn you against removing the cover - because when you do, everything inside is unprotected, and much of it is potentially lethal.

Before you start doing anything, switch off the mains and unplug the PSU from the mains as well. Always put two definite open-circuits between yourself and the mains. Why two? Because, however hard you try, sooner or later you will forget one of them - and the penalty for this should not be death. If the PSU has an on/off switch, that does not count as one of your safety switches!

Having switched off - in two places - then be patient and wait for the high voltages to decay. Be aware that the discharge time constants on the high-voltage capacitors are always very long, and the bleeder resistors could have gone high-resistance or open-circuit. Always discharge these capacitors yourself, using a discharging resistor with insulated probes like the one shown below. Hold the test probes onto the capacitor terminals for a slow count of five, and then confirm successful discharge by shorting across the terminals with a screwdriver.

If the power supply is faulty, use a light bulb connected in series with the mains to limit the current - see 'In Practice' for March and May 1999.

If you absolutely must work on the low-voltage control circuits of a live PSU, add insulation and pieces of cardboard etc to prevent accidental contact with the dangerous parts. Always use insulated test probes, and still never touch any part of the unit directly until you have switched off - in two places, remember - and discharged the high voltages.



Capacitor discharging resistor.

FIG 4 © RADCOM 287

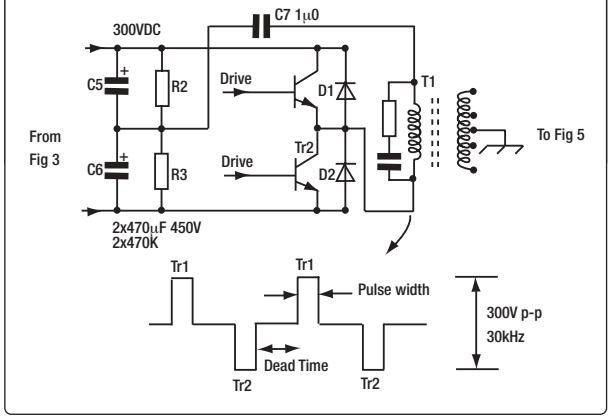
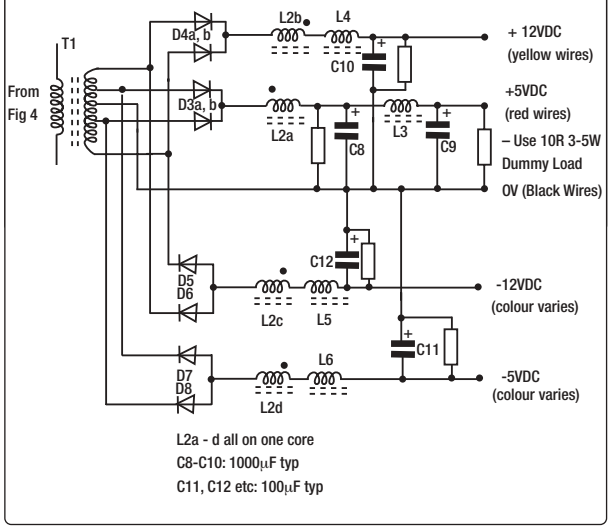


FIG 5 © RADCOM 289



earthed! There will always be a capacitor C1 connected directly across the mains on the input side; capacitor C4 on the output side may not be present, although some boards may have a place for it. A bleeder resistor, R1, may be provided to discharge these capacitors. TH1 is a thermistor surge suppressor and F1 is the mains fuse. All the components described so far are specially rated for direct connection to the mains. If you have to replace them, you *must* use components with those same ratings (selected carefully from a catalogue, or at least salvaged from the same location in a very similar PSU).

BR1 is a packaged bridge rectifier that feeds the two reservoir capacitors, C5 and C6. Two capacitors are used in series, to provide a voltage-doubler option for 115V mains (for 230V operation, you can completely remove the leads to the voltage selector switch) and also as part of the half-bridge switcher - see below. Note that the bleeder resistors, R2 and R3, are a very high value: the time-constant of 470µF x 470kohm is 221 seconds, so it can take several minutes for the voltage to decay to safe levels. C5 and C6 have a very hard life in terms of the voltage stress and the internal heating due to the AC ripple current, and all electrolytic capacitors have a finite rated lifetime which is much shorter at elevated temperatures. To extend the working life of the whole PSU, periodically remove the cover and use a small paintbrush to clean all the accumulated dust out of the case and the fan. This will help enormously to keep all the components cool in operation.

Fig 4
Simplified power switch circuit, showing primary waveform of T1. 300VDC is converted into 300VAC p-p at about 30kHz.

Fig 5
Simplified output rectifiers and smoothing (see Part two).

Electrolytic capacitors are actually *designed* to burst open if they fail short-circuit, either by splitting along the lines scored in the end of the aluminium can, or by popping the insulating cap off the other end. F1 and TH1 will avoid the worst of the violence - which is why you should *never* replace F1 with a slow-blow fuse, or one with a higher current rating. If one of these two smoothing capacitors fails, *always* replace them both with a new pair, selected for the same capacitance and at least equal ratings for voltage and ripple current. If an electrolytic fails short-circuit, the current surge is more than likely to short some of the diodes in BR1, so you'll probably have to replace that too. BR1 can also fail on its own, often due to a large mains spike exceeding the peak inverse voltage limit, and again almost always resulting in a near-short. If you suspect a shorted diode in BR1, look first for a hole in the side of the plastic package - it'll save you the trouble of using an ohm-meter.

Fig 3 showed the bare essentials of the circuit. You may also find surge limiters between BR1 and the smoothing capacitors, and small chokes and/or bypass capacitors for interference suppression. Some PC boards have provision for these, but they're not always installed.

The second reason for using two reservoir capacitors in series is to form part of the half-bridge switching circuit, **Fig 4**. Like C5 and C6, Tr1 and Tr2 are connected in series across the 300VDC supply. The controller IC supplies a train of pulses to switch-on Tr1 and Tr2 alternately at about 30kHz, through a small ferrite-cored driver transformer to provide DC isolation between the controller and the transistors themselves. This switching action connects the lower end of the primary of T1 alternately between two different points: the bottom end of C6, and the top end of C5 which is 300V higher. Meanwhile the upper end of T1's primary is connected via C7 to the mid-point voltage between the two capacitors. This means that the direction of current through the primary is being continually reversed, so 300VDC has been converted into ±150VAC at the switching frequency of about 30kHz. The actual waveform in the T1 primary is quite complex (Fig 4), because the controller varies the pulse width that controls the 'on' times of Tr1 and Tr2, with the aim of keeping the final DC output voltages constant in spite of varying current demands. The greater the current demand, the longer the 'on' times become; in effect, the controller varies the pulse width to let through just enough electrical energy to keep the output voltage constant. The controller also has to keep the durations of the positive and negative half-cycles equal, because any inequality would result in a net DC component appearing across the primary. Important: this kind of power supply *always* needs a load on the output, so that the width of the drive pulses is always inside the range that the controller can handle. When testing a PSU outside of the PC, you *must* use a dummy load of about 10Ω (3 – 5W) on the +5V output.

The switching transistors Tr1 and Tr2 are identical bipolars or MOSFETs. In PSUs of Far Eastern origin, bipolar transistors typically have Japanese-style numbers beginning with 2SC (which may be abbreviated to just C-something on the package itself), while MOSFETs typically have either BUZ- or 3SK-numbers (abbreviated to K-). Bipolars are more common in older, cheaper PSUs as shown in Fig 4. These devices are mounted on the large heatsink nearest to C5/C6, using special silicone insulating washers that do *not* need thermally conducting grease. **Warning: never touch this heatsink**! It is not earthed, and is usually allowed to float to whatever voltage it wishes. Even when the PSU is switched off, this heatsink can be at a dangerous voltage - especially if Tr1's insulating washer has failed.

Like most of the components on the mains side, Tr1 and Tr2 have to work very hard. Keeping the temperature down by periodically cleaning out the dust will greatly reduce the risks of catastrophic failure. An ohm-meter test between emitter and collector of Tr1 or Tr2 should show low resistance in one direction and much higher resistance in the other. If you measure a near-short in both directions, you'll need to replace the transistor and maybe also the protection diode D1 or D2. See later for suggestions about ratings and replacements. ♦

REFERENCES

Power Supply Cookbook by Marty Brown (RSGB Shop). All other references are on the web - see the 'In Practice' website.

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The programmer and the keyer – Part one

Here are some flexible projects based on the PIC family of programmable chips. The descriptions are presented here in RadCom, but most of the programs are available for direct download from the RadCom Plus area of the RSGB Members-Only website [www.rsgb.org.uk/membersonly]

Judging by the feedback, my 'Morse, Music, or Text' contribution in the June 2002 *RadCom* was enthusiastically received the world over, to the point of generating requests for a follow-up article. So here it is, hands-on as before and, again, it assumes no prior experience of PIC-programming or programming languages on the part of the reader. This article does, however, take one step forward in the working knowledge of PICs , by introducing you to a PIC programmer which is much more versatile than the Picaxe28 used for the previous article, and to the programming language called 'assembler' as a change from the *BASIC* language used by Picaxe and, finally, by offering some low-cost and simple-to-make electronic-keyer projects.

Most keyer designs including these, are for use with transmitters having a positive keying-line. Eventually, you will be shown how to use them with transmitters ancient or modern.

And be assured that, even if you're not a Morse person, you might well be interested in this simplicity-in-use description of a PIC-programmer and in the programs, because that's what this article is really about!

Just to remind you, the Picaxe28 circuit-board, introduced in the 2002 article, is in itself a PIC Programmer, but restricted to one type of PIC, a 16F872 . Keyers 1 and 2 described here use the Picaxe28 as it stands, whereas Keyer 3 uses the Picaxe to program its own PIC, for use in an external circuit of your own making. But that leaves the Picaxe temporarily unusable so, for Keyers 4 & 5, we look instead to using a more versatile PIC programmer.

But, of course, there's no such thing as a free lunch, so be advised that PIC programmers do not come cheap, typically starting at about £60 Sterling! However, the Picaxe supplier

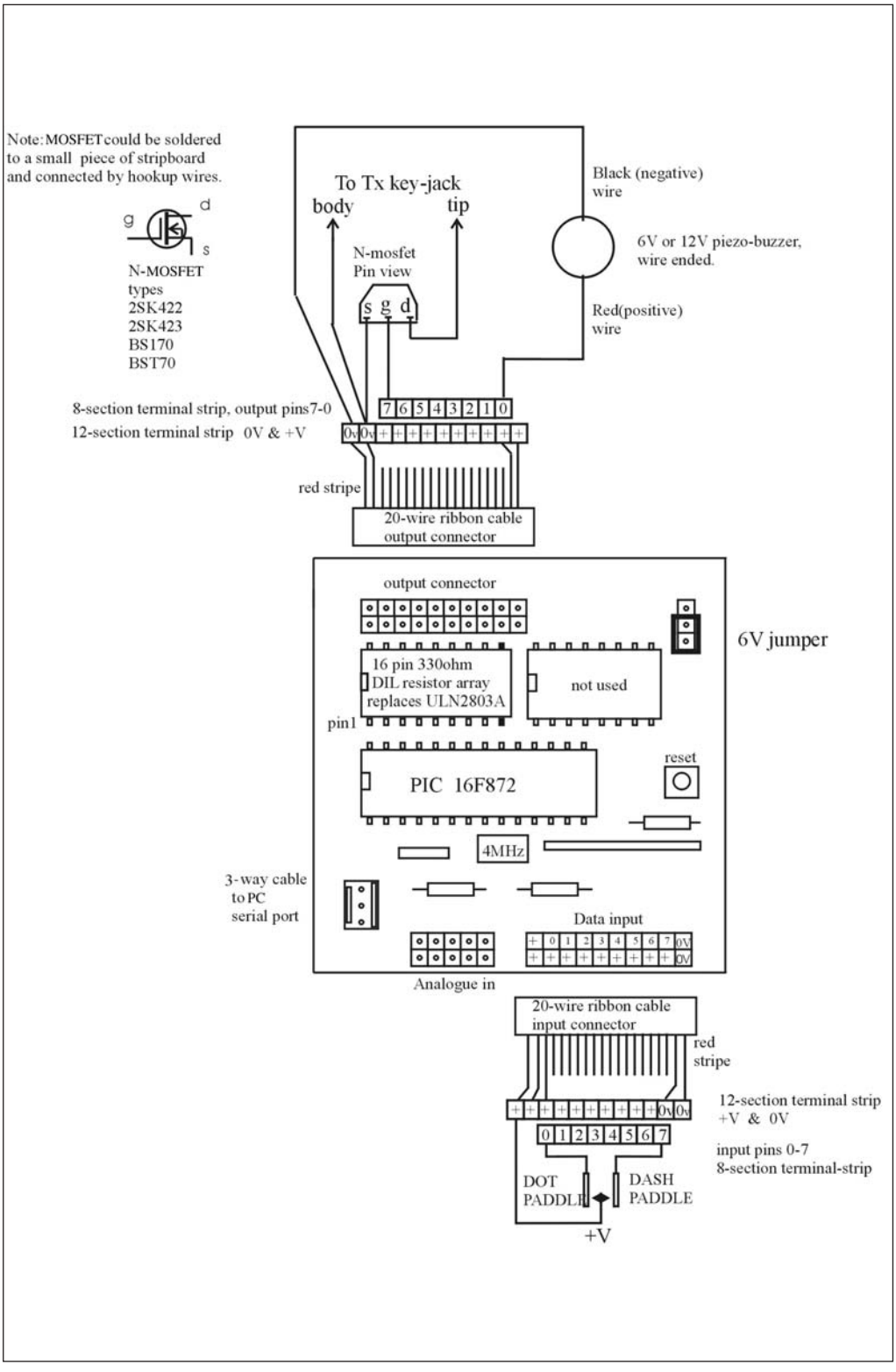

Fig 1: Picaxe electronic keyer (iambic or non-iambic). Fixed-speed. See Programs 1 and 2. Note 1: Key-common is taken high to positive rail because data inputs are tied low an Picaxe board. Note 2: As an alternative to using the terminal strips, connect key directly to data pins +, 0 and 7, using single-strand telephone wires with stripped ends previously coiled around a sewing needle.

being education-orientated, does offer a very functional programmer at a more attractive price – and this is the one used here – together with the Picaxe28. The electronic circuitry of a programmer is not unduly complex. The real cost lies in the preparation, quality and quantity of the accompanying software needed to make it work. But if the price of a programmer exceeds your budget, a request to the author will yield a PIC ready-programmed as Keyer 5, at a cost you could certainly afford (see 'Suppliers').

KEYER 1: A FIXED-SPEED NON-IAMBIC ELECTRONIC KEYER, USING THE PICAXE28

Fig 1 and Program 1 refer.

This program is written in PBASIC for direct input to the Picaxe28.

Fig 1 shows how to connect a twin-paddle Morse key to the Data input pins of the Picaxe, and an electronic buzzer to one of its output pins (see final part for a zero-cost twin-paddle key).

After running Program 1, the Picaxe28 is ready immediately for use as a Morse-practice keyer, but could easily be made to key a transmitter by adding a MOSFET transistor as shown also in Fig 1.

Dots only are produced by pressing the dot paddle, and dashes only by the dash paddle, even if both paddles are pressed at the same time. That is known as non-iambic keying.

The twin-paddle key's common terminal is connected to the +5V rail, rather than to 0V as is more usual. This is not a problem. It has to be that way because the pins of the Picaxe data input port are already tied 'low' by on-board resistors.

KEYER 2: A FIXED-SPEED IAMBIC ELECTRONIC KEYER, USING THE PICAXE28

Fig 1 and Program 2 refer.

Program 2 is also for using the Picaxe28 as a keyer. It too is written in PBASIC, but used now to produce the iambic keying mode.

'Iambic' keying means that, as well as dots and dashes, the keyer also provides alternating dots and dashes or vice versa when both paddles are pressed, depending on which paddle is closed first.

But there is one snag to using the Picaxe as a keyer. The Morse speed is not variable, being largely determined by the PIC's clock frequency which, in the Picaxe28, is fixed at 4MHz by a ceramic resonator. Hence programs 1 and 2 initially give a fixed Morse speed of about 18WPM, but the program comments explain how the fixed speed can easily be changed to slower or faster by a few minor changes to the program.

SUPPLIERS

For specialist components
Revolution Education Ltd, Bath BA2 3LR. Tel: 01225 340 563.
www.tech-supplies.co.uk
BAS800 PIC Programmer
Picaxe28 microcontroller AXE010 (16F872)
PIC 16F84A-04/P
Picaxe28 Starter pack

For standard components
ESR Ltd, Cullercoats, Tyne & Wear Tel: 0191 251 4363 .
www.esr.co.uk

For PIC data sheets
Maplin's CD Catalogue.

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PROGRAM 1 FOR KEYER 1, FIG 1 REFERS

```
;Picaxe28 is used as an electronic keyer. Non-Iambic.
;Fixed Morse-speed, 18WPM approx,
;but can be changed to different fixed speeds (approx)
;        dot     space   dash    WPM
;        30      30      90      30
;        50      50      150     18
;        70      70      210     11
;        100     100     300     7
;        120     120     360     4

keyer:                  ;Keying routine
if pin0=1 then dot      ;If dot paddle is pressed, goto dot
if pin7=1 then dash     ;If dash paddle is pressed, goto dash
goto keyer              ;Return to keyer loop

dot:                    ;Dot routine.
high    0               ;Buzzer on at output pin 0,
high    7               ;tx-keying MOSFET on at output pin 7
pause   50              ;for dot-length of 50 units
low     0               ;Buzzer off
low     7               ;tx-keying MOSFET off
pause   50              ;for space=dot-length
goto keyer              ;Return to keyer loop

dash:                   ;Dash routine.
high    0               ;Buzzer on at output pin 0,
high    7               ;Tx-keying MOSFET on at output pin 7
pause   150             ;for dash = 3 x dot-length units.
low     0               ;Buzzer off
low     7               ;tx-keying MOSFET off
pause   50              ;for space =dot-length
if pin7=1 then dash     ;Allow dashes only, while
                        ;dash paddle pressed
goto keyer              ;Return to keyer loop
end                     ;End of program
```

PROGRAM 2 FOR KEYER 2, FIG 1 REFERS

```
;Picaxe28 is used as an iambic electronic keyer.
;Fixed Morse-speed, 18WPM approx
;but can be changed to different fixed speeds. See Program 1 for details.

keyer:                  ;Keying routine
if pin0=1 then dot      ;If dot paddle is pressed, goto dot
if pin7=1 then dash     ;If dash paddle is pressed, goto dash
goto keyer              ;Return to keyer loop

dot:                    ;Dot routine
high    0               ;Buzzer on at output pin 0
high    7               ;Tx-keying MOSFET on at output pin 7
pause   50              ;for dot-length of 50 units
low     0               ;Buzzer off
low     7               ;MOSFET off
pause   50              ;for space =dot-length
if pin7=1 then dash     ;Send iambic alternate dot-dash
goto keyer              ;Return to keyer loop

dash:                   ;Dash routine
high    0               ;Buzzer on at output pin 0
high    7               ;Keying MOSFET on at output pin 7
pause   150             ;for dash= 3x dot-length units
low     0               ;Buzzer off
low     7               ;MOSFET off
pause   50              ;for space =dot-length
if pin0=1 then dot      ;Send iambic alternate dash-dot
goto keyer              ;Return to keyer loop
end                     ;End of program
```

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By Mike Dennison, G3XDV

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RSGB

By Don Field, G3XTT

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HF

Don Field reflects on the improvement in HF band conditions brought about by the change of season. Plus news of the closure of an historic station in Saudi Arabia and DX news from all continents.

Conditions finally started to perk up again during September. Only to be expected at that time of the year, but welcome nevertheless. For example, I heard some very loud US stations on 24MHz from time to time, even when 28MHz was dead to the west, and there was some excellent Pacific DX to be worked on 20, 17 and 15m (ZK3DX Tokelau and FK/KM9D New Caledonia, for example. And, as I write this, I have just worked K7ASU/KH9 Wake Island on 20m CW, albeit quite weak). R1MVI (Malyj Vysotskij Island, in the Gulf of Finland) put in a welcome appearance; I see that I caught this one on five bands. There were some nice ones from Africa too, for example 9U6PM (Burundi), TT8KR (Chad), TZ6M (Mali) and 3DA0RN (G4IRN, operating from Swaziland). All these were workable from the UK on several bands.

The HZ1AB station (top) in 1947 and (bottom) in the 1990s.

DX NEWS

Joe, AA4NN, and Chuck, W4GMY, will operate all bands as 3DA0NN and 3DA0CG from **Swaziland** from 17 to 22 November.

A multinational team has announced an operation to the Kerguelen Islands (FT8X), to take place next March / April. This is the same group who activated South Georgia and South Sandwich in 2002. More information in due course.

Kees, PA0CJH, will be active as 9G5JH from Ghana on 80, 40, 20, 17 and 15m, SSB, CW and PSK31 until 13 November. QSL via his home call.

Sadly, HZ1AB, originally the United States Military Training Mission station in Saudi Arabia and more recently known as the Dhahran Amateur Radio Club, has closed down. The club station was first active in early 1947 and over the years was host to more than 160 different operators. Thomas, SM0CXU / AB0CQ, the club secretary, reports "new licence requirements make it necessary to terminate all activity." QSL manager K8PYD has the logs and will continue to confirm QSOs. For more information about the HZ1AB club station check out their web page. The good news is that 18 Saudi nationals were licensed earlier this year, so there should continue to be HZ activity on the bands.

David, MW0DJT, writes that he will be operating from Sakhalin Island (AS-018), Far East Russia, until 19 December. He was not sure what callsign he would be using, but will obviously be on the lookout for UK QSOs. QSL to his home call.

Tom, K7ZZ, will operate as T30T from Tarawa (OC-017), West Kiribati from 25 October until 9 November. This will be a low-power operation, but Tom will have two-element vertical arrays on 40 - 10m, a single vertical on 80m and wire on 160m. QSL via K7ZZ (direct only).

Itokazu, JR6TYH/JD1, has been operating recently from Marcus Island, Minami Torishima. He expects to be stationed on the island until 20 December. At the time of writing, he appeared to have been active mainly on 15m, working Japan, but hopefully he will spend time trying to work Europe, as this is quite a rare one from here.

Steve, G0UIH, has announced his plans for his third trip to the Pacific. He will operate as 3D2FI from Fiji as follows: Viti Levu (OC-016) 28 November; Nacula Island (OC-156) from 29 November to 5 December; Viti Levu (OC-016) 6 December; Beachcomber I (OC-121) from 7 to 10 December and Viti Levu (OC-016) 11 December. He will also be active as VK2IAY/4 from one of the Queensland IOTA groups (details to be announced). The operation is likely to be around 14260 and 21260kHz and there may also be some 17m SSB. QSL via G0UIH, direct or bureau. Further details and updates on the web page.

Mike, GW3UOF, reports that he will be active, all bands and modes (including digital) from the **Dominican Republic** as GW3UOF/HI3 from 28 November until 12 December. QSL via his home call, direct or via the RSGB bureau.

Tom, DL2RUM, and Jan, DJ8NK, will operate from Anguilla from 17 to 30 November, all bands, CW, SSB and RTTY.

Joca, PS7JN, is planning to go back to St Peter & St Paul Rocks using his own PY0S callsign. He expects to join up with a scientific expedition at the end of November through the beginning of December and to be active on SSB, RTTY and maybe CW.

K6TA and K6KO will be active as P40TA and P40K respectively from **Aruba** from 30 November until 21 December, including the ARRL 10m contest on 11 / 12 December. QSL both via WM6A.

Andy, PJ2/DL5CW, will be active from Curacao (SA-006), **Netherlands Antilles** from 1 to 15 November, 10-80m, all modes. QSL via DL5CW.

Mike, GM0CHQ/MM, writes that he will be heading for Antarctica onboard the British Antarctic Survey vessel RRS James Clark Ross. While in the region he will sign VP8CMH/MM from the ship. All being well he will also operate from the following bases: Signy Base, South Orkney Islands (AN-008) as VP8SIG, proposed dates 26 - 31 October. South Georgia (AN-007) as VP8SGK, proposed dates 2 - 7 and 18 November. Rothera Base, Adelaide Island (Antarctica, AN-001) as VP8ROT, 7 - 12 December. All the dates are provisional and may well change for operational reasons. Mike says, "Operating from the bases also depends upon my workload onboard the ship and the work that is being carried out at the base during the ship visit". Mike will try to update his website as his plans become more firm. Mike says he has been operating from Antarctica since 1990 and works as a ship's radio officer on board the BAS vessels. He also reports that one of the base members at Bird Island (South Georgia) is currently active on 20m SSB using the call VP8SGB. Typically he tries to go on air in the early evening (1700 - 2000UTC) but is somewhat restricted by the equipment and antenna set-up. He was due to be there until early November.

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

CALL	CW	SSB	DATA	MIXED
W1JR	237	237	169	259
G3XTT	223	151	76	250
G3TBK	232	148	61	241
G4WXZ	153	135	0	195
G4OBK	141	88	82	192
G3LHJ	168	64	99	189
GM0TGE	130	159	0	189
G4KFT	184	0	0	184
G4NXG/M	0	182	0	182
G3SXW	175	0	0	175
G3VDL	170	0	0	170
G3TXF	166	13	4	168
G4IRN	166	0	0	166
M5GUS	0	160	0	160
MU0FAL	153	97	0	159
G3YVH	153	21	0	153
M0BKV	0	124	41	129
GM8OEG	71	99	83	128
G3YMC (QRP)	124	0	0	124
G1VDP	0	120	0	120
M0BVE	119	0	0	119
M0CNP	28	88	74	105
G4FVK	62	78	0	98
G0LGJ/M	0	97	0	97
G1UGH	0	96	0	96
G0GFQ	32	84	33	91
G4DDL	83	10	14	83
MU3GSY	1	72	0	73

CQWW CW CONTEST

The CW leg of the CQWW contests runs over the last full weekend of November (27 / 28th). At the time of writing, the following operations have been announced or are otherwise anticipated: 3D2 (Fiji, QSL WA4WTG) by US team; 5U5Z (Niger) by Voodoo Contest Group; 9M6NA (Labuan Island, E Malaysia, OC-133) all-bands by JE1JKL; 9Y4ZC (Trinidad and Tobago) by DL6FBL; C91F (Mozambique) by AA4NN and W4GMY, QSL via AA4NN; CN2R (Morocco), all bands, by W7EJ; CN2KM (Morocco) 20m single-band by SM2EKM; CP6AA (Bolivia) by W0ZR and others from the Twin Cities DX Association of Minneapolis, Minnesota; HC8N (Galapagos) multi-multi; JW5NM (Svalbard) by JW5NM, JW7FD and others; MJ0ASP (Jersey) 15m single-band by F5SHQ; P40W (Aruba) by W2GD; SU8BHI (Egypt) by HA3JB; TO4A (Martinique) by N6TJ; V26K (Antigua) by AA3B; VK9AA (Cocos Keeling) by VK2IA; VK9XG (Christmas Island) by W0MY and W0YG; VP5W (Turks & Caicos) by members of the Western Washington DX Club; VP8WWW (Falklands, QSL via W5PF) by Group Tomball DXers; VP9 (Bermuda, single-band 160m) by N0JK; WP2Z (US Virgin Islands) by K3TEJ and K3CT; XU7ADI (Cambodia) by SM5GMZ. Check the NG3K website (see last month) for the latest list, as there will undoubtedly be plenty more as the contest approaches. As always, expect plenty of operation by these groups both before and after the contest, perhaps on other modes and on the WARC bands (30, 17 and 12m).

ANTARCTICA AWARD

The Mediterraneo DX Club (MDXC) issues the *Antarctica Award* for contacting amateur radio stations operating from the various human settlements ('bases') in Antarctica, defined as the area south of 60° south latitude, including islands and ice shelves, to which the provisions of the Antarctic Treaty apply. The award is available to both licensed amateurs and SWLs. All contacts must have taken place since 1 January 1961. Contacts may be made on any HF band from 10 to 160m, on CW, SSB and RTTY (neither single band nor single mode endorsements will be issued). The **Basic Award** is issued for confirmed contacts with five different bases located in at least three of the seven sectors into which the Antarctic territory has been divided up for the purposes of this award. The fees for the basic award are 15 euros or $15(US), P&P included. Full rules can be found at the MDXC web page where the *Antarctica Award* directory, as well as the application form and the summary sheets, are available for download in PDF format. MDXC undertakes to use any and all proceeds beyond out-of-pocket expenses to support amateur radio operations from Antarctica by the printing of QSL cards for stations in need, as already done for AY1ZA (South Orkney Islands, February 2004). Further information and enquiries can be made to the Award Manager, Gianni Marruccella, IZ8CGS, PO Box 5, 80029 S Antimo - NA, Italy (e-mail antarctica.award@mdxc.org).

DXCC ANNUAL LIST DEADLINE CHANGE

As of September, there is no longer a deadline for the DXCC Annual List. In previous years, 30 September was the cut-off point for compiling the entity totals for the DXCC Annual List, published in the *DXCC Yearbook*. Over the years, DXCC participants tended to collect cards and submit them once a year, in September, to ensure the highest possible total for the listing. A major downside of the deadline was that ARRL received over 25% of annual credit submissions during that one month. This in turn created a huge increase in workload and a lengthy processing time. Going forward, the lists of DXCC standings previously published in the *DXCC Yearbook* will be replaced by complete lists on the ARRL website. The new web-based lists should be ready and on-line early in the first quarter of 2005, when the listings in the *DXCC Yearbook* would normally have been published. After initial publication, the new lists published on the web will be updated regularly, perhaps weekly or even daily. They will also include the standings of all DXCC members, not just those who made a submission in the previous year (as has been the practice with the printed *Yearbook* due to space limitations). A smaller version of the *Yearbook* will be published, containing highlights of the standings, along with other features, as in the past.

CORRESPONDENCE AND TABLES

Gus, M5GUS, reports new ones recently in the shape of 9U6PM (Burundi) and UK8OAU (Uzbekhistan), though he doesn't mention which bands. David, M0CNP, reports working 3B9FR (Rodrigues) on 17m, ST2T (Sudan), 9U6PM (Burundi) and D4B (Cape Verde) on 15m and JY9QJ (Jordan) on 10m, all SSB. He also mentions that the GB200CLB callsign has been approved for the Cromer Lifeboat 200 year anniversary station. Terry, G1UGH, has been working some interesting DX. His list includes R1MVI (Malyj Vysotskij) on 20m, AP2JZB (Pakistan) on 17m, and VQ9LA (Diego Garcia) and ST2T (Sudan) on 15m. Dave, M0BVE, used CW to make it with TT8KR (Chad) and TY5ZR (Benin) on 15m.

Andy, GM8OEG, writes, "When I look at you guys with the 200s I wonder where do you find them?" He then goes on to comment that he finds Africa quite tough from his northern location whereas South America seems to be much easier. Given this, he was pleased to catch 5U7JB (Niger) on 20m, and KL7IWC (Alaska) was a nice one on 20m RTTY. Andy also took part in the JASTA SSTV competition, which runs throughout August, exchanging pictures with ZP5ALI (Paraguay) and YB5BO (Indonesia) as well as Japan, Brazil and many Europeans. Andy also mentions RTTY contacts with TF0/DL7WB (Iceland) who kindly moved from 40 to 80m in one of the RTTY contests to give Andy an additional multiplier. Andy was able to do his bit for D4B (Cape Verde) in the WAE SSB contest, when the D4 needed GM on another band. Andy says, "This kind of thing (being prepared to move bands on request, in the former case requiring the TF0 to go out and re-resonate his antenna) really reinforces the sense of the 'ham spirit' to me!"

Mark, G0LGJ, reports some more nice ones from his mobile including W6KOK (California) on 17m, VP9/VE3KXX (Bermuda) and a couple of Australians on 20m and ST2T (Sudan) on 15m. Sean, G4UCJ, writes to apologise for his long absence. Due to a change of QTH he is now in a position where he is unable to transmit and has reverted to being a listener. However, he has clearly lost none of his touch, with some quite remarkable totals, for example 194 countries heard on 20m alone during 2004, 105 countries on RTTY, 130 on PSK (this I find espe-

cially interesting; more on PSK than 'traditional' RTTY), and 22 on SSTV. His receiving antenna is just 2m long! Perhaps Sean should now start corresponding with Bob Treacher's 'SWL' column, but I thought these totals well worth reporting.

Damian, M0BKV, reports working some good DX during the All Asia Contest and the European Field Day contests. The former brought him JU1DX (Mongolia), for example. Other recent DX includes 7P8NK (Lesotho), ZD9BV (Tristan da Cunha), HP1KZ (Panama, on PSK31) and HR1RGA (Honduras). Damian comments that his triband Yagi became waterlogged after the extreme weather conditions at his West Cornwall location which necessitated a clean-up of the 12 traps. The good news is that the antenna now works better than ever. There must be a lesson there somewhere!

Ian, G3SEK, writes regarding duplicate contacts and the problems which occur if a DXpedition log look-up page isn't working properly. He cites a recent example where this happened and led, he suspects, to many stations calling for a second QSO because they were unable to find their calls in the online log. As he says, "There are many good reasons why pre-expedition plans for a log-search facility might not work out, so it's vital for every DXpedition to have a fallback plan to monitor that page, and withdraw it if it's not working perfectly." Yes, indeed.

Finally, I was sorry to read of the passing of Frank, DL7FT, who was an active DXpeditioner over many years, usually using callsigns with an 'FT' suffix or with his own callsign portable (I see FH/DL7FT, FO/DL7FT and DL7FT/SV/A in my own log, for example). Frank's wife, Siegrid, DL7CN, will continue to handle any QSL requests for Frank's various operations.

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 **January** issue by **20 November**. ♦

WEB SEARCH

9M6NA:	http://jsfc.org/je1jkl/9m6na.html
G0UIH/VK2IAY:	http://www.percy.me.uk
GM0HCQ:	www.gm0hcq.com
HZ1AB:	www.qsl.net/hz1ab
MDXC:	www.mdxc.org
Saudi licensing:	www.citc.gov.sa/CITC/EN/SpectrumManagement/generalservices/?sm

HF F-Layer, Propagation Predictions for November 2004

	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	7271..266557	..632246 1...	...56666....	...8999.....	...7998.....	....33......	.....
*** Asia							
Yakutsk	3......23425	..144...3..3	...62.......	...3........	.....	.....	.....
Tokyo	...1..11111.	...2..121...	...2........	...1........	.....	.....	.....
Singapore	.......1....	......22....	......31....	.....251....	.....23.....	....132.....	....121.....
Hyderabad	.....	1......2211.	......23....	...32376....	...55673....	...7777.....	...5785.....
Tel Aviv	627....26425	..54..262.4.	...75466....	...4545.....	....322.....	.....	.....
*** Oceania							
Wellington	....54663...	...277872...	...38885....	....453.....	....231.....	....23......	.....
Well (NZ) (LP)	.....	.12.........	2231.....112	...51...1...	...5........	.....	.....
Perth	.......1....	......12....	......22....	.....363....	....1341....	...2463.....	...234......
Sydney	.......1....	......32....	.....341....	....577.....	...1565.....	...2775.....	....55......
Melbourne (LP)	...71.......	...87.......	...78.......	....72......	....6.......	.....	.....
Honolulu	...1...1....	...312151...	.....1.1....	.....	.....	.....	.....
Honolulu (LP)	.....	.....	.....	........2...	...111......	...221......	...32.......
W. Samoa	...11..1....	...26663....	....6761....	....253.....	....13......	.....2......	.....
*** Africa							
Mauritius	1.........1	.....	.......1....	.......1....	.....	.....	.....
Johannesburg	87......2567	64......4445	2.1....342.1	...1..131...	...11123....	...46676....	...25665....
Ibadan	112........	566.....1111	3.63....2...	...865455...	...88777....	...99999....	...89998....
Nairobi	.....	11.........	..1........	..31...1....	..121..2....	...53221....	...5544.....
Canary Isles	6764....5566	66461..24566	...65323.4..	...766767...	...622773...	......65....	......21....
*** S. America							
Buenos Aires	3227......12	...6........	...5........	...631......	...44211....	....4222....	....3221....
Rio de Janeiro	...1........	...3........	...2........	...641111...	...352231...	....5223....	....3112....
Lima	.....	.....	.....	.....21.....	.....421....	.....322....	.....221....
Caracas	.....	...1........	....1.......	.....1......	.....111....	.....655....	.....652....
*** N. America							
Guatemala	.....	...1........	.....	.....	.....	......11....	.....
New Orleans	.....	...1........	.....1......	......652...	......76....	......76....	......63....
Washington	33.3......33	11.11....21.	.....21111..	.....5345...	.....1561...	......44....	......11....
Quebec	65.62....266	...32....2..	.....2113...	.....7776...	.....577....	......87....	.......6.....
Anchorage	64141..13123	....1...1...	.....	.....	.....	.....	.....
Vancouver	1..........	.....	.....	.......1....	.....	.....	.....
San Francisco	.....	.....	.....	.......2....	.......2....	.....	.....
San Fran (LP)	.....	.......1....	.......6....	.......71...	.......6....	.......4....	.....

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, **blue** 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 September 2004 issued by the Sunspot Data Centre, Brussels, was 27.7. The daily maximum / minimum numbers were 51 on 9 September, and 8 on 1, 2 and 28 September respectively. The predicted smoothed sunspot numbers for November, December and January are respectively: (SIDC classical method - Waldmeier's standard) 36, 34, 33 (combined method) 38, 37, 36. 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.

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IOTA

This time IOTA Manager Roger Balister discusses funding for IOTA DXpeditions and announces the issue of the first Plaques of Excellence for CW operation.

Last time I mentioned the issue of the first VHF award. Now it's time to mention that we are now issuing IOTA 750 Islands Plaques of Excellence to operators using CW only. In the early days of IOTA development it was a common complaint that most DXpeditions concentrated their efforts on SSB and there was a lot of truth in this. However, in recent years, influenced perhaps by the importance of CW to serious participation in the RSGB IOTA contest, the imbalance has to a large extent been rectified. There is still some way to go but the trend is definitely in the right direction. In fact it is interesting to see IOTA operations increasingly on RTTY, PSK and other modes as well.

QSLS

While mentioning the IOTA contest, a plea. A number of participants and / or their QSL managers may not be aware of IOTA requirements for the acceptance of cards for IOTA awards. The callsign used and the name of a qualifying island from which the operation took place both need to be printed on the QSL. A computer generated QSL label giving the island name and the IOTA number may be affixed to the card - this should preferably be stamped or signed across a corner to ensure integrity. We do not accept cards where the callsign has been amended or where the island name has been handwritten or omitted altogether. The IOTA number, although highly desirable, is not an adequate replacement for the island name. There are very good reasons for these rules which those interested may find in the *RSGB IOTA Directory*.

FUNDING OF DXPEDITIONS

We are asked quite regularly for financial assistance and / or equipment for a particular operation. Unfortunately, this is not possible. There was a time a few years back when we held a small financial reserve for this purpose. However, it was so small that it involved us in the invidious and time-consuming business of making choices between competing requests. In recent years the IOTA Committee has preferred to route some financial assistance annually to the Island Radio Expedition Foundation Inc (IREF), an organisation specifically set up to help fund expeditions to new or very rare IOTA groups (see website address below).

For the vast majority of IOTA DXpeditioners there is no central funding body. If any assistance is to be obtained, it will come usually in contributions from individual amateurs (exceptionally, clubs) in reply to a request made in the operation announcement or in the form of local sponsorship. Success depends very much on the degree of need for the island group, on perseverance and on luck. It is, in the Committee's view, wrong for DXpeditioners to embark on an operation in the expectation that an expenditure shortfall will or must be made up by the amateurs who work them. This is a recipe for disappointment and hard feelings all round. Our advice for all but the rarest IOTA operations is that if you are not able to fund the operation yourself, don't go!

ANNUAL UPDATE

Advance 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. And a special message to newcomers: you have three months, so get your initial application with 100 cards in to your checkpoint to set you on the way up the IOTA ladder (see 'Down to Earth: IOTA - A Beginner's Guide', RadCom October 2003 pp56-57).

... AND A REMINDER TO EXISTING MEMBERS

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. Credits needing to be checked are shown on your current record with a leading slash (/). Any that remain unchecked after the annual update exercise will be deleted unless we know for certain that they are from valid islands within the group. ♦

Map showing Peucang island, the location for the YE1P operation in July 2004 (OC-237).

IOTA 2004

NOVEMBER 2004		
NA-036	VE7	Vancouver Island
NA-051	VE7	Queen Charlotte Islands
NA-065	W7	Washington State North group
OC-027	FO	Marquesas Islands
OC-044	VP6	Pitcairn Island
OC-046	FO	French Polynesia, Windward Islands
DECEMBER 2004		
OC-013	ZK1	Rarotonga Island
OC-019	KH6	Hawaiian Islands
OC-030	KH4	Midway Islands
OC-040	ZK2	Niue Island
OC-045	KH8	Tutuila Island
OC-048	ZK3	Tokelau Islands
OC-067	FO	French Polynesia, Leeward Islands
OC-083	ZK1	Aitutaki group
OC-097	5W	Samoa Islands

Table 1: Some of the regularly activated island groups counting for premium points during November and December 2004. For further information on this current activity programme, see the CDXC website.

NEW REFERENCES

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)

WEB SEARCH

RSGB IOTA Programme:	www.rsgbiota.org
IOTA Manager's website:	www.g3kma.dsl.pipex.com
IREF:	www.islandradio.org
CDXC:	www.cdxc.org.uk
YE1P:	www.peucang.org

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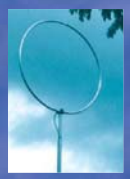

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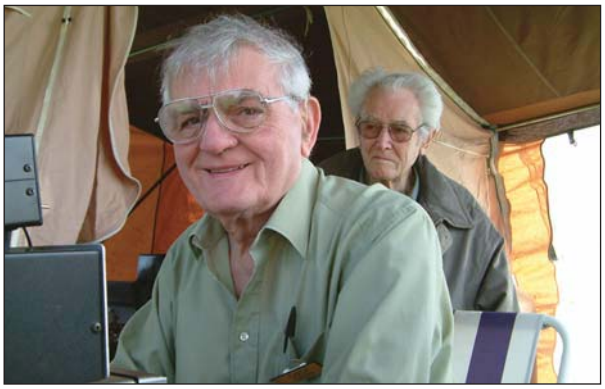
By Tim Kirby, G4VXE

Willowside, Bow Bank, Longworth, Abingdon, Oxfordshire OX13 5ER.

E-mail: tim@g4vxe.com

Contest



Operators Geoff and Bob at G2CP/P, the Scarborough ARS station in Low Power Field Day in July.

This month Tim Kirby answers the question "where can I get a serial number from?" and looks at the major contesting events for November

Recently, the RSGB HF Contests Committee received a query, asking where a serial number for one of their contests could be obtained from, was it from the RSGB? Whilst the answer is probably obvious to the majority of readers, we're keen to welcome newcomers to the hobby into contesting and it's therefore appropriate to cover these aspects from time to time.

A serial number used in a contest is actually very straightforward. When a contest requires that the entrant send a serial number, the accepted practice is to start at 001 and increment it by one for each contact that you make. You do not have to be making a serious entry to the contest to give a serial number, so there's no need to worry. It doesn't commit you to anything unpleasant. The Contests Calendar in this column tries to include the exchange for the majority of contests – and Serial Number is denoted by 'SN'. So, next time you hear a contest going on and people are sending serial numbers to each other, don't be shy – dive in and send some yourself! The participants will be very grateful for your participation and the fact that you are sending a contest exchange.

It's a common misconception that you need to receive a serial number for each contact you make in a contest. If someone isn't sending a serial number, you don't need to make one up when you log the contact. Remember, the golden rule is to exactly what was sent. I do tend to check, though, whether they have worked any other stations in the contest, as sometimes casual participants forget to give the serial number – and the adjudicator would notice that other contacts had recorded a serial number from them, where you had not. Points could be deducted! But if someone resolutely refuses to send you a serial number – no problem – just record 'not sent' or something appropriate against the contact.

CONTESTS THIS MONTH

RSGB HF Contests this month concentrate on topband, so it's a good time to make sure that you've got some sort of aerial that will radiate on the band. Strapping the feeders together on a dipole is, allegedly a way to get on to the band if you can't put up a 160m dipole, and let's face it, most of us can't! I've never had much success with that method, though I'm sure it does work, and always seem to have more success with end-fed antennas. At my new QTH, I've found that a simple inverted-L, albeit too short, represents an improvement on my efforts on the band before. 13 November is the RSGB Club Calls contest, which is usually great fun with lots of club activity on SSB. A week later on 20 November, is the RSGB 2nd 1.8MHz event, which often provides some DX towards the end of the contest as the UK activity dies off.

CQWW CW is the big HF CW event of the year, which takes place on 27 / 28 November and I'll look forward to hearing your stories on how you get on. For the data enthusiast, why not try the Worked All Europe RTTY contest on 13 / 14 November. We've covered the format of the WAE contests in the past and they're great fun,

At VHF, the interest is in the CW contests taking place on 6 / 7 November. There's the 24-hour Marconi Memorial CW contest - a true test of operator dedication - but having said that, there's often some good DX to be worked. On 7 November, there's a six hour version of the contest which will probably see greater activity in the UK. ♦

2nd 50MHz CONTEST, 2003

Most entrants received a good dose of DX during this contest with the band open for at least part of the time to 9A, YU and I. The Northern Lights Contest Group, GD0EMG, turned in a massive score to dominate the Multi-operator section. The runners-up spot in this section was hotly contested between the Villa Contest Group, G0VHF/P, and the Hadley Wood Contest Group, G4STV/P. After careful adjudication, the Villa Contest Group secured the runners-up position thanks to more accurate logging.

In the Single Operator Fixed Station section, Keith Tatnall, G4ODA, and Roger Piper, G3MEH, both submitted very respectable scores. As in last year's contest, Keith emerged in first place, closely followed by Roger.

The Single Operator Portable section only attracted two entrants this year. Dave Brooking, G1KHX/P, claimed first place with J Young, G4KZD/P, receiving the runners-up certificate.

James Beatwell, 2E1GUA, receives the award for the leading Intermediate licensee and Frank Laanen, PE1EWR receives the leading overseas station certificate.

Finally, Dave Hewitt, G8ZRE, who had intended to operate /P but was prevented from doing so by a badly sprained right arm, receives the '25W to a Single Antenna' award for his entry from his home QTH.

Ian Pawson, G0FCT

Single Operator Fixed Station

Pos	Call	Loc	QSOs	Mults	Score	Best DX	km	Pwr	Ant
1*	G4ODA	IO92WS	93	95	3182120	9H1TM	2201	400	2x5el
2*	G3MEH	IO91QS	99	91	2609789	IK7LMX	1881	250	2x5el
3	M0DDT	IO91JR	60	63	1035846	9H1TM	2158	150	5el
4	G4CZB	IO92MF	23	33	184272	IK8DYD	1703	100	Dipole
5	G8ZRE	IO83NE	26	34	169252	IK5RLP	1548	10	4el
6	G7ULL	JO01AK	37	40	122800	G0JFM	273	100	5el
7*	PE1EWR	JO11SL	9	15	87405	IT9KSS	1674	20	3el
8*	2E1GUA	JO01FR	12	18	66348	IK8DYD	1594	20	HB9CV
9	G8SRL	JO01ED	26	26	58422	GD0EMG	474	100	4el
10	G7UGC	IO92BK	8	16	17600	GD0EMG	264	100	MQ-4 3Q

Single Operator Portable

Pos	Call	Loc	QSOs	Mults	Score	Best DX	km	Pwr	Ant
1*	G1KHX/P	IO81MH	29	42	472248	IZ7EVZ	1770	100	3el
2*	G4KZD/P	IO91TV	28	37	236541	9H1TM	2135	50	6el

Multi-operator

Pos	Call	Loc	QSOs	Mults	Score	Best DX	km	Pwr	Ant
1*	GD0EMG	IO74QD	102	95	4129270	IH9YIT	2308	400	2x7el
2*	G0VHF/P	JO01GN	56	60	991320	9H1TM	2066	100	7el
3	G4STV/P	IO91WP	81	65	963885	YU1DG	1758	400	5el
4	G4ADV	IO70LK	21	27	175851	IT9KSS	1998	400	5el
5	G2HDF/P	IO82UK	14	21	35784	GD0EMG	245	10	3el

1st 1.8 MHz CONTEST 2004

Sixty-five logs and two checklogs were received for the first topband contest of 2004, almost all of them by e-mail. The majority were logged in SD. For correct scoring, you should use SD type 10 for this contest and the DXCC.CTY file rather than RSGB.CTY Please check that your Cabrillo log contains the full report from both stations in one line, ie Callsign, RST, Serial and Area Code, sent and received. Overseas stations do not send Area codes.

There were three fewer UK entrants and six more Overseas than last year. Two overseas check logs were received and G3IZD was using a wrong UK code and decided that his could be a check log because of it.

Congratulations to the winner, Ed Taylor, G3SQX, operating from Guernsey, and to runner-up Fraser Robertson, G4BJM. Third equal were Ian Watt, GM4ZRR, at the Stirling ARC station GM6NX, and Richard Jolliffe, G3ZGC/P. The first three Overseas stations were from the Baltic States led by Laimonis Stephans, YL2PQ.

Sid Will, GM4SID.

UK section

Pos	Call	QSOs	Bonus	Pts
1	GU3SQX*	213	77	1024
2	G4BJM	207	74	983
3=	GM6NX	196	72	931
3=	G3ZGC/P	188	74	931
5	GW0GEI	176	66	841
6	G3GLL	176	63	837
7	G4CWH	165	68	829
8	G3XTT	175	67	825
9	G3KLH	166	64	794
10	G4RCG	164	62	791
11	GW3NJW	151	64	770
12	M0AJT	156	61	767
13	G3KKQ*	141	61	728
14	G0VQR*	137	63	726
15	G3OOK*	131	62	703
16	G3VYI	139	62	700
17	G0ORH	131	60	682
18	GM4SID	134	52	659
19	G2AFV*	118	55	629
20	G3SET	113	57	600
21	G0MTN	109	54	594
22	G3SWC/P	113	55	582
23	G4EBK	100	50	542
24	G3RSD*	98	47	529
25	G4DRS*	87	52	521
26	G3LIK*	85	47	490
27	G3YAJ	93	46	482
28	G3ZSU	83	49	478
29	G3UFY	68	31	356
30	G3GMS*	61	34	353
31	G3JJG	65	33	344
32	GM3UM	49	30	275
33	G3NKS	43	27	261
34	G4DBW	38	25	231
35	G4KTI	30	20	176
36	M0AJM	25	18	157
37	G0HDB	22	18	148
38	G3WRR	26	16	142
39	G4SLE	20	15	127

Overseas section

Pos	Call	QSOs	Bonus	Pts
1	YL2PQ	79	52	494
2	LY9Y*	73	47	454
3	LY3BA	67	39	388
4	DJ5BQ*	59	41	382
5	LY2BW	57	41	368
6	OH5NE	42	31	270
7	OK1CZ*	39	29	262
8	PA0MIR	31	24	213
9	DK3UZL	25	18	157
10	OK2PBG	23	18	156
11	SQ9FMU	26	20	154
12	OK1AYY*	20	18	150
13	UX5NQ*	19	16	137
14	PA3AFF	19	17	136
15	EI7GY*	20	15	135
16	OK1ARO	17	14	118
17	OK1KZ*	16	12	108
18	RA4SD	14	11	78
19	DL1LAW*	10	9	75
20	LA7SI	12	10	67
21	DJ7MGQ	13	8	65
22	ON4CAS*	8	7	59
23	YL3DX	8	8	56
24=	RU3VD*	6	6	48
24=	RU4LM	7	7	48
26	PA0FAW*	3	3	24

*= Error-free log. Check logs: G3IZD, HB5OAA, UR5EFJ.

CONTEST CALENDAR

HF Contests

Date	Time	Contest	Mode	Bands	Exchange
13 Nov	2000-2300	RSGB Club Calls	SSB	1.8	RS+SN+Club Info
13/14 Nov	0000-2359	Worked All Europe	RTTY	3.5-28	RST+SN
13/14 Nov	0700-1300	Japan International DX	SSB	3.5-28	RS+CQ Zone (14)
13/14 Nov	1200-1200	OK/OM DX	CW	1.8-28	RST+SN
20/21 Nov	1200-1200	LZ DX	CW/SSB	3.5-28	RST+ITU Zone (27)
20/21 Nov	2100-0100	RSGB 2nd 1.8MHz	CW	1.8	RST+SN+District Code
27/28 Nov	0000-2359	CQWW DX	CW	1.8-28	RST+CQ Zone (14)

VHF Contests

Date	Time	Contest	Mode	Bands	Exchange
2 Nov	2000-2230 Local	RSGB 144MHz Activity & Club Championship	ALL	144	RST+SN+Locator
6/7 Nov	1400-1400	RSGB 144MHz CW	CW	144	RST+SN+Locator
7 Nov	0800-1400	RSGB 144MHz CW (6hr)	CW	144	RST+SN+Locator
9 Nov	2000-2230 Local	RSGB 432MHz Activity	ALL	432	RST+SN+Locator
16 Nov	2000-2230 Local	RSGB 1.3/2.3GHz Activity	ALL	1.3G/2.3G	RST+SN+Locator
23 Nov	2000-2230 Local	RSGB 50MHz Activity	ALL	50	RST+SN+Locator
30 Nov	2000-2230 Local	RSGB 70MHz Activity	ALL	70	RST+SN+Locator

432MHz LOW POWER RESULTS 2003

Results were very close at the top of the Single Operator Fixed section – the multipliers hide just how close, but through accurate logging Roger Piper, G3MEH, won the day, pushing Bryn Llewellyn, G4DEZ, into second place and reversing last year's result. It was good to see three single operators taking advantage of the good weather and going out portable. Geoff Morris, GW1ATZ, won this section from Gordon Emmerson, G8PNN, who crossed the border into GM. In the Open section, the A1 CG won out once again, but with the Bracknell ARC not far behind with a much simpler system. Many of A1's extra QSOs came from FM which also brought them some valuable extra multipliers. In a 70cm contest like this with low QSO counts, FM is worth checking, but needs to be done without irritating all the locals, so don't camp out permanently on 433.500!

Overall, things were a bit quiet this year – it was described by one entrant as the 'Watching Paint Dry' contest. Because of this, we've planned some changes for 2004, shortening the event and removing the clash with the IOTA contest, so we hope to see more activity next time around.

Andy Cook, G4PIQ

Single Operator Fixed Station

Pos	Callsign	Loc	QSOs	Mults	Points	Pwr	Ant	Best DX	km
1 *	G3MEH	IO91QS	24	30	83310	20	2 x 23Y	PA3AWJ	355
2 *	G4DEZ	JO03AE	17	27	75708	25	2 x 28Y	PA3AWJ	334
3 *	PE1EWR	JO11SL	13	22	71962	5	2 x 21Y	M0BRA/P	425
4 *	G1KHX	IO81MI	16	26	67548	25	19Y	EI5FK	389
5	G8SRL	JO01ED	15	22	44858	25	2 x 21Y	DG1KJG	474
6	G4APJ	IO83UP	7	15	23220	25	19Y	G8SRL	332
7	G3JJZ	JO01AJ	9	15	12600	10	19Y	G4ZAP/P	241
8	G4PDF	IO93VH	9	11	10043	25	19Y	M0BRA/P	318
9 *	2E1GUA	JO01FR	4	8	2960	10	19Y	G4ZAP/P	226

Single Operator Portable Section

Pos	Callsign	Loc	QSOs	Mults	Points	Pwr	Ant	Best DX	km
1 *	GW1ATZ/P	IO82KW	19	26	74048	10	18Y	PA3AWJ	531
2 *	GM8PNN/P	IO85XT	11	18	37980	25	2 x 21Y	G8VLL	413
3	G6GVI/P	IO81QJ	10	15	19905	25	HB9CV	G4SIV/P	277

All Others Section

Pos	Callsign	Loc	QSOs	Mults	Points	Pwr	Ant	Best DX	km
1 *	G4ZAP/P	IO93EH	57	63	689913	25	2 x 2 x 28Y	DF2VJ	740
2 *	M0BRA/P	IO80ST	41	51	413712	25	2 x 21Y	DG1KJG	673
3	G4SIV/P	JO03CE	24	36	182484	25	8 x 28Y	DF2VJ	634
4	G4FUR/P	IO91XH	27	26	52286	25	54Y	G4APJ	301

* Certificate winner

By Dave Lawley, G4BUO

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First steps in CW contesting

This month Dave Lawley gives some advice to those wishing to take their first steps in what might be considered the slightly daunting world of CW contesting.

PHOTO: CHRIS WHITMARSH - G0FDZ

Author Dave Lawley, G4BUO, using a straight key from G3RCV/P in the Isles of Scilly.

For the 2004 IOTA contest the Cray Valley RS travelled to the Isles of Scilly. Propagation was good in the days before the contest, but as the weekend approached conditions deteriorated and we found it impossible overnight to generate any volume of QSOs in response to CQ calls on SSB. That is where Morse came into its own, and most of the night-time operation on 40 and 80m was on CW. I was the only one of the five operators whose Morse is up to contest speed, but three of the other four are working hard to improve their CW skills for our return visit in July 2004.

As if further demonstration of the value of Morse were needed, on Sunday one of our team Chris G0FDZ was operating portable on 10GHz but found that the auroral conditions made talkback on 144MHz SSB impossible. Other operators had abandoned 10GHz for the same reason so he suggested that I might like to make some auroral QSOs on 144MHz CW. I sat down by the tripod (see picture) and was able to give the very rare IN69 square to 19 stations. The doppler shift and distortion introduced by the aurora mean that Morse is by far the best mode to use for auroral working.

G4FON KOCH SOFTWARE

In the May 'Morse' column I recommended the Koch method of learning Morse, and Ray, G4FON, reports that there has been a lot of interest in his Koch trainer program. He calls it 'QSLware': the software is free for personal use but he asks you to send him a card to acknowledge that you are using it. If you have downloaded it but not yet sent your QSL card, please take time to send one to Ray. He's making good progress collecting a DXCC of 'QSLware' cards.

Downloading from qsl.net can be rather slow, so G0LFP has kindly provided a mirror site which downloads much more quickly. Full details are on the revamped G4FON site which also includes a new CW contest trainer program.

CONTESTING

Contests are a theme of this month's column. The Morse skills needed for 'ragchewing' are rather different from the skills needed for successful contesting, but enhancing your skills in one area can benefit the other. One of the advantages of Morse that I listed in the February column seems to apply especially to contests: you don't need nearly as big a station to be competitive on CW, compared with phone.

At the end of this month the biggest CW contest of the year, the CQ Worldwide Contest, takes place. If you're only just starting with Morse you may not think that it would be a good idea to get involved in this major event, but it offers plenty of opportunities to have some fun, and to work some new countries.

There is a perception among some that contests consist of loud stations CQing endlessly. The real skill lies in knowing when to CQ, and when to tune around and call people, which is known as 'search and pounce'. A new Morse user may not be confident enough to call CQ in a contest, but you can build confidence by search and pouncing and at the end of the contest you'll find your copying speed has increased.

Many contests have an exchange consisting of a serial number which changes for each QSO, but in CQWW the exchange is simply the CQ zone number. The UK is in CQ zone 14. When you come across a contest don't just jump in, but listen to the exchanges for a while to see what's going on. The Morse will sound awfully fast, but if you tune higher up in the band, things tend to slow down a little. If you have learned using the Koch method you should be able to copy at around 18WPM, but for brief bursts, such as callsigns, copy soon becomes possible at much higher speeds. Listen to the CQing station over and over again until you are sure you have the callsign correct.

In a CW contest it's quite common not to send 'CQ', instead the letters 'TEST' are sent as an indication that the station is inviting callers. If he is making plenty of QSOs then he won't repeat his callsign very much, but especially on the Sunday of a contest things inevitably slow down and by going higher in the band you should find stations whose callsigns you will start to be able to copy.

Having found a station and decoded its callsign, listen to the format of the exchange. Minimal information is passed, usually just callsign and report which consists of RST (invariably 599) and zone number. The digit '9' is normally abbreviated to 'N'. So for example a station in Japan would typically send '5NN25', since Japan is in CQ zone 25.

When search and pouncing, all you have to do is to send your callsign once in response to a CQing station. Don't try to match his speed, just send at whatever speed you are comfortable with. If the CQing station replies to you, he'll normally send nothing but your callsign once, followed by the exchange. He *should* slow down to the speed at which you called him. You simply reply with your exchange, which in the CQWW contest will be 5NN14. If he confirms, either by sending 'R' or 'QSL' or simply moving to the next contact, then you've just made your first CW contest QSO.

These days when so many shacks contain a computer, you can use your station logging program or dedicated contest logging software to send the callsign and exchange for you, by pre-programming the function keys. Equally, a memory keyer can be programmed to do the sending. The main skill, of course, comes in copying what the other station is sending to you. ♦

WEB SEARCH

G4FON Koch Program: www.qsl.net/g4fon/CW%20Trainer.htm
M8C Isles of Scilly: http://ourworld.compuserve.co.uk/g4buo/m8c.html
RSGB Contesting Guide: www.contesting.co.uk/hfcc/information/guide.shtml
EI5DI Freeware Contest Logger: www.ei5di.com
N1MM Free Contest Logger: http://pages.cthome.net/n1mm

By Bob Treacher, BRS32525

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Peak listening: tuning in to SOTA

Bob Treacher looks at SWL activity within the Summits on the Air scheme, and reports on his recent holiday SWLing experiences from West Wales.

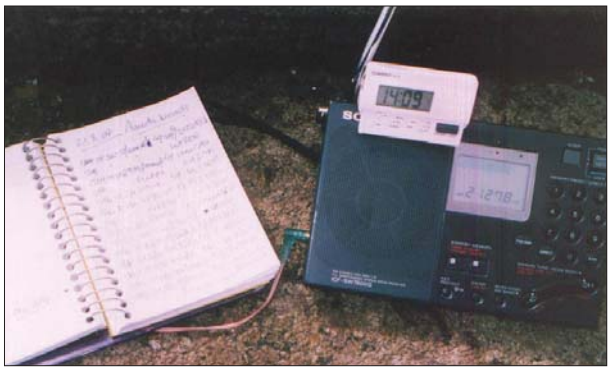
I mentioned in the last 'SWL' column that I had some interesting news about Summits on the Air (SOTA) and SWL participation. Tom Read, BRS180710, is custodian of the SWL SOTA award 'honour roll'. Most listeners know about the activators (those licensed amateurs that operate from the summits of mountains around the UK) and chasers (those who work the summit stations from their shack), but not so many are aware of the SWL section, which is for the correct logging of summit stations heard.

Currently, all bar one participant in the SWL 'honour roll' is a licensed amateur, with most of their logs being where they tried but failed to make a chaser contact, and so logged the station as an SWL. There are just a handful of SWL entries at present, but with a lot of activity on 40m there is scope for many more entries. If the number increases, the SWL table will be added to the on-line database.

Tom is therefore very keen to see an upsurge of interest and contributions from SWLs and hopes that coverage in this column will provide that upsurge of interest. There is activity most days and on most bands and modes. However, the peak times for activity are Saturdays and Sundays, with the favoured band / mode being 2m FM. Other popular spots are 40m SSB and CW, 30m CW and 2m SSB. There is also some activity on 60m.

Currently, the SWL SOTA honour roll can be viewed on the SOTA Internet discussion group (see 'Web search' below) by going to the Files section and selecting the SWL table. It is necessary to sign-up for a Yahoo ID to access this. Until the table goes on-line, loggings should be e-mailed directly to Tom via m1eyp@qsl.net giving the usual SWL log information: date, time, QRG, callsign of the station heard, report of the station heard, callsign(s) of the stations being worked, and the summit reference / name.

Further information about the SOTA programme can be found on pages 47 - 48 and 52 - 53 of the July 2004 *RadCom*, and on the SOTA website.



The BRS32525 Sony portable receiver, pictured on the rocks on the beach at Amroth. This receiver has now netted Bob 204 DXCC entities while on holiday in Wales.

DEMISE OF THE ILA

The International Listeners' Association was formed in 1985 by Trevor Morgan, GW4OXB, from a group of listeners writing to his SWL column in Amateur Radio magazine. Over the past 19 years, nearly 1500 listeners joined the association but, over the past three years, membership has become too low to make it financially viable.

Trevor puts the reduction down to the new licensing system and the technology that has enabled worldwide communications to be so easily available so cheaply. He thanks all those who supported the ILA and hopes that those still listening will continue to support this column.

MORE GW SWL ACTIVITY

The weather was not kind to us while on holiday this year, so the number of days where it was possible to SWL from a West Wales beach were limited. This had a drastic effect on the number of new DXCC entities that could be added to the 201 already heard in previous years. Some SWLing was possible from the hotel late at night once the other guests had turned off their TVs.

Only three new DXCC entities were logged: FJ5IF, AL0E and 5X1GS. However, some interesting DX was heard. Some of the best loggings were: A92GR, FR1GZ, FY5HE, HS0ZDZ, ST2M, TG9NX, TT8FC, V31LZ, V59SWK/L, VP8LGT, VU2PEB, YI1HXH, XE1REM, 5H3JD, 5R8DA, 5Z4JC, 6O0A and 8R1WD. As in previous years, all loggings were made using a Sony ICF-SW7600G receiver. At beach locations the antenna was just the whip plus the AN-71 compact wire antenna. At the hotel a 33ft long wire was used. Current plans are to have a new /P QSL card produced with a view of Freshwater East beach.

RECEIVER KITS

The Kit Radio Company has now added an 80m receiver to its free designs. Why not take a look at their website?

FOUNDATION vs SWL

This topic keeps re-appearing! This time, I have some interesting views from Johnathan, M5AEO (ex-BRS45205). I must agree with his suggestion that as part of the Foundation licence there might have been a mandatory period of listening, say six months, where the intended M3 recorded his listening results in an official log book that could have been validated by the course tutor (or perhaps any Full licence-holder). This would have meant that before making a first QSO, the person would know more about operating procedures, propagation, log-keeping, antennas / tuners, and how to operate an amateur receiver / transmitter.

Johnathan had recently moved back to London where, because of antenna restrictions, he has, once again, become BRS45205. He is now broadcast SWLing using a 'Mini-Windom' by RF systems, as the signal strengths are too low for amateur band DXing.

OTHER SWL NEWS

Alan, G0RLW, used to be RS92607. In 1990 he sent QSL cards through the bureau to OM6AJN, KZ4C, VK3ABO and PY5EG. He had envelopes at the Society's SWL QSL sub-Manager marked 'Wait 5', meaning that David Bourne, G4CYW, would send Alan's envelope to him once there were five cards to send. He received his envelope back on 24 June 2004 with cards from the four stations. Alan remarks that he knew that QSLing via the bureau was not the quickest way to get a card, but he did not expect to wait 14 years. Can any other SWLs beat that?

Doug Johnstone, BRS54163, has added an ALA Active Loop to his receive antennas. He is pleased with it and has heard some good DX. He is waiting for the up-coming autumn / winter DX season with interest. Doug has also joined the RAIBC and has introduced his blind sister to amateur radio. He was hoping to become an area representative for RAIBC. ♦

WEB SEARCH

Summits on the Air (SOTA):	http://www.sota.org.uk
SOTA discussion group:	http://groups.yahoo.com/group/summits
Kit Radio Company:	http://www.hometown.aol.co.uk/kitradioco/uk.htm?f=fs

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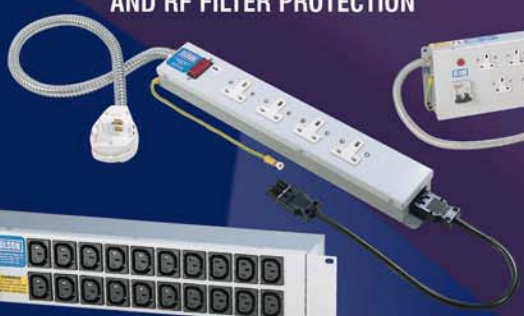

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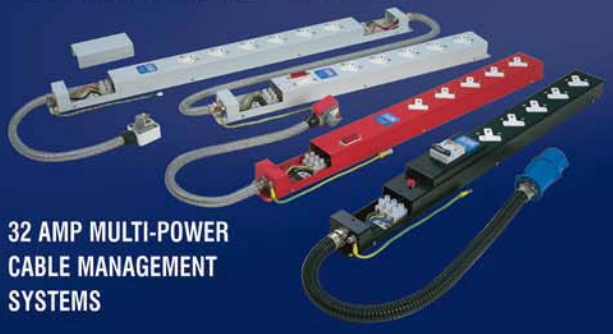

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By Norman Fitch, G3FPK

40 Eskdale Gardens, Purley, Surrey CR8 1EZ.

E-mail: g3fpk@compuserve.com

VHF / UHF

Norman Fitch asks if it is not time to reintroduce an annual VHF / UHF meeting in the UK, similar to those that take place on the Continent?

Until 2001 UK VHF/UHF amateurs had the opportunity to attend an annual VHF Convention. Originally these were small events - remember those at the Winning Post Hotel? - attracting just a few hundred keen constructors and operators? By the 1990s they had become much larger events with crowds of over 3000 in the peak years. Apart from a few lectures, there was little to distinguish these latter events from run-of-the-mill rallies.

Our colleagues in France fare better in that an annual meeting, known as CJ, takes place at Seigy in Department 41, Loir-et-Cher. Graham Daubney, F5VHX, writes that these are organised by Michel Rousselet, F5FLN; Phillipe Martin, F6ETI; and Gilles, F5JCB. The flavour of this event is specialist, both in terms of items you might find and people you might meet. There are no little black boxes, home-made cakes, computer junk: there is a lot of serious connectors, cables, microwave parts recovered from professional systems and adequate eating, drinking and *bonne humeur.*

CJs are rather like our Martlesham Round Tables but with a bigger attendance and VHF and UHF enthusiasts as well. The main hall, a small village one, opens on the Saturday morning and includes a German speciality components firm and an excellent Italian supplier. Between them they can supply almost all of the parts for many of the German VHF/UHF/SHF kits. There is a lot of good quality, surplus test gear. A feature of these CJs is a flea market in a marquee area where there are 30-40 stands.

Next year's CJ takes place on 2/3 April and Graham writes, "We are considering offering a 'hand-holding' service - totally free of course - if UK folk want to come. Each year we have people from DL and HB9 so we are considering trying to extend this to help guys from G to attend. Depending upon interest and numbers involved, Michel and I will then discuss how we can best put together a little hand-holding package to help."

The history of the last two events, including some pictures, and the announcement of the 2005 CJ, can be found on a website - see the list - and Graham.D@wanadoo.fr is Graham's e-mail address. Meantime, I would welcome your comments regarding the idea of a UK CJ-style event. There is plenty of scope for talks on, for example, the exploitation of the newish weak-signal modes, a section devoted to testing equipment and a few stands by people offering appropriate components and accessories. In other words, a smaller scale event attracting a few hundred genuine enthusiasts. [Many 6m DX enthusiasts attend the RSGB's HF Convention, which this year is being held from 22 - 24 October at the Gatwick Worth Hotel - see *RadCom* October pages 18 / 19. This year's event also includes presentation of the VHF / UHF contest trophies - *Ed.*]

SOLAR AND GEOMAGNETIC DATA

In the 30 days to 7 September the daily 10.7cm solar flux averaged 113.3 units. The maximum of 149 occurred on 13 and 14 August, the minimum value being 86 units on the 29th. 160 was the largest SESC sunspot number recorded on the 13th and the lowest count was just 11 on the 31st. The number of new regions was 13. The middle latitude A-index at Fredericksburg was in single figures on 21 days and only on 30 August did it reach 27. So it seems that the Sun has settled down again after the event on 27 July.

MOONBOUNCE

The September edition of the *432 and Above EME News* includes an account of this year's EME Conference that was held in Trenton, New Jersey, USA on 6-8 August. It was a great success for the 75 attendees from 14 countries who were offered several technical presentations. On Friday these included 'Using the SDR-1000 as a 2m EME IF' by N4HY; 'High-accuracy Doppler shift computing' by F5SE; 'The W2DRZ antenna controller board and software' by K2TXB; 'Small offset stressed dish for portable 1296MHz EME' by K2UYH; 'Circular polarisation feed with septum' by OK1DFC. '500W 23cm PA with 2 x GI7B tubes' by N2UO; 'EME receiving system optimisation' by WA6PY and 'A modified dual dipole dish feed for 432MHz' by G3LTF. On Saturday technical presentations included 'Multi-reflector antennas' by W1GHZ; 'Fundamental limits on weak-signal communication' by K1JT; '2003 JW/SM2BYA 432MHz EME operation' by SM2BYA and 'Progress toward 47GHz EME' by AD6FP.

SM5BSZ ran a transceiver clinic where some participants took the opportunity to have their radios measured and to take a closer look at Leif's 'LinRad' Linux-based software defined radio. There was a banquet on Saturday night when Joe Taylor, K1JT, was the keynote speaker. Sunday featured an EME forum co-chaired by Peter Blair,

The 75 participants from 14 countries who attended the EME 2004 Conference in August held in Trenton, New Jersey in the USA.

PHOTO: 432 AND ABOVE EME NEWS WEBSITE

METEOR SCATTER

During the Perseids Bryn Llewellyn, G4DEZ (JO03), noticed that, at the end of the shower, stations on 6m were giving MS-style reports to stations that he could hear continuously. There was a small Es opening and while some stations were struggling to work an OK on MS, he quickly worked the station via Es with RS59 reports.

Robin Burrows-Ellis, M1DUD (JO02), found the shower a little disappointing on 6m. On 12 August he heard several stations via Es plus MS bursts so he called CQ and at 2246 worked DF9OX (JO42).

GW4DGU concentrated on 70cm after adding a second Yagi on the tower. In the late 1970s and early 1980s he spent many hours attempting to complete an MS QSO on the band when Chris copied many bursts and was heard by a number of people. This time he was running a home-built solid-state PA delivering 400W at the antennas, which are 5.7 wavelength Yagis of his own design, the simulated gain of the array is 19.6dBi; he has a home-built HEMT preamp. On 12 August, 0015-0109, he completed on FSK441 with OK1DFC, (JN77GW at 1426km), in 12 bursts and 2 pings. He tried FSK441 with DL7UAE but it stubbornly refused to decode, possibly because of Doppler effects. From 1200, using HSCW at 3000lpm, he completed with SM3AKW, (JP92AO at 1786km). Carl copied a 5s S8 and a 10s S9 burst from him and Chris a 5s S8 burst from Carl and he thinks this is a new UK record on 70cm MS. A rather ambitious test at 2100, rather late in the shower when the geometry wasn't good, produced nil with SM2CEW (KP15) over a near 2200km path.

David Whitaker, BRS25429 (IO93), listened around 144.200MHz, the 2m random SSB MS calling frequency, from 1000 on 12 August but copied few reflections and no pings. Stations heard were EI3GE (IO63), SM2CKR (KP03), S50C (JN76), GM4VVX (IO78) and LA8KV (JP52).

The next significant meteor shower is the Leonids and the OH5IY program predicts a peak at 0640 on 17 November. The normal zenithal hourly rate (ZHR) for this stream is 10-20 but in 2001 and 2002 there were big outbursts. However this wasn't the case last year. The radiant is above a mid-UK horizon between 2230 and 1430 and at the possible maximum time the best path will be the East/West one and the worst the North/South.

G3LTF, and Al Katz, K2UYH. A full report on the forum is published in the September edition which can be downloaded from the website - see the list. Finally Dave, DL4MUP, proposed that the 2006 conference be held in Wurtsburg, Germany, which motion was universally approved.

Back home on 14 August on 13cm G3LTF (IO91) worked G3LQR, and ES5PC was initial (#)29 and a new DXCC entity. Then on 70cm Peter worked DL0GER #381, KU4F and SM5IOT when the Faraday rotation was a sharp 90°; "Thank goodness for the rotatable feed," he says. Dave Dibley, G4RGK (IO91), has rebuilt his 70cm array which now has new phasing lines and elevator mechanism. Unfortunately an electrical storm took out one of his preamps and destroyed various other things around the house.

Howard Ling, G4CCH (IO93), was QRV on 23cm during the activity weekend (AW) on 7/8 August and completed on CW with OE9ERC, PA3CSG, OZ4MM, K9SLQ, F1ANH, VE6TA and OZ6OL on the Saturday and next day with SK0UX, K5JL, IK3COJ, F1ANH, ON5RR and HB9Q. In the September AW he was only QRV on the 4th completing on CW with DL1YMK, GW3XYW, N2UO, VE1ALQ and NA4N.

Paul Whatton, G4DCV (IO91), now lives in the middle of Aldershot, a far from ideal location compared with his cliff-top QTH in Kent during the 1980s. Even so, running 100W on 2m to a 9-ele Yagi he completed his first JT65b QSO with I2FAK using his old FT-221 transceiver with MuTek front-end but no preamp. It took an hour to complete and he is grateful to Franco for his patience.

Chris Bartram, GW4DGU (IO71), continues with sporadic operation on 2m with his single Yagi and is up to 46 initials in five continents using both JT65b and CW. He has completed with single Yagi stations RU3ACE and RA3AQ, no mean achievement.

The next AW is 30/31 October, which is the weekend of the 2.3GHz and above leg of the ARRL International EME Competition; see last month's data in 'VHF/UHF'. A suitable weekend to get ready for the December leg of the contest would be 27/28 November when London latitude stations will have 33 hours of Moon time. The declination varies from +24.40° to +27.89°, the 144/432MHz sky temperature range is 435/31K to 575/44K and the signal degradation, referred to perigee varies from -1.73dB to -1.89dB. The Sun offset at Saturday midnight is -167°.

BAND REPORTS

50MHz

Using his 2W M1DUD completed a cross-mode CW/SSB contact with EH6CC (JM19) on 15 July followed by EH6VQ (JM19). The last QSO was at 1825 with EH6AZ (JM29) on Menorca. Recent highlights for Graham Wright, G4FUJ, were Es QSOs with IH9/I2AGN (JM56) and IS0/IW2MXY (JN40) on 14 July, then an auroral contact on the 25th with GM4SFW (IO77).

During August Ted Collins, G4UPS, was operating portable in IO92 up to the 11th but only lists one QSO, with CN2DX (IM63) at 2001 on the 2nd. Back home in IO81 it was all quiet till the 23rd when he worked SP3MGM* (JO73) at 1950. From 1649 on the 25th he contacted 9A2DI* (JN95), DL8UVG* (J071), DF4ZK* (JN49), OK1AFQ (JO60) and SP5SS* (KO02). During an aurora on the 30th he copied a few British stations and worked G3TBK* (IO93).

Tim Kirby, G4VXE, continues his mobile operation and the highlights were Es QSOs on 4 July with HB0/IW2NEF/P and on the 5th with EH6VQ. During VHF NFD he worked G3GRS/P in Kent from the M4 near Swindon but the real interesting QSO was with EI7M/P while he was in a deep valley near Pontypool. This could have been a short skip Es contact: at the time there was Es propagation to the Balkans and Spain.

Colin Fallaise, MU0FAL (IN89), reports that on 6 July, when stations in the south of England were enjoying an opening to the Caribbean, all he heard was the CU3URA beacon in HM68. Then at 2316 he heard W4SO in Florida (EL96) and a CQ resulted in 12 QSOs with Ws mainly in that grid with a weaker signal from NL7AU (EL94). He had a "fantastic aurora opening" on 27 July working 61 stations in the 1128-1622 period. The majority of QSOs were with Gs in IO84 and 94 down to IO70, 80 and 90 but no GMs were heard. Other countries contacted were EI, GI, GW, ON, PA and F6FRR (IN95).

70MHz

The only report on 4m activity was from G4FUJ who, on 10 July, heard GM6VXB on 6m say he was going to QSY to 4m. So Graham worked Martin on 70.200MHz to get IO97 grid in the log, but he still needs it on 6m.

144MHz

Just as the copy deadline approached a period of excellent tropo propagation started. Although G3FPK is only about 11km line-of-sight from Crystal Palace, the QRO ITV TV transmitter on 487.25MHz was subject to considerable patterning in the evenings while the lower power, 1kW Channel 5 Croydon transmitter on 599.25MHz was unwatchable at times.

Steve Burrows, M5BXB (IO91), has been busy collecting new grids and on 7 September found the band wide open to Northern Europe. Using 400W to a 9-ele Yagi at 15m AGL he made 124 QSOs with stations in DL, F, G, HB9, LA, ON, OZ, PA, SM and SP in 36 grids, six of them new. ODX was SP3VSC (JO92) at 1258km.

Bob Harrison, G8HGN (JO01), was QRV for part of the RSGB Trophy Contest on 4/5 September complet-

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	94	59	55	12	107	22	45	13	20	8	435
G3FIJ	20	12	22	5	55	7	15	4	1	1	142
G6TTL	3	23	-	-	38	7	17	7	-	-	95
G4APJ	13	22	-	-	31	5	11	3	-	-	85
M0XLT	19	39	-	-	15	3	2	1	-	-	79
G8RWG	-	-	-	-	18	6	-	-	-	-	24

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 next issue is 9 November.

ing 20 QSOs with stations in 14 grids in DL, F, G, PA and SK7JM (JO65), who was ODX at 971km. He writes, "Very good conditions, shame it was spoilt by one or two horrendously bad signals. S7 splatter from 144.150 to 144.400MHz doesn't help in digging out the weak ones." He also worked a few stations in the following Backpackers event including EI9E/P (IO62).

Brian Clowes, GW4HBZ (IO83), has a dreadful location just 50m ASL with 300-500m mountains 10km away in the direction of Europe. With 20W and a 9-ele Yagi he says that it's a struggle to work into Birmingham. So he was delighted to work some of the DX that he can usually only manage from a portable site 500m ASL with 300W. He contacted two stations in Berlin and worked some OZs with LAs, OEs and DLs on the Polish border heard.

David Whitaker listened in the 4-7 September period and copied stations in 16 DXCC entities in 52 grids. One of the rarer stations heard was OE2XRM (JN67) at 1233km. Other good DX were SP3MGM (JO73) and LA2PHA and LA3BAA (JN38).

Stefan Heck, LA0BY (JO59), was QRV in the September contest running 180W to a 9-ele Yagi 9m AGL. He completed 66 QSOs in 35 grids and nine DXCC entities, ODX being TM2K (JO10) at 1133km. Three G QSOs featured in his top ten and were G8P, G8TIC/P and G0VHP/P all in JO01. He reports that there were some lifts but that his take-off was only really good to G.

Carl Halkier, OZ1IEP (JO55), was also QRV in this contest and made 277 QSOs of which 13 were G stations. His ODX was F/PE1BBI/P (JN09) at 1010km, while G3CKR/P (IO93) and G7ICV, G0JBA, G4FUF and G8TIC/P all in JO01 were in his top ten. Carl has a website - see the list.

Peter Frenning, OZ1PIF (JO65), was QRV in the Nordic Activity Contest on 7 September and in the four hours made 81 contacts with stations in 40 grids and 11 DXCC entities. His list includes EI2JD (IO63) who was ODX at 1187km, three Gs, a GM and two GWs. In his top ten QSOs were GW0GDI (IO73), GW5NF/P (IO81), GM4AFF (IO86), G4PIQ (JO01), G4DEZ and G4SWX (JO02). He ends his e-mail with, "That was fun!"

430MHz

James Hill, M3GXQ (JO02), has been using FM simplex on 70cm running 10W to a vertical antenna and on 1 August worked M3TZD (JO01) at 137km. In good tropo on the 7th he contacted M3TZD again, M1CLK in South Bedfordshire, other locals with ODX G7OFR in Bradford at 190km. It's gratifying to read that some 70cm operators with modest equipment are trying simplex QSOs instead of using repeaters.

In the UKAC on 10 August G8HGN made 31 QSOs with stations in 11 grids and four DXCC entities for a claimed score of 58,905 points. Bob's ODX was DF2VJ (JN39) at 524km. There was lots of continental activity but not much from G. GW4DGU was QRV in late July with his "little 4-Yagi EME antenna", which has a very restricted horizon at small elevations being only 3m AGL at the centre. He worked some Gs, PAs and F6EAS (IN97). He heard traces of an S5 but thinks that the scatter point was too far south for his antenna to see.

DEADLINES

Thanks to *DUBUS* for the 3/2004 issue of the magazine. The deadline for copy for the January issue is **9 November** and for the February edition it's very early on **7 December**. My telephone answering and fax machine is on 020 8763 9457 and my CompuServe ID is g3fpk ♦

WEB SEARCH	
CJ website:	www.ref-union.org/cj
432 and above	
EME News:	www.nitehawk.com/rasmit/em70cm.html
OZ1IEP:	www.qsl.net/oz1iep

Helplines

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.

♦ André, F9HX, would like to find the data sheet for the Ferranti ZNC 422 E, made 50 years ago. All expenses will be met. F9HX, e-mail: agit@wanadoo.fr

♦ Dennis, G3PNF, has two Kenwood rigs, neither of which will transmit outside the present 7.0 to 7.1MHz band. He enquired of the emporium from which the rigs were bought if there would be modifications to enable them to transmit up to 7.2MHz. "Certainly, at a cost of £25 per rig plus carriage both ways" was the reply. Has anyone else had any experience on this subject, please? G3PNF, QTHR. E-mail: bowden@bowden.charitydays.co.uk

♦ Geoff, G4DED, remembers that, in the old Mosley UK Handbook, mention was made about feeding beams with open-wire or ribbon feeder. Has anyone a copy please, or any thoughts / comments on doing this? All expenses will be covered. G4DED, QTHR. E-mail: g4ded@ukonline.co.uk

♦ Ron, G4CFW, needs a workshop manual or technical notes for a Yaesu FT-225RD. All costs will be met. G4CFW, QTHR. Tel: 01202 895 027 or e-mail: rrrav@aol.com

♦ Pete, G8ZKZ, wonders if any *RadCom* readers who were in WWII military service could throw any light on the military use of the Wheatstone bridge? G8ZKZ, e-mail: Peter_Weedon@compuserve.com

♦ Rob, G3TFM, needs a copy of the service manual for the Marconi Signal Generator type 2022E. He asks if anyone has had problems with output levels on a Marconi 2019A Signal Generator. He will repay all expenses. G3TFM, QTHR. E-mail: g3tfm@aol.com

♦ Ron, G2FSA, has loss of hearing problems and difficulty in resolving audio from his Kenwood TS-870S and wonders if the new W2IHY Graphic Equaliser will help. Any information in this area will be greatly appreciated. G2FSA, QTHR.

♦ Brian, G8VPR, needs help on the G3WPO Omega design. He needs connection details or circuits, and thinks it was published about 1983 in Ham Radio Today. G8VPR, QTHR. Tel: 01543 500 080 or e-mail: briang8vpr@aol.com

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Mark Lewis, GW7KDU

14 Hornbeam Close, St Mellon's, Cardiff, CF3 0JA.

E-mail: gw7kdu@ntlworld.com

Costs of running a repeater

GW7KDU looks at the hidden expenses involved in running a repeater. If you use one regularly, do you help to fund its upkeep?

Many people use repeaters probably never giving a thought as to how much it might cost to run them. Volunteers build and run repeaters for the benefit of all radio amateurs. In the United Kingdom all repeaters are licensed on the understanding that they are available to all amateurs, whether they are members of the group that runs the repeater or not. Sometimes, however, when you call through a repeater away from your home area you might be forgiven for thinking you are using a closed repeater.

Over the last few years, costs have risen dramatically for many groups. Most repeaters provide a valuable service to the area that they cover. The cost of running them, however, must be borne by an individual amateur or group. In rare cases, the costs are entirely met by the keeper out of altruism but, more usually, funds come from donations or, in the case of a repeater group, from membership fees. Costs can be considerable; the UKFM group (Western) in the northwest of England for example, run up to nineteen repeaters which cost around £5000 annually to maintain.

Costs for a repeater vary widely, depending on circumstances, but approximate figures are:

- Equipment cost – this varies hugely, depending on what is available and what needs to be bought. This can be as much as £5000, but is usually lower.
- Installation cost and legal fees – up to £3000 for a commercial site.
- Equipment repair costs – up to £50 per annum.
- Site rental – up to £1,000 or more per annum.
- Electricity – £40.
- General admin costs – up to £100.

One of the main areas of increased cost causing a great deal pressure for repeater operators is site rent; it has become a very commercial world out there! Long gone are the days when a friendly farmer could be approached and 'persuaded' to put a repeater in an old out-house or similar for a bottle of whisky each year. Since the advent of mobile phones and the very high site rentals the cellular network operators are prepared to pay to get the sites they want, the friendly farmer has become less friendly towards radio amateurs. This is not always the case, however – some groups use sites where they pay nothing, thanks to the generosity of the site owner but, equally, some have to pay rents of hundreds of pounds a year where they operate from commercial sites.

Many repeaters are constructed from surplus radio equipment from the PMR industry. Some of this is getting on in years but, provided it is still working, most groups leave it in service. The older equipment also has the advantage that in many cases it is more straightforward to repair compared with a modern unit. Just think of older cars and their more recently manufactured counterparts. Not too many home mechanics will tackle a modern engine management system on a new car, but many will happily get their hands dirty on the older models!

A repeater is licensed by the use of a Notice of Variation to an individual amateur's own licence. This means that he/she is totally responsible for the technical aspects of the repeater and also the nature of the communications through it. For this reason remote closedown is now a requirement for all new repeaters. If abuse occur, a registered remote closedown operator can switch off the repeater to prevent it. It is not permitted to have remote switch-on of the repeater and, once closed down, a site visit is required to restart the repeater. This is intended to stop closedown operators 'playing God'.

With some of the above in mind, next time you use a repeater, just spare a thought for how it gets there and, if you're not already a member of a group or make a donation to a particular unit, please consider supporting your local repeater if you use it regularly. The more of us that do contribute will mean that there is more chance that the unit will remain on air. If the support isn't there, repeaters will disappear. As we all know, once something has gone, like a repeater, it's much more difficult to resurrect it than it is to keep it on the air.

REPEATER PROPOSAL STATUS AS OF 14 SEPTEMBER 2004

The latest clearance status can be obtained from the RMC website. Please note that, even though an application may have cleared, it is beyond the control of the RMC as to when the keeper will bring the repeater into service. ♦

Moel-y-Parc, home to GB3MP.

LATEST CLEARED REPEATERS

Callsign	Type	Channel/Frequency	Keeper
GB3BF	2m Freq ch, Bedford	RV63 Input 145.1875MHz Output 145.7875MHz	G8MGP
GB3FK	New 2m, Folkestone	RV60 Input 145.150MHz Output 145.750MHz	M1CMN
GB3KI	New 2m, Herne Bay	RV53 Input 145.0625MHz Output 145.6625MHz	G4TKR
GB3MI	New 2m, Manchester	RV57 Input 145.1125MHz Output 145.7125MHz	G0TOG
GB3RF	New 2m, Accrington	RV62 Input 145.175MHz Output 145.775MHz	G0BMH
GB3TO	New 2m, Northampton	RV49 Input 145.0125MHz Output 145.6125MHz	G6NYH
GB3TW	New 2m, Co Durham	RV58 Input 145.125MHz Output 145.725MHz	G8YWK

OUTSTANDING VOICE REPEATER PROPOSALS SUBMITTED FOR LICENSING ARE:

Callsign	Type	Process Stage	Proposed Keeper
GB3CD	New 2m, Co Durham	Ofcom	M1FDI
GB3CN	New 23cm, Northampton	PU	G6NYH
GB3DU	New 2m, Borders	Ofcom	GM7LUN
GB3FH	New 6m, Somerset	RIS	G4RKY
GB3FK	New 2m, Folkestone	NFAP	M1CMN
GB3LP	New 6m, Liverpool	NFAP	M1SWB
GB3OK	New 2m, Orpington	NFAP	G1HIG
GB3TY	New 6m, Carrickfergus	PU	GI6IXD
GB3VM	New 2m, Woofferton	NFAP	G4AIJ

WEB SEARCH

Repeater Management Committee www.coldal.org.uk/rmc

Trevor Brown, G8CJS

E-mail: chairman@batc.org.uk

ATV

The ON0OS ATV test card.

Things to be aware of when using satellite receivers with 24cm ATV – is it the best approach? ♦ News about ATV repeater clearance ♦ ISS DATV update

We now have a well-established 24cm ATV repeater network and most of us live within the coverage of one of the repeaters. You don't have to be a serious ATV operator to look at them. 24cm ATV receivers have never been cheaper, and you could possible consider a small Yagi and satellite receiver to keep an eye on the activity.

If you have tried (or are about to try) this, there are one or two shortcomings to be aware of when using satellite receivers for ATV reception, and John Stockley, G8MNY, produced the following list.

- the Coax is phantom-powered, which is useful for pre-amps, but if you are not using a phantom-powered pre-amp, beware most 24cm aerials are a DC short circuit!
- many of the receivers are very insensitive, as they are designed for a 50dB-gain LNB input.
- The front end is often untuned, and can be 1GHz wide, letting in unwanted signals.
- The RF stages are easily overloaded.
- Image noise and QRM can be a problem with a wide, lightly-filtered front end; look out for TV signals on 470 and 800MHz, along with cell phones on 0.9, 1.8 and 2.7GHz.
- The 30MHz IF bandwidth is too wide for ATV, and often has limited skirt rejection of adjacent frequencies.
- There is a permanent wide-locking AFC, which is not designed for weak signals.
- The FM discriminator circuit is not optimised for narrow deviation.
- Satellite signals are wider deviation than those of ATV, so the video signal is down by a factor of two to three.
- There is a poor LF response to remove dispersal signals.
- Proper CCIR 405 de-emphasis is not often used.
- The video needs 6MHz traps to remove patterning.
- The sound is not set for 6.0MHz.

With all this against you, it might be worth investing in an ATV receiver. They start at a little over £60 and come ready-built. Most are designed around pre-aligned commercial front-ends, a spin-off from the commercial applications on and around 24cm. They are already equipped with 6MHz sound, and can give over 2 P grades' improvement on using a satellite receiver. G1MFG is probably the best-known supplier, and his equipment cover the 24cm band in 500kHz steps. If you like the unit, you can add an LCD controller with frequency display and three VFOs, although the basic unit functions without these, and if all you want to do is monitor the local ATV repeater, they are unnecessary.

24cm aerials start at £15 for an 18-element, rising to £28.50 for a 38-element; if that sounds a little over the top, the 18-element array is only 0.9m long and the 38-element array 1.8m (there has to be some advantage to 24cm!).

LEFT
The 24cm antenna at the ON4AIM ATV repeater at Oostende.

RIGHT
The 3cm antenna at the ON4AIM ATV repeater at Oostende.

REPEATER CLEARANCE

As was briefly mentioned in the 'RSGB Matters' column last month, a meeting was held recently between the RSGB, Ofcom and the Primary User of the 23cm band. The purpose of the meeting was to identify possible routes to facilitate the clearance of future and current outstanding ATV and NBFM voice repeaters.

DATV ON THE INTERNATIONAL SPACE STATION

The 'Digital ATV on the ISS' project is still under review. This project is intended to use the International Space Station as a DATV repeater in the sky. The uplink would use DATV around 1265MHz and the downlink would be DATV around 2420MHz. When no uplink signals are being received, on board camera(s) will be deployed. A link budget is being developed to prove that the concept is viable. Present indications are that a dish of more than 1m diameter would be needed. The plan should be submitted to the next full ARISS 'Project Selections and Use' Committee, which is scheduled to take place in Washington in early October. ♦

WEB SEARCH

24cm aerials	www.stvg.co.uk
Purpose-built ATV receivers	www.g1mfg.com
ATV repeaters	www.batc.org.uk

Sam Jewell, G4DDK

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

Website: www.btinternet.com/~jewel E-mail: jewel@btinternet.com

Microwave

Sam reports on 23cm activity during the ever-popular July VHF NFD contest and the mixed propagation on the microwave bands during August.

In contrast to May and June, propagation was good to excellent for extended periods during July and August 2004. The weather during July was rather cooler than expected across much of the UK, but there were some periods of rain-scatter-assisted propagation on the higher bands, and the moderate high pressure system at the beginning of August led to good tropospheric ducting propagation on 23cm through to at least 10GHz. An extended period of heavy rain and storms that followed that lasted well into August but this gave some good rain-scatter opportunities on at least 5.7, 10 and 24GHz.

VHF NFD, held on 3 / 4 July, included a 24-hour section for 23cm. Unfortunately, propagation showed little sign of co-operation and can best be described as flat, at least from the south and east of the UK. That didn't stop several stations making some exceptionally long-distance contacts. G0VHF/P (JO01), operating in the Open Section from Walton-on-the-Naze, Essex, managed 102 contacts for a claimed score of nearly 32,000 points. The best DX worked by the group was DF0YY (JO62) at 771 km. An incomplete contact with OL4A (JO60) at 859km was disappointing for the group, although the same station was worked on 70cm with relative ease.

G0VHF/P is the contest callsign of the Colchester Contest Group. During the contest, the 23cm station consisted of two arrays of Yagis. The primary array consisted of eight 23-element Yagis arranged as two groups of 4 plus a single 35-element. The second array consisted of four 23-element Yagis mounted on a second mast. The all-important amplifier was two times 2x2C39A producing 300W output.

My thanks to David Gilligan, G1OGY, and the other G0VHF/P operators for sending me their report. No other reports from the 23cm VHF NFD section have been received although there were many UK and European continental stations active over the first July weekend. Don't keep it to yourselves, please!

The high pressure system that crossed the UK in early August provided Simon Freeman, G3LQR (JO02), with the opportunity to look for amateur TV signals on 23cm, 13cm and 3cm.

Simon reports that he logged his longest distance 13cm amateur TV repeater signal on the morning of 4 August, when he received DB0NC (JO43) Oldenburg, at 473km on 2380MHz at P4. Also received during this period were ATV repeaters PI6ZOD (JO32) at a distance of 378km on 2387MHz at P5, PI6MEP (JO32) Meppel, at 330km on 2352MHz at P5, DB0LO (JO33) Leer, at 426km on 2380MHz at P4 and several other 13cm band ATV signals that couldn't be identified.

Down on 23cm, Simon received ATV signals from PA3GFY on 1250MHz at P5 on 4th, and also from PA1OKZ on 1250 MHz, with whom he exchanged video on 2352MHz at P5. Whilst up on 3cm, Simon reports ATV repeater PI6ATV (JO22) Lopic, at 252km on 10425MHz, at times P5 with 13cm input easy at times on 1 August , also PI6YRC (JO22) at 223km on 10460 MHz at P4 on 4 August.

Simon uses a 1.8m dish with a multi-band feed horn. A multi-band preamplifier then feeds and a Standard analogue satellite receiver. Reception on 23cm is direct at L-band, while the 13cm system consists of a home-made S-band down-converter to L-band (950 to 2050MHz) tuner. For 3cm, Simon uses a modified Ku-band down-converter (LNB) to the same L-band tuner. The 23cm and 13cm transmitters are G1MFG units. His 10GHz ATV transmitter consists of the 2.3GHz ATV transmitter exciter, frequency-multiplied by five to 10GHz and then fed into his 10GHz travelling-wave tube amplifier (TWTA). Power output is about 4W into the antenna.

Strong thunderstorms on 3 August allowed me to receive several 10GHz beacons not heard under normal conditions. At my QTH near Felixstowe (JO02) the 10GHz beacon GB3CCX (IO81) at 247km was several dB above its normal level of 519 and exhibiting strong forward scatter roughness to the note. Turning my dish southwards, the 10GHz beacon GB3SCX (IO80) at 281km was received here for the first time at 529. The signal showed little rain scatter roughness, but did have the usual scintillation typical of a troposcatter microwave signal. By the evening of 4 August, the signal had faded out.

Lack of space has precluded me from covering the July and August 5.7 and 3cm Cumulative contests.

MARTLESHAM (ADASTRAL PARK) MICROWAVE ROUNDTABLE

May I remind you that the Martlesham (Adastral Park) Microwave Roundtable takes place on 13 / 14 November. You just have time to register if you log onto the UK Microwave Group web page. There will be an extensive lecture programme, measurements, and a great bring-and-buy, featuring difficult-to-obtain microwave parts. The measurements will feature 24GHz this year, although the test equipment is available to measure parameters on most bands from VHF to 24GHz.

INPUT TO THE 'MICROWAVE' COLUMN

Please send your information by e-mail or post to the address above. ♦

Photo: G4DDK

MOSPS operating the 23cm station of the Colchester Contest Group, G0VHF/P, during VHF NFD 2004.

WEB SEARCH	
UK Microwave Group	www.microwavers.org
Contest information	www.g3pho.freeonline.co.uk /microwaves/rules2004.html

SETPROTECTORS

Yaesu FT-817 Supercase

We at SETPROTECTORS recognize the value of todays modern radio equipment and how important it is particulaly to maintain it's good working order and condition, this is why we sat down and spent months designing and creating a range of protective covers and cases for HF and CB radio equipment.
We looked at what was available on the market around the world and started with what seems to be the most poular, mainly Icom IC-706 and Yaesu FT-817 and now have under wraps the Yaesu FT-897 and various other sets.
The concern a lot of the time today is when buying a second hand radio or equipment from anybody people always look for perfection or as new condition which is only achievable by caring for your sets.This is why we started the project! Furthermore, as a security promotion as all to often operators have their equipment where it can be seen through a window in view of prying eyes, why advertise what you have? That is why we further developed the overall HF radio covers as viewed on our website for the Kenwood TS-450S and other sets.
One item which has literally soared in sales around the world is the YAESU FT-817 SUPERCASE which incorporates a battery pouch on the front and a built-in stand actually built into the case itself which is truly a marvel of design and is helping to generate more and more interest in this fantastic underated machine so the two together combined make an ideal QRP package. So don't leave home without it.

New products:- Universal cases now available on web-site for Icom IC-706 and Yaesu FT-857 and hand-held receivers.

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LAM Communications
who have both been invaluable in the launch and promotion of **SETPROTECTORS** products and were the first UK dealers to take a deep breath and take the plunge by stocking **SETPROTECTORS** products.
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www.setprotectors.co.uk

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+ £2.50 P&P (UK) £5.00 R.O.W.

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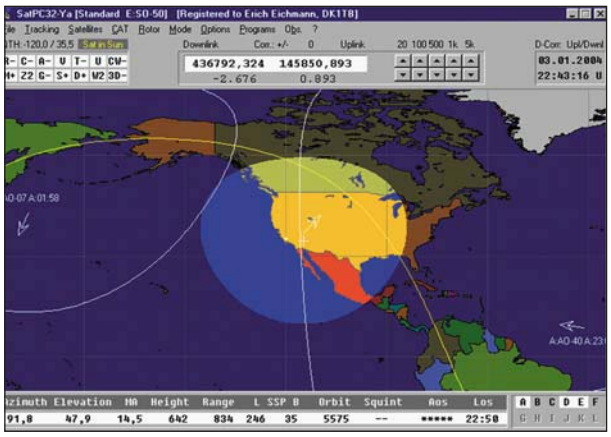
E-mail: g7hia@amsat.org

Turning a deaf ear?

If you suffer from receiver desensitisation when working in V / U mode, a potential solution is here • ISS now operating in cross-band repeater mode, but no packet • New tracking software.



A screen capture from *SatPC32*.

The topic of receiver desensitisation (or 'desensing') is worth revisiting, with lots of new satellite operators trying out AMSAT ECHO for the first time. Desensing is a common problem when working through satellites using a 2m uplink and a 70cm downlink (mode V/U). The third harmonic from the 2m transmission can cause significant desensing on your 70cm receiver. The positioning of cables and antennas can contribute to the problem, and high gain masthead pre-amplifiers can be especially sensitive. This topic was well aired in the early days of FO-20 and FO-29, and many solutions were offered, including home-made cavity and stub filters. Stub filters can be made from an accurately-cut length of coax and a T-piece. The filter is placed at the input of the pre-amp and, if well-made, will be very effective. However, a quick commercial solution has been suggested by Tony, AA2TX. Tony reports good results with a Comet CF-416C diplexer - "you don't need to terminate the VHF port, just use the diplexer as a high-pass filter". Thanks to Emily Clarke, W0EEC, who provides a clear explanation of how to set this up in her diagram, redrawn in **Fig 1**.

ISS PACKET OFF, VOICE ON

In a posting at the end of August to the AMSAT bulletin board, the ARISS programme announced that the amateur radio equipment aboard the International Space Station is now operating in cross-band repeater mode (like AO-27 and UO-14). Acknowledging the loss of packet, they pointed out that the cross-band repeater mode allows further experimentation of the ISS amateur radio system.

To quote ARISS "The downlink for this operating mode remains the same, so listen for the station on 145.80MHz. The new uplink frequency is 437.80MHz. All frequencies are subject to Doppler shifting. For further information on working satellites and adjusting for Doppler shift, please review the excellent presentation of Emily Clarke, W0EEC, on the AMSAT website".

AMSAT LABORATORY WRECKED BY HURRICANE CHARLEY

Producing winds in excess of 100mph, hurricane Charley caused serious structural damage to the AMSAT-NA laboratory which was housed in an aircraft hangar in Orlando, Florida. The building will have to be taken down and rebuilt. Fortunately, the contents were in good shape. Since insurance does not cover the cost of transport and relocation, this has to come out of precious AMSAT funds. Any donations would be appreciated.

NEW SATELLITE TRACKING SOFTWARE

My personal favourite is still *InstanTrak* from AMSAT; it controls my FT-847 for Doppler shift and can also handle rotator control. Written for *DOS* in the days of slow computers, its code is highly optimised and can produce real-time tracking on ancient machines like 386s. This makes it cost-effective to have an old PC running tracking whilst your shiny new 2.8GHz box does the more fancy stuff. However, lots of people have *Windows 98*, *2000*, and all the other variants including *XP*, and want the latest program. One of these is *SatPC32* by DK1TB who has donated *SatPC32* to AMSAT-NA, so that when you buy the software, you are supporting AMSAT. It has all the functions you would expect in an advanced tracker, including antenna rotator control support for all the main systems *KCT*, *FODTrack*, *WiSP* etc. It has Doppler tuning with on-screen frequency display. Radios supported are: Yaesu FT-847, FT-736R, FT-817, FT-857, FT-897; Icom IC-820H, IC-821H, IC-910H, and others; Kenwood TS-790, TS-2000. The price is $45 for AMSAT-NA members, $50 for non-members, post-paid on CD ROM. Order by calling 001-888-322-6728 or shop on-line.

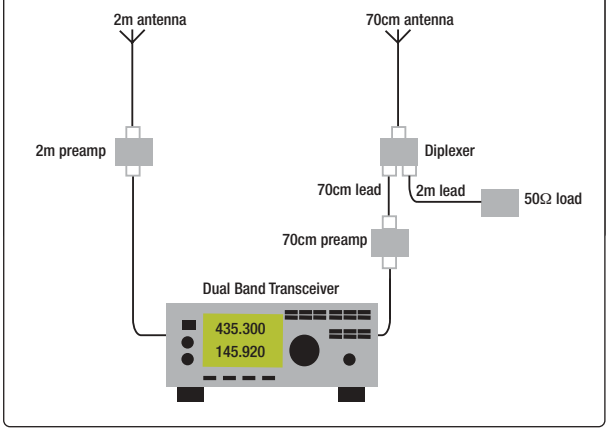
A demonstration version can be downloaded from www.dk1tb.de/indexeng.htm, but it is 7.9MB. Having tried the demo, UK users can then activate the full version by making a payment to AMSAT-UK for a registration code.

FAILURE OF PRE-AMPS AND DOWN-CONVERTERS

One of the Yahoo groups for weather satellite enthusiasts, rig-l, often has useful information; the posting from Colin Schulz is one such. He suggests that, in our type of application, tantalum capacitors are prone to fail, probably due to static. He suggests replacing them with a 4.7µF 50V aluminium foil electrolytic, in parallel with a 0.1µF ceramic. He reports two down-converters in different met offices used for WEFAX have had shorted tantalums in the power supply area. The suggested replacement was 100% successful. ♦

Fig 1
A solution to desensitisation. (Source: Emily Clarke, W0EEC, & AMSAT-NA)

FIG 1 © RADCOM 288



WEB SEARCH	
Emily Clarke	www.amsat.org/amsat-new/information /faqs/Intro_sats.pdf
AMSAT-NA	www.amsat.org

Jeremy Boot, G4NJH

E-mail: g4njh2@ntlworld.com

Spies?

No-one with any sense these days would venture out on the Internet without some protection against viruses, but these days that just isn't enough. I thought this month it would be useful, as an exceptional diversion from the usual radio themes, to give some practical guidance as to how you ought to protect your computer. Obviously, an overview cannot claim to be comprehensive, but there are plenty of Internet resources to follow up on this subject.

Clearly, we all know that there are viruses out there and plenty of idiots with nothing better to do than to create them. I dare say it takes much knowledge and skill but, if your PC dies, or refuses to perform because of a virus, that will not cut much ice. Do you back up your precious data? No? Well you'll wish you had. Viruses infect your computer in various ways, change or destroy data, often replicate themselves by using the weaknesses in existing mail elements and use your address book to send them to vulnerable clients. Some are timed to act on certain dates. It is very annoying to have mail bounced back to you from a server as though you had sent it yourself, when in fact it was send by someone else's virus-infected machine.

How do you protect against virus? Fortunately there are well known virus protection programs: Norton, McAfee the best known, but there are others: Virus Hunter, EZ Antivirus to name but a couple more. I am not going to review them: you choose which you please, but you must keep them up to date (many update themselves automatically) and you need frequently to run a scan on all your own files. What was undetectable last week, might well be detectable this with the latest software.

SENSIBLE MEASURES

Meanwhile, you do need also to take sensible measures when you receive e-mail. Spam is a major source of dissemination of viruses. Reading that you have won the lottery and just opening the attachment to find out more just might spark off more than you bargained for. Personally I never now open any attachments unless I know their source or sender. Never open .vbs, .bat, .exe, .pif and .scr files, just delete them. You can also disable java applets on Explorer, which can be another source of mischief for hackers and malicious programme writers. Don't leave your drives open for sharing, especially without password protection.

If you want to frighten yourself to death, look at any of the virus program pages quoted and read in their libraries about what these wretched things can do. The CA Virus information Center Pages have an easily-navigable page, for example.

BUT IT'S NOT ENOUGH

But alas, virus protection is not enough these days. You need to be aware of some other common sources of problems: Spyware, Adware and Hijackware.

This is what the Spyware Doctor site says about Adware: 'Anti-virus software and firewalls do not fully protect your system against the majority of spyware and privacy threats. Spyware is commonly bundled with software downloads, attached to e-mails, or transmitted through networks, so it can appear to be legitimate software, but once installed it can be nearly impossible to detect and remove without the help of a dedicated spyware removal tool…'.

More on a similar theme on the Spykiller Site: '… SpyWare are evil programs that hide on your computer and do a number of harmful and annoying things without your knowledge… Programs are known to steal information from your computer such as credit card numbers, e-mail addresses, addresses, surfing habits, and more'. And of Adware: '… AdWare is very similar to SpyWare, but its only purpose is to advertise. AdWare will pop-up web browser ads very frequently, change banners on websites, change your search results with advertisements instead of your true results and place Windows icon advertisements on your Windows desktop, Windows Start Menu, and in your web browser 'Favourites' and 'Bookmarks". Obviously, the author recommends his own program to remove this menace.

The point to this is that these little terrors are not necessarily picked up by mainstream virus programs; ideally, you need to run anti-AdWare or -SpyWare software as well from time to time to be safe. Believe me, the first time you do, you will be amazed (and annoyed) at the dross it finds – and at the reduction in pop-ups. I use Adaware by Lavasoft, which is free, although there is a paying version too. There are plenty of other similar products. I have also used Webroot's Spysweeper which I like.

HIJACKWARE

HiJackware is another irritant. It is really another form of Spyware. I suddenly found that all my searches and URLs were diverted to a page I definitely didn't wish to visit and that nothing by way of software I possessed would alter things. I then discovered a very useful little utility (free!) called HiJack This which probes the way your MS Explorer is set up and allows you to unpick the line which causes the problem. You should be very wary before doing this however! You can find out more about this on the Spyware Info spyware site. It is full of all sorts of information.

FIREWALLS

Finally, you should be aware that without a Firewall, your computer ports can in theory be breached by hackers in order to steal information or take control from outside. Trojans and Worms – another worry, usually planted by downloading unknown software or on the back of adware – can open your computer to attacks from outside as well. This is a subject in its own right and there is not time here to go into it. You can install your own firewall for added protection. Some Windows and other OS have their own firewall (eg Windows XP). You may not be convinced this is enough. Use the same URLs as for virus protection to read more. Most of the 'big' virus program people also provide firewall protection, often in combined virus/firewall software.

SENSE OF PROPORTION

You need to steer between being sensible and practical whilst not remaining indifferent to the dangers of all these nasties. If you use commercially-available anti-virus and anti-spyware programs or firewalls, installed properly and used properly, and you are careful, especially about what you download – don't just say 'yes' to any proposed website installation – you should be adequately prepared for most eventualities. If you get problems, software will usually remove them or, with an emergency disc, allow you some access. If you back-up data, you will at least have some means of restoring should the worst happen.

I hope readers will forgive me not providing the usual radio internet links this month. I append a link to an interesting thread I found on Eham.net about computers and amateur radio. We will still be arguing about their place in the hobby in 50 years' time, I suspect! ♦

WEB SEARCH

McAfee	www.macafee.co.uk
Norton	www.symantec.com
Virus Hunter	www.virushunter.com
Ez Antivirus	www.my-etrust.com/
CA Virus Info Centre	www3.ca.com/securityadvisor/virusinfo/default.aspx
Spyware Doctor	www.pctools.com/spyware-doctor/?ref=adw
Spykiller	www.free-spyware-scan.com
Ad-Aware (Lavasoft)	www.lavasoft.de
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Technical correspondence – small loops

As expected, the articles by Dr Jack Belrose, VE2CV (June / July 2004), and Professor Mike Underhill, G3LHZ (August / September 2004), have caused some feedback. Here, in abridged form, are the letters.

"The thermal balance technique used by Professor Underhill is not a thermal balance at all in the energy sense. It merely compares temperature using the thermal radiation from the surface of his loops. The emission of heat (radiation) from solids at the sort of temperatures his loops attain, would be tiny in comparison with the heat lost by transfer to the surrounding air, which then dissipates it by convection currents, or forced thermal transport by winds or breezes. In the case of the RF loop, the heat is generated in the surface layer of the copper tube due to the skin effect, and flows (virtually) directly into the air. In contrast, the heat energy in the DC loop has to conduct to the surface over greater distances, and the temperature builds up to a greater level with much less power. It's not just the power input that matters, but how the heat is distributed in the solid and how easily it can get to the surface. The difference in the DC and RF powers is dependent on the rate of heat loss from the surface, and this will complicate the use of this technique in assessing the RF power loss of a loop at an outside antenna range because of the difficulty of establishing an accurate figure for the rate of heat loss with natural winds or breezes of variable speed.

"When the assessment is done properly, I think we will find that there is no discrepancy between his findings and conventional theory. I believe his technique, as it stands, estimates the power loss with a 300 to 400% error. This fully accounts for his claims of small loop radiation resistances that are thousands of times greater than conventional theory predicts. Perhaps we can now lay this topic to rest!"

Dave Gordon-Smith, G3UUR

"Conventional small loop theory assumes uniform current amplitude around the loop, but then takes account of the small time delay across the loop when calculating the fields. Without this time delay there would be no radiation, as there would be no retardation. However, it seems to me that some account should also be taken of the time delay round the loop too, ie slightly non-uniform current. This would be a small effect for a small loop, but could give rise to an extra term in the radiation resistance of perhaps the same order of magnitude as the conventional term. I believe this is what Professor Underhill calls the 'folded dipole' mode. Strictly speaking, this is not new theory, but a better approximation using existing theory. When integrating the effect of the elemental dipole elements round the loop, there will be a small amplitude imbalance between opposite elements as well as a small phase imbalance, both giving rise to incomplete cancellation in the far field and, hence, radiation.

"As I understand it, the central claim made by Professor Underhill is that the Chu-Wheeler criterion is wrong, and that small antennas can combine high efficiency and reasonable bandwidth (eg low *Q*). He says he has measurements and calculations that confirm this, and proposes new physics as an explanation. His argument does not hold water.

"In several places (cited the *RadCom* articles), he gives as an example a short folded dipole, but it contains an invalid assumption. He assumes that the EM coupling between the two arms will ensure in-phase current. In reality, the ohmic connection at the ends will ensure almost anti-phase current. Redoing the calculation with this assumption picks up an extra factor of $(ka)^2$ in the radiation resistance, and Chu-Wheeler is then satisfied.

"As for small loops, I believe Underhill makes two errors. The first is to misunderstand Chu-Wheeler, which applies to the whole radiating system, not just the metallic bit we choose to call 'the antenna'. The second error is to forget that small antennas have very intense local induction fields. His multiple 'modes' are in reality just the multiple 'secondaries'.

"I was astonished to read in the second article how small is the 'range' used for his measurement – well within the induction zone. I'm not sure he is measuring radiation at all, but at best the transition region where radiation and induction have similar field strengths.

"Small loops are reputed to be very good antennas near the ground. I believe this is because their ground proximity gives them access to lots of secondary radiators, including the ground itself."

Dave Kimber, BSc, MSc, G8HQP

Professor Underhill argues that *NEC* cannot accurately simulate electrically-small loops. For an ideal, lossless loop, *EZNEC*+ 4.0 (*NEC2D*) calculates a radiation resistance which is in good agreement with the existing loop formula. For simulation of real loops, one needs to include loss resistances (which is possible in *EZNEC*) due to RF conductor losses and also the finite *Q* of tuning capacitors and other matching components. Although Professor Underhill includes the loop conductor losses, he does not include any losses in the thin wire used as part of his Gamma match.

"Using *EZNEC* to calculate the impedance around the resonance frequency, *Q*-factors similar to those measured by Professor Underhill are obtained. Under these circumstances, *EZNEC* also calculates very poor efficiencies for the small loop, as outlined by Dr Belrose.

"With regard to field strength, Professor Underhill's outdoor measurements also appear to support the notion that the small loop is inefficient. Had the loop been close to 100% efficient, much larger field strengths would have been expected than those actually measured.

"The radiation patterns are different for the vertical and horizontal loops and will depend on the actual ground characteristics and the height of the antenna over the ground. Had Dr Belrose shown the patterns at the same frequency, he would have seen greater ground losses for the horizontal loop. Established theory is able to predict and explain the difference in measured field strength obtained by Professor Underhill for his horizontal and vertical loops over real ground.

"Thermal images of the coaxial cable feed and surrounding conductors would have shown if these were cold relative to the loop, thereby showing that RF currents were restricted to the loop alone. RF currents on the coax shield could explain why Professor Underhill's loop antennas are unidirectional."

Marcus Walden, G0IJZ

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144MHz direct-conversion receiver with I/Q outputs for use with software-defined radio

This design is a direct-conversion receiver for 144MHz with quadrature outputs for use either with a software-defined radio [1] or with additional audio phasing circuitry. Quadrature outputs, generated from two 90°-shifted local oscillators, allow SSB reception by unwanted-sideband cancellation as described in [2].

The converter was designed with the primary aim of using it for the IF stage on microwave transverters, so a linear receiver was needed with no AGC, but with a calibrated gain control to make accurate relative measurements of microwave beacons using a PC soundcard-based system for the actual level and signal-to-noise ratio measurements. A straightforward gain calibration can then be used to convert these into absolute readings, making this a useful piece of test equipment for propagation studies.

There is nothing inherently narrowband in the design - filtering limits the RF bandwidth to around 8MHz to eliminate strong signals from broadcast and PMR, and the audio bandwidth is kept to about 20kHz, wide enough for the normal maximum soundcard sampling rate of 44100Hz. Any subsequent audio filtering for actual listening purposes is performed by the SDR software, or in separate audio processing circuitry.

OPERATION

The circuit diagram is shown in **Fig 1**.

In the RF path two modamps, a MAR-6 and a MAR-3, amplify the RF; there is a two stage bandpass filter between them with 10MHz bandwidth. The output feeds into two SRA-1 type DBMs via a resistive splitter, with the quadrature local oscillator (LO) signal generated using a MiniCircuits PSCQ-2-160 90° power splitter. This device guarantees less than 3° phase error over 100 to 160MHz; as 144MHz is near the middle of the range, we can expect better performance here.

The local oscillator is an AD9851 DDS, currently clocked at 100MHz, generating 16 to 16.67MHz followed by a x9 RF multiplier. The DDS source is not described here, but the module in a basic form is described in reference [3]. The active stages in the multiplier consist of MAR-6 modamps configured as a pair of cascaded tuned x3 stages with a final MAR-6 as amplifier/limiter, this combination forming probably the simplest tuned RF multiplier possible! (There are a couple of CW spurii generated by the DDS, but I know where they are and can ignore them). All filtering is designed to allow the LO to tune over 144 to 150MHz to cover more than the normal 2MHz narrowband segments on the microwave bands, and allow for odd LO frequencies. The multiplier output level is +10dBm drive to the quadrature hybrid.

By using the internal x6 option in the AD9851 DDS chip, the LO can be driven from a 10MHz frequency reference, producing a clock of 60MHz, but this has not been implemented yet. Hopefully spurious levels will be no worse, with none falling in the beacon bands at the lower clock frequency.

The mixer outputs drive a pair of identical NE5532 opamps with a voltage gain approaching 300 (the exact value is a bit uncertain due to the internal impedance of the mixer IF port). No clever matching is used, just the mixer feeding the inverting input, giving 800Ω input resistance at audio, and low-pass filtering to get rid of RF leakage. The I/Q outputs feed another pair of opamps with precisely switchable gain from 0 to 40dB in 10dB steps. Audio bandwidth is not especially tailored, but rolls off gently from about 20kHz to allow for 44100Hz sampling rate in a soundcard.

The total system gain and dynamic range is based on 16-bit digitisation, and is sufficient at maximum (+40dB) to place its own thermal noise least 10dB above the quantisation noise pedestal. Strong signals and extra RF gain in transverters are catered for by backing off the audio gain. For signals too strong even for this (80db S/N in 20kHz) an external (calibrated), an RF attenuator can be added.

CONSTRUCTION

No attempt was made to put this on a proper PCB. The converter and audio stages were built birds-nest style on a piece of unetched copper clad PCB as can be seen in the photograph. Plenty of decoupling and short direct wires ensure stable performance. As there is a lot of gain – particularly at audio – the whole unit was built into a tin-plate box for screening

Using parallel and series 1% resistors for the switchable gain stage, no special trimming or adjustment was necessary, the traces looked well-enough matched on an oscilloscpe and, as I was only after 20 - 25dB sideband rejection to make opposite sideband noise insignificant, tweaking wasn't necessary. 3° phase error will give 25dB rejection, assuming the amplitude is correct, which is about equivalent to 5% amplitude imbalance. So, if I have a 'bit better' in each case, the 20dB plus is easily achievable. All power rails are regulated and well-filtered for operation from a portable 12V supply.

The LO multiplier was made by cutting a 50Ω microstrip line into a double-sided PCB. To make a 50Ω line quickly without etching, score two lines 2.8mm apart through the copper on the top face of the PCB for the full width; use a Stanley knife or similar, making sure you penetrate the copper fully. A 2.8mm width on normal 1.6mm-thick fibreglass PBC gives about 50Ωs characteristic impedance. Then, score two more lines about 1mm from each of these. Using a hot soldering iron, use this to soften the adhesive and with a pair of tweezers, lift up and remove the two 1mm wide strips, which will give a single 50Ω line surrounded by a copper ground-plane. Drill a number of 0.8 to 1mm holes through the top ground plane to the underside and fit wire links to give a solid RF ground structure. Wire links are best fitted close to where grounding and decoupling components are connected.

Cut the 50Ω line into segments with gaps for the modamps, DC blocking capacitors and filters. Other connections around the filters are made up bird's-nest style. When completed and aligned, coils can be held in place with glue (a hot glue gun is a useful accessory

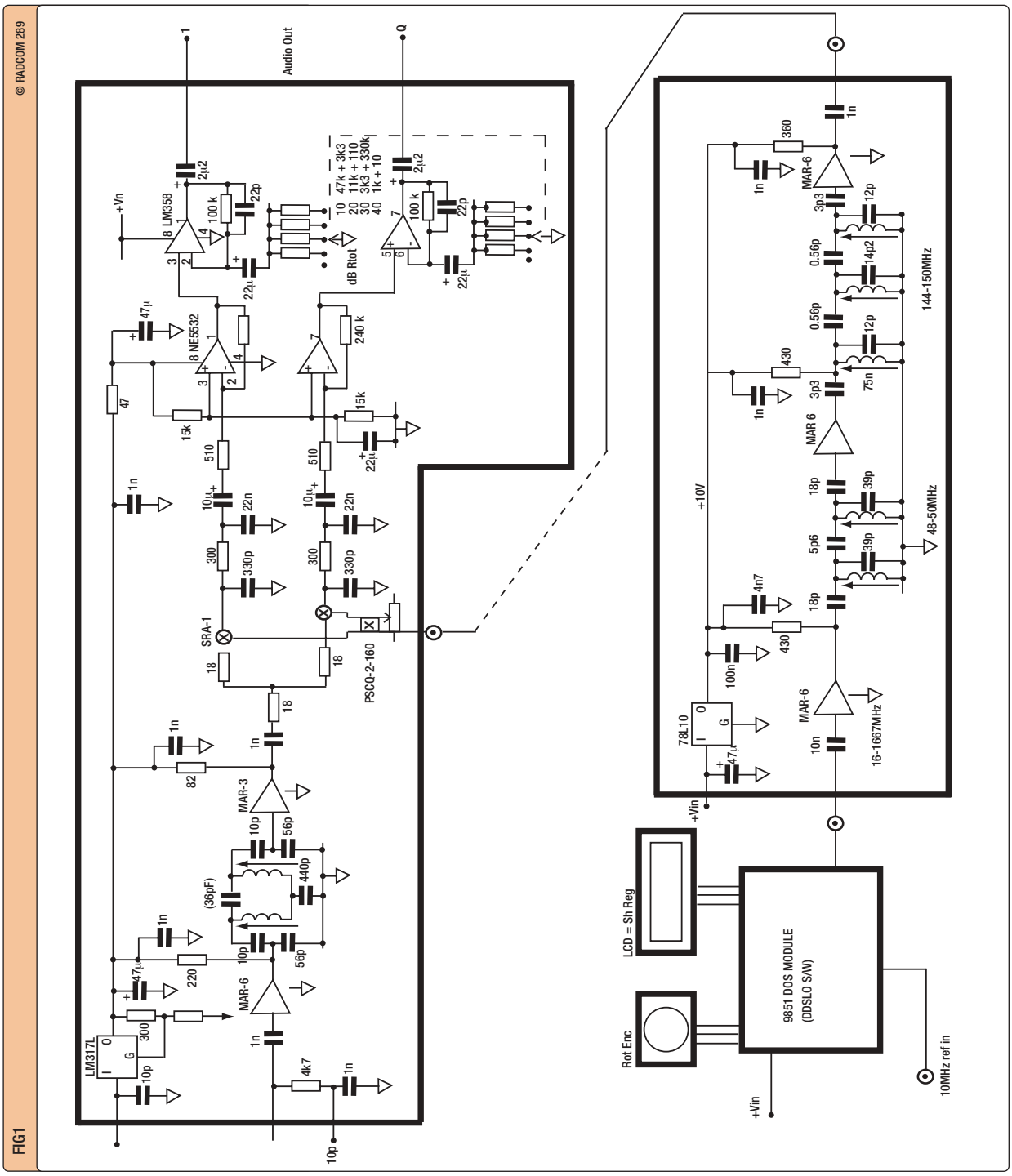

Fig 1
Circuit Diagram.

to have around). The photograph shows the completed multiplier chain.

USING THE DOWNCONVERTER.

For the standalone unit for use as a receiver in the field, a simple quadrature network and loudspeaker amplifier can be added to make a complete receiver. A high/low pass pair of all-pass networks will give 15dB sideband rejection over 400Hz to 2kHz, which is good enough for listening to beacon signals on hill tops. Alternatively, look at [2] for phasing-type SSB networks to give an improved SSB performance. A meter driven from the audio level via a precision rectifier circuit can be added to allow quite precise signal strength measurements to be made in conjunction with the calibrated attenuator.
Alternatively, take at look at the Software-Defined Radio software [1] from I2PHD, for another solution

LO SOURCE

The DDS module as described in [3] has new PIC software, along with a rotary encoder and LCD display to give a user friendly interface. For anyone who has the original DDS board, I can supply PIC software for this modification. However, the AD9850 and AD9851 chips are in short supply now - they have been replaced in most cases by larger, faster, new devices in a different package.

Alternatively, emulate the venerable IC-202 transceiver and build a VCXO to supply the signal to the multiplier. Or use a VFO/mixer, or a synthesiser - the choice is yours! ♦

REFERENCES

[1] www.sdradio.org
[2] *RadCom* series on SSB phasing net works, Feb to June 2004.
[3] AD9850 DDS Module, *RadCom*, November 2000

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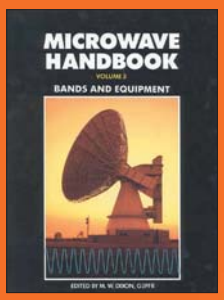

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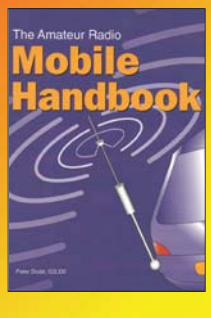

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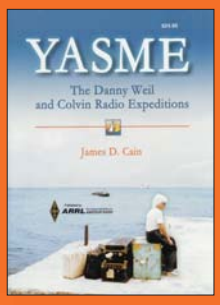

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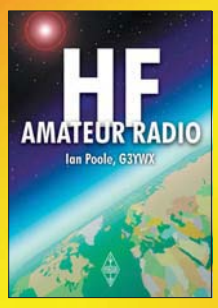

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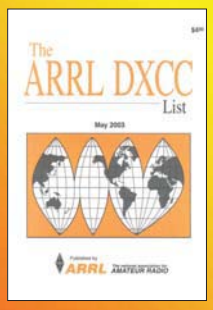

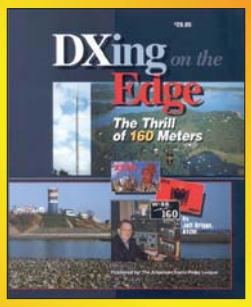

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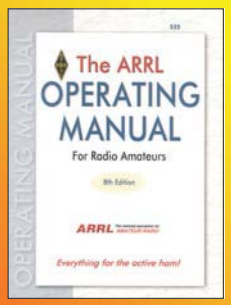

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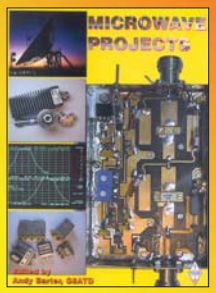

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It has been written for the growing number of radio amateurs who are discovering that there is life on our frequencies above 420 MHz. Technicians and engineers will find this book particularly useful. You'll find information on design and fabrication techniques, propagation, antennas and feed lines, transmission media and much more.
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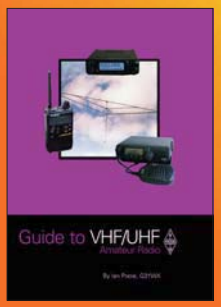

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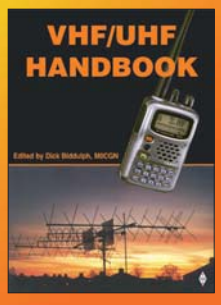

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This guide to the theory and practice of amateur radio reception and transmission on the VHF and UHF bands gives the reader the background to such essential topics as antennas, EMC, propagation, receivers and transmitters, together with constructional details of many items of equipment.
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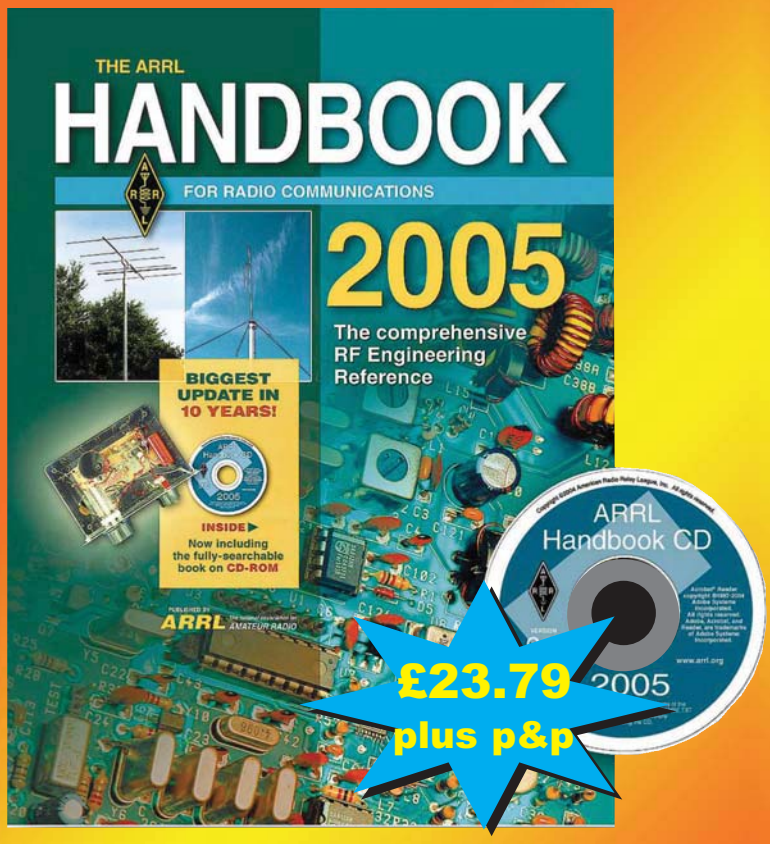

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2005 edition (Eighty-Second edition)© 2004 American Radio Relay League (ARRL), paperback, 1216 pages ISBN 0-87259-928-0

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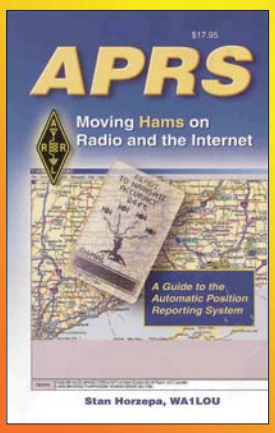

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In this book, you'll learn how to configure hardware and software to make the best use of your APRS station. Software examples include programs for Windows, Mac and Linux. Follow detailed discussions of APRS operation and technical support. To help you get stated, there's also a complete Glossary of Terms and a summary of APRS software commands.
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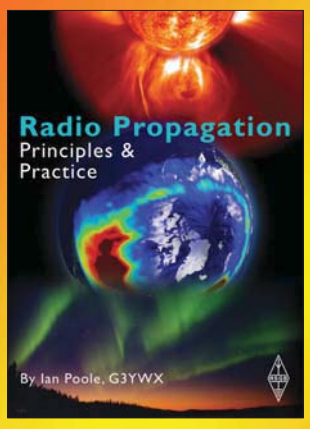

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With the explosion in consumer electronics using microwave frequencies the opportunity to experiment has never been greater and this book is simply the best guide to the area of microwave radio.
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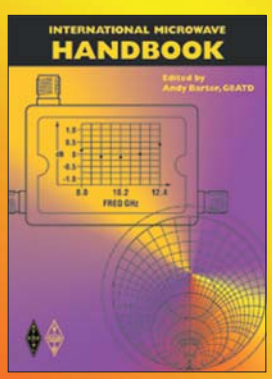

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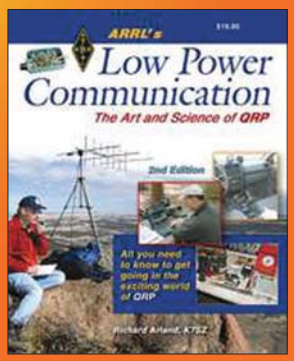

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Members' ads

FOR SALE

4CX250B c/w base, £18. 400V ct 275mA, 6.5V 3.3A, 6.5V 1A, 5V 2A, 6.5V 0.06mA, £15. 276V ct 0.08mA 6.5V 4A, 6.5V 0.9A, £10. 100V 25mA, 6.5V 0.6A, £5. 10H 100mA choke, £5. All enclosed. Bill, GM0KMG, 0141 562 4571 (Glasgow).

ALINCO DX-70TH 100W multimode HF plus 6m, modified to transmit on 5MHz and the extended 7MHz etc, £220. AKD 2m FM tcvr, £30. Buyers must collect. G3BDQ, QTHR, 01424 812 262 (Hastings).

AMATEUR Radio gear in excellent cond. FT-211 RH (VHF FM tcvr), £160 ono. 2m whip Revco HG Series/mag base, £30 ono. Pakratt PK-232MBX, £90 ono. IC-2E VHF FM handheld, marine channels, £95 ono (c/w charger). Kenwood TR-3500 70cm tcvr brand new in orig packing case c/w mains/battery, charger/whip, £150 ono. Comms rcvr MW, SW, FM, A1, SSB, £150.Des, G3LCS, QTHR, 01908 313 379 (Haversham, Milton keynes). E-mail: desg3lcs@aol.com

CUSHCRAFT MA-5B compact 3-ele 5-band, beam antenna. Man, g/cond, £250. West Mountain Radio Rig Blaster Pro multi-mode data system, boxed, as new, man, £115. Buyer collects or pays carriage. G7JCF, 01986 798 524 (Woodbridge). E-mail: steve@sboldvic.demon.co.uk

FOR W3DDZ-type multiband antenna – pair of Osker traps in g cond with info plus Balun (centre piece – no wire), £10. Prefer buyer collect from Hertford area. 01992 537 106 (Hertford). E-mail: g3vlu@dsl.pipex.com

FREE to good home! 1944 AR88LF, elderly amateur radio books, cardboard box of valves, Clarke & Smith STR/4 tape recorder, not working, and a few CB units. Dilapidated, but they are free! Chris, e-mail: chris@dhc.eu.com

FT-101ZD gwo, daily use, £200 ono carriage extra or collect. Maplin 7A PSU mint cond, £40. Lou, M0ATN, 01274 567 594 (Bingley).

FT-817 package with Ni-MH, cased with Pack-It book, little used, exc con, £400. LDG Z-11, £90. 2A PSU, £10. Prefer sell as one lot! Phone after 7pm. Pete, G0PKS, 01823 664 471 (Wellington, Som). E-mail: anne@greengables.fsbusiness.co.uk

FT-897, mint cond, £650 ono. G4XRV, QTHR, 01494 778 686 (Chesham, Bucks). E-mail: rupert@g4xrv.fsnet.co.uk

G1MFG 23cm microwave video rcvr, as new, £60. 23cm corner reflector antenna 13dB gain, as new, £25. Kenwood TM-D700E vgc never used, mobile, £190. Buyers to collect or pay postage, Garry, G4FLY, QTHR, 0118 956 9806 (Reading). E-mail: garry.haynes@btconnect.com

GARMIN GPSIII plus man, quick reference guide, serial PC lead, additional maps for world, UK, external antenna vgc, £100. G4GLP, 01276 507 864 (Camberley). E-mail: dennispc.dale-green@ntlworld.com

HEATHKIT oscilloscope OS1 (1961) working, £25. Vibroplex Brass Racer (key), hardly used, £50. G3ZQF, QTHR, 020 8776 2060 (W Wickham). E-mail: svcarpe@yahoo.co.uk

ICOM IC-706 MkII, DSP, MB-62 bracket, man, box, with AT-180 ATU, box, mint, £695 the pair. Icom R-7000 scanner rcvr, all mode, 25-2000MHz, man, mint, £450. M0OXR, 01865 243 634 after 7pm (Oxford). E-mail: stevew@earth.ox.ac.uk

ICOM T-8E h/h with rapid charger, mains charger, cigar plug PSU and spkr/mic with man, £100 ono. 01582 769 078 (Harpenden).

ICOM T8E triband h/h, 6m/2m/70cm plus Watson spkr mic little used, £175. Kenwood TH-215E 2m h/h, £60. KW Ezematch ATU, £65. Shure base mic, £50. Astatic D-104 base mic, £55. Cleartone 315 hi-band PMR, £25. Vintage No 3/33 transmitter, Xtal control less PSU, £70. HP 1 mega pixel digital camera, £65. 2 x 4CX350A valves plus one base – offers? All plus carriage. 01604 469 962 (Northampton). E-mail: d.linnell@ntl-world.com

KENWOOD /Trio TRT-51. 2m multi-mode boxed with man, £200. Plus carriage or collect. G1ZBM, 01761 413 151 (nr Bath).

KENWOOD TS-440 very clean cond. Just serviced by Castle Electronics, £320. G3NMZ, QTHR, 01582 613 501 (Luton). E-mail: g3nmz@georgebath.co.uk

KENWOOD TS-440SAT, mint, boxed, £250. Kenwood PS-50, boxed, £50. Kenwood TM-231E, boxed, £70. Trio AT-230 tuner, £40. Daiwa CN-620A power meter, £30. Daiwa rotor DR-7500R, £40. Jaybeam 10-XY 2m, £10. 25A power supply, £15. 40m coax, £5. David, G0DLS, QTHR, 07813 537 774 (Ashbourne).

KENWOOD TS-480SAT, 8 months old, as new, SSB & CW filters fitted. All acc, boxed, £790. Kenwood TH-79E 2m/70cm true dual-band h/h, new Nicad plus high power Nicad, case, charger, man, boxed, £125. MAAS SWR meter, same as Diamond 200, £20. All above plus postage. 01462 435 248 (Hitchin). E-mail: tm.rose@tiscali.co.uk

KENWOOD TS-950 & filters, £795 ono. FT-290 MkI, £100. PK-232, Daiwa 2m linear, Welz SWR, Marconi TF-1313A LCR bridge, SE labs oscilloscope, Philips AF Generator, Heathkit & Taylor sig gens RF. Reasonable offers pse. G0KPZ, 020 8304 6979 (Welling). E-mail: g0kpz@yahoo.com

MFJ Versatuner Mk5 989C 3kW, £130. Kenwood 2m tcvr TM-241E, £100. Yaesu auto ATU for FT-847, £150. Yaesu FT-102 HF tcvr, £100. President Lincol 10m tcvr, £130. Pye colour TV (No teletext) gwc, £40. See my web page qrz.com. G4VVQ, QTHR, 01245 233 566 (nr Chelmsford). E-mail: g4vvq@aol.com

MFJ-969 1.8-54MHz 300W ATU, £150 delivered. Watson 2000 6m, 2m, 70cm vertical, £50 delivered. Trev, G2KF, 07974 892 179 (Delabole).

MOVED QTH. 3-section lattice steel tower. 50ft fully extended by motorised winch, c/w heavy duty rotator. Ground post will have to be extended 5ft, hence a gift at £250. Buyer collects. 01283 791 496

SILENT KEYS

We regret to record the passing of the following radio amateurs:

EA3DUJ	Mr M P G Pluvinet Grau	
G0LBF	Mr J M Mealey	27/08/04
G0LTY	Mr D Samuels	
G0SST	Mrs S M Blumfield	03/09/04
G1JVZ	Mr G Smith	07/09/04
G1ZQY	Mr T J Dunn	21/08/04
G3AJX	Mr G Stanton	10/09/04
G3AVJ	Mr E Fox	20/09/04
G3BGR	Mr S D Percival	10/09/04
G3EFI	Mr P J Powell	31/08/04
G3ENZ	Mr A Johnson	28/10/04
G3TMI	Mr E Wood	15/09/04
G3WQW	Mr F G S Sims	10/07/04
G4HGG	Mr P Riminton	08/04
G4IDE	Mr R Barker	09/09/04
G4JIZ	Mr J Rosling	12/08/04
G6FWT	Mr C Knowles	20/9/04
G8BTE	Mr A H Wilson	25/08/04
GM4KKW	Mr C McKellar	05/09/04
GW0MXV	Mr D H Bell	23/08/04
HB9CHV	Mr M Vest	11/01/04
M3FXT	Mr R A Lutter	06/08/04
RS3271	Mr D Armstrong	
W1NPS	Mr H H Quackenbush	

We apologise for mis-quoting the callsign of Mr R L Halls in last month's list. It should have been G3EIW.

CONGRATULATIONS

to the following, whom our records show as having reached 70, 60 or 50 years' continuous RSGB membership:

70 years

EI3G	Mr T W D Aliaga-Kelly
G2ASF	Coventry ARS
G2DFP	Mr J M Lowe
G2FBU	Mr J C M Greig
G2KU	Mr R M Herbert
G3MA	Mr E A Perkins
G4LX	Mr L G Spencer
G5KM	Mr H H Eyre
G5ZK	Mr R N Lawson
G6AG	Mr C J McClelland
G6CS	Mr P T W Castle
G6HY	Mr R Healey
G8FF	Mr S Southgate
G8JM	Mr W G Hall
G8PO	Cdr J E Ironmonger, OBE
G8PX	Mr F A Jefferies
GM5NU	Mr W B H Lord, CB

Having already exceeded our new 70-year listing for the current year are: Mr W S Eadie, RS2627 (78 years); Mr R T Frost, GM6FT (77 years); Dr R Stuber, HB9T (74 years); Mr R E Wilkinson, G0BXB (72 years); Mr F H Cooper, G2QT (72 years); Mr I J P James, G5IJ (72 years); Mr B K Rowell, G5RL (72 years); Mr P M Carment, G5WW (72 years); Mr W James, G6XM (72 years); Mr H Whalley, G2HW (71 years); Mr J Piggott, G2PT (71 years); Dr A J Woiwod, G3AWA (71 years). An up-to-date listing, the 'Old Timers' Honour Roll', is presented in February's *RadCom* each year.

60 years

G3FZR	Mr M W Capewell

50 years

GM3LKY	Mr P Cohen
G3TGR	Mr J J Woods
G3SNN	Mr A B Woolford

(Alrewas Staffs). E-mail: g3crh@aol.com

SHACK clearout. Please phone for lowest prices. HRO with five coils. Marconi sig gen TF2016A with synchroniser (mint). Rollercoaster QRO inductor. HF linear (2x811 valves). Antique resistance bridge (1940). Morse keys, several. AVO-8 Mk5 (leather cased). Audio oscillator (Philips). Megger (hand-cranked). Marconi TF-1313 0.25% bridge. DC precision (0.005%) voltage standard (mint). Assorted mans and amateur-related books. G3ZSJ, QTHR, 01293 885 701 (Crawley).

SILENT key sale Trio TS-520S, with h/h mic, £165. Trio TR-2300, £60. Subtronics freq counter model 8000-8610B, Ranges (Z=1Mohm) 10 to 100MHz. (Z=50ohm) 10MHz to 1000MHz, £40. Heathkit GD1U grid dip oscillator, £10. Morse key Hi-Mound, cover repaired, hence £40. The above little used. Antenna noise bridge, £3. Control for AR-40, £5. AVO Minor meter, £3. TMK multimeter, £3. Type 259 Belling Lee jack plugs 0.25inch. PSU for spares no diagram. Offers please. Steve, GM3ZAS, QTHR, 01292 478 354 (Prestwick). E-mail: steve3zas@aol.com

TEN-TEC Argosy II with power pack 525D, offers? 0194 416 748 (York).

TIMEWAVE DSP-59+, as new with box and man, £75. bhi Neim 1031 as new with box and man, £75. G0WDT, QTHR, 01782 717 837 (Newcastle, Staffs).

TONNA 70cm 4-way power splitter unused, £25. Microset SR-100 2m linear amp as new, £60. Baycom 4-port TNC card with 3 x 1200, 1 x 300/1200 1 x 9K6 band modules, £70. Diamond X-700H 2m/70cm colinear new, still in box, £90. Buyer to collect or pay postage. Garry, G4FLY, QTHR, 0118 956 9806 (Reading). E-mail: garry.haynes@btconnect.com

TRIO communication rcvr model 9R-59D. Yaesu FT-230 2m tcvr. Altai 5A power supply. The above are open to offer. G6DJE, 01296 660 936 (Beds). E-mail: wsmart159@aol.com

TRIO R-1000, digital display, 0.2-30MHz, £60. Icom AH-3 remote ATU, £120. MFJ-748B tunable DSP filter, £80. Heath VVM, £8. BARTG Multyterm modem, £20. Microwave Modules DFM 500MHz, £15. Geoff, G3EDM, 01245 223 494 (Chelmsford). E-mail: glmillsg3edm@one tel.com

TRIO TS-530SP HF tcvr, SSB & CW filters; AT-230 ATU; SP-30 spkr; VF-230 remote VFO; MC-35S mic. Complete station in mint cond, mans, boxed, recently serviced, £475 ono. 01580 830 558 (Hastings). E-mail: g2hix@arrl.net

TS-930 c/w mic, man and workshop man, £200. 01422 365 990 (Halifax).

UNUSED 1000µF 385V Philips, plus appropriate bleeder, £2.50 ea. Semi rigid UT-141, £1/m, max length 20m. LDF5-50A, 30m, 10m, 9m lengths, £3/m. Mains isolating transformers 3kVA Parmeko, £50 ea. Also 1.2kVA, £15. Carriage at cost. MU0AVO, 01702 332 203 answering service, 01481 822 565 (Alderney).

WANTED

70cm h/h Hora C-408 or similar, prefer 70cm only, must be small. G3XYF, QTHR, 01377 254 441 (Driffield). E-mail: bracey bridge@enterprise.net

COLLINS KWM-2 or KWM-2A, any condition, anything considered. Also 75S series rcvr. G3WCE, QTHR, 01692 538 794 (North Walsham).

COMMODORE 64 keyboard in gwo. My C-64 keyboard is unrepairable so I cannot access RTTY program and other info on floppy discs. GI4CUV, QTHR, (Belfast).

DIGITAL readout YC-7B for Yaesu FT-7B tcvr. Good price paid plus postage. Would consider purchase of complete rig. 0121 561 1953 (Oldbury). E-mail: m0mvt@aol.com

DISABLED fan of old days seeks pre-1970 QSL cards mags etc. Mike, 8 Windsor Rd, Reydon, Southwold, Suffolk, IP18 6PQ.

DTMF mic for Icom IC-2350 dual-band FM tcvr. 01254 240 052 (Blackburn). E-mail: g0dag@aol.com

FC-177 freq display module or complete counter using this module considered. Alan, G3KGN, QTHR, 01702 477 779 (Southend-on-Sea).

FT-102 frequency display, or dead FT-102 with working display. Can collect. Tibbert, GW3RKZ, 01248 722 041 weekends only (Llangefni, Anglesey).

G2DAF rcvr components required to complete building project. Coils and xtals are urgently needed, esp the USB and LSB ones for the product det - 453.35, 456.35kHz or any other items for this design. Ted, G8HLJ, 0151 632 0614 (Hoylake). E-mail: edward.edwards@merseymail.com

GRAMPIAN horn speakers with or without pressure units wanted. Brian, G7WJC, 01254 886 384 (Blackburn).

HEATH SB-220, HL-2200 mod 830-94 for relay 69-116 supplied by Heath to purchasers of the HL-2200 linear. Harry, 01386 41951 (Worcestershire).

HF linear amp SB-200 or similar. Must be mint. 01905 20264 (Worcester). E-mail: tony@bodenham.fsnet.co.uk

IAMBIC Morse key, either Schurr Profi or mechanical unit or G4ZPY. 01624 801 592 (Isle of Man). E-mail: gd4eip@yahoo.com

POWER supply and speaker for Heathkit 104A tcvr, to complete the set. Also man for above. Hugh, G0EFN, QTHR, 01908 366 399 (Bletchley). E-mail: hughg0efnahwm pc@hotmail.com

SILENT key clearout or just not needed. I collect QSL cards for their historic interest, preferably from periods before 1970. Please don't throw them away. I can collect or arrange collection. Tony, G4UZN, 01132 693892 (Leeds). E-mail: g4uzn@qsl.net

TEN-TEC Paragon II HF rcvr incl filters and power supply. Phone/fax 01283 532 616 (Burton on Trent).

TORN EB rcvr with or without PSU dead or alive. Geoff, 01634 891 017 (Medway).

TS-950SDX in exc cond, also SP-950, DRU-2 TL-922, SM-230. Tim, G4YBU, 020 8393 9691 (Epsom). E-mail: timprice@pridecatering.co.uk

YAESU FL-2100Z H/F linear amp. 01685 384 826 (Merthyr Tydfil). E-mail: fred.mw0bzi@virgin.net

YAESU FRG-8800 rcvr. Must be in mint cond and gwo with cct diagram and man. Nigel, G4KZZ, QTHR, 01723 890 786 (Scarborough).

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

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: GBxAAA-MZZ – Mike Evans, 322 Heol Gwyrosydd, Penlan, Swansea SA5 7BR, e-mail mw0cna@ntl world.com. Will organisers of special event stations please ensure that they lodge plenty of envelopes with their sub-manager?

1 Nov	GB2AFC: Alexander Fleming Centenary. LH2 (G3AQM)
6 Nov	GB2HA: (HMS) Hood Association. LH2 (G0LMD)
	GB4SCL: Settle Carlisle Railway. Ingleton, N Yorks. LH (G0FQN)
11 Nov	GB2ATC: Air Training Corp. 2 (G4PSH)
18 Nov	GB4YOU: Youlbury (Scout & Guide Radio). TLH27P (G0REL)
	GB4YOU: Youlbury (Scout & Guide Radio). TLH27P (G0RJX)
19 Nov	GB2KIN: Kids in Need. Shoreham. L2 (G3NDJ)
20 Nov	GB4RN: Royal Navy. TLHV27 (G3LIK)

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 – North Wales Conference Centre, Llandudno. OT 10am. Jenny, MW0BET, 01492 549 413. [www.nwrs.org.uk]

7 NOVEMBER 2004
24th North Devon Radio Rally – Holsworthy Memorial Hall. OT 10am. B&B etc. G8XMI, 01409 241 202.

14 NOVEMBER 2004
West London Radio & Electronics Rally – Kempton Park racecourse, Sunbury-on-Thames, Middx. OT 10.15. TS, FM, C, LEC, B&B. Paul, M0CJX, 01737 279 108, m0cjx@radiofairs.co.uk [www.radiofairs.co.uk]

SOUTH YORKSHIRE REPEATER GROUP Great Northern Hamfest – Metrodome Leisure Complex, Queen's Rd, Barnsley. Less than two miles from jn 37, M1. Five minutes' walk from train and bus stations (follow the brown 'Metrodome' signs from all directions). OT 10am, £2.50. DF, TS, SIG, B&B. Ernie, G4LUE, 01226 716 339 or 07984 191 873.

21 NOVEMBER 2004
COULSDON ATS CATS Bazaar – Scout Hall, behind the public car park in Lion Green Road, Coulsdon. OT 10am, £1; entrance fee includes one free drink. C. Dave, G8VXB, 07880 740 385, dyoung@photo-scan.com

4 DECEMBER 2004
ROCHDALE & DARS Traditional Radio Rally – St Vincent de Paul Catholic Church, Caldershaw Road, off the A680 Edenfield Road, approx 2 miles W of Rochdale. Follow the orange arrows from the M62 jn 20. Please note that this is a Saturday rally! OT 10.15 / 10.30am, £1. CP free, TS, B&B, C, TI on 145.550MHz. John, G7OAI, 01706 376 204 (eve), radars@mbc.co.uk [www.mbc.co.uk/radars]

5 DECEMBER 2004
BISHOP AUCKLAND RAC Rally – Spennymoor Leisure Centre. OT 10.30 / 11am, £1, accompanied under-14s free. B&B, C, CP, LB, MT, DF, FAM, TI on 144.550MHz. Mark, G0GFG, 01388 745 353, or Brian, G7OCK, 01388 762 678.

WEST MANCHESTER RADIO CLUB Red Rose Winter Rally – Lowton Civic Centre, just off the A580 East Lancs Road. OT 10am. TS, B&B, SIG, CP free, LB, C, RSGB bookstall, DF, and large social area. TI on 145.550MHz. Steve, 01942 895 198. [www.wmrc.org.uk]

21 - 23 JANUARY 2005
CONTEST CLUB FINLAND 10th Anniversary – Sokos Hotel Vantaa, Vantaa, nr Helsinki. Proceedings in English. [www.qsl.net/ccf/]

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 – Brian, G7IIO, 01268 756 331 or briang7iio@yahoo.com [www.southessex.ars.btinternet.co.uk]

13 FEBRUARY 2005
HARWELL ARS Rally – Ann, G8NVI, 01235 816 379, ann.stevens@btinternet.com. [www.hamradio.harwell.com]

WAKEFIELD & DRS 14th Northern Cross Radio Rally – John, G7JTH, 01924 251 822 or g7jth@wdrs.org.uk [www.wdrs.org.uk]

20 FEBRUARY 2005
SOUTHGATE ARC Stevenage Radio & Electronics Show – Steve G4UKR, 07950 327 822, stevenageshow@dsl.pipex.com [www.stevenageshow.dsl.pipex.com]

27 FEBRUARY 2005
SWANSEA ARS Amateur Radio & Computer Show – Roger, GW4HSH, 01792 404 422.

13 MARCH 2005
BREDHURST RECEIVING & TRANSMITTING SOCIETY 18th Rainham Radio Rally – Mike, 01634 313 905.

20 MARCH 2005
CAMBRIDGE & DARC Rally – John, G0GKP, 01954 200 072.

NORTHERN AMATEUR RADIO SERVICES' ASSOCIATION (NARSA) Rally – Peter, G6CGF, 0151 630 5790, g6cgf.peter@ntlworld.com

10 APRIL 2005
21st Yeovil QRP Convention – George Davis, 01935 425 669, george@mudford.fstnet.co.uk

15 MAY 2005
MIDLAND ARS Drayton Manor Radio & Computer Rally – Norman, G8BHE, 0121 422 9787 or 07808 078 003, nlgutteridge@aol.co.uk [www.midamradio.co.uk]

5 JUNE 2005
SPALDING & DARS Annual Rally – Ambrose, M0DJA, 07989 636 520, or John, 07946 302 815. [www.sdars.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, hamfest@frars.org.uk [www.frars.org.uk]

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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*. Trade or business ads, even from members, will not be accepted. Traders who wish to use this facility must send a signed declaration that the items for sale are part of, or intended for, their own personal amateur station. The RSGB reserves the right to refuse ads, and 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.

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Potential for child abuse?

From: Ian Bevan, G0YAP

I read with interest the lter from Paul Ferris ('The last word', October) and agree with him on the state of amateur radio today. I have been licensed for 15 years and have enjoyed all aspects of the hobby, but recently I, like Mr Ferris, am losing interest. In my area, especially on our local 2m repeater, it has become like CB. I will probably have to put on my flak jacket by saying this, but the air is now full of stations, mainly M3s and [former] B licence holders who have paid to 'upgrade' to an M0 or G3/4 calls of silent keys, broadcasting their egos and hogging the repeaters with their childish and embarrassing QSOs.

I have a 2m radio fitted in my work's van. Whilst at the depot last week, I had left the radio on and my side window down. I was in the workshop busy drinking a coffee,when one of my colleagues came in and asked what the rubbish (he used another word instead of rubbish!) was in my van? I went outside and on the local repeater was an elderly amateur chatting up a young female. The conversation was similar to that of a dirty old man on the make. I was very embarrassed and quickly switched it off - so much for being a proud radio amateur. I wish I could say this was a 'one off', but unfortunately it is not. The standards of QSO being made by these 'easy entrance' stations is going to turn amateur radio into CB.

I may be turning into Victor Meldrew, but my thoughts are echoed in other amateurs of similar background, and they are conspicuous by their absence on the bands. I still believe that M3s should not have been given access to the HF bands (I have yet to find an M3 who doesn't run more than 10 watts on HF) and that upgrading by B licence holders to A class callsigns without further testing was not a good move. I hope you publish this letter as I would be interested in any feedback, and maybe it would make these CB stations with their big callsigns think a bit more before transmitting.

From: K B Monaghan, M3HKM

. . . What a relief, honesty at last. Someone has had the audacity to give an honest and factual opinion of what has happened to our hobby over the last few months. I would agree with Mr P Ferris, G0LLE. Have we turned the Society and all it stands for into a CB society without the self-regulating methods used by that section of radio enthusiasts? However basic their self-regulation may be, a 32-tonne lorry is a formidable beast!

It is a sad state of amateur radio, when you can openly listen to children being groomed by people with obvious dubious motives as to where they spend, and what they do in, their spare time and what time they leave home etc. Giving invitations out to meet them somewhere, to look at their mobile etc. When you intervene, the conversation usually stops abruptly, and the callsigns of the offenders do not exist. The young people usually resent the intrusion to the conversation: you cannot always explain your fears or suspicions to them for fear of litigation if you are wrong, or they become afraid of the situation they have created by talking.

We have given the airwaves to children, in abundance, we have made it simple for them to talk to others, sometimes they use it like a free mobile phone or land-line to make arrangements to meet each other. Who else is listening to those arrangements, and to what end?

Children of all ages can at times dominate repeaters. I have known many an old hand give up, wise old gentlemen who had a world of knowledge to impart to others lost for ever to the world of amateur radio. In our desire to expand the hobby, what have we created? How can we rectify the problem? Do we accept that we have one? Is the new licensing system working or is it creating a monster which is starting to run out of control? Do we want quality users or do we want a quantity of users?

I dare you to print this letter.

[RSGB General Manager Peter Kirby, G0TWW, responds:

"I am saddened by the contents of the letters above. Thankfully the observations of G0YAP and M3HKM are the minority view. Amateur radio was in decline and most radio amateurs realised that changes had to be made if amateur radio was to survive through to the end of this current decade. Yes, the decline was that serious. Three years ago very few were entering the hobby, numbers taking the Intermediate and Full RAE were dwindling and there was a general apathy. Amateur radio clubs were closing down due to lack of numbers and an increasing age profile. What a difference the picture is today! At the end of this year nearly 9000 newcomers will have been licensed through the Foundation licence scheme. Around a third of these new licensees are under the age of 21. The bands are alive again, and alive to the sound of young voices. Clubs who have encompassed Foundation licence training are in most cases thriving and reporting increases in their membership for the first time in years. Over the past four decades most radio amateurs were ex-military trained engineers and operators; today's radio hams have not received that training and have to be taught and encouraged to become good operators. Only mentoring by experienced amateurs will achieve this. It seems to me that less criticism and more encouragement should be the order of the day."]

Did I miss something?

From: Russell Baker, G4ZRZ

I'm wondering if I missed some general announcement that UK amateurs can run whatever power they like. I've noticed that a lot of amateurs freely admit to running power levels that are far in excess of my licence limits. Do they have some special NoV or are they just ignorant of the real limits?

I listened to a special event station tell several stations that they were

running 1kW on 7MHz, I heard several of the stations that competed in the 160m Club Calls Contest last November admit to running 50 - 400W and tonight I listened to a conversation on 1933kHz where both stations were running 50W. By my reckoning the maximum power allowed on 1933kHz is 32W. Or maybe my copy of BR68 is out of date?

So am I missing something? Or are some UK amateurs just running whatever power they feel like? Perhaps it's time to remind amateurs of the power levels on each band.

[RSGB Board Regulatory Portfolio holder and President Jeff Smith, MI0AEX, responds:
"Russell is obviously concerned at the apparent use of excessive power by some amateurs whilst others may wonder at the sense and sensibility of people who make wild or boastful claims about the power or size of their equipment. There will always be a difficulty in proving the claims that some people make unless measuring equipment is installed at the antenna. BR68 allows a maximum power of 26dBW PEP at 7MHz and in the slot between 1810 and 1850kHz "at the antenna in the direction of maximum radiation". Between 1850 and 2000kHz the limit is reduced to 15dBW. I do not intend to explore the problems of measuring the difference between the power at the transmitter and the output at the antenna save to note that there will always be some loss between the two such that "running 50W" may hold some technical doubt. Whatever the loss may be, it does not justify excessive output at the transmitter. All sensible amateurs decry those who deliberately abuse the privileges of their licence and the RSGB expects every amateur to operate within the restrictions laid down in the various versions of BR68. We are aware that Ofcom has promised only a 'light touch' in its regulatory strategy, however, we would caution that a 'light touch' will not prevent them dealing quite severely with anyone who is found to be deliberately abusing their privileges."]

Commonwealth Contest medal winner

From: B L Manohar 'Arasu', VU2UR

It is indeed very great to be honoured with the prestigious Commonwealth Medal. For whatever little that has been done from my side, with my modest equipment and an ever increasing interest towards the most enjoyed old 'BERU' / Commonwealth Contest, the third world is honoured. I am happy to be possibly the first ever Indian to have received this award. I thank you all for appreciating the work done and recognising it; so kind of you.

I have, in the immediate past, boosted and goaded some people to get active and the world could see two IOTA coastal island groups from India-- from Maharashtra and Tamil Nadu State - get on to the IOTA world map with the numbers AS-169 and 173.

Thank you once again.

[This year Arasu operated VU2UR as the Indian HQ station in RSGB Commonwealth Contest and was awarded the Commonwealth Medal for his support and activity over many years: see *RadCom* October 2004 p20 - *Ed.*]

Small tuned loops

From: Ben Edginton G0CWT

I read with interest the article by Prof Mike Underhill, G3LHZ, 'New truths about small tuned loops in a real environment' (*RadCom* August / September; see also 'Technical Correspondence' on p100 this month - *Ed*). The article reminded me of my own experience when I designed and patented a small tuned loop antenna. Unfortunately at that time I could not get anyone to take me seriously, mainly because of the misplaced trust that was being placed in computer models of small loops.

I tried without success to get *RadCom* to publish an article about this small tuned loop. After a long and drawn out assessment of the article *RadCom* returned it to me saying that they could not publish it because of the dispute about the radiation resistance of small loops. They did say that maybe they would publish an article if I left out the theory of how it worked. I was not prepared to do this so contacted the editor of PW and the ARRL but I received a similar response from them. Two years were wasted in this way and I finally put the information on to my web pages at www.edginton.info

Many radio amateurs from around the world now write to me to inform me of the success that they have with their own versions of the G0CWT small tuned loop. I think that this interest and support for the small tuned loop by individual experimenters helps to endorse the article by G3LHZ. I feel that in publishing the article *RadCom* has at last opened the way to a more enlightened age in the approach to small tuned loops, and that the computer programs that are so misleading will be carefully examined to find out why they can be so wrong in their predictions about the radiation resistance of small tuned loops.

I have to thank *RadCom* for taking the initiative and finally allowing this subject to be discussed openly.

VHF contest station spurii

From: J S Linfoot, G0CPP

I see in September's *RadCom* ('The last word') that Andy Cook recommends us to check that our contest equipment meets his code of practice by reading equipment reviews. So now the secret is out: we are all 'black box' operators and the technical part of the exam is a charade.

With regard to the actual recommendation, I note that he bases his justification on the actual ERP of the spurii, but the recommendation is for -100dB relative to the wanted signal. What would this imply for a QRP station?

Clearly the figure was plucked out of the air. Come on RSGB, tell the truth and shame the devil.

[Andy Cook, G4PIQ, responds:
"My response was certainly not intended to suggest that everyone is a black box operator, but measuring spurious levels down to the low levels which are important in a high power VHF contest station really requires access to test equipment which isn't available to most amateurs. Therefore many people will have to rely on high quality reviews, such as those produced by Peter Hart and the ARRL. However, there is nothing to substitute learning from doing, by carrying out the measurements yourself if you have the right equipment available. A simple -90/-100dBc requirement has been in place for many years, is aimed at well sited, very high ERP contest stations, and indeed a weaker requirement is quite appropriate to lower power stations. We will include the concept of stating absolute ERP levels for spurious rather than a simple level of suppression in our review of this guideline."]

HF from a flat

From: David Wright, G4BKE

Have any readers had experience of operating HF from a flat / apartment? What kind of antennas are they able to use? Are there any TVI or BCI problems? What are their neighbours' reactions?

Perhaps some RSGB members could enlighten me?

Broadcast harmonics

From: Wyn Mainwaring, GW8AWT

'Ta' for another exciting issue [October *RadCom*] - really! Perhaps you'd welcome a few comments from a long-retired broadcasting engineer on 'Broadcast harmonics' ('The last word', September and October). Back in the 'good ol' days', Minehead people for years endured a whistle on their West of England medium wave programme from Clevedon - ever since the 'establishment' attempted to 'sink' the radio pirates by hurriedly borrowing all the spare transmitters (14 in all) to co-channel the 1214kHz channel for Radio 1.

Unfortunately, in line was the far more powerful station at Washford Cross, and barely 10 miles away. The second harmonic of Radio 1 inevitably mixed (at QRO level) with Radio 4 (Wales) to produce a heterodyne exactly 1kHz away from Clevedon's Radio 4 (West of England) frequency.

It took a letter directly to Sir John Crawford (by-passing the 'hierarchy') to 'convince' the Engineers-in-Charge. Ah well!

AM revival

From: Alan Morris, G4GEN

The word among vintage radio enthusiasts is that our Society is no longer interested in AM, and considers that it should be phased out as an obsolete method of transmission. The lack of any mention of AM in the extension of the 7MHz band is cited as evidence. I find this hard to believe. The restoration and operation of vintage equipment is one of the few growth areas of our hobby. Added to this is the fact that to design and build a simple AM / CW transmitter is a feasible project for a comparatively inexperienced constructor. We have several such participating on our AM nets.

As things stand, it is difficult to operate such equipment as the W/S 18, 48, 58 and 21, as they do not cover 80 metres, and there is really no room on 40m for AM. If and when more space becomes available, I for one intend to operate on 7143 or 7150 using these low power sets.

The Vintage and Military Amateur Radio Society has a large and growing world-wide membership. In the US, there is AM International, and similar organisations in New Zealand and Australia.

[RSGB Spectrum Forum Chairman / HF Manager Colin Thomas, G3PSM, responds:

"Well, of course one shouldn't necessarily believe everything you hear and this topic has been the subject of a number of letters exchanged between myself and AM enthusiasts, especially members of the Vintage Military Wireless Amateur Radio Society, over the past year or so. The topic is also being discussed within the IARU Region 1 Bandplanning working group and it is accepted that AM is alive and well, albeit used by a relatively small number of enthusiasts. However, to cut a long story short the following footnote should have appeared in the HF bandplan: 'AM is permitted in the phone segments of all these bands.' The oversight was my fault for which I apologise. The footnote will appear in future published bandplans."]

Father of electronics

From: Peter Saul, G8EUX

I read with interest the article on Sir Ambrose Fleming (*RadCom*, October 2004). One can readily suppose that, while Marconi may have been the 'father' of radio - although that could be disputed - Sir Ambrose Fleming was clearly the 'father' of electronics.

A minor detail omitted from the article was that the first (allegedly...) valve was, and possibly still is, on display at University College London (UCL). The last time I visited there, it was in its usual glass case opposite the lift on the top floor.

Prize winner

From: John Rose, M3FZU

As a recently-licensed M3 I'll make good use of the prize of *Ham Radio for Dummies* book. It's the first competition I've tried. May I thank you very much. Here's to more competitions in the future.

Happy customer

From: I Hogan, G6TGO (ex-G0FYN)

I wish to thank you for your help in regard to me reverting my callsign G0FYN to G6TGO issued to me in the 1980s. I can now confirm that my active callsign as from 13 September is G6TGO. Once again, you went to a lot of trouble to obtain callbook information dating back to 1984 / 85 / 86. This warrants a big thank you.

I will make a donation to GB4FUN at the Donington Rally by way of thanks.

'Spenny' rings a bell

From: Roy Fursey, G3FSO

I was pleased to see the fine tribute paid by G3VA to the radio activities of the late H C ('Spenny') Spencer, G6NA, in 'Technical Topics' (*RadCom* September 2004). Spenny, like quite a few former members of TRE, Worth Matravers, retired to Purbeck and these retirees decided to show their appreciation of the hospitality they received during the war from the local inhabitants by funding an increase in the bells of the local church from three to six. Spenny paid for one of them and it has G6NA included in the casting, so he is commemorated with what must be a unique memorial to a unique character. ♦

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PRO-SET-5	Large H/phones with HC-5 element	**£109.95**	B
PRO-SET-IC	Large H/phones with ICOM element	**£124.95**	B

PRO SET QUIET PHONES £189.95 B

NEW!

* HC-4, HC-5 or Icom elements.
* Noise cancelling on/off
* PTT button
* Phase reversal switch

Transceiver interfaces: (8-pin)
AD-1 Yaesu, Kenwood or Icom **£14.95**
Modular types **AD-1M £14.95**

The latest release from Heil, a traditional boom-mic headset with headphone acoustic noise cancelling to exclude outside noises and phase reversal to improve the received image heard between head pieces.
PSQP-4 (DX) mic capsule **£189.95**. **PSQP-5** (normal)capsule **£189.95 PSQP-IC** (Icom) **£199.95**

SM-1 SHOCK MOUNT £44.95 B

This shock mount decouples the microphone from the boom and prevents vibration noises. The mic is suspended in an 8-point nylon band and comes with the standard 5/8in - 17mm fitting.

HEIL GOLDLINE HAND MICS

PRICES DOWN

Goldline professional quality dynamic microphone. Three versions available, GM-4 with Studio & HC-4 elements, GM-5 with Studio & HC-4 elements and GM-V Vintage Goldline with Vintage Studio high impedance element, for older valve rigs such as Drake & Collins. Includes stand threaded holder. Requires CC-1 adaptor £29.95 A.

GM-4	Goldline HC-4 hand mic	**£109.95**	B
GM-5	Goldline HC-5 hand mic	**£109.95**	B
GM-V	Goldline Vintage Hi-z hand mic	**£129.95**	B

TB-1 MATCHING DESK STAND

£23.95 A

This smart desk stand perfectly matches the HM stick series of microphones. Base diameter is approx 120mm and total height of stand is approx 110mm.

HEIL CLASSIC DESK MICS

PRICES DOWN

The Heil Classic studio quality microphone, exact replica of the 1930's RCA 74B type of broadcast microphone. Inside it has the benefit of modern technology. Two inserts are provided, one for broadcast studio quality and a choice of one other Heil insert. Includes base stand, soft-touch PTT back panel switch and cover for microphone. Requires CC1 adaptor.

HCL5	Classic retro-look HC-5 desk mic	**£199.95**	B
HCL4	Classic retro-look HC-4 desk mic	**£199.95**	B
HCLic	Classic retro-look IC desk mic	**£199.95**	B

CB-1(H) MATCHING DESK STAND

This desk stand has been designed specifically for the Heil Classic & Heritage microphones.

PRICE DOWN £49.95 A

FS-2 PTT FOOT SWITCH

£39.95 B

Ergonomically designed to require less effort to operate. The hinge is under your heel instead of away from your foot. It can control two devices from a single operation.

LINEAR AMP RANGER 811H ATU £945 D

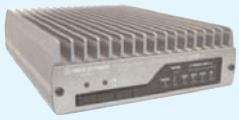
**1.8 - 29.7MHz *800W CW or SSB, 400W RTTY *Uses 4 x811A vertically mounted *Drive 10 - 100W *Toroidial AC Power Transformer *6:1 Reduction Drive on Tuning Controls *"Near Silent" Papst Cooling fan *Front-panel ALC Adjust Control *Built-in AC 230V @ 8A Supply *Size 355 x 240 x 405 mm *Weight 25kg*

The Ranger 811H uses four vertically-mounted 811A valves to produce 800W on the Amateur HF bands. Each band has its own tuned I/P and the O/P Pi network has a nine-position bandswitch for better tuning. To aid tuning there are 6:1 reduction drives on the tune and load capacitors. The valves are cooled by a 120mm, low noise Papst fan which gives excellent cooling but is so quiet that you will hardly know its running. Front panel features include two backlit, flush-mounted meters for plate current and grid current.

LINEAR AMP SUPER TUNER NEW £395 C

This exciting new design is made in the UK by Linear Amps UK. It is a true balanced, inductively coupled ATU covering the full HF spectrum from 160m to 10m. Rated at 1.5kW it is ideally suited for use with power well over the UK limit. This is a rugged design with over-rated components for long life and reliability. The unit can be used to feed balanced feeder, coax fed systems or long wires.
There are two sets of terminals on the rear of the unit, one covering 10m to 20m and the other 30m to 160m. It is possible to have separate antennas continually connected to each terminal set, thus avoiding the need for an antenna switch.
The unit requires 12V at all times of operation. **Order as: LA-STWM**

TOKYO HY-POWER HL-100BDX NEW



Turn your QRP rig into a base station transceiver by the addition of this 100W Linear Amplifier.

Following on from the successful HL-50B is the new HL-100BDX. Instead of 50W out you can now get 100W for only 5 or 10W input. The HL-100BDX is ideal for the FT-817, boosts RF out to base station power levels. Powered from 13.8V DC the HL-100BDX is easily attached to your QRP transceiver. Has auto band switching & ALC output. **£429.95 B**

bhi NES10-2 DSP SPEAKER £99.95 B

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

NES5 basic plug & go model - **£79.95 B**
A fixed level of DSP noise cancellation with the same dramatic noise & heterodyne reduction.

bhi NEIM1031 £129.95 B

NOISE ELIMINATING IN-LINE MODULE
** Noise attn -20dB (typical) * Noise Attn levels 8 * Audio output power 2.5W RMS max (8 Ohms) * Audio connections: Line level in/out (RCA Phono), Audio in/out 3.5mm mono jack * Line i/p impedance 10K * Line o/p impedance 100 Ohms * Line in sensitivity 300mV -2V RMS * Headphone socket 3.5mm mono jack * Power 12-24V DC 500mA*

WATSON HP-100 HEADPHONES £19.95 B

Excellent lightweight communication headphones with tailored response ideal for the modern tranceiver or receiver.
**8 Ohms 200-9,000Hz *Adjustable headband *3.5mm stereo plug *1/4" stereo adaptor.*

WATSON HP-200 HEADPHONES £22.95 B

Superb headphones with tailored response for radio comms. Excellent sound proofing, can pull in the weak DX.
**Mono 8 Ohm 200-10,000Hz *Padded Ear pieces *3.5mm stereo plug *1/4" stereo adaptor.*

SGC SPECIAL OFFER

Buy an SG-2020 or SG-2020ADSP transceiver with any SGC Coupler (except SG-239) and receive a *FREE* SGC Multimeter (worth £19.99) *PLUS* £30 (inc Vat) *OFF* the price of the pair.

SG-2020 £499.95 C
1.8-30 MHz 1W-20W

SG-2020ADSP £589.95 C
1.8-30 MHz 1W-20W + DSP

PRICES DOWN!

SG-237 Auto ATU

1.8 - 60MHz. 3 - 100W pep (40W CW). Min wire length, 7m. 50 Ohm feed. Needs 12V at approx 300mA.

£299.95 c

SG-231 Auto ATU

1 - 60MHz. 3 - 100W pep (50W CW). Min wire length, 7m. 50 Ohm feed. Needs 12V at approx 900mA.

£349.95 c

SG-230 Auto ATU

1.6 - 30MHz. 3 - 200W pep (80W CW). Min wire length, 7m. 50 Ohm feed. Needs 12V at approx 500mA.

£339.95 c

High Sierra "Sidekick" from USA

As featured in Radcom by G3LDO

New 80m-6m Hi-Q variable tune Mobile antenna.

Mounts on 3-way magnetic mount Handles 200 Watts

Supplied with cables and switch box - can run from cigar lighter.

£239.95 C

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. 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**

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-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-25AM PSU £89.95 C

DC power supply for the shack & esp. for use with 100W transceivers. Separate voltage and current meters. *Output voltage 0-15V DC *Output current of 25A (30A peak). *3 sets of output terminals *10A cigar socket. *Over current protection

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**

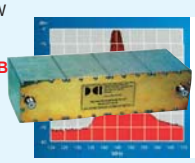
MFJ-1704 4-way coax switch rated over 1kw (HF) and up to 600MHz @100W. Fitted SO-239 sockets. **£69.95 A**

DCI High Performance Bandpass Filters

Razor sharp VHF & UHF filters

Simply place in antenna feed and clear up reception problems related to strong out of band signals. These are commercial grade filters with up to 68dB rejection.

DCI-145 2M Band Pass Filter. 200W handling. -68dB @ 136MHz, -55dB @ 155MHz. SO-239 **£99.95 B**
DCI-145-2HN "N" sockets **£109.95 B**



DCI-435 70cm Band Pass Filter. 200W. -47dB @ 415MHz, -50dB @ 455MHz. "N" sockets. **£119.95 B**

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

WATSON NEW W-25XM £99.95

Carriage £10

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. Weighing just 1.65kg it operates from either 230V or 115V AC.

*9.7 - 17V DC (13.8v notch)
*Input 230V or 115 AC
*25 Amps peak
*22 Amps continuous
*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

COMING SOON

FC-40

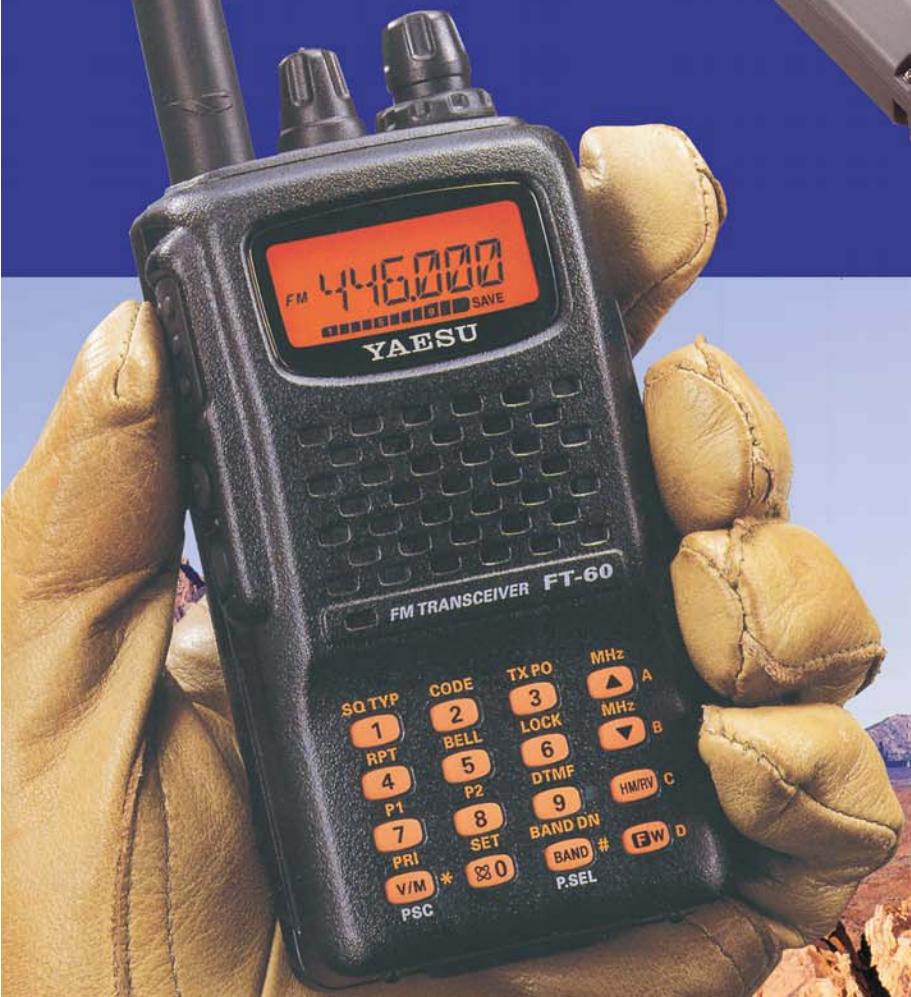
Automatic Matching 100 Memory Antenna Tuner

Automatic Matching for FT-857/897

Compact Size 236 x 175 x 53mm

Rugged Waterproof Case

100W Power Handling



ACTUAL SIZE

FT-60E

New Generation Handheld

Dual Band 144/430 MHz FM

Wide Band Receive

High Power 5W Output

Ni-MH Long Life Battery

User Programmable Keys

Over 1000 Memory Channels

YAESU

Choice of the World's top DX'ers

www.yaesu.co.uk