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The Radio Society of Great Britain Members' Magazine

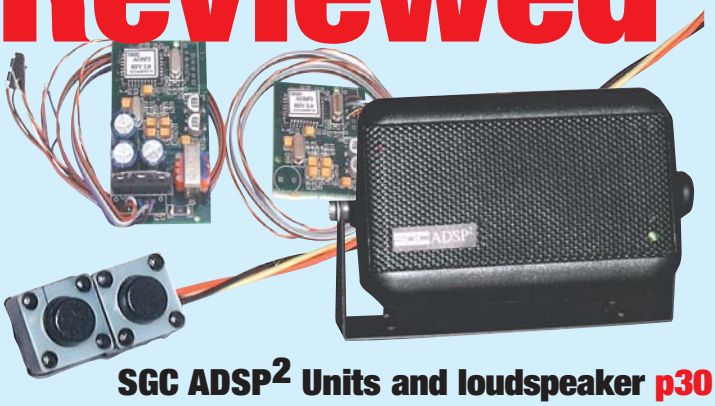
# RadCom

£3.95 Vol 79 No. 11 November 2003

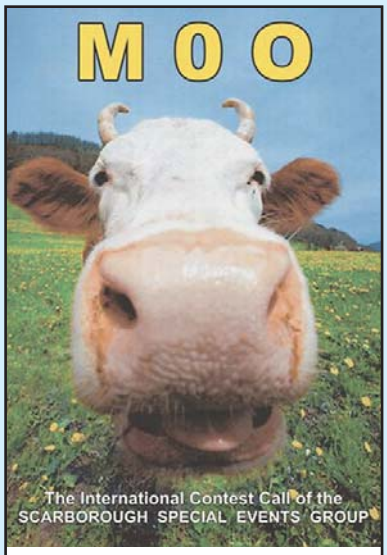
## INSIDE

RSGB ANNUAL REPORT
**2002–2003**
**20-page pull-out supplement** p49

# Reviewed



**SGC ADSP$^2$ Units and loudspeaker** p30




**Newcomers' News**
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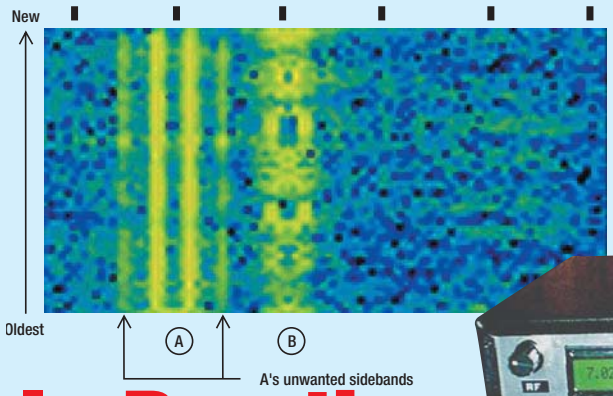
**'1940s weekend'**
**at the Eagle Radio Group. This and more Club and Regional News on** p12




# In Practice

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What NOT to do!

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**REVIEWS**
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**NFD 2003**
All the results from this year's National Field Day

**QRP**
A QRP CW transceiver by EI5EM

# WATERS & STANTON

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

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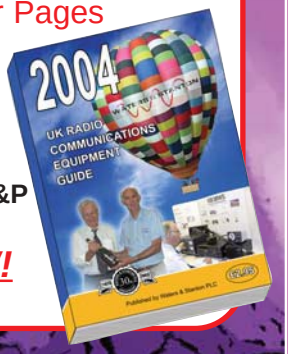
**www.wsplc.com**

### New W&S 2004 Catalogue!

352 Full Colour Pages Packed with Products, Tips & Information.

**£2.95 + £1.75 P&P**

**OUT NOW!**




## KENWOOD NEW

**HF RIG 160-6m**
**Similar concept to the TSB-2000, but much smaller.**
***AVAILABLE AUTUMN***

## YAESU VX-2E NEW

**Dual Band Ultra Compact FM Handie.**
The VX-2R is unbelievably small yet provides 1.5W on 144MHz and 1W on 430MHz (3/2W with external supply). General coverage receiver 0.5-999MHz, which includes AM mediumwave & FM broadcast bands plus AM aircraft & UHF TV bands.

***IN STOCK*** ***£169 B***

## YAESU FT-8800R NEW

**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.

***IN STOCK*** ***£299 B***

## KENWOOD HANDHELDS NEW

### TH-K2ET/TH-K2E

**2m FM Handheld**
*144-146MHz
*Tx/Rx : FM 5W
*16 char Keypad
TH-K2ET
**£139.95 B**
TH-K2E (4-char Keypad)
**£134.95 B**

### TH-K4E

**70cm FM Handheld**
*430-440MHz *Tx/Rx : FM 5W
*4-char Keypad
TH-K4E **£134.95 B**

## HF TRANSCEIVERS

### ICOM IC-756 PRO II £1999 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 £1249 C

HF/VHF 100W transceiver. Features large LCD with spectrum scope, auto ATU and same DSP system as IC-756PRO II.

### ICOM IC-703 NEW £599 C

**HF/ 50MHz Transceiver 0.1-10W Portable, Mobile, Base-Station. (9-15.87V DC)** Designed especially for the Foundation Licence/QRP. Built-in features auto ATU, DSP memory keyer. (5W when using 9.6V batts) Battery and Carry Pack to follow.

### ICOM IC-706 IIG DSP £789 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 .

### ICOM IC-718 £499 C

HF 100W transceiver. Covers all HF bands plus wideband receive. C/w auto notch, 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.

### KENWOOD TS-870S DSP £1399 C

HFDSP 100W base station. 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.

### 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.

### ICOM IC-910X 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.

**Base Model IC-910H £1129**

## HF TX / LINEAR AMPLIFIERS

### 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.

### YAESU FT-920AF £1049 C

***LAST FEW***

100W HFplus 6m transceiver. 100kHz - 30MHz, 48 - 56 MHz Gen coverage Rx, 100 memories, Internal ATU with 100 tuner memories, large backlight LCD, Built-in memory keyer, 13.5V DC. Now includes FM unit and 6kHz AM filter.

### YAESU FT-897 £989 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

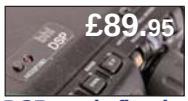
1.8 to 440MHz, this all-in-one transceiver offers unbeatable value. 100W on HF plus 6m, and 50W on 2m and 70cm. You get genuine RF clipping on SSB for up to 6dB gain and there are 4 separate antenna sockets.

### YAESU FT-857 NEW £799 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-817 £539 C

**bhi NE-DSP1061 Module available!**




160m - 70cms. Up to 5W output all modes. ***Ours includes*** **battery and charger.** **Add £110 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 £265.95 C

### FT-817 VERSION !

This model has been specifically designed for the FT-817. Enjoy up to 50 Watts output

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# VHF / UHF TRANSCEIVERS

## ICOM IC-E208 NEW £319 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 £309 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 £349 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-1500M £179 B

Remarkably small and compact, yet built like a Battleship!
Should last for years.
Look at the Price!

## KENWOOD TMD-700E £449 C

Certainly the best 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

A lovely cool blue display, easy with 50/35W output. 50W/35W plus 280 memos and five storable operating profiles.

## KENWOOD TM-G707E £289 C

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

# VHF/UHF HANDHELDS

## 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 £115 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-110 £109 B

Combining the ruggedness of the VX-150 with the simplicity of 8-Key operation, the VX-110 is a fully featured 2m handheld ideal for the most demanding of applications. It has a die-cast case, large speaker and illuminated keypad.

## ICOM IC-E90 NEW £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 £259 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.

# VHF / UHF ANTENNAS

## MOBILE ANTENNAS

DIAMOND ANTENNA (PL-259 base type) NEW

**CR-8900.** Quad bander 6m/10m/2m/70cm. Length 1.26m, max pwr 60W with fold over base. **£72.95 B**

WATSON ANTENNAS (PL-259 base type)

| | | | |
|---|---|---|---|
| W-2LE | 2m quarter wave 2.1dBi 0.45m | £9.95 | A |
| W-285S | 2m 3.4dB 0.48m (fold over base) | £14.95 | B |
| W-77LS | 2m/70cm 0/2.5dB 0.42m | £14.95 | B |
| W-770HB | 2m/79cm 3/5.5dB 1.1m | £24.95 | B |
| W-7900 | 2m/70cm 5.6/7.6dB | £32.95 | B |
| W-627 | 6m/2m/70cm 2.15/4.8/7.2dB 1.6m | £34.95 | B |
| WGM-270 NEW | 2m/70cm On glass 3.7m coax 50W | £29.95 | B |

## HIGH SIERRA SIDEKICK NEW £259 B

*80m to 6m 200W Mobile Whip Motorised Tuning, Can Be 'Mag' Mounted**

The large diameter coil offers efficiency higher than any other similar antenna, in a very compact size. Band changing is a button press away!

- 3.5 - 60MHz
- 200 Watts
- 15 in base unit
- High Q Coil
- 3ft whip
- 12V motor
- Control box
- DC cables
- 3/8" stud mount
- Made in USA

* Needs our 3-way magnetic mount

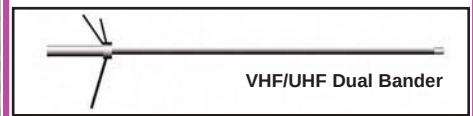
## WATSON MOBILE BASES

***WM-14B.***
Large diameter 14cm magnetic mount SO-239, c/w 5m RG-58 & PL-259

| | | | |
|---|---|---|---|
| W-3HM | Adjustable hatch mount | £14.95 | A |
| WM-08B | 8cm mag mount, 5m cable PL-259 | £9.95 | A |
| WM-14B | 14cm hvy duty mag mount+cable | £12.95 | A |
| WSM-88V | BNC mag mount plus 3m cable | £14.95 | A |
| W-3CK | 5m 5D-FB cable assembly+pigtail | £18.95 | A |
| W-ECH | 5m standard cable kit assembly | £12.95 | A |
| W-300T | 3/8in" Triple Mag Mount | £39.95 | A |
| W-300S | S0-239 Triple Mag Mount | £39.95 | A |

## BASE STATION ANTENNAS

DIAMOND



VHF/UHF Dual Bander

| | | | |
|---|---|---|---|
| X-200 | 2m/70cm colinear 6/8dB 2.5m | £79.95 | C |
| X-300 | 2m/70cm colinear 6.5/9dB 3.1m | £99.95 | C |
| V-2000 | 6m/2m/70cm 2.15/6.2/8.4dB 2.5m | £89.95 | C |

WATSON

***W-300.***
Very popular dualband base antenna. Supplied with u-bolts for mast fixing.

| | | | |
|---|---|---|---|
| W-30 | 2m/70cm colinear 3/6dB 1.15m long | £39.95 | C |
| W-50 | 2m/70cm colinear 4.5/7.2dB 1.8m long | £49.95 | C |
| W-300 | 2m/70cm colinear 6.5/9dB 3.1m long | £64.95 | C |
| W-2000 | 6m/2m/70cm 2.15/6.2/8.4dBi 2.5m | £69.95 | C |

## DIAMOND HFV5 NEW

*NEW - DIAMOND HFV5 ULTRA COMPACT DIPOLE*
***40, 20, 15, 10, 6M. 100 WATTS 4M LONG!***

This is a superbly engineered rigid dipole for portable or balcony use. Balun fed, it comes with centre mounting plate for up to 2" diameter fixing. Each band is individually adjustable.

* 40 - 6m
* 150 Watts
* 40m = 40kHz, 20m = 160kHz 15m = 200kHz,
* 10m = 340kHz, 6m = 1.3MHz * SO-239 Balun Fed
* 2" mounting bracket * 4m long / 1.95kg

NEW

**HFV5** Compact HF Dipole 40-6m **£219.95 C**

# WATERS & STANTON

PRICE MATCH

THE ONLY THING WE CUSTOMER SERVICE WON'T DISCOUNT

## HF ANTENNAS

### VERTICAL ANTENNAS

#### HUSTLER BASE VERTICALS

#### WORK DX FROM A SMALL GARDENS

Hustler base verticals are designed to work at ground level, even with a single earth stake. And they can take up to a Kilowatt! They are self-supporting and can also be used elevated with ground plane wire radials.

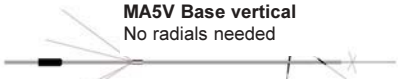
| | | |
|---|---|---|
| **6-BTV** | 80-40-30-20-15-10m 1kW PEP | **£239.95** C |
| **5-BTV** | 80-40-20-15-10m 7.64m 1kW | **£209.95** C |
| **4-BTV** | 40-20-15-10m 6.52m 1kW PEP | **£169.95** C |

#### Hustler Mobiles

Get top performance when on the move. Purchase the **MO-3 base** (137cm) for **£26.95** 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**

#### CUSHCRAFT BASE ANTENNAS

**MA5V Base vertical**
No radials needed



| | | | |
|---|---|---|---|
| **MA6V** *NEW* | 20-17-15-12-10-6m 250W PEP | **£289.95** | C |
| **MA5V** | 20-17-14-12-10m 250W PEP | **£229.95** | C |
| **R8** | 40-30-20-17-15-12-10-6m 1.5kW | **£529.95** | C |
| **R6000** | 20-17-15-12-10-6m 1.5kW PEP | **£349.95** | C |

#### BUTTERNUT BASE ANTENNAS

| | | | |
|---|---|---|---|
| **HF9V-X** | 80-6m 7.9m 1kW PEP | **£365.00** | C |
| **HF6V-X** | 80-40-30-20-15-15-10m 7.9m 2kW | **£315.00** | C |
| **HF2V** | 80-40m 9.75m (160m opt) 1kW | **£230.00** | C |

#### HY-GAIN BASE ANTENNAS

| | | | |
|---|---|---|---|
| **AV-640** | 40-6m 1.5kW, 300W 6m (PEP) | **£399.95** | C |
| **AV-620** | 20-6m 1.5kW, 500W 6m (PEP) | **£299.95** | C |
| **AV-14AVQ** | 40-20-15-10m 1.5kW PEP | **£179.95** | C |
| **AV-12AVQ** | 20-15-10m 1.5kW PEP | **£139.95** | C |
| **DX-88** | 80-10m 1.5kW, 250W 30m | **£395.95** | C |

### HORIZONTAL BEAMS & DIPOLES

#### CUSHCRAFT

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

| | | | |
|---|---|---|---|
| **X-7** | 20/15/10m 7 el. Yagi 2kW | **£699.95** | D |

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

| | | | |
|---|---|---|---|
| **MA-5B** | 10-12-15-17-20m 4 el. Yagi 2kW | **£389.95** | C |
| **A4-S** | 10-15 & 20m 4 el. Yagi 2kW | **£599.95** | D |
| **A3-WS** | 12 & 17m 3 el. Yagi 2kW | **£399.95** | D |
| **D-3** | 10-15-20m dipole element 2kW | **£259.95** | 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 | **£259.95** | 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 | **£799.95** | C |

#### RADIO WORKS

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

| | | | |
|---|---|---|---|
| **CW-160** | 160-10m 76.8m long | **£139.95** | C |
| **CWS-160** | 160-10m 40.5m long | **£134.95** | C |
| **CW-80** | 80-10m 40.5m long | **£99.95** | C |
| **CWS-80** | 80-10m 20.1m long | **£119.95** | C |
| **CW-40** | 40-10m 20.1m long | **£94.95** | C |
| **CW-20** | 20-10m 10.36m long | **£84.95** | C |
| **CW-620** | 20-6m 9.7m (32ft) long | **£94.95** | C |
| **G5RV PLUS** | 80-10m with balun 31m (102ft) long | **£64.95** | B |

## HF ANTENNAS

### Super Antennas USA - Portable HF Ants

#### MP-1 Portable "Screwdriver"

*It beats the competition!*

***MP-1 Portable whip for 40m to 70cms! Ideal for FT-817 etc.*** **£159.95**

* Centre variable loading * 40m to 70cms * 150W pep * Total length extended 185cm approx. Packs down to pocket size * Includes universal table/fence bracket and radial wire * SO-239 socket on bracket. **Optional tripod £22.95. 80m coil £29.95**

*"I measured up to 10dB gain over another popular whip for the FT-817".* **Peter Waters, G3OJV**

### PORTABLE ANTENNAS

#### MIZUHO (FOR FT-817)

| | | |
|---|---|---|
| **ATX-WBN** | Walkabout 80-6m Whip 1.5mBNC | **£49.95** B |
| **ATX-WPL** | Walkabout 80-6m Whip1.5mSO-239 | **£49.95** B |
| **ATX-W38** | Walkabout 80-6m Whip 1.5m 3/8in | **£49.95** B |

New Low price on Walkabout whips, three to choose from with three different connectors.

| | | | |
|---|---|---|---|
| **AT-80** | Single band 80m whip with BNC | **£24.95** | A |
| **AT-40** | Single band 40m whip with BNC | **£24.95** | A |
| **AT-30** | Single band 30m whip with BNC | **£19.95** | A |
| **AT-20** | Single band 20m whip with BNC | **£19.95** | A |

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

| | | | |
|---|---|---|---|
| **AT-17** | Single band 17m whip with BNC | **£19.95** | A |
| **AT-15** | Single band 15m whip with BNC | **£19.95** | A |
| **AT-12** | Single band 12m whip with BNC | **£19.95** | A |
| **AT-10** | Single band 10m whip with BNC | **£19.95** | A |

## ANTENNA TUNER UNITS

### MFJ Compact Portable Tuners

**MFJ-971**
QRP portable tuner, 300/30/6W. Wire, coax or balanced. **£99.95 B**

**MFJ-902 Travel Tuner**
Smallest 150W ATU in the world! 3.5 - 30MHz coax or end fed wires. Real air spaced capacitors! **£69.95 B**

### MFJ Power Tuners

**MFJ-989C £379.95 C**
3kW 1.8 - 30MHz. Wire, balanced and coax feed. Full metering and switching

**MFJ-971 £349.95 C**
1.5kW fast differential tuning design. 1.8 - 30MHz. Wire balanced and coax systems. Full metering and switching.

### MFJ Popular Tuners

**MFJ-949E £159.95 B**
1.8 - 30MHz. 300W wire, balanced and coax. Inc dummy load, metering and antenna selector.

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

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## Buddipole *NEW* W3FF ANTENNAS Buddistick *NEW*

### Direct from the USA



***THE SYSTEM:*** **Frequency 40 to 2m *Power rating 250W *2x 55cm alloy dipole arms *1x dipole centre with 1/2in thread *2x matched loading coils *Adjustable finger-tight coil taps *2x 165cm telescopic end sections *Wrap around pouch and hard case *Full instructions *8m coax with balun + BNC plug.*

The Buddipole is a shortened dipole, Using high 'Q' loading coils. A purposed made balun and 8m of 50 Ohm coax cable is included. Band changing is effected by changing coil taps. The cente T-piece has a 1/2in thread for attaching it to the optional telescopic mast. An adaptor can be purchased for attaching antenna to a DIY "decorator pole". The dipole's length is approx 4.64m when fully extended. The whole kit packs down into a plastic protective container measuring 68cm long and 10cm diameter. Total packed weight is 1.6kg. This is a superbly engineered product.

| | | | |
|---|---|---|---|
| **Buddipole Kit** | £199.95 | B | |
| **Tele Mast** 2.45m max. 600g. | £49.95 | B | |
| **Tripod** 58cm. 1.5kg. | £89.95 | B | |
| **Rotating Arm Kit** | £32.95 | A | |
| **Decorator Adaptor** | £6.95 | A | |
| **Pack of 3 extra coil clips** | £11.95 | A | |
| **Antenna carry bag** | £39.95 | A | |
| **Buddistick** | £134.95 | B | |
| **Buddistick Tripod** (comes with Buddistick) | £32.95 | B | |
| **Table Clamp** | £12.95 | A | |

This is effectively half a Buddipole used as a vertical and supplied with a compact mini tripod. (*By purchasing the tripod and adaptor fittings, you can adapt your existing Buddipole).* The Buddistick is slightly shorter than half a Buddipole and is supplied with a 16' radial wire. Great for operating portable where a quick set-up is required.

## RADIO SOCIETY OF GREAT BRITAIN

THE NATIONAL SOCIETY WHICH REPRESENTS UK RADIO AMATEURS

Founded in 1913 incorporated 1926.
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**Patron: HRH Prince Philip, Duke of Edinburgh, KG, KT**

Membership is open to all those with an active interest in radio experimentation and communication as a hobby. Applications for membership should be made to the Subscriptions Department from which full details of Society services may also be obtained.

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I Rosevear, G3GKC
Details of the Society's volunteer officers can be found in the RSGB Yearbook 2003

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# RSGB Matters

## Amateur Radio Dinner at AGM

This year, once again, there will be an 'Amateur Radio Dinner' to be held on the evening of the Society's Annual General Meeting. The dinner will take place at 'The Refectory' at the Shropshire University Campus, Priorslee, Telford, Shropshire, at 7.30pm on Saturday **6 December**. For a map showing how to get to the venue, please turn to page 67 of this issue of *RadCom*. Tickets, price £20.00 each, are available from RSGB HQ, tel: 0870 904 7373, or from Dr Roy Clarke, G8AYD, tel: 01952 820833; e-mail: roy@rclarke.com Please book as soon as possible.

The Amateur Radio Dinner is an ideal opportunity to meet your amateur radio friends from across the country in an informal and relaxing environment while enjoying a good meal. The dinner is open to members and non-members of the RSGB alike, so please invite your friends and family.

### CHANGES TO RSGB DISTRICTS

The following changes have been made to the Districts that make up RSGB Region 9 (London & Thames Valley):

- District 91 is now: North London boroughs and north of A40 in the west, Herts (DRRM Keith Holland, G3MCD).
- District 92: Berkshire (DRRM vacancy).
- District 93: North Bucks north of A40 (DRRM vacancy).
- District 94: London boroughs south of the Thames, Surrey (DRRM Martin Charman, G4FKK).
- District 95: West London boroughs south of A40, Middx, South Bucks south of A40. This is a newly-formed District and Garo Molozian, G0PZA, has been appointed DRRM to cover District 95.

### GB4RS VERY ACTIVE

**The callsign GB4RS** is reserved for use by the RSGB President during his or her period in office. RSGB President Bob Whelan, G3PJT, has been using GB4RS and says "I will be very active on HF with this call. December will be the last chance!" Bob is confirming QSOs made as GB4RS with a special QSL card which shows him presenting the Society's Patron, the Duke of Edinburgh, with a Millennium Morse Key on the occasion of the Queen's Golden Jubilee.


### DRRM VACANCIES

Dave Oliver, G0SJY, has had to resign as the Deputy RSGB Regional Manager for District 92 as he is moving out of the area; while Ryan Pike, G5CL, has asked to step down as DRRM for District 93 due to business pressures. There are therefore vacancies for DRRMs in District 92 (Berkshire) and District 93 (North Bucks north of A40). Volunteers for these two positions who are resident in the Districts should please contact the RSGB Regional Manager for Region 9, Paul Berkeley, M0CJX (QTHR), e-mail: m0cjx@ntlworld.com

### AROS TALKS

The RSGB Amateur Radio Observation Service (AROS) coordinator, Barry Scarisbrick, G4ACK, is giving a talk on the work of AROS at the **Chester & District RS** on **18 November**. Further details from the honorary secretary, Bruce Sutherland, M0CVP, e-mail: bfcsutherland @supanet.com

## COMMONWEALTH CONTEST CORRECTION

Bob Henderson, 5B4AGN, came second in the Restricted section of this year's RSGB Commonwealth Contest. By mistake he was included in the Open section table in the October *RadCom*. Sincere apologies to Bob for this error.

## PAST PRESIDENTS CLUBS' 'LEADER BOARD'

Correspondence in 'RSGB Matters' in the September and October *RadComs* has led to more claims as to the number of RSGB Presidents 'produced' by a local radio club, although in many cases the individuals were not members of the clubs at the time of their Presidency. At the Chelmsford ARS (see 'RSGB Matters' October), Willy McClintock, G3VPK, was also a member, making a total of one WIA and three RSGB Presidents. The Derby & DARS (Derby Wireless Club 1911) had four members (John Saxton 1970 and 1973; Fred Ward, G2CVV, 1971; John Allaway, G3FKM, 1976 and 1982; and Bob Barrett G(W)8HEZ, 1984) who were, or who later became, RSGB President. However, the Cardiff RSGB Group had Cyril Parsons, GW8NP; Bob Barrett, GW8HEZ (the first Class B licensee President) and John Case, GW4HWR, as members *at the time of their Presidency*, while the Bristol Channel Repeater Group, GB3BC, had four past RSGB Presidents as members: the three above, plus Clive Trotman, GW4YKL.

Thanks to Martin Shardlow, G3SZJ; Geoff Mills, G3EDM/VK3EDM; Bob Barrett, G(W)8HEZ; and Peter Blair, G3LTF, for these details. This correspondence is now closed!

## 5MHz NoVs

The RSGB is pleased to announce that, following discussions with the RA, the issuing of 5MHz Notices of Variation is shortly to be resumed. Further details and application forms will be available soon from www.rsgb-hfc.org.uk/5MHz_nov.htm and there is a link from the main RSGB website at www.rsgb.org

## GB2RS NEWS HEADLINES BY E-MAIL

Any member wishing to receive the weekly GB2RS news headlines by e-mail can request the service by sending an e-mail to gb2rscom@rsgb.org.uk

## 75 YEARS AGO... IN THE T. & R. BULLETIN, NOVEMBER 1928

**THE T. & R. BULLETIN** for November 1928 reports the first contact between England (sic – perhaps Great Britain? – Ed) and North America on the 28MHz band. An item headlined 'The Month's Work on 28,000 k.c' reports: "This month the "Laurels" go to G6LL, who made the first contact on 28,000 k.c. between England and North America on October 21 at 14.30 G.M.T., when he worked W2JN for 1? hours, being reported R6... G6LL used 50 watts input to the power amplifier of a crystal controlled transmitter, the same set as some of us had the opportunity of seeing at the R.S.G.B. stand at Olympia... His aerial consisted of a half-wave vertical wire, zeppelin fed, the maximum height being about 40 ft., not more. The receiver is the conventional Det. and One. G6LL has also been heard a number of times by London stations, T9 and reliable."

In the same issue of THE T. & R. BULLETIN, reporting on an informal meeting held at the City Electric Restaurant, Ludgate Hill, London, on Friday, October 26, Mr Megaw (no callsign given) "suggested that an effort be made to disuse the term 'wavelength in metres' and substitute 'frequency in kilocycles.'" Seventy-five years on, we still refer to bands in metres!

## GB3IN ON AIR FROM NOTTS

In the October 'Repeaters' column, GB3IN is listed as the latest 'cleared repeater'. Its keeper, Jon, G4TSN, has written to say that the repeater is now operational, but is located in Nottinghamshire and not Yorkshire. Apologies for the mistake.

## TECHNICAL FEEDBACK

**'The GM3VLB Mini Delta' – *RadCom* September 2003**. There was a mistake in Fig 7 on p64 – the physical connections to the balun. There should be a connection from a' via the asterisked connection from b to the 'floating' loop connection. We apologise if this has delayed anyone's construction of the antenna.

**'Understanding Impedance Matching' October *RadCom***. Tony Plant, G3NXC, has pointed out some errors in the equations in this article. The two equations for $R_S$ and $X_S$ in the middle of page 61 are wrong and should be replaced bv:

$$R_S = \frac{R_P \times X_P^2}{R_P^2 + X_P^2}$$

and

$$X_S = \frac{X_P \times R_P^2}{R_P^2 + X_P^2}$$

We hope that anyone trying to derive these was not unduly frustrated when they did not agree with the published versions!

## VHF AWARD NEWS

September saw claims from 50MHz through to the microwave end of the spectrum. Beginning at 50MHz, Johannes McKay, MM3AXK (KW), is making full use of his Foundation licence as he gains a 30-country endorsement. Also at 50MHz, Grant Wilson, MM5TGW (GW), gains the next rung on the 'squares' ladder after successfully claiming a sticker for 175 squares.

Derek, G8TOK, gains a Senior at 70MHz, a superb achievement considering his antenna restrictions. Additionally this award enables Derek to upgrade his Supreme to '5 Bands' the first time this has been achieved.

On 144MHz, Heath Rees, GW3HWR (SA), achieves the 80 square/18 country level with a claim containing a fair proportion of MS contacts. Heath comments that: "in the far west of Wales you have to make use of the more specialist propagation modes to make progress."

After an absence of many years from the awards scene, John Wood, G4EAT (CM), claims a 10GHz Advanced Distance Award for a QSO with OK1JKT at a distance in excess of 800km.

Details on all VHF, UHF and Microwave Awards can be obtained on receipt of an A4 or A5 SASE from the Awards Manager, Tony Jarvis, G6TTL (QTHR), e-mail: vhf.awards@rsgb.org.uk They are also available on a link from the RSGB website.

***Summary of Award Recipients for September***

**50MHz:** 30 Countries: MM3AXK. 175 Squares: MM5TGW.
**70MHz:** Senior: G8TOK.
**144MHz:** 80 squares/18 Countries: GW3HWR.
**Microwave Distance Awards:** 10GHz Advanced: G4EAT.

## M3s OF THE FUTURE?

Two members of HQ staff currently on maternity leave recently gave birth to baby boys. Ben, son of receptionist Lynn Wortley, came into the world on 24 June, while Jennifer Ward from the Amateur Radio Department gave birth to Santino (Sonny for short) on 20 September. Both mothers and babies are doing well.

***Right: Lynn Wortley with Ben, here exactly three months old.***

***Left: Santino at a few days old.***

# RSGB YEARBOOK 2004

Edited by Steve White

The 2004 edition of the RSGB Yearbook is bigger than ever. with more pages in the information section and more colour pages. Every page has been reviewed and updated from last year. The Yearbook reflects the current state of the hobby, with pages devoted to contesting, awards, satellites and propagation. Plus the mass of information you have come to expect, and the most accurate and comprehensive UK and Eire callsign listings.
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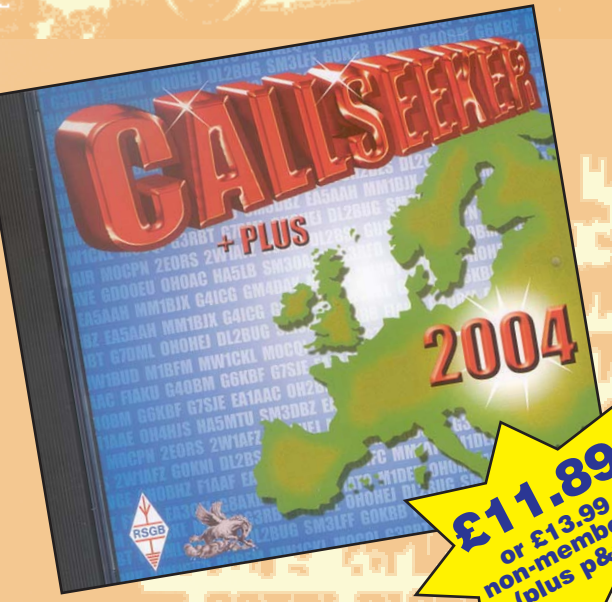


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*Subscriptions include VAT where applicable.*

Special arrangements exist for blind and disabled persons. Details and membership application forms are available from RSGB HQ.

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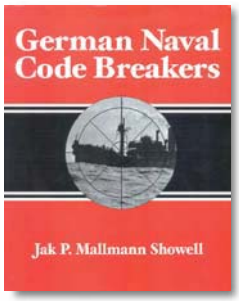


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## News and Reports



## Review



## Down To Earth – Amateur Radio From The Ground Up



## Technical Features



## Regulars

Mike Foale, KB5UAC, to Install Amateur Equipment on International Space Station

# New Amateur Equipment in Space

The recent docking of a *Progress* rocket to the International Space Station (ISS) means that the latest ARISS hardware is now on board the ISS. It is expected that British-born astronaut Mike Foale, KB5UAC, and Russian cosmonaut Alexander Kaleri will install and check out the system on the next ISS expedition. The equipment includes a Kenwood transceiver, specially-built power supplies and antenna switches. The Kenwood radio will provide 2m and 70cm operations (uplink and downlink) and L-band uplink with up to 25W power on FM, APRS and packet. A Russian team, led by Sergei Samburov, RV3DR, certified the hardware for flight and provided the ride, a Japanese team donated the transceiver and a US team developed the software.

A second radio system using a Yaesu FT-100 and Spacecam-1 SSTV system will be launched on another *Progress* flight in January next year.

PHOTO: NASA

***Mike Foale, KB5UAC.***

PHOTO: R J WALLACE, BRS34536

# Ceremony of the Key

Jerry Lamby, ex-G3GXW, aged 94, recently handed over his Morse key to Jerry Wells, the curator of the Vintage Wireless Museum in South London. Jerry Lamb has resided at the Royal Hospital Chelsea for the last 25 years, where he has enjoyed an active life in connection with amateur radio. His interest was originally stimulated as a young lad prior to joining the army in 1928. He went on to spend over 20 years in the Royal Signals. Failing eyesight has greatly restricted his participation in the hobby in the last few years.

## More Countries Drop HF Morse Requirement

Three more countries – Ireland, Singapore and Luxembourg – have dropped the Morse code requirement for HF bands operation in recent weeks. The list of countries that no longer require any Morse test for full HF bands access is now: UK, Switzerland, Belgium, Germany, Norway, the Netherlands, Ireland, Singapore and Luxembourg. It is believed that Austria and New Zealand will follow suit shortly.

## ML&S Appoints Commercial Manager

Martin Lynch & Sons have appointed Laurence Knott, M0LSK, as Commercial Manager. This new role has been created to ensure the commercial radio market is given the attention it deserves at ML&S. Laurence has been an active amateur since 1985 and is a keen contester. He previously held the position of Marketing Manager for Cable & Wireless. Laurence said, "I have been a customer at ML&S since the day Martin opened his first shop in 1990 and I am delighted to now be part of the team. My new role is one that will allow me to use my sales and marketing skills gained in the corporate sector and channel them to the radio and communications market that is my passion."

# UBA 'Candlelight Challenge'

A group of QRP enthusiasts in Belgium will carry out very low power/ narrow bandwidth experiments on HF during the winter of 2003-04. A series of transmission sessions will be held between November 2003 and April 2004. The sessions will be at 1700-1800UTC on Sundays and will consist of a callsign followed by a 5-character codeword sent in very slow CW (dit length 3 seconds; QRSS3). The challenge is to copy the codeword. To promote the experiment they have created the 'UBA Candlelight Challenge 2003-2004'. Further information is at www.qsl.net/on7yd/candlelight.htm

# Marble Mic in the Museum

A microphone made by Louis Varney, G5RV, in 1949 has been presented to the Chelmsford Science and Industrial Museum in Sandford Mill by Louis's widow, Nelida Varney. Members of the Chelmsford Amateur Radio Society recently had a chance to see the microphone and appreciate the craftsmanship that went into making it at a recent club meeting. Although it looks like metal in the picture, the centre part (supported by the springs) is made out of a solid piece of machined marble and "weighs a ton".

# Construction Contest

The West Manchester Radio Club, GX4MWC, has announced a construction contest open to all, which will take place on **7 December** at the Red Rose Christmas Rally, Lowton Civic Centre, Lowton, near Warrington. Book prizes and certificates will be awarded to the winners in two categories, which are:

•Any item for use in connection with amateur radio; and
•Any amateur radio item, but utilising opto-electronics of any type as a major feature.

There is no restriction on the number of entries per person and no charge for entries. The entry need not be complicated or even original but should be accompanied by a brief description or construction notes. There is no need to book – just bring the entry along on the day and state in which category your entry is to be judged. So start building now; there's not long to go! Further information from Les, G4HZJ, e-mail: g4hzj@ntlworld.com

# Radio Amateur Dies in Hillwalking Tragedy

Richard Baker, M3RWB, died on 21 or 22 September after sustaining injuries while climbing Aran Fawddwy in North Wales. It is not known what caused the injuries. He was intending to activate the summit for the Summits on the Air (SOTA) award programme. The Summits on the Air management team has released a statement which says, "Richard was an experienced hillwalker who saw SOTA as a good opportunity to re-ascend many summits that he had climbed in the past. His death is an untimely reminder that while accidents can happen anywhere, the mountains can present special dangers to those who are experienced as well as those new to mountain travel." The statement goes on to say: "The SOTA management team wishes to stress that in all cases, the safety of activators and those travelling with them must come above the desire to ascend to the summit – good mountaineers know that turning back is sometimes the best thing to do. There is a wealth of excellent mountain training available in the UK and newcomers to the hills should certainly consider learning how to travel safely in the hills in bad weather as well as good; even experienced mountain visitors may find it useful to brush up on their skills. SOTA has now grown into an international 'family' of keen participants. As such we have felt sadness about Richard's death very acutely and have extended our deepest sympathies to his family."

***On the Icom stand at the W&S @ Lowe Open Day.***

# W&S @ Lowe Open Day

The Waters & Stanton Open Day at Lowe Electronics in Derbyshire took place on 6 September. Ian Brothwell, G4EAN, writes that the Open Day is a regular booking in his diary. A marquee on the car park housed stands for Icom, Kenwood and Yaesu. A 'bargains stand' run by Peter Waters of W&S and Richard McLachlan of Lowe featured amateur radio antennas and PMR transceivers. Ian adds, "A great deal of interest was shown in the bargains by visitors. The marquee also housed an excellent buffet which was very much appreciated by all!"

## NEWS BRIEFS

- Following the letter published in 'The Last Word', October 2003, several members have contacted RSGB HQ to say that they have been told by the RA that they *may* keep both their former Class B and their Class A callsigns, provided of course, that both licences are renewed at their respective renewal dates.
- Bob Cox, G3PLP, will be running Foundation courses at the Exmouth ARC (E Devon). Details from Mike Newport, G1GZG, tel: 01395 274172; e-mail: mnewport@compuserve.com
- Kingston College offers external candidates the chance to sit the final C&G Full licence exam on 1 December. Those wishing to sit the exam should contact the college by 3 November: tel: 020 8268 2994 or write to Eng & Sci, Kingston College, Kingston upon Thames KT1 2AQ.
- Dick Pascoe, G0BPS, has been elected President of the QRP-Amateur Radio Club International. The US-based QRP club has over 10,000 members worldwide and Dick is the first non-American President.

***Israeli amateurs enjoying the RSGB '90th Anniversary ale'. A case of the beer was bought by Mark Stern, 4Z4KX, at Friedrichshafen at the end of June and kept intact until the 4X4 Field Day on 20 September, where it was enjoyed by all concerned!***

# Commonwealth Fair

The 37th Commonwealth Fair takes place at Kensington Town Hall, Hornton St, London W8 on **Saturday 1 November** between 10.30am and 4.30pm. While there is no amateur radio involvement at the fair this year, in the past radio amateurs have been invited to put on a special event demonstration station in order to contact other Commonwealth countries. Any individual or group wishing to explore this possibility for next year is invited to contact the *RadCom* editor at RSGB HQ for further details. All proceeds from the fair go to the Commonwealth Countries' League Education Fund, a registered charity.

# RAOTA Updates Image

RAOTA – the Radio Amateurs Old Timers' Association – exists to maintain the traditions and spirit of amateur radio and membership is now open to anyone who shares these ideals, *regardless* of how long (if ever) they have held an amateur radio licence. The RAOTA website has moved and has been re-designed. It is now at www.raota.supanet.com

The club recently held a competition to find a new motto. The winner was Dick Leeves, G2LV, whose winning motto was "Enjoy the Present, Honour the Past, Ensure the Future". At the RAOTA AGM held during the Leicester Amateur Radio Show in September, Dick was presented with his prize, a MyDEL antenna donated by ML&S.

Details of membership can be obtained from Edward Rule, G3FEW, 15 Norwich Road, Lenwade, Norwich NR9 5SH; e-mail: edit@raota.fsnet.co.uk

***Dick Leeves, G2LV, winner of the RAOTA motto competition, with fellow member Bill Wiggs, G5OW, at the RAOTA AGM.***

# London to the Rock – by Bike!

Kerry Rochester, G0LCS, and his colleague David Harris completed a marathon cycle ride from London to Gibraltar on 27 September. The epic journey was made to raise funds for the Cancerbacup charity. They started on 13 September and completed the 2500 kilometres bang on schedule. Kerry and David used PMR-446 radios supplied by Kenwood (UK) and ML&S to keep in touch while on the road.

Kerry says, "Cancer can be beaten and there's no better example of that than five-time *Tour de France* winner Lance Armstrong, who was given a less than 40% chance of survival in 1996." Donations can be made via the website at www.londontotherock.co.uk or by sending a cheque made payable to 'Cancerbacup' to G0LCS QTHR. In 2001 Kerry and David raised £4000 and last year they cycled from London to Milan, raising £8500 for Cancerbacup. The final sum raised in 2003 will be posted on their website around 1 December.

# Club & Regional News

**Club News is a service for clubs and societies affiliated to the RSGB. The announcements are intended to notify non-members and potential members of your club of specific events, therefore 'informal', 'committee meeting', 'natter night' and 'ragchew evening' etc will only be included if space permits. Basic, unchanged details about RSGB-affiliated clubs are published annually in the RSGB Yearbook.**

## Region 1: Scotland West & Western Isles

**AYR ARG**
5, Faroes DXpedition. 19, Introduction to weather satellite image reception. 22, 29, Foundation Course. John, MM1JAS, 01292 445599.

**PAISLEY (YMCA) ARC**
12, Faroe Islands Expedition. 26, Talk: 'The Amateur & his Neighbours'. Jim, GM3UWX.

## Region 2: Scotland East & the Highlands

**ABERDEEN ARS**
7, Junk sale. 14, AGM. 21, Presidential address. Robert, MM3HRS, 01224 896 142 or aars@aars.freeserve.co.uk

**COCKENZIE & PORT SETON ARC**
7, Normal club night. 21, TBA. Bob, GM4UYZ, 01875 811 723.

## Region 3: North West

**CHESTER & DARS**
18, AROS, Barry, G4ACK. Bruce, M0CVP, bfcsutherland@supanet.com

**FYLDE ARS**
6, Video. 20, Visit (TBA). Ken, G3RFH, 01253 823957.

**MID-CHESHIRE ARS**
12, HF on air. 26, VHF on air. Niall, G0VOK, 01606 871413.

**MORECAMBE BAY ARS**
18, 'QRP', Rev George Dobbs, G3RJV: all welcome. Brian, G0RDH, 01524 424522.

**SOUTH MANCHESTER R & CC**
7, Talk: '42 Years in SMRCC', Ron, G3SVW. 14, 'Favourite Websites', members' talk. 21, Talk: 'Geocaching', John, G4IRB. 28, Discussion on Foundation Course. Ed, 0161 969 1964.

**THORNTON CLEVELEYS ARS**
3, On air. 10, Auction. 17, Talk by G8KBH. 24, Quiz. Jack, G4BFH, jack@jduddington.fsnet.co.uk

## Region 4: North East

**GREAT LUMLEY AR & ES**
19, 'Radiocommunications in Developing Countries' or 'What do you do when someone points a machine gun at you?' Carolyn Crook, B Eng. Nancy, 0191 447 0036 (Home), 07990 760920(Mob). Nancybone2001@yahoo.co.uk

**HORNSEA ARC**
5, No meeting. 12, Noise measurement, G3RMX. 19, TBA. Richard, G4YTV, 01964 562498.

**NORTH WAKEFIELD RC**
6, Bangers & mash night. 13, Talk: 'GB3HD & Echolink', Tony, G4LLZ. 20, On air. 27, Surplus equipment sale. www.g4nok.org

**SHEFFIELD ARC**
3, 10, 17, 24, Club nights. Nick, G4FAL, 0114 255 2893.

**SOUTH YORKS RG**
2, 13th Metrodome Hamfest. Ernie, G4LUE, 01226 716339.

## Region 5: West Midlands

**BROMSGROVE & DARC**
15, 16, Foundation Course. 28, QRP construction project. Chris, M0BQE, 01095 776869.

**BROMSGROVE ARS**
11, Annual dinner, 'The Brook' at Elcocks Brook. 25, Video evening: all offers welcome! Angus, G8DEC, 01527 875573.

**CHELTENHAM ARA**
7, Test equipment evening, Richard, G4ERP. Ivan, G4BGW, 01452 731956, ivan@g4bgw.freeserve.co.uk

**GLOUCESTER AR & ES**
3, SWR: talk/demo. 10, 17, 24, On air, HF workshop. Tony, 01452 618930 office hours.

**HILLCREST ARS**
6, Foundation exam. 20, Junk sale. Stuart, M0SJV, m0sjvstuart@supanet.com

**KIDDERMINSTER & DARS**
4, 'Internet linked repeaters, *e-qso* and *ILink*'. Tony, G1OZB, 01299 400172.

**MID-WARWICKSHIRE ARS**
11, 'Camcorder Editing', Brian, G4DF. 25, Book reviews by members. Bernard, M1AUK, 01926 420913.

**SALOP ARS**
4, Foundation or Intermediate Course (TBC). 6, 'Machine-Generated Modes', Les, M5LMG, and Wayne, M5WJF. 8, RSGB Club Calls Contest. 20, Used equipment sale. John, G0GTN, 01743 249943.

**TELFORD & DARS**
5, Open evening, on air. 12, Near Zenithal Radiation, Gordon Adams, G3LEQ. 19, New Intermediate Licence & RAE syllabuses, Mike, G3JKX. 26, Digital modes for HF, G4EIX. Mike, G3JKX, 01952 299677.

## Region 6: North Wales

**CONWY VALLEY ARC**
5, Film/talk: RNLI, Roger Mottram. Wynne, GW6PMC, 01745 855068.

**DRAGON ARC**
3, Surplus sale. 17, AGM. Stewart, GW0ETF, 01248 362229.

**MEIRION ARS**
6, Annual dinner, Ship Hotel, Dolgellau. Martyn, GW4XZJ, 01654 782619.

**WREXHAM & DARS**
4, Trip to BT Oswestry. 18Talk TBA. Mark, MW3MDH, www.qsl.net/wars

## Region 7: South Wales

No club details received.

## Region 8: Northern Ireland

No club details received.

## Region 9: London & Thames Valley

**AYLESBURY VALE RS**
12, Morse practice, on air, discussion evening. Roger, G3MEH, 01442 826651, roger@g3meh.fsnet.co.uk

**BROMLEY & DARS**
18, '101 Uses for the Soundcard'. Alan, G0TLK, 0208 777 0420.

**COULSDON ATS**
10, VHF contesting for beginners and less experienced, Roger Piper, G3MEH. Steve, G7SYO, 01737 354271.

**DORKING & DRS**
25, 'Recent Developments in Mobile Telephones'. John, G3AEZ, 01306 631236.

**MAIDENHEAD & DARC**
6, APRS, a practical guide, Roger G7RUH. 18, TBA. John, G3TWG, 01628 525275.

**RS OF HARROW**
2, GB2DHH operating day. 14, 'Radio Direction Finding', Bill, G4CUE. Jim, G0AOT, 01895 476933 or 020 7278 6421.

**READING & DARC**
13, 'Spacelab', Robin Greenwood, G3LBA. Pete, G8FRC, 01189 695 697.

**STEVENAGE & DARS**
4, Members' discussion. 11, M3 tuition: operating. 18, Members' discussion. 25, Video night. info@sadars.org

**SURREY RADIO CONTACT CLUB**
3, Topband members' evening, Martin, G4FKK. Ray, G4FFY, 020 8644 7589.

**SUTTON & CHEAM RS**
20, TBA. John, G0BWV, 020 8644 9945.

**WIMBLEDON & DARS**
14, On air with GX3WIM. 28, Surplus equipment sale. Jim, G4WYJ, 01737 356745.

## Region 10: South & South East

**ANDOVER RAC**
4, Club projects revisited, Jim, G4NWJ. 18, 'EMC problems', Don, G3HVA. Terry, G8ALR, 01980 629346.

**CHIPPENHAM & DARC**
16, Trip to the Space Centre. 25, Christmas dinner. Andrew, G4GWR, andrew@scott-green.fsnet.co.uk

**FAREHAM & DARS**
5, On air G3VEF & G8KGI – with local pyrotechnic accompaniment. 12, Talk by Brian, M0DDA. 19, Video night: a trawl of members (radio related) video archives. 26, 'More Microwaves', Dave, G7CFR. Steve, G7HEP, 01329 663673.

**FARNBOROUGH & DRS**
12, AGM. 26, Digital Signal Processing, Graham Somerville, bhi. Norman, G0VYR, 01483 835320.

**HARWELL ARS**
7, 14, 21, 28: Lunchtime activity, club room. 11, Grimeton long wave transmitter, Richard, G0REL. 25, Club room activity night. Angus, G0UGO, hars.g3pia@tiscali.co.uk

**HASTINGS E & RC**
19, Collectors' night. R C Gornall, G7DME, 01424 444466.

**HORNDEAN & DARC**
25, MIG welding for the hobbyist, Ken Lindsay. Stuart, G0FYX, 023 9247 2846.

**HORSHAM ARC**
6, HARC & CARC quiz. David, G4JHI, 01403 252221.

**ITCHEN VALLEY RC**
14, Loop antennas. 28, Bird songs & slides. Sheila, G0VNI, 023 8081 3827, sheila.williams@ivarc.org.uk

**SUNPAC PACKET USERS GROUP**
21, General meeting (Chandlers Ford, Hants). Richard,G0WKL, 01730 825630.

**SWINDON & DARC**
6,'Useful and Unusual Arcs and

Sparks', Richard, M1EZW. 20, 'Digital Photography', Den, G0ACM. Den, M0ACM, 01793 822705.

**TROWBRIDGE & DARC**
5, G2BQY constructors' cup. Ian, G0GRI, 01225 864698 evenings/weekends.

**WORTHING & DARC**
5, Discussion on current topics. 12, The story of 73kHz, Peter Dodd, G3LDO. 19,'40 years of Rolls Royces'. 26, Nuclear physics and Sellafield in a nutshell. Roy, G4GPX, 01903 753893.

## Region 11: South West & Channel Islands

**APPLEDORE & DARC**
17, Bring & buy. Brian, M0BRB, brian.jewell@ic24.net

**BLACKMORE VALE ARS**
4, VHF on air. 11, 'Bring Your Key'. 18, HF on air. 25, Local Raynet net on air. Tony, G0GFL, 01258 860741.

**BRISTOL ARC**
6, VHF on air. 13, Make a 70cm J-Pole (parts free to members). 20, HF on air. 27, Computer workshop. Dave, G7BYN, 01454 883720.

**CORNISH RAC**
7, Annual surplus sale. 10, Computer section, drive image. John, G4LJY, 01872 863849.

**EXMOUTH ARC**
12, Junk sale. 26, Video. Mike, G1GZG, 01395 274172.

**POLDHU ARC**
11, 'PSK & other digital modes', Mike, G4WQL. Keith, G0WYS, 01326 574441.

**SOUTH BRISTOL ARC**
5, Computer clinic. 12, Start of Christmas raffle. 19, AGM. 26, On air. Len, G4RZY, 01275 834282.

**WEST SOMERSET ARC**
4, Video. Jean, G0SZO, 01984 633060.

**YEOVIL ARC**
6, 'Tim's Projects': the Sidcot transceiver, G3PCJ. 13, The R1224A receiver, G3ICO. 20, Distorted views quiz, M0WOB. 27, On air. Derek, M0WOB, 01935 414452, m0wob@tiscali.co.uk

## Region 12: East & East Anglia

**BRAINTREE & DARS**
3, Junk sale. John, M5AJB, 01787 460947.

**CAMBRIDGE & DARC**
7, 'Digital Radio', Oliver Gardiner. 14, Noise bridge kits issued. 21, Test and calibration of noise bridges. 27, Touch key project, John Bonner. Ron, G3KBR, 01223 501712.

**CHELMSFORD ARS**
4, *RadCom*, Steve Telenius-Lowe, G4JVG. David, M0BQC, 01245 602838.

**COLCHESTER RADIO AMATEURS**
6, On air, short talks, at St Helena School. 20, 'Working Pedestrian Mobile', Thomas, G0SBW, in the boardroom. Andy, M1MOD, 01206 735122.

**FELIXSTOWE & DARS**
1, 2, Foundation Course. 10, Speaker from Microwave Round Table. 17, RSGB video evening. Paul, G4YQC, paul.whiting@bt.com

**HARWICH AR INTEREST GROUP**
12, Talk by Mark Baker of HM Coastguard. Eugene, G4FTP, 01206 826633.

**KING'S LYNN ARC**
27, Junk sale. Derek, 01553 841189.

**LOUGHTON & EPPING FOREST ARS**
14, Quiz. 28, Review of 2003 by the committee. Marc, 0208 502 1645 or 07743 456058.

**NORFOLK ARC**
5, Informal, CW instruction. 12, Slow Scan TV, Rex, G0UYC, Colin, G7UVY. 19, Informal, CW instruction. Reg, G0VDO, 01603 429269.

## Region 13: East Midlands

**DERBY & DARS**
4, Junk sale. Martin, G3SZJ, 01332 556875.

**EAGLE RADIO GROUP**
11, Operating through Internet-linked 70cm repeaters, Mick, 2E1JMD. Terry, G0SWS, 01507 478590.

**LINCOLN SW CLUB**
5, On air. 8, 15, Foundation Licence. 19, Construction contest final. 22, Foundation Licence. 26, Discussion on PLT. John, G1TSL, 01522 793751.

**LOUGHBOROUGH & DARC**
4, Health & safety issues, Mike, 2E1GYB. 11, Shepshed picture quiz, Steve, G7BMM, & Bob. 18, 'The Professional Touch', Dave, G6UWO, and John, G0PSI. 25, On air: try HF SSTV. Chris, G1ETZ, 01509 504319.

**SHEFFORD & DARS**
6, 'Secret Underground Britain', Don, G4LOO. 13, 'The Telegraph', Ken, G4YRF. David, G8UOD, 01234 742757.

**SOUTH NORMANTON, ALFRETON & DARC**
3, Bonfire/fireworks & BBQ, all the family welcome. 10, On air, talk (TBA). 17, Junk sale. 24, 'How to read circuit diagrams & assemble components', Russ, G0OKD. Russell, 01773 783394 or Mike, 01949 876523.

**SOUTH NOTTS RC**
7, 'The Story of the Royal National Lifeboat Institution', Don Crossland of RNLI. 12, HF/VHF on air. 21, 'Aerial Analyser Construction', John, G4EDX. 26, 'HF Aerials', Terry, M0RIA. Secretary,

### News from the IoM

The Isle of Man Amateur Radio Society has once again achieved a 100% pass rate with its 16 students taking the Foundation Course. 21 September was a big day for the students as they passed the examination. For a country with a small residential population (76,300), the Isle of Man continues to stimulate interest in obtaining an amateur radio licence. Some 51 people now have MD3 callsigns and local radio activity is developing all the time. The tutor John Butler, GD0NFN, said, "We had the good fortune recently to be visited by the 'FunBus' (GB4FUN – see *RadCom* October 2003 page 15) and this helped to attract people to the course. We must also thank 'BRATS' for their great CD-ROM, which was freely distributed to all candidates and was very valuable as a teaching tool. Listen out for our new MD3s and give them support and encouragement with their new-found hobby."

***The 16 successful candidates at the IOMARS on 21 September.***

### Chester Club

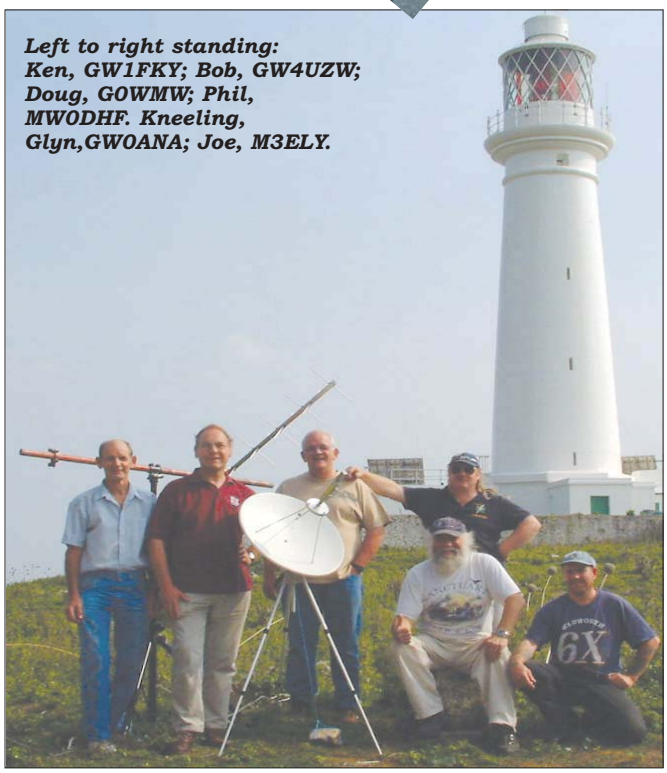
The Chester and District Radio Society meets every Tuesday except the second Tuesday of the month, at 8.00pm at The Burley Memorial Hall at Waverton, Chester, for talks, sales, bring and tell, and operating evenings. All welcome. Further details from hon sec Bruce Sutherland, M0CVP, e-mail: bfcsutherland@supanet.com

***Ceilia, M3IPE, operating the Eagle Radio Group's Ten-Tec Corsair transceiver on 15m. The club aired its new club callsign MX0ERG at a '1940s weekend' at Ludborough Historic Steam Railway on 13/14 September.***

### Yeovil's Valve Display

On 4 September, Rob Micklewright, G3MYM, gave a talk at the Yeovil Amateur Radio Club about the evolution of the valve and how valves work. The talk was supported by a chronological display of 24 valves, which was put on by Bob Woolridge, G7LNJ, and ranged from a WWI type R valve (the first valve on the left in the photograph) through to a present day version of the KT66.

*The display of the 24 valves.*



*Left to right standing: Ken, GW1FKY; Bob, GW4UZW; Doug, G0WMW; Phil, MW0DHF. Kneeling, Glyn,GW0ANA; Joe, M3ELY.*

### Barry Club Fulfils Marconi's Prophecy

In May 1897, after his first successful transmission across water, Marconi said that "one day man would talk from the heavens across the world using wireless communications." On 24 August, during their annual GB5FI DXpedition to Flat Holm Island in the Bristol Channel, members of the Barry Amateur Radio Society (BARS) fulfilled Marconi's prophecy. Ken Eaton, GW1FKY, of BARS made the first-ever Oscar 40 (AO-40) contact from the island with Pete Penta, KC2HLI, in New York. The historical QSO from the 'birthplace of wireless communications across water' was made using an uplink on 70cm and downlink on 2.4GHz. The contact was made possible by the great homebrew kit of antennas used by Ken.

For Ken, who is an AMSAT committee member, working satellite is nothing new, but for the other members of BARS the experience was unique and the excitement of working a new mode and band was palpable for all concerned.

Glyn Jones, GW0ANA, of BARS, says, "In making this first contact with the USA from this island, we had succeeded in making the great man's prophecy come true. We had indeed spoken to man from the stars and beyond, albeit over 100 years later." Later, Glyn made his first-ever satellite QSO with California at the limit of the 'bird's' orbit – 60,000km – and that's real DX on 5 watts!

### New FL Course in Lincoln

The Lincoln Short Wave Club (www.lswc.co.uk) is holding its third Foundation course beginning **Saturday 8 November** at 10.00am. In the previous two courses 11 out of 12 students passed. Further information from Bob Shaw, G3VRD, tel: 01522 858714.

### Sunpac Open Meeting

The Sunpac Packet Users Group supplies packet network facilities for packet users in the Dorset, IoW and South Wiltshire areas. The group is holding a General Meeting on **Friday 21 November** to which all packet users are welcome. The meeting will be held at the Thorburn School, Winchester Road, Chandlers Ford, Hampshire – off Junction 12 of the M3.

### BRATS' Revision Seminar

On 30 August the Bredhurst Receiving and Transmitting Society (BRATS) of Gillingham, Kent, held its popular three-hour 'revision seminar' prior to the Foundation Licence exam. The location was 'the classroom' at Fort Amherst, Chatham, which has very good car parking facilities and easy access from the M2. The students had been studying in their own time from the www.amradioinfo.co.uk website – a free learning resource – for about six weeks. During this time they had been e-mailed test papers and had their specific questions answered on areas that were of particular difficulty to individual students. The tutoring session was co-ordinated by Charles Darley, G4VSZ, Lead Instructor, ably assisted by Neil Harris, M0FSH. The result was a 100% success rate. The invigilator for the exam was Neil's wife Jo, M3RND.

In addition to the Foundation Licence, the BRATS will be running tutoring sessions tailored to students' needs for the Intermediate exam and, in conjunction with the Maidstone YMCA Amateur Radio Society, the Full examination. You can contact the BRATS via e-mail: coursetutor@the-brats.net

*Yarmouth Radio Club members Paul, 2E1FQB; Peter, G0VMK and Graham, G3SGC at the charity station (with photographer Tom, G0UTH, just visible in the mirror!)*

### Great Yarmouth Club Raises Funds for Meningitis Trust

On the weekend of 20/21 September Yarmouth Radio Club set up a station and display at the local Focus DIY store to raise funds for the Meningitis Trust. A long wire some 80m long was erected between two large, high metallic buildings and in spite of very poor conditions some good SSB and CW DX contacts were made. Considerable interest was shown by visitors. One lucky visitor guessed the range of the furthest contact, to VQ9 in the Indian Ocean, and won a patio heater. Over £500 was collected for the Meningitis Trust and a good time was had by all.

PHOTO BY TREVOR, M5AKA

*The Chelmsford Amateur Radio Society's newly-appointed Contest Manager, Chris McLaughlin, M5CSM, on the mic.*

### Contest Rejuvenation at Chelmsford

Since the Chelmsford Amateur Radio Society started running Foundation courses there has been an upsurge of interest in contest operating in the club. It had been over seven years since the club was last active in contests, but under the leadership of the new Contest Manager, Chris McLaughlin, M5CSM, the CARS Contest Group is back in business using the call-signs G0MWT and M2T.

### Mayor Takes Active Club Role

How many radio clubs and repeater groups have a Mayor as member? The Aire Valley Repeater Group, GB3TP, is situated in Silsden, a small town near Keighley in West Yorkshire. The Mayor of Silsden is Alan Edwards, G8WXR, who is treasurer of both the repeater group and of the Keighley Amateur Radio Society.

# GB4FUN at Belfairs High School, Leigh on Sea

On Monday 21 July, GB4FUN visited Belfairs High School in Leigh on Sea, near Southend on Sea in Essex. The visit was arranged by Stan Anders, M0CZI/G6HHP, who is Head of ICT at the school. Following the visit, Stan wrote the following article for the school newspaper, which he has given us permission to reproduce in *RadCom*:

***Pupils and staff alike at the Belfairs High School in Leigh on Sea join in the 'fun' with GB4FUN.***

## "AMATEUR RADIO COMES TO BELFAIRS HIGH SCHOOL"

"Right at the end of the summer term, we had a visit from the Radio Society of Great Britain (RSGB). This is the main organisation representing the some 60,000 licensed radio amateurs in the United Kingdom. Mr Anders (Head of ICT) has been a member for over 20 years and is also holds a full licence from the DTI.

"The visit was arranged in order to highlight an aspect of Information Communication Technology which is not normally encountered in schools, ie radio communication. Also, it would give an opportunity to Media Studies students to experience 'Raw Radio' beyond the studio!

"The Radio Van duly arrived and Carlos [Eavis, G0AKI] from the RSGB erected all the antennas and the satellite equipment. The Technology Department very kindly permitted us to use the hard standing adjacent to the workshops, and provided us with tea and lots of interested students. Thank you to Richard Parker and John. In the afternoon, Brian Baker brought students from the Science Club, who really enjoyed the experience.

"During the day, there were demonstrations of short wave, VHF and satellite communications. It was not possible to contact the International Space Station that day, but in the future this can be arranged by Mr Anders in conjunction with NASA and ARISS. Both organisations are very keen that children have the experience of contacting astronauts directly via radio and may be consider electronic engineering as a career.

"The presence of the Radio Van was really an experiment to see how other organisations could help enrich the curriculum in ICT. Also, with a view to media studies, students would be able to sample the technical aspects of radio.

"We were really lucky as the weather was very nice and this really helped. Carlos and the staff helping out were busy all day, and this showed how interested the staff and students at the school were in the project.

"Thank you to the RSGB and all the staff and students who helped out on the day. It was a really great day. We will try and repeat the visit next year."

## GB4FUN WEBSITE

Did you know that GB4FUN has its own website? Take a look at www.gb4fun.org.uk The site has a number of pages which explain how to have GB4FUN at your school and report on a number of recent visits to schools and other venues. The GB4FUN 'Handbook', a series of PDF files which tell everyone using the vehicle all they need to know about setting up the station, operating the radios, drivers' requirements etc, is on the website, as are listings of GB4FUN sponsors, the supporters' honour roll as published here in *RadCom*, future events at which GB4FUN will be appearing and much more.

If you wish to check the availability of the GB4FUN vehicle, please contact the GB4FUN Co-ordinator, Carlos Eavis, G0AKI, e-mail: gb4fun@rsgb.org.uk ◆

# The GB4FUN Supporters' Honour Roll

**We asked members when renewing their membership to include a donation to help to continue to finance the GB4FUN mobile amateur radio demonstration vehicle. 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 'GB4FUN', c/o RSGB HQ.**

| GB4FUN 'Big Hitters' | |
|---|---|
| J Hare | G1EXG |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| T A Wilson | 5B4AFB/ G3PGG | H H Pickering | G3DUL | R Greengrass | G4NRG | R J Ward | GW5NF |
| R Macfarlane, BEM | 7Q7RM | P S Horn | G3GGH | E Haskett | G4OZG | D Beynon | GW7VGB |
| R Williams | EI7AF | M Watson | G3JME | J E Vivian | G4PBN | J Newton | M0YGW |
| G E Birkhead | EI9DZ | T W Mitchell | G3LMX | Poole Radio Society | G4PRS | E Roberts | M1EWH |
| A Harding | G0HVT | K A V Hurrell | G3NBC | E Meekers | G4SNR | M K Wootton | M5MKW |
| C M Knaggs | G0LYZ | S B Jacobs | G3SUS | M L Morgan | G4WLK | R Foulds | MM3MTO |
| D A King | G0NNP | M I Vincent | G3UKV | R M Jenkins | G6CYR | D L Mann | RS181011 |
| L C V Duncan | G0OLK | W F M Hahn | G3UOL | R D Mount | G7DOE | J Dittrich | RS182594 |
| J V W Constance | G0VGD | E T Clarke | G3UYD | A J Cox | G8NJF | A W Tideswell | RS48462 |
| Dr S G Bayliss | G0VZW | M G Foster | G3VOF | G R Williams | G8YRG | A F Walker | RS91042 |
| K N Ravenhill | G1HDQ | E Tredgold | G3XWI | R A Smyth | GI4CBG | | |
| P V F Beardow | G1SHV | I Flemming | G3ZDQ | W R Sharpe | GI4ILZ | | |
| J D Riddoch | G1TSL | B A Castle | G3ZJX | Dr D A Courtney | GI8PDK | | |
| R A Lord | G3DSK | H S Charlesworth | G4FMQ | R Smith | GM0BWU | | |
| | | D A Ashton | G4HRV | P Maver | GM0VYL | | |
| | | B D Clarke | G4ICB | D J Simpson | GM3LVA | | |
| | | B Firth | G4KCT | J B Macphee | GM3VNW | | |
| | | W Hughes | G4LVY | W J Elton | GW3RIH | | |

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.

# If you get a better price than M

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- Collins 2.2kHz SSB Filter YF-122S
- Collins 500Hz CW Filter YF-122C
- ATAS-120 Motorised Auto Antenna
- Maldol Mount and cable assembly for above

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**Don't forget! ML&S are approved stockist for the following:** MFJ, Maldol, Miracle Antenna, Revex, Icom, Kenwo

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200 watt HF Flagship

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**MS-1228**

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### Diamond Antenna Power/SWR Meters

**SX Series.** Installs between transmitter and antenna for measurement of forward and reflected average (CW) and SSB (P.E.P.) RF power, and SWR. Accuracy is approximately that of the Bird 43; carrier measurements ±5% (typical) of full scale depending on frequency and power. Illuminated meter, sensor switch and LED indicator. Power ratings listed below are for intermittent operation. For continuous mode (CW, FM etc.) maximum ratings vary with frequency and are listed in the instructions. All models have SO-239 connectors except SX-1000 with Type-N. SX600 and SX1000 have dual direction couplers. Requires 12 VDC if you wish to light meter. Size: 6'h x 2 1/2'w x 4'd, Weight: 2 lbs.

| Model Number | Power | Freq. Range | Display | Price Each |
|---|---|---|---|---|
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| SX200 | 200W | 1.8 - 200 MHz | 5W / 20W / 200W | £79.95 |
| SX400 | 200W | 140 - 525 MHz | 5W / 20W / 200W | £89.95 |
| SX600 | 200W | 1.0 - 160 MHz + 140 - 525 MHz | 5W / 20W / 200W | £139.95 |
| SX1000 | 200W | 1.8 - 160 MHz + 430 - 1300 MHz | 5W / 20W / 200W | £189.95 |

**SX20C**

Diamond SX20C and SX40C Watt meters. The Diamond SX20C and SX40C are compact Watt meters featuring cross needle meter for measuring power and SWR simultaneously.

| Model Number | Power Settings | Freq. Range | Size | Price Ea. |
|---|---|---|---|---|
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| | 3.5-30 / 50-54 / 130-150 MHz | | | |
| SX40C | 15w & 150w | 144 - 470 MHz | 3 5/16" W x 3 5/16" H x 3 3/4" D | £69.95 |

## Power Amplifiers from Tokyo-HyPower

**As the only Authorised U.K. distributor for Tokyo-HyPower, ML&S are pleased to announce some exciting new products from one of the oldest Japanese manufacturers.**

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**HX-240Mkll** Got a high performance 2M multimode that you want to use on H.F.? Thought so! Just plug the new compact HX-240mk11 straight onto the antenna socket and convert TX & RX across all the main H.F. Amateur Bands (80-10m). Almost 40Watts output and very simple to use. **Only £249.95**

**HL-700B** Compact All mode solid state 500W Linear Amplifier. Only 10 Watts drive will produce a staggering 400 Watts output. (100W produces 600W). 12V DC required @ 70 Amps. **Only £899.95**

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**HL-1Kfx** A sturdy 240 volt powered 500W linear amplifier all mode with protection against over-drive, over heat, high drain voltage, and faulty band setting. ALC out. Remote TX control, all for a very attractive price. **Only £1399.95**

**HL-2Kfx** Available early 2004, this new Linear Amplifier not only produces 1kW out on HF but the same on 6 Meters. All solid state, heavily protected and weighing only 22 kilos, we can't wait to get our hands on the first shipment. Place your deposits now! **Price TBC**

**HL-72IDX** Desined with the TH-F7E, VX-5/7R and other twin banders, just slip this new FM amplifier in line and boost your output to a very respectable 15-18 Watts. **Only £129.95**

## accessories

NEW RADIO FROM AOR! call for details

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CT Europe Iambic Lever Paddle ..... £111.73
CT9B Dual (Iambic) Lever Paddle. All Brass Edition ..... £73.73

**The full range is available from stock.**

Please add £10 for express shipping.

### look! New Miracle Antenna MkII has arrived!

Miracle whip MkII

This antenna has been designed with the Yaesu FT-817 & FT-897 in mind. The MkII uses a black anodized longer flexible whip for better low frequency tuning. The performance is staggering and it will work with any radio from 3.5-460mHz (25W max), without a counter poise. Ideal for listeners, radio amateurs and commercial applications. ML&S: £129.95

### Maldol Antennas

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### MyDEL Wire Antennas & Accessories

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The MyDEL Brand was introduced back in the early nineties primarily to offer a range of high quality products that included wire antennas for commercial and amateur radio use. The most famous of the range is the Multitrap— (80m-10m, 20m long) & Megatrap— (160m-40m, 32m long) wire dipoles. Both these antennas use 1kW traps through-out the range, both constructed using pre-tensioned copper multi-strand wire covered in a tough plastic outer sheath. Both coax fed, they require very little tuning and can get an Amateur Station up and running on all bands within one hour of erection.

**MyDEL Multitrap 80-10m. £89.95**
**MyDEL Megatrap 160-40m. £99.95**

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The MFJ 949 is a 300 watt antenna tuner. This T-circuit tuner cover 1.8ñ30 MHz, and features a peak and average reading cross needle SWR meter, built-in 300 ohm dummy load, eight position coax switch, and more. The tuner measures 25 W x 8 H x 18 D cm, and weighs 2.2kg. **Only £159.95**

**MFJ-969**

The MFJ 969 is a 300 watt antenna tuner which cover 160-6 meters. If features an air-core roller inductor with selfwiping contacts, mechanical roller inductor counter, 8 position antenna switch, built-in 50 ohm dummy load, crossneedle SWR meter which simultaneously indicates forward and reflected power as well as SWR-without the need for time consuming calibration. The tuner measures 3.5"H x 10.5"W x 9.5"D. **Only £199.95**

**MFJ-971**

Tunes coax, balanced lines, random wire 1.8-30 MHz. Cross-Needle SWR/Wattmeter has two switchable ranges: 30, 300 or user selectable 6 watt ranges. Tiny 6 x 6 x 2 inches, ideal for portable/mobile installs. **Only £99.95**

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President, c/o RSGB HQ.



# Rejuvenating Amateur Radio – Progress So Far

*Dave Cushion, M0DPC, operating portable. Dave started amateur radio last June and received his Foundation Licence M3DPC, progressing through the Intermediate Licence as 2E0DPC before taking out a Full Licence. Dave now operates 99% CW.*

It has now almost two years since the Foundation Licence was launched and we embarked on the entire revision of the amateur radio examination process. So what sort of progress have we made so far and what will be happening over the next 12 months?

## FOUNDATION

The success of the Foundation Licence has affected all aspects of amateur radio: the clubs, the suppliers and the RSGB itself. There are now some 4675 Foundation Licensees, *excluding* those VHF licensees who took out a Foundation Licence. Many thought that after the initial influx, the number of Foundation Licences would drop off, but as **Fig 1** shows, this is not the case and the numbers continue to climb steadily.

Of the new Foundation Licensees, 1204 are under 21 years old. The attraction of the Foundation Licence to young people has been one of the big successes of the past two years. As **Fig 2** shows, the percentage of Foundation Licensees under 21 has stabilised at 25%. This has significant implications for the future of amateur radio. The rejuvenation process is under way.

The pass rate has stabilised at around 80–85% and this is judged by the RA as being satisfactory. A study of these results and feedback from examiners has lead to a decision to remove the opportunity for an immediate resit, but to increase the number of questions in the examination paper in order to give the candidates more choice.

It is also worth noting that the radio clubs have undertaken some 1190 examinations and associated courses which have taken place almost everywhere in the UK. The problem of where to take an amateur radio course and examination has disappeared. There is almost certain to be a course happening nearby. We have a list of some 500 instructors/ assessors. Although the procedures and syllabus are closely defined, the way a course is given varies from club to club – and so it should be. But one thing is clear, bringing in the next generation of radio amateurs is forming a big part of club activities. We are introducing more stringent registration processes and guidelines to reflect these new responsibilities.

## INTERMEDIATE

So far this year we have run 54 Intermediate examinations. We have worked up from the initial pilots, to being able to offer the examinations monthly. Early next year this will move to 'short notice', just like the Foundation examination. The RSGB has always had a list of examination centres (formerly known as Satellite Centres). There are currently 121 examination venues registered with us and this number is steadily increasing to meet the demand for Intermediate examinations.

So far this year some 234 candidates have successfully taken the Intermediate examination. This is expected to grow significantly once the examinations are available at short notice. Although the information as to the intentions of Foundation licensees is sketchy, most clubs offering Intermediate courses are reporting a strong take-up. We propose to undertake a survey with the RA so that the demand for courses and examinations can be better met.

## FULL LICENCE

The last RAE examination is in December 2003. The RSGB has been very concerned that there was no gap in the availability of courses and examinations for the new Full licence. The syllabus development is complete. It is expected that the pilot stage of the Full licence will start in the first quarter of 2004 – on schedule!

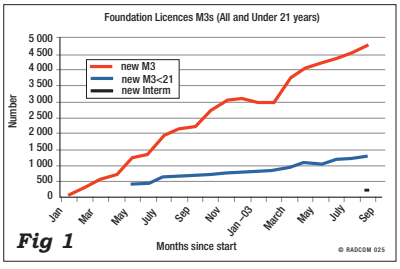


*Fig 1*

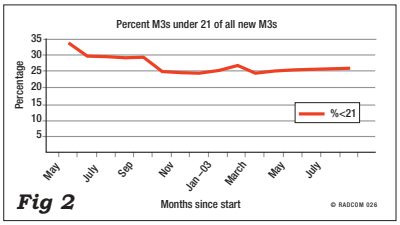


*Fig 2*

These syllabus revisions are substantial since the three licence stages are now progressive, with very little overlap. Some topics are, as you might expect, covered in more detail. Such overlap that there is only reflects the implications for such topics as EMC, caused by the higher power and other privileges. The pattern of implementation of the Full licence will follow that of the Foundation and Intermediate: a pilot followed by a monthly schedule, leading up to exams available at short notice.

## OFCOM

At the same time as all this has been happening, the Radiocommunications Agency has been in the process of being assimilated into OFCOM.

The main effect is that we have it on good authority that the support which the Agency has given us over the years may not continue. This means that in the same way that the above changes are enabling us to control our own destiny, we are going to have to pay our own way. Put bluntly, the examination process will have to become self-financing in due course.

## AND FINALLY...

I would like to thank all of you who have made these changes possible, instructors, clubs, examiners, committee members and the RSGB HQ staff. It has been a great team effort. None of this would have been possible without the support of the RSGB membership. That's why it is important that you, as members, encourage every radio amateur to become a member of the RSGB and help us to continue the good work. ◆

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| ICOM IC-275E | 2M MULTIMODE BASE TRANSCEIVER | 399.00 |
| ICOM IC-T8E | 6M/2M/70CM HANDI | 225.00 |
| KENWOOD TM702 | TWINBAND TRANSCEIVER | 175.00 |
| YAESU FT-690R2 | 6M MULTIMODE PORTABILE | 259.00 |
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| BEARCAT UBC-9000XLT | BASE SCANNER | 199.00 |
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| ICOM IC-575H | 10M/6M BASE TX 100/50W | 475.00 |
| ICOM IC-725 | 100W HF TRANSCEIVER | 349.00 |
| KENWOOD TS-570DGE | 100W HF DSP TRANSCEIVER | 699.00 |
| YAESU FT100D MKV | 200W HF BASE STATION | 1895.00 |
| YAESU FT-840 | 100W HF TRANSCEIVER | 425.00 |
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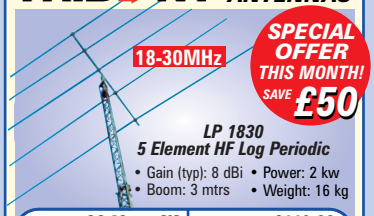


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# National Field Day 2003

In June 2002, Phil Smeaton, G0HSS, decided not to operate field day with the Windmill Group, G0FBB/P, as he had done in previous years, but instead to join friends on the Isle of Man who were entering the 50MHz Trophy contest. Using a borrowed HF rig, Phil also put in a small entry in the QRP section of NFD as GD4IOM/P. Known variously as the Northern Lights or the Manx Kippers, the GD team has been active as MD4K in several HF contests, and rather than go back to the Windmill Group for this year's NFD, Phil organised a serious entry from a field adjoining GD4GNH's QTH on the side of South Barrule mountain. A combination of the location, monoband antennas on the HF bands, good operating, and of course the attractiveness of the GD prefix on CW enabled the team to make over 1500 QSOs for a record Open Section score of 5505 points. Congratulations to G4MJS, G4XUM, G0HSS, M0BEW and G1GEY, though they had computer problems at the start and in the TT race weekend described their generator as 'kick start' – you had to give it a kick before it would start.

The other success story of this year's field day is a 30% increase in the number of entries. There were some last-minute and part-time entries, and those who gave it a go enjoyed themselves and promised to be back next time. The Bracknell group described last year how easy it is to mount an entry in the QRP section using a small rig such as the Elecraft K2. Most groups use a doublet, typically 270ft top. Although two supports are allowed, all you really need is a single 36ft mast to support the centre. It's also acceptable to use one or two convenient trees, the important thing is that no part of the antenna may be higher than 11 metres. In the Open section the height limit is 20 metres.

Conditions were generally reported as poor, and a coronal mass ejection from the sun further depressed conditions on Saturday evening, but the logs show portable operation from 32 European countries. While the bulk of this is from Germany and the UK with long-time

***Below, left: Richard, G3ZGC, operating the Newbury ARS station G5XV/P.***

***Below, right: Low Power section winners Echelford ARS, G3UES/P, check out the station. L to r G4IRN, G0SAR, G4AWZ and G2HS.***


By Dave Lawley, G4BUO, Carramore, Coldharbour Road, Penshurst, Kent TN11 8EX. E-mail: g4buo@compuserve.com

support also from Belgium and Switzerland, it's good to see increasing interest from Russia, Italy and several Balkan countries among others. This all helps to raise QSO totals, and this year 14 groups exceeded 1000 QSOs.

## RESTRICTED SECTION

Congratulations to the Orkney group, operated by GM3POI and G3MXJ, who returned to the top spot to win the Bristol Trophy with a strong performance on all three HF bands. Most of their 10m QSOs were made from about 0850 to 1030UTC on Sunday.

Three experienced operators, G0IVZ, G4EDG, and G4TSH came together to form a new group, the 'Flying Pigs' and they flew into second place to win the Gravesend Trophy operating from Hampshire. They are followed by the trophy's namesake, Gravesend RS, G3GRS/P, operated by G4BUO and G4IFB.

## OPEN SECTION

While the Manx Kippers are to be congratulated on their record score to take the NFD Shield, past winners Lichfield, G3NKC/P, kept them within sight with excellent totals on the double-point bands of topband and 10m, giving G3NKC, G3VHB, and G0MTN the G6ZR Trophy. There was a tight battle for third place, won eventually by Bristol, G6YB/P, operated by G0WKW, G3XSV, G3TKF and M0MAT.

The two contenders for the Frank Hoosen G3YF trophy for 20m were both in the Open Section, and the Hadley Wood CG, G4STV/P, ran up a very good score, but it was always going to be tough to beat Guernsey, GU3HFN/P. It's good to see past 20m winners G3SDC/P move up to a very respectable sixth place all-band, perhaps Guernsey would consider this for 2004?

## LOW-POWER SECTION

Echelford, G3UES/P, proved they have strength in depth, winning the section and gaining the Reading Trophy for the second year, but this time without former operators G4TSH who 'defected' to the Flying Pigs, and G3KKQ who was away on the Isle of Wight visiting a friend. Congratulations to operator John, G4IRN, and the whole team which included M0SAR, G0VDZ, M0WDX, G2HS, G3XTZ, G4PRI, G0JSH, G0SHW and M3PMT. When not partying, Dennis, G3KKQ, found the time to put up a 40m dipole at 15ft and make nearly 100 QSOs.

Last year's runners-up, Bracknell, G4BRA/P, again operated their very neat K2-based station to come second on QRP, and as predicted in the 2002 write-up, Stevenage, G3SAD/P, improved again to edge above Reading, G3ULT/P.

## ELVASTON CASTLE

Many field day sites are on land open to the public, or situated close to a footpath, and if you're approached by a member of the public asking what's going on, it's a great opportunity to tell them something about the hobby of amateur radio. Field day shows that it is possible to set up an effective station at short notice, and it provides a convincing answer to the question "what's different between ham radio and just calling up someone on the mobile?" because we can demonstrate our ability to make contacts right around the world without any telecommunications infrastructure at all.

Clubs that do field day and similar events should have a stock of information sheets ready to hand out, and preferably have members of the team who are willing to explain things to visitors. You never know, this year's curious visitor could be next year's M3 operator!

RAFARS, G8FC/P, did a great publicity job, as related by contest manager Roger, G3ZDW: "The Royal Air Force Amateur Radio Society normally has a display at the Elvaston Castle Mobile Rally. However, this year the dates clashed with NFD. We came up with the idea of running both events as one. As well as solving our problems of running two events it would give the Society the opportunity to show the amateur radio fraternity and the general public what Field Day is all about, knowing that the majority of licensed amateurs had never seen an NFD station in operation.

"What were the problems and how could we make it interesting for the general public? Under normal conditions the operator would be there with headphones on and operating the key and keyboard, not very interesting. However, we also wanted to operate the contest without the general public getting in the way of the station's operating efficiency. So that the public could hear what was going on, a speaker was connected to the rig's audio output stage giving both transmitted and received audio. Running off the logging computer was a second VDU, showing a copy of the *SD* log, which created a lot of interest. We also had a CW reader showing the decoded CW text on the screen, this worked best with our transmission, because on receive you could normally hear several CW stations at the same, which is of course the normal situation in NFD. Multiple signals tended to cause corruption of the text in the CW reader.

"There were members of the team available to explain and show the public what we were doing. Handouts were distributed explaining NFD and the basic rules. The whole thing was a success as we had lots of listeners and viewers with some staying quite a while watching our progress while others kept returning to check on our advancing score."

## ADMIN

Seven groups were inspected this year, and thanks are due to all the inspectors, especially GD3HDL and GD4OEA for arranging to visit the group that turned out to be the overall winners. There was a problem with one group that had failed to give correct site access information, and this led to several complicated mobile phone calls during Saturday afternoon. If the inspector cannot locate your site due to inadequate information you risk disqualification.

Only a handful of paper logs were received, and thanks go to G3UFY who keyed them in. Most entries came by e-

**OPEN SECTION**

| Pos | Group | Callsign | 160 | 80 | 40 | 20 | 15 | 10 | QSOs | Points |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Manx Kippers * | GD0EMG/P | 127/886 | 178/633 | 334/1016 | 510/1467 | 234/681 | 130/822 | 1513 | 5505 |
| 2 | Lichfield ARS * | G3NKC/P | 170/1230 | 208/716 | 251/845 | 373/1179 | 138/477 | 109/734 | 1249 | 5181 |
| 3 | Bristol CG | G6YB/P * | 121/894 | 141/508 | 261/883 | 407/1271 | 161/520 | 49/340 | 1140 | 4416 |
| 4 | Newbury & D ARS | G5XV/P | 132/950 | 139/469 | 302/953 | 348/1105 | 100/326 | 84/568 | 1105 | 4371 |
| 5 | De Montfort Univ ARS | G3SDC/P | 132/932 | 137/479 | 284/967 | 341/1076 | 121/407 | 65/458 | 1080 | 4319 |
| 6 | East Notts CG | G3TBK/P | 158/1128 | 203/682 | 181/594 | 365/1142 | 173/573 | 27/174 | 1107 | 4293 |
| 7 | West of Scotland ARS | GM4AGG/P | 115/800 | 130/461 | 224/735 | 381/1157 | 116/365 | 91/610 | 1057 | 4128 |
| 8 | Addiscombe ARC 'B' | G3WRR/P | 101/728 | 147/531 | 178/601 | 369/1191 | 168/580 | 63/442 | 1026 | 4073 |
| 9 | Oxford & D ARS | G5LO/P | 117/864 | 112/437 | 128/450 | 364/1142 | 118/379 | 63/420 | 902 | 3692 |
| 10 | North Wakefield RC | G4NOK/P | 130/896 | 46/173 | 238/758 | 202/687 | 80/260 | 74/488 | 770 | 3262 |
| 11 | Ripon & D ARS | G4SJM/P | 62/484 | 107/392 | 137/459 | 278/868 | 148/497 | 55/356 | 787 | 3056 |
| 12 | Ilford RSGB Group | G3XRT/P | 93/694 | 91/351 | 167/565 | 246/841 | 68/244 | 40/280 | 705 | 2975 |
| 13 | Stockport RS | M5MDX/P | 58/452 | 69/256 | 188/615 | 349/1119 | 105/367 | 19/136 | 788 | 2945 |
| 14 | Grimsby ARS | G3CNX/P | 123/900 | 109/417 | 142/488 | 233/745 | 53/177 | 0/0 | 660 | 2727 |
| 15 | Edgware & D RS | G3ASR/P | 133/952 | 83/311 | 83/290 | 151/480 | 74/228 | 20/140 | 544 | 2401 |
| 16 | Guernsey ARS * | GU3HFN/P | 0/0 | 0/0 | 0/0 | 807/2387 | 0/0 | 0/0 | 807 | 2387 |
| 17 | Clifton ARS | G3GHN/P | 157/109 | 22/88 | 23/80 | 134/404 | 21/62 | 47/308 | 404 | 2032 |
| 18 | Hadley Wood CG | G4STV/P | 0/0 | 0/0 | 0/0 | 631/1908 | 0/0 | 0/0 | 631 | 1908 |
| 19 | Havering RC | G4HRC/P | 43/320 | 73/273 | 152/469 | 132/413 | 19/53 | 39/254 | 458 | 1782 |
| 20 | South Essex ARA | G4RSE/P | 63/486 | 60/221 | 86/298 | 118/357 | 36/121 | 11/76 | 374 | 1559 |
| 21 | Dundee ARC | GM4AAF/P | 43/300 | 40/130 | 63/208 | 106/354 | 46/146 | 5/28 | 303 | 1166 |

**RESTRICTED SECTION**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Orkney CG * | GM3POI/P | 145/1076 | 150/530 | 226/774 | 379/1168 | 196/678 | 114/800 | 1210 | 5026 |
| 2 | Flying Pigs CG * | G0IVZ/P | 167/1236 | 146/543 | 215/749 | 251/823 | 133/450 | 92/602 | 1004 | 4403 |
| 3 | Gravesend RS * | G3GRS/P | 141/1046 | 182/671 | 230/763 | 311/1034 | 116/409 | 64/424 | 1044 | 4347 |
| 4 | Mid Beds CA | G4BWP/P | 153/1084 | 185/648 | 248/866 | 265/867 | 119/416 | 69/454 | 1039 | 4335 |
| 5 | Park Air CG | G3KHZ/P | 166/1196 | 144/518 | 302/937 | 215/696 | 124/401 | 72/488 | 1023 | 4236 |
| 6 | Three As CG | GM0AAA/P | 127/936 | 147/524 | 198/691 | 253/844 | 125/452 | 93/626 | 943 | 4073 |
| 7 | Sussex Downs CG | G4FNL/P | 156/1110 | 141/506 | 200/684 | 296/920 | 114/392 | 59/400 | 966 | 4012 |
| 8 | Contest Cumbria | G3IZD/P | 120/924 | 153/547 | 210/717 | 275/933 | 64/225 | 18/136 | 840 | 3482 |
| 9 | Addiscombe ARC 'A' | G4ALE/P | 101/758 | 121/441 | 191/644 | 293/958 | 103/336 | 34/240 | 843 | 3377 |
| 10 | Torbay ARS | G3NJA/P | 83/636 | 102/368 | 193/638 | 261/821 | 126/404 | 27/172 | 792 | 3039 |
| 11 | Tollesbury CG | G3GLL/P | 122/872 | 148/530 | 178/609 | 184/617 | 44/150 | 28/192 | 704 | 2970 |
| 12 | Forth Valley CG | MM0FVC/P | 103/772 | 127/461 | 217/705 | 127/422 | 70/258 | 37/256 | 681 | 2874 |
| 13 | Maidenhead & D ARC | G3WKX/P | 141/1040 | 71/255 | 134/473 | 222/712 | 64/213 | 26/172 | 658 | 2865 |
| 14 | Stratford on Avon & DRS | G0SOA/P | 59/468 | 94/374 | 62/232 | 250/771 | 97/324 | 42/264 | 604 | 2433 |
| 15 | Christchurch ARS | G3KLH/P | 31/240 | 75/263 | 165/543 | 247/773 | 97/323 | 34/232 | 649 | 2374 |
| 16 | Windmill CG | G0FBB/P | 90/688 | 96/360 | 104/385 | 120/420 | 77/254 | 35/240 | 522 | 2347 |
| 17 | Malvern Hills RAC | G4MHC/P | 85/648 | 88/318 | 216/652 | 172/505 | 33/107 | 14/100 | 608 | 2330 |
| 18 | RAFARS | G8FC/P | 57/452 | 77/300 | 107/372 | 189/667 | 74/286 | 27/192 | 531 | 2269 |
| 19 | Norfolk ARC | G4ARN/P | 81/620 | 102/377 | 162/535 | 175/569 | 16/58 | 2/12 | 538 | 2171 |
| 20 | Guildford & D RS | G5RS/P | 36/264 | 105/373 | 187/630 | 116/361 | 35/124 | 28/196 | 507 | 1948 |
| 21 | Harwich ARIG | G0RGH/P | 68/512 | 130/476 | 87/277 | 134/437 | 15/67 | 19/140 | 453 | 1909 |
| 22 | Guarda Coste CG * | G3YXX/P | 0/0 | 0/0 | 410/1253 | 0/0 | 0/0 | 0/0 | 410 | 1253 |
| 23 | Lowestoft & Pye ARS | G3JRM/P | 68/500 | 4/16 | 45/164 | 36/114 | 69/263 | 27/174 | 249 | 1231 |
| 24 | Glenrothes & D ARC | GM4GRC/P | 51/356 | 25/71 | 93/314 | 60/196 | 17/58 | 3/24 | 249 | 1019 |
| 25 | Gloucester AR & ES | G4AYM/P | 0/0 | 0/0 | 310/962 | 0/0 | 0/0 | 0/0 | 310 | 962 |
| 26 | MM0BQI | MM0BQI/P | 0/0 | 8/30 | 39/150 | 33/112 | 17/53 | 5/32 | 102 | 377 |

**LOW POWER SECTION**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Echelford ARS * | G3UES/P | 72/560 | 55/204 | 67/245 | 101/328 | 40/133 | 29/208 | 364 | 1678 |
| 2 | Bracknell ARC * | G4BRA/P | 79/604 | 94/362 | 69/250 | 48/176 | 28/103 | 5/32 | 323 | 1527 |
| 3 | Stevenage & D ARS * | G3SAD/P | 68/492 | 53/208 | 49/169 | 50/196 | 38/154 | 11/80 | 269 | 1299 |
| 4 | Reading & D ARC 'A' * | G3ULT/P | 78/604 | 81/386 | 48/165 | 24/80 | 4/10 | 2/16 | 237 | 1261 |
| 5 | Reading & D ARC 'B' | M0EEE/P | 0/0 | 26/92 | 69/238 | 70/225 | 18/62 | 6/36 | 189 | 653 |
| 6 | Aviators CG | G3HKO/P | 1/8 | 5/20 | 39/150 | 35/128 | 12/44 | 5/36 | 97 | 386 |
| 7 | G3KKQ | G3KKQ/P * | 0/0 | 0/0 | 72/292 | 1/4 | 17/58 | 0/0 | 90 | 354 |
| 8 | M0BGR | M0BGR/P | 0/0 | 0/0 | 3/12 | 18/56 | 1/4 | 0/0 | 22 | 72 |

Checklogs acknowledged with thanks from EA4BWR, F/G3VQO/P, F5VBU, G2DPQ/P, G2FSR, G2HLU, G3JNB/P, G3XNG, G6PZ/P, GW4LZP, K3ZO*, RK4FF*, VE3DZZ/P. * = Certificate winners.


***Right, top: RAFARS members explaining NFD to the general public with the aid of audio and VDU showing real-time logging.***

***Right, bottom: Overall winners the Manx Kippers, GD0EMG/P, l to r Peter, G4MJS; Phil, G0HSS; Martin, G4XUM, and Tim, M0BEW.***

mail and the majority were in Cabrillo format. Before sending your log file, open it with a viewer such as *Notepad* and check that everything looks OK, and that you have specified the section correctly. While *SD* handles NFD well, the output from other logging programs will at least have to be edited to show required information. Worse, the Cabrillo output from *TRlog* doesn't include sent serial numbers, which meant in this case that they had to be carefully inserted during the checking process.

Please use the Cabrillo 'SOAPBOX' lines to give details of equipment and antennas used, as well as giving comments for the write-up. A selection of comments appears below but that from Clifton, G3GHN/P, should be heeded by all NFD operators: "Use of computers means that people hardly ever slow down when you ask for QRS and you can sense the impatience if you ask for a repeat. Giving real reports to people also causes some shock. We had 12+ club members on site, but most are too frightened by the CW speed to operate. Speeds made S&P very difficult so we sat on one frequency and called CQ at about 14WPM. Callers still came back at 20WPM+. This really doesn't help anyone. I understand PCs are here to stay, but *please* learn how to vary the speed."

The HF Contests Committee thanks all of those who participated in NFD 2003 and looks forward to seeing you in next year's contest.

## SOAPBOX

"We concentrated on giving our less-experienced operators a chance to work NFD but the main thing is that everyone felt included whatever their ability and had fun. Held a club BBQ on Saturday evening and had over 35 attendees – not bad for a club of 26 members !" G0RGH/P.

"Conditions poor all round, no DX. Other than our gripe about people not slowing down, all the equipment worked well and we had nice fish and chips as usual on Saturday. WX stayed dry apart from 30 mins very heavy static rain on Sunday am. Very windy during tear down." G3GHN/P.

"Late preparations – inadequate planning – laptop wiped out 20/15/10 so back to paper logging – good fun. Ed put up the antenna and made the tea. Des did the easy bit." G3HKO/P.

"I have been instructing for 40 years long before the Novice was introduced. NFD is the training ground for all younger operators and one rough NFD night is more valuable than a year of class room teaching." G3JRM/P.

"Didn't manage to do quite as well this year (excuses various), but it was still great fun. Operated entire contest on battery. Strawberries were good on the fruit farm we operated from." G3SAD/P.

"At the height of a thunderstorm the generator ran out of propane, and the intrepid G4LPD ran 100 yards in pouring rain to change gas bottles. With all the (very welcome) activity from Eastern Europe, NFD is almost unrecognisable from when I was first involved in 1957. In those days only stations in G took part, plus a few, mainly British Forces, stations overseas. I think about that time HB9 stations joined in. Each station only operated three bands – nominated in advance- and were QRP with 10 watts." G3TBK/P.

"This year I elected to make a single-op single-band entry near the sea at Hythe. Antenna was a tripod fibreglass telescopic pole with wire taped to it, tuned against the briny. Conditions were difficult, so grabbed 3.5 hours sleep in small hours and finished early." G3YXX/P.

"We had a superb genuine goulash on the Sunday cooked by our Hungarian member, Atilla. This attracted 20 other members for a nice club get-together." G4ARN/P.

"The Malvern Club's first ever entry in this event. Very short of operators but all enjoyed the event, particularly the well-attended BBQ on the Saturday evening. Rain throughout the night and a couple of torrential downpours during Sunday, with extreme static levels causing the ATU to flash over. It also reset the memory contents on one of the keyers." G4MHC/P.

"Condx were not good but all the equipment worked fine. Barbeque on Saturday, then on Sunday we ended up holding down the tent in a horrendous storm, surprised not to lose the mobile tower." G4NOK/P.

"Band conditions were not very special, but we did find a few openings on 10m! Having lost one of our main operators, we took the opportunity to train three new ones. I think they all had a fun, if somewhat stressed, time. The wx was also a bit challenging, at one stage we expected the tent to end up in the next county and the new crank-up tower jammed on the way down due to the high winds." G5LO/P.

"We were inspected on Saturday evening and the station was given a 'clean sheet'. Used a silenced diesel gennie to keep the locals happy but need not have bothered as the noise from an illegal 'rave' 2km away was shaking the sides of the caravan until 8am! We treated NFD this year as a club social event and anyone with basic CW capability was given a chance to operate and gain contest experience. An exceptional turnout of helpers, friends and family members and all enjoyed a good barbecue in warm sunshine on the Saturday evening." G5RS/P.

"The Three As Contest Group has now operated from each of the seven DXCC countries which make up the UK. Site difficulties meant we ended up operating over one mile from the sea." GM0AAA/P.

"Good to see the increase from the UK, but still no GW." GM3POI/P.

"This was a last minute effort but the results are encouraging for a better organised one next year" GM4AGG/P.

"Had a good day and plenty fun, that's what it's all about. Not out to win but improved on last year" GM4GRC/P.

"What a surprise this contest turned out to be. For nostalgic reasons (first visit to a FD station was in 1969) I wanted to have a go and give away some points. I think I missed the best conditions on Saturday, and Sunday was wet and noisy which just adds to my feeling that this contest provides a much more level playing field and fun factor than most. Will be back next year with the full 10 watts, paper log and a Morse key!" MM0BQI/P.

"Our first-ever HF contest as a group and our first-ever NFD. Add to that a new antenna and a new ATU and you get an idea of the learning curve we went through for NFD 2003" MM0FVC/P.

"New site, new team and new section. An enjoyable weekend. Many learning points for next year's event such as 'how did we put that mast up last year?' or 'the generator works better when filled with petrol not fresh air'" M5MDX/P.

"I worked at it this year. Signals on 15 and at times on 20 were very faint, but conditions on 80 were good. And, surprisingly, I worked 29 stations on 160" K3ZO.

"Condx were abysmal, 40 turned out to be the best." VE3DZZ/P. ◆

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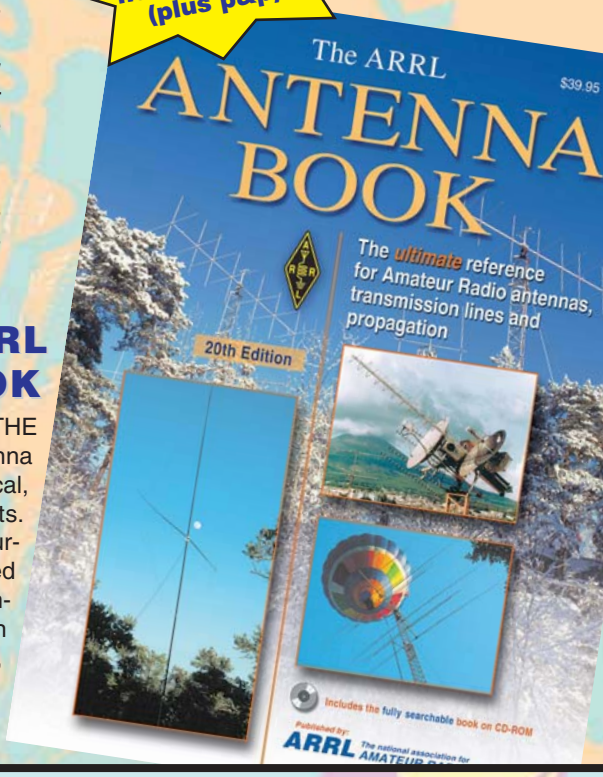


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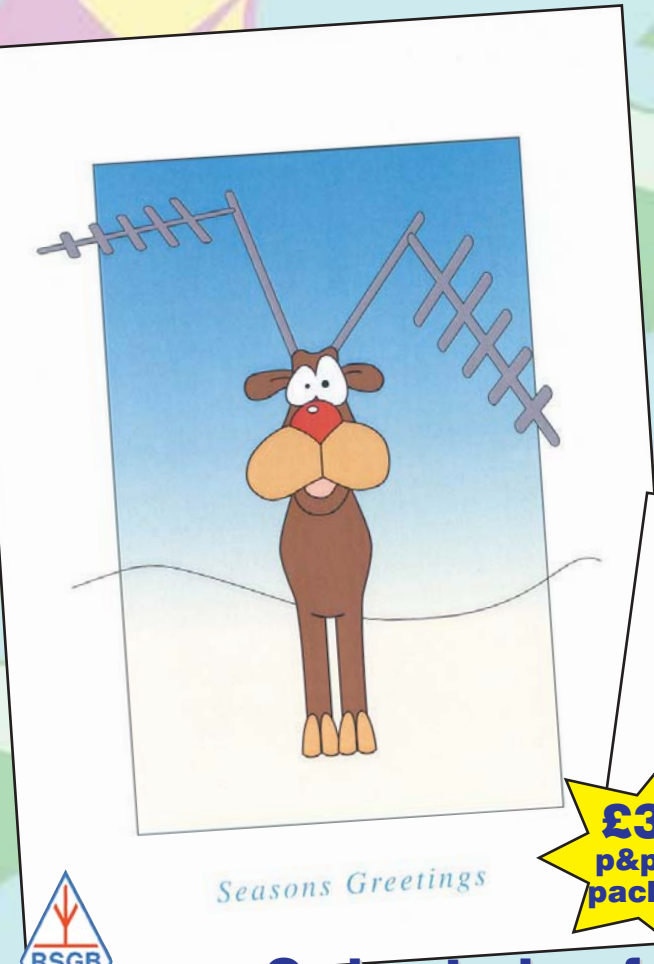



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*View from the roof of the XU7ACT/ XU7ACU shack, looking towards the Gulf of Thailand.*

Young DXpeditioners Put

# Cambodia on the Map

**In August, Danny, M0GMT, accompanied by Oliver, DJ9AO, operated from Cambodia as XU7ACT and XU7ACU. 19-year old Danny takes up the story…**

I had the idea of operating from Cambodia about six months before we actually carried out the DXpedition. It was around February that I started to make enquiries into the possibility of carrying out a radio operation from Cambodia. My first enquiries were regarding the chances of getting a licence there. I found out from Internet pages and other operators that it was possible to get a licence in Cambodia relatively easily. As I found out later, it was certainly possible – although it was definitely not easy!

Once I had ascertained that the licence should not be a problem, I made enquiries into the possibility of an operating location. After some searching on the Internet I came across an advertisement for the rental of a 'DX Shack'. This was a guest house which had some of the needed equipment and some of the antennas needed for a DXpedition. It was by no means enough to use for an expedition on its own, although it certainly would be helpful in reducing the amount of baggage I would need to take. After some enquiries to the manager of the DX shack I found that it would be possible to hire the room and equipment in August 2003.

My next thoughts were of a small team or of just one other operator to accompany me. My initial plans were to make this a one-man expedition, although being a CW-only operator I thought it would be unfair to be active without someone using SSB. I wanted to find someone who was preferably around my own age and who was also new to DXpeditioning. The purpose of the trip would be for us both to experience a DXpedition for the first time, in a relaxed and fun atmosphere. I decided to try to find a fellow member of the World Wide Young Contesters club (WWYC) to accompany me. After some research and enquiries into possible people, I chose to invite Oliver, DJ9AO. He seemed to be a very keen operator, also a good SSB operator in and out of contesting. Also, he operated both SSB and CW, which was a bonus. Having approached Oliver about the trip, we agreed on a date and length of operation suitable to us both. We were pleased to see that the proposed date of our operation would allow us an entry in the WAE (Worked All Europe) CW contest.

We received confirmation of what our callsigns would be: XU7ACT was issued to me and XU7ACU to Oliver. We decide to use XU7ACT for the DXpedition generally and XU7ACU as the contest callsign.

This is when the serious planning and booking started to take place; I contacted the owner of the DX shack and booked the room for our selected dates. We both booked our flights, I flew from London Heathrow via Singapore to Phnom Penh and Oliver flew from Frankfurt via Singapore. We planned the flights so that we could meet in Singapore and take the same connecting flight to Cambodia. This would also make it easier to explain why we had certain pieces of equipment if we encountered problems at any of the security check points.

Having arranged all this, the next thing was to find a responsible QSL manager. I asked some of my CW friends who were also experienced DXpeditioners who they would recommend and almost everyone said Phil Whitchurch, G3SWH. I contacted Phil, and luckily he said he would be happy to be our QSL manager. In the meantime I had designed and made a webpage to support our expedition, and I worked with Phil in order to include the necessary QSL guidelines and information. My brother and I also made an on-line QSL request form to Phil's specification. We also included an on-line log checker which I think is nice for those who have worked us to be able to check that they are in the log. I chose an on-line log manager for the expedition; this task was performed by Christoph, DK9TN, who is also a WWYC member. During our time in Cambodia Christoph became more of a webpage manager, as numerous problems were encountered with the server. He is to be thanked for providing the best possible service.

The weeks leading up to our departure

***Right, near: Oliver, DJ9AO, operates SSB as XU7ACT.***

***Right: Author Danny Clapp, M0GMT, operating during the WAE CW contest as XU7ACU.***

date were quite tense and stressful, and we had still not received our licences! The countdown had begun for the time for us to leave, and I started to become worried that the licences would not arrive in time. It was now only two days before we were to leave for Cambodia and the licences were not here. To make matters worse no-one at the telecommunications department was replying to my e-mails. I managed to obtain the e-mail address for the manager of the whole department, and as a last resort wrote to him explaining everything: within a few hours I had received scanned copies of the licences and was told to collect the originals from the office in Phnom Penh. I was very relieved.

At last the morning of my departure arrived. Excited and nervous I boarded the Singapore Airlines flight for the 13-hour trip to Singapore. It would then be another three-hour flight, and then a three-hour car journey south-bound in Cambodia. My luggage and hand baggage was well above the maximum 20kg + 8kg that the airline allowed, but somehow I managed to get aboard with no real problems – what a relief! Everything in my hand luggage was breakable and I would have had big problems if they had not allowed it on board.

## CAMBODIA – 3 AUGUST

We had arrived and had only minimal security problems at Singapore. We paid our $20 for the tourist visas, and then went to collect our important luggage. As we walked towards the collection point Oliver asked me if I had a back-up plan if any of the luggage was missing. I jokingly replied, "yes, plan B is we panic." Little did I know that plan B was only 15 minutes away. We arrived at the collection point. My suitcase was there; it had been damaged, but at least it was there. We waited until all the bags had been collected but we could not see Oliver's bag. We waited quite a while but it became clear that something had gone wrong. We visited the lost luggage section, but they did not have it either. We therefore left a report and contact details and were informed that it may be anything between one and five days before the bag reached the airport. The bag contained many essential parts and equipment for our operation, and understandably Oliver was not feeling like operating.

We lost about two days of any serious operating due to this. I could get one station up and running with the equipment I had, but it was a relief when Oliver's bag was found and returned to him two days after its loss.

We were now able to start the operation properly. Antenna designs were carried out and an assessment of the types of antennas we could erect was done. For the first four days we just operated on the existing 3-element beam and wire dipoles. Our first UK contact was Steve Taylor, G4EDG. I had met Steve in Friedrichshafen and told him about the expedition so it was a nice surprise for me to contact him as the first UK station.

The fourth day of the expedition has been dubbed the problem day. It is funny how when one thing goes wrong, everything else seems to start going wrong at the same time. One of the power supplies broke, one SWR/power meter broke, and the laptop computer that I was using for logging would not work properly. After about two hours I found the problem with the power supply and fixed it and we ascertained that the SWR/power meter was beyond repair. It looked as if we would only be able to use one station at a time, as my laptop would not work. However, I tried it again three hours later and it worked fine and continued to work well for the rest of the trip. We were both using *CT* by K1EA for logging in both the DXpedition and the contest.

## XU7ACU: WAE CW CONTEST 9 to 10 AUGUST

For us, the contest started at 7.00am local time. We decided to operate five-hour shifts as XU7ACU for the duration of the event. The contest was fun, and it was really interesting to be at the other end of the pile-ups. Also it was nice to be giving out QTCs [special messages peculiar to the WAE contest that are sent from non-European to European stations and which provide additional points – *Ed*] rather than receiving them!

We did not make as many contacts as we had hoped during the contest. We felt this was due to quite poor propagation conditions over the weekend, although we were pleased to be active and give out some needed points for European stations.

## XU7ACT 11 AUGUST ONWARDS

The days following the contest went well and we had many contacts on the DX bands and the WARC bands. 30m is a particular favourite of mine, so I was pleased when the conditions were good to be able to give out XU as a new one to many people on 30m.

The low bands were not going too well, though; it was a constant struggle against local QRM and poor conditions. For example, the local post office operated on 7050.00kHz USB, and many other buildings had dipoles that looked the correct size for low-band operation.

Using many of the bands during our daytime was almost impossible with QRM levels at a constant high. Six metres seemed to be quiet as well; we were therefore left with no alternative but to be as active as possible during our night time and early morning, which luckily was Europe's evening. This seriously affected the amount of contacts that were possible, and also the multi-band operation that we had hoped for. We made the most of it whilst conditions were good, and our day left us some spare time for sightseeing. However, we were able to work many semi-locals, such as Japanese and Korean stations, during the day, as their strong signals overrode the QRM.

Radio operation continued like this until 16 August, the day on which we closed down. We thanked the guest-house staff for such nice hospitality and friendliness, and started on our journey towards Cambodia's capital Phnom Penh. We spent three days there and visited the local sights. It was a nice break from the pile-ups and from radio operating. It was good to get a pleasant night's sleep as well; it is amazing how difficult it is to sleep after having been operating CW pile-ups for hours!

On 19 August we left Cambodia, with both of our bags still very heavy although we had both left some of the cable etc behind at the guest house. I suppose the souvenirs we had bought remade the weight that the cable had taken up previously. We were lucky again that the airline check-in desk did not seem to be bothered by our extremely heavy bags.

The whole DXpedition was really interesting, from the initial plans to the actual operation. It has been something that I have wanted to do for a few years, and I am very pleased to have done my first trip at 19 years of age. We both learnt a lot about propagation, antennas and Cambodia; and I am looking forward to my next DXpedition already. We made over 6000 contacts, these were possible on the bands 40 to 10 metres. Our sponsors for the expedition were: RSGB, Chiltern DX Club (CDXC), European DX Foundation (EuDXF), GM-DX Group, German DX Foundation (GDXF). ◆

### WEBSEARCH

| | |
|---|---|
| 'DX Shack' Cambodia | www.nwlink.com/~ki6fe/dxshack/xu.htm |
| WWYC | www.wwyc.net |
| XU7ACT/XU7ACU DXpedition | www.geocities.com/dxpedition2003 |
| CDXC | www.cdxc.org.uk |
| GM-DX Group | www.gmdx.org.uk |
| German DX Foundation | www.gdxf.de |
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*The tiny assembly with the two push buttons for mounting on the outside of the transceiver.*

# SGC ADSP$^2$ Units and

**The American company SGC has recently introduced DSP boards for retro-fitting in your transceiver as well as an external loudspeaker based on the same boards. Chris Lorek tries out the boards and Steve White the loudspeaker.**

## THE SGC ADSP2 DSP BOARDS

Many 'top of the range' transceivers and receivers currently include Digital Signal Processing (DSP) of received signals, either at the audio stage or at a low IF of a few tens of kHz. The difference this can make on signal intelligibility, and of course the ability to make that contact, in what would otherwise be very noisy conditions, is sometimes tremendous. If you ever thought you'd like to have built-in DSP facilities in your rig, SGC has come up with an interesting pair of DSP boards for retro-fitment.

There are two versions of the SGC ADSP$^2$ board. The first and smaller of the two is a 'low power' PCB, intended for fitting at the volume control stage of a transceiver. For this you'll need to break a wire or PCB track leading to the receiver's volume potentiometer and wire the PCB in series with this. The second is a 'high power' board, which instead is used at the loudspeaker output level stage. This simply wires in series with the receiver speaker. It'll provide up to 5W RMS audio output from its on-board audio power amplifier, drawing between 100mA (no output) and half an amp (at full output) from a 12V DC supply.

The low power board measures 43 x 37mm, and accepts an input level of between 10mV and 150mV RMS, drawing a fixed current of 80mA. The high power board measures 67 x 37mm, as it also has an audio power amplifier and an input matching transformer plus extra capacitors and resistors.

## FILTERS

Apart from the physical size and input/output levels, each unit has identical specifications. There are two filtering modes, audio bandpass filtering and DSP audio noise reduction; each can be used individually or together. As well as a 'straight through' mode, three audio filter bandwidths can be switched in. These are 1.8kHz bandwidth (300-2100Hz) for narrow SSB, 500Hz bandwidth (400-900Hz) for CW, and 100Hz bandwidth (600-700Hz) for an ultra-narrow CW filter bandwidth. Out of band audio rejection is specified at -45dB. Two noise reduction levels can be switched in: the 'X1' noise reduction selection provides 13dB noise reduction, the second, 'X2', giving 26dB reduction. Automatic DSP tone notch is also included in noise reduction mode, giving rejection of -50dB on the X1 setting and -65dB on the X2 setting.

As the DSP system needs to analyse the incoming noise, there is a slight time delay between the incoming and outgoing audio using the boards. But this is only 6.5mS on the X1 setting, and 13mS on the X2 setting, which would be virtually unnoticeable even for fast break-in CW work (a 13mS period equates to over 150 dots per second).

## OPERATION

As the boards are designed for internal fitting, three very thin wires from the board lead to a tiny assembly with two push buttons, each 6mm square and of the type you'd normally find soldered on to a PCB. A black rubber compound insulates the wire connections to the buttons, and these are designed to be mounted somewhere on the outside of your transceiver, although there's nothing to stop you wiring up your own push buttons of course. For example you could use one of the pairs of 'up/down' buttons either on the rig's front panel or the microphone if you otherwise just use the VFO.

Repeated presses of the first button cycles through the 1.8kHz, 500Hz, and 100Hz filters then no filter. Pressing the second button cycles through X1, X2 and no noise reduction/tone notch setting. There's otherwise no indication of what setting you're on, so you need to keep pressing the buttons and listening to find out what mode the DSP board is in.

## INSTALLATION

Each of the PCBs comes pre-wired with lengths of insulated wire for input and output audio, 12V DC power and ground, plus the filter switch buttons. A six-


*The SGC ADSP$^2$ speaker*

## The SGC ADSP$^2$ Loudspeaker

**THE SGC ADSP2 IS** a noise-reduction loudspeaker based on SGC's ADSP2 board. Equipped with just a single push button control, it offers 0dB, 13dB or 26dB of noise reduction. Pressing the button cycles around the three settings. [The bandpass filtering is apparently not implemented in the ADSP2 loudspeaker – Ed.]

My first impression upon unpacking the ADSP2 was that it felt reassuringly solid. Although it measures only 3 x 5 x 2.5in, it weighs 11oz (311g). Behind the front aluminium mesh grille are three LEDs – a red one to indicate power and two green ones to indicate the level of noise reduction selected. At the rear of the case two leads emerge through a rubber grommet, a 2m-long audio input lead terminated with a right-angled 3.5mm jack plug and an 85cm-long twisted pair for connection to 12V DC (10V-15V permitted).

Connecting the ADSP2 is simple, but note that it needs to be plugged into an external speaker socket as headphone sockets don't deliver sufficient audio to drive it.

### PERFORMANCE

The plate on the back of the ADSP2 states 'For Noise Reduction in AM, SSB, FM and CW operation,' so I tested it on a variety of transceivers, frequencies and all the stated modes (plus RTTY). It is worth saying from the outset that I live in an electrically noisy neighbourhood, where it is common for the daytime background noise level on 160m and 80m to be S9.

### 7MHz SSB

I tested the unit when the background noise was around S7. The 13dB setting reduced the background noise and made just about everyone on the band more comfortable to listen to. When a station was approximately the same signal strength as the background noise the audio sounded 'robotic', which didn't seem too high a price to pay. Unless I was tuned to a particularly strong station the 26dB setting invariably resulted in robotic-sounding audio, and under particularly noisy conditions the audio started to break up. When listening to a weak station in the presence of an off-frequency station that was much stronger, the output often became unreadable. Returning to the 13dB setting invariably helped.

### SHORT WAVE AM

On strong and weak stations alike, the 13dB setting reduced background noise and removed the 5kHz heterodyne that is often heard when stations are tightly packed-in – especially if the filters in a receiver are not the best. On this setting the speaker handled music as well as the spoken word, making it sound softer. The speaker alleviated phase distortion up to the point that it became severe. Interference from a short wave jamming station that was transmitting a wobbling tone akin to a car alarm was not substantially affected on either the 13dB or 26dB setting. On the 26dB setting the audio of strong stations sounded robotic and weak stations sometimes broke up.

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Steve White, G3ZVW, 31 Amberley Road, Palmers Green, London N13 4BH; e-mail: g3zvw@rsgb.org.uk

# Loudspeaker

page installation booklet accompanies the boards, but unfortunately there were errors in the 'high power' booklet. The inputs and outputs were sometimes reversed, one section of the booklet was hand-corrected to reflect this but the rest of the wiring information gave conflicting instructions. By the time this appears in print it should have been corrected. The low power instructions were, however, entirely correct and very easy to follow. A tiny circuit diagram on a separate sheet accompanied each booklet, but you'll probably need to use a magnifying glass to read the diagram, which incidentally doesn't show the input and output connection pin numbers.

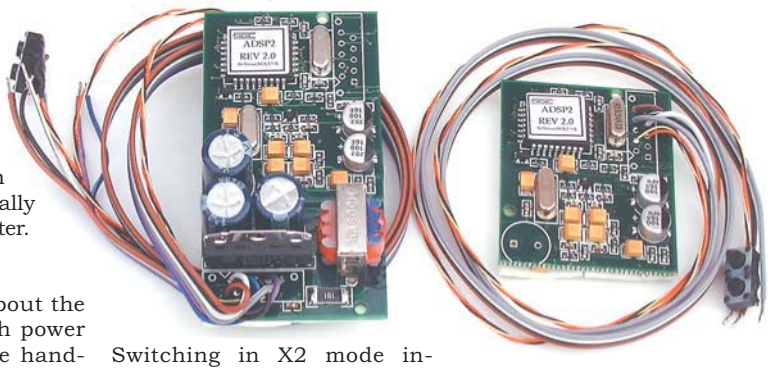
For internal fitting, each board comes ready-supplied with a self-adhesive foam pad so it can be easily fixed to a panel inside your radio. Although the 'low power' board would normally be my choice, I didn't want to start modifying my radio internally (we reviewers don't get to keep the equipment we test!), so instead I wired the 'high power' board with a 3.5mm jack plug and socket, and tested this in series with my external speaker.

A point to note with the 'high power' board is that the speaker output is balanced, ie neither of the two speaker output wires from the board must be grounded. This means that it really does need to be wired to the speaker wires themselves, and not prior to an external speaker jack socket on your radio which is normally grounded to chassis on the outer.

## ON THE AIR

Despite my initial worries about the wiring instructions, the high power board worked first time; the hand-modified table in the booklet giving the correct information. And very well it worked too! I tested the DSP on a variety of bands, modes and interference conditions; in all cases with at least some improvement. In one or two cases, specifically on CW in crowded band conditions, after careful receiver tuning it made the difference between virtually zero readability to absolutely 100% copy, with no other interfering signals audible from the speaker. The three filter bandwidths seemed to be 'brick wall' types, with very steep cut-offs. Even when using the 100Hz filter, there was hardly any trace of 'ringing' on the signal, something I really appreciated. On SSB, in many cases I simply left the 1.8kHz filter switched in permanently, placing the board in 'straight through' mode only occasionally to boost the fidelity on 'ragchew' contacts.

Whenever an interfering heterodyne appears, switching in the 'X1' noise reduction mode nicely notched this, after around a second's delay, to virtual inaudibility. On SSB, I found the X1 mode to be tolerable in noisy band conditions, although it gave received signals a sound like the person was talking with something in their mouth.



*The high-power (left) and low-power ADSP$^2$ boards.*

Switching in X2 mode increased this to a more pronounced 'bubbly' effect, but it still made a real improvement in very noisy band conditions where otherwise the wanted signal would have been even more difficult to understand due to interference. It did, however, often corrupt data signals, so I just used the audio bandwidth filtering in these cases.

A limitation of audio-based DSP is that, if the on-channel interference is stronger than the signal you're trying to receive, your receiver's AGC will cause the wanted signal to reduce in line with the strength of the interference, and no amount of audio filtering will overcome this. But the addition of the DSP filtering, noise reduction, and tone notching can still give your ears an easier time and make copy that much better.

## CONCLUSIONS

If you'd like to transform your receiver or transceiver by adding audio-based DSP on receive, fitting one of these boards would, in my opinion, be an ideal addition. Keen CW operators in particular would find their contacts far more enjoyable, and SSB operators who like DX chasing on noisy bands could find their ears get that little bit more of a rest.

***Chris Lorek, G4HCL***

### EDITOR'S NOTE

The low power and the high power DSP boards are each priced **£89.95**. The ADSP$^2$ loudspeaker is currently available at an introductory price of **£99.95**. Thanks go to Waters and Stanton PLC for the loan of all the review units.

### 144MHz FM

Naturally enough there was no advantage to be gained from noise reduction when listening to strong stations, but when listening to weak ones the 13dB setting made copy comfortable and removed practically all the smooth background noise with which VHF FM operators are familiar. The remarkable thing was that with very weak stations the 13dB setting made unreadable stations readable. Leaving the squelch of the receiver open produced an interesting effect. When a repeater dropped carrier, the background noise (which was already much reduced in the 13dB setting) gradually faded away as the ADSP2 adapted itself to conditions. The background noise didn't disappear altogether, but I was nonetheless impressed because it meant that as soon as even the weakest station transmitted I heard it.

### HF CW AND RTTY

On these narrowband data modes the 26dB setting came into its own. Listening on an HF receiver with a 2.4kHz bandwidth the noise was much reduced on the 13dB setting and all but gone on the 26dB setting. Moreover, heterodynes were removed without any apparent ill effect on the keyed tones of RTTY or on CW signals (unless there was a period of blank carrier which exceeded about a second, in which case the electronics took it to be a heterodyne and filtered it out).

In all tests the ADSP2's speaker produced good communication quality audio. It never rattled.

### SHORTCOMINGS

Whilst testing, I identified some aspects of possible improvement.

1. The positioning of the press button – in the middle of the top of the case – is great if you place the speaker on a flat surface or mount it above the support bracket. However, if you want to hang' the speaker below the bracket, as you might need to in a car, you can't reach the button. Of course you can mount the speaker upside-down, but it doesn't look as good with the front panel legend the wrong way up (and it didn't seem possible to remove and re-fit it).
2. With such a useful reduction of noise, I was left to wonder how much better the ADSP2 would have sounded through headphones. Shame there's no socket.
3. The speaker needs to be permanently powered. Surely it wouldn't have been too expensive to include a relay to bypass the electronics when power is absent?
4. When power is removed and restored the unit defaults to 0dB noise reduction. In my opinion it would have been better if it could have memorised and returned to its previous setting.
5. A fuse in the power lead would be a worthwhile addition.

### CONCLUSION

The ADSP2 operated faultlessly. The 13dB setting invariably reduced background noise and improved the intelligibility of many signals. The 26dB setting needs to be used sparingly on SSB, AM and FM, but was effective on data modes. I was particularly impressed with its ability to act as a 'whistle-killer' whilst receiving CW and RTTY.

***Steve White, G3ZVW***

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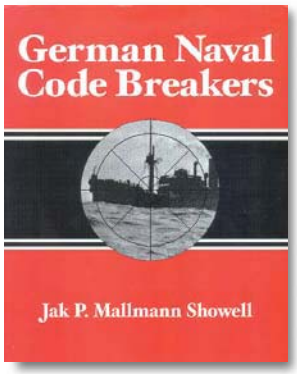
## GERMAN NAVAL CODE BREAKERS

**By Jak P Mallmann Showell**
**Reviewed by RSGB Staff**

From the same author as *Enigma U-Boats – Breaking the Code. The True Story* (see *RadCom* July 2003), this book is a complementary work, detailing the work of the German code breakers. Although the story of the German naval code breakers in WWII is less well known than that of the British at Bletchley Park, their role was undoubtedly significant in the course of the conflict. In *German Naval Code Breakers*, naval historian Jak P Mallmann Showell, one of Britain's foremost experts on the subject of the U-boat campaign during WWII, looks in detail at how German code breaking developed after the traumas of defeat in 1918, the variety of codes used by the British and Allied navies during WWII, and how the German naval code breaking department was organised as one of a number of departments involved in the gathering of naval intelligence.




In particular, the book gives an account of some of the successes and failures of German code-breaking activities and how these impacted upon naval operations in European waters. Amongst topics examined is the role of the code breakers on the major engagements of the war, such as D-Day and the Battle of the Atlantic.

While unable, ultimately, to prevent the defeat of Nazi Germany, the role of the German naval code-breakers casts a significant new light on many of the events during the course of the war at sea. All those who want to know more about this crucial era in naval warfare will find that *German Naval Code Breakers* provides an interesting new perspective to this aspect of the history of WWII.

As with the *Enigma U-Boats – Breaking the Code. The True Story*, anyone interested in naval warfare will find the photographs as rewarding as the text. As a special offer RSGB members can also enjoy a £5.00 (25%) discount off the cover price.

**GERMAN NAVAL CODE BREAKERS**
By Jak P Mallmann Showell
Ian Allan Publishing
160 pages, 200 x 255mm
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(non-members' £24.99).
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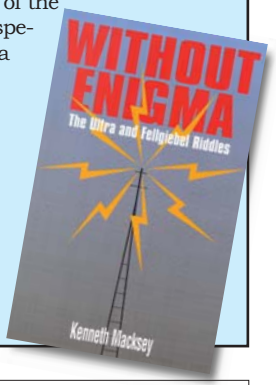
## WITHOUT ENIGMA – THE ULTRA AND FELLGIEBEL RIDDLES

**By Kenneth Macksey, Reviewed by RSGB Staff**

It is not often that you come across a book that is neither fact nor fiction but the strange mixture of both which *Without Enigma* is. It is only in recent years that stories of Bletchley Park and the breaking of the Enigma codes have become well known. Many books have been written on this subject, but how many have overstated the effect that the deciphered messages had on the outcome of WWII? This book is a serious attempt by Kenneth Macksey, one of Britain's foremost military historians, to answer that question. The book is a detailed historical work that reflects on how Germany would have reacted to the knowledge that the Enigma codes had been broken. Written in a fictional style, the book takes the reader through the later years of WWII only deviating from historical fact to portray the potential responses of the German military.

*Without Enigma* starts its narrative in late 1942, which the author supposes is a probable point at which the Germans may have begun to suspect the compromise of Enigma. Then the reader is taken through possible tests that would have been applied to the unbreakable code and the inevitable effects on the Battle of the North Atlantic. The author explores the effects that would have been felt in many areas of WWII including the Russian campaign and the Normandy landings. *Without Enigma* is surprisingly wide-ranging, with the author devoting thoughts to the 1944 plot to assassinate Adolf Hitler.

The conclusions *Without Enigma* reaches are truly thought-provoking and likely to stimulate much debate. If you are interested in Bletchley Park and the breaking of the Enigma codes this book is for you. As a special offer RSGB members can also enjoy a £5.00 (25%) discount off the cover price.




**WITHOUT ENIGMA – THE ULTRA AND FELLGIEBEL RIDDLES**
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## HELLO WORLD, A LIFE IN HAM RADIO

**By Danny Gregory and Paul Share**
**Reviewed by Laurie Margolis, G3UML**

My brother Jonathan is not a licensed amateur, but having spent his life as the son of one and the brother of another, the breeding runs deep. He rang me during the summer. "You've got to get the *Sunday Telegraph* magazine, there's this huge review of a book about amateur radio", he gasped. Amazingly, across two glossy pages were colour reproductions of QSL cards – VK0KC, 7Z1AB – and a half-page picture of 5R8JD. The book – *Hello World, a Life in Ham Radio* – was, apparently, an unexpected hit in America, one of those quirky volumes that had found a wider audience.

The *Telegraph* review, as usual, made us sound strange, but when the book itself arrived the impression was far more favourable. Written by two recently-licensed New Yorkers, it's a book not just for existing amateurs, but for those around them who've long wondered what on earth goes on during those hours in front of the rig.

One of the writers came upon an album at a flea market containing 369 QSL cards belonging to a New Jersey amateur, Jerry Powell, who died in 2001, having been active as W9DOG, and then W2OJW, since 1928. The book illustrates every card in that album, starting with 5GF from Oklahoma in July 1928, right up to the final card in the collection, 9U/F5FHI in October 1995. The quality of the reproductions is fabulous, each card, as the authors point out, a unique work of documentary art. We should take our QSL cards more seriously as striking pieces of social history.

The book suggests that W2OJW was a keen student of current events and maintained that interest by contacting stations wherever was topical. Thus, in October 1982, Jerry worked GI4NRB in Co Antrim and discussed the dramatic state of Ulster politics at that time – Bobby Sands had recently starved himself to death. Next day, Jerry worked G4LGW in Dagenham, Essex, to "get the British point of view on the changes in Northern Ireland". Well, maybe he did and maybe he didn't. I suspect more likely he was simply enjoying decent conditions on 15m. This device – associating W2OJW with the collapse of communism, the Korean war, the Middle East crisis – via his QSOs at the time is attractive but, possibly, stretching the truth. But let's accept that construction at face value. Despite many silly mistakes, this is a wonderful achievement. Every one of the 369 QSLs is annotated, sometimes at length, with details about the operation or about the political and social developments at that place and time. There are pithy and highly effective attempts to get into the technical and social underpinning of amateur radio. I love the description of contesting: "virtually a contact sport as hams from around the planet pile onto the airwaves to rack up thousands of QSOs each day".

This is a hugely enjoyable book. It makes amateur radio look exciting, relevant, dramatic and, most of all, terrific fun.

**HELLO WORLD: A LIFE IN HAM RADIO**
By Danny Gregory and Paul Share
Princeton Architectural Press
256 pages, 172 x 234mm
**ISBN** 1-56898-281-X
**Price** £14.06 + P&P (available from www.amazon.co.uk)

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Bolt on auto ATU for use with FT-897, FT-857. Covers HF & 6m. Max input of 100W

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Automatic Antenna Tuner for FT-100(D), FT-847. Cover HF & 6m. Max input of 100W

**FP-30U**
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Internal AC Power Supply for FT-897. 13.8V DC @ 22A. 200 - 240V AC.

All is not lost! Despite the downturn in HF propagation over the summer months, things have definitely been looking up recently. As a for instance, I am writing this after the weekend of the *CQ/RJ* RTTY contest (27/28 September) when even 10m was open to the Far East and across to the mid-western states of the USA, while 15m was positively buzzing, with openings of several hours to Japan and to the US West Coast. My 150 watts of RTTY even secured me a contact with KH7X (Hawaii). The low bands were good, too. In the same contest, I worked V8A and a couple of Japanese stations on 40m, as well as the US West Coast.

But, to my mind, even more significant was the operation earlier in September by G3TXF and G3SXW from Micronesia (V6). Unfortunately there wasn't sufficient notice to mention it in this column, but hopefully many of you will have caught Nigel and Roger on the bands. The amazing thing is that, with just 100 watts and vertical antennas, they were very workable here in the UK on 40 through 15m, their signals on 20m in particular being outstanding from what is often considered a tough area to work from the UK. I think there were three factors of significance at work. Firstly, the drop in solar activity actually helps propagation on the lower bands, as ionospheric absorption is lower than has been the case in recent years. Secondly, Nigel and Roger waited until they arrived in V6 before selecting an operating location, and were able to find an hotel right on the coast. They were able to erect their antennas quite literally above saltwater. Recent experiments by the US 'Team Vertical' (who contest from the Caribbean) and the experiences of many IOTA operations confirm that the benefits in signal strength of being within a wavelength or so of the sea are very substantial. Thirdly, of course, both Nigel and Roger are experienced and skilled DXpeditioners, who know how to get the best out of any situation. And while on that subject, I must also mention Andy, G3AB, who operated as VK9XAB and John, G4IRN, who activated S79IRN and FH/G4IRN very successfully over the same period. Well done to one and all.

***The author, Don Field, G3XTT, at the controls of HC8N in last November's CQ WW CW Contest. The station will be back this year in the multi-multi category.***

## COMMON COURTESIES

In recent columns I have talked about some of the techniques for finding and working DX. But it looks as though I also need to suggest that some of you curb your enthusiasm occasionally. I received an e-mail from a reader concerning an incident on 20m SSB in which Tonno, ES5TV (Estonia), was calling "CQ DX North America", with his usual loud signal. Apparently, a UK station called in, but Tonno worked him anyway. "QRZ DX" followed, with another UK station calling in. In the end, about half a dozen UK stations (M1, 2M1, G6, G3) made a QSO. Tonno was, I gather, very patient and worked everyone, though apparently resorted to mild sarcasm on one occasion with "Ah, Northampton, I guess that sounds like North America".

This was a specific situation, but raises some interesting issues. Many amateurs will make directed CQ calls, and it is only reasonable that their request be respected. DX stations in particular tend to get inundated if they call a general CQ, and may well be looking for a 'ragchew' with a friendly voice in a specific part of the world. Or a DXpedition may want to focus on a specific area to take advantage of favourable propagation. And there are other types of directed calls, too, like when a DXpedition tries to reduce the number calling at any one time, perhaps by working 'by numbers'. In this case, if the operator is, for example, calling for "Ones" and you are G3XTT, then just keep listening and wait until he requests "Threes" before calling. Of course, you can use the time productively in the meantime, by figuring out his listening pattern, etc. In all these instances, always respect the directed call.

There is an argument that if a non-rare station (such as ES5TV) makes a directed call and doesn't get a reply from that area, a very short call may be acceptable, leaving him to choose whether or not to respond. Doing that to an expedition, though, invites anarchy. Once the DXpedition operator breaks ranks and, for example, responds to G3XTT when he was calling for "Ones" or for "USA", the waiting masses will take that as a green light to call at will. So there is a degree of responsibility here for both sides of the operation, both the DX station and the caller. Incidentally, my experience is that it isn't always the newly-licensed amateurs who fail to behave. Some of the worst UK operators I have heard in pile-ups have been those who have been licensed long enough to know better. Maybe they are getting desperate to work that DX, in case this turns out to be their last sunspot cycle!

## DX NEWS

Eight French operators are expected to be active from **Europa Island** (FR/E, AF-009) tentatively between 22 November and 4 December. They plan to have three stations on the air on all bands and modes and to participate in the *CQ* WW DX CW Contest. However, dates are subject to change owing to the international situation, as all the operators are military personnel. Europa ranks 6th (worldwide) on *The DX Magazine's* 2002 'Most Wanted Countries' list. QSL cards will be handled by F5OGL and may be sent via the bureau or direct.

Ed, 4L4FN, formerly P5/4L4FN, is now in **Angola** and has been assigned the callsign D2PFN. QSL via KK5DO.

Peter, G3GYE, writes that an old friend, Tom, G3VBS, is at present at Talaqan, northern **Afghanistan** with the call YA1TM. He has borrowed a Codem transceiver and put up a dipole for 20m. He is on most days at 1600 on 14285kHZ, calling "CQ G" but with little response. Peter says that Tom has been a good signal in

By Don Field, G3XTT, 105 Shiplake Bottom, Peppard Common, Henley on Thames RG9 5HJ. E-mail: hf.radcom@rsgb.org.uk

the UK, despite recent poor conditions. Tom would love to hear more calls from the UK, so do give him a shout.

Steve, G0UIH, will be conducting another IOTA expedition to **Australia** from 21 November to 21 December, signing VK2IAY/4. The itinerary is likely to include Hook Island (OC-160) for 7 days, Dunk Island (OC-171) for five days and Moreton Island (OC-137) for five days. QSL via G0UIH.

Due to the damage caused by hurricane Fabian, Bert, PA3GIO, will now be active as PA3GIO/VP9 from **Bermuda** (NA-005) from 8 to 18 November, having postponed his September trip. He will be on SSB on 80 to 10m. QSL via PA3GIO, preferably through the bureau (e-mail requests for bureau cards will be welcome at: qsl@pa3gio.nl).

Oleg, UA1PBA, departs in mid-November for Bellingshausen Base on King George Island, **South Shetlands**. He may stay up to five years, and will have the callsign R1ANF. Other amateurs on the base this season, and likely to operate the station, include UA1PAI, UA1PAW and UA1PBA. Dany, LZ2UU, will be the radio operator on the South Shetlands from Bulgaria's Antarctic Base St Kliment Ohridski from mid-November through February next year, using the callsign LZ0A. He expects to be on all the bands, CW, SSB and RTTY. In *CQ* WW CW he will use this callsign: VP8/LZ2UU. He may be on in other operating events as well. QSL via his home call.

A large DXpedition with international participation will take place from the Kerkennah Islands (AF-073), **Tunisia** from 19 November to 1 December. They will use the special call TS7N on all bands and modes. There will be about 20 operators and five stations. The group will leave several transceivers and antennas as a donation to the local Tunisian operators. For more information check out their web page. QSL via DL9USA.

## CQ WW CW CONTEST

This month sees the *CQ* WW CW Contest and, as always, there will be plenty of interesting activity. With so many DX stations on the bands it's obviously easier to work them than if a single expedition appears on a non-contest day, for the simple reason that demand is spread across all the DX, rather than focused on one station (not quite as simple as this, of course, as every contester will want every DX station for the multiplier, but the pile-ups are generally on the wane by the second day of the contest). Contest operations that I am aware of include: 4W3CW (Timor Leste) by G3WQU, 5U7Z or 5U7A (Niger) by the Voodoo Contest Group, 6Y0A (Jamaica) QRP by K2KW, C53M (Gambia) by a large team, CU2F (Azores) low power by SM4DHF, D4B (Cape Verde) by 4L5A and possibly others, D44TD (Cape Verde) by IK2NCJ, EA8ZS (Canaries) by EA5FV, FR/E (Europa Island) as above, FS/K3LP (St Martin) by US ops, GJ2A (Jersey) by K2WR, HC8N (Galapagos) by a large team, IH9P (African Italy) by OL5Y, JW5E (Svalbard) by JW5NM and others, KP3Z (Puerto Rico) by N5TJ, MU/DL2OBF (Guernsey), P40TA (Aruba) by K6TA, PJ2T (Netherlands Antilles) by a large US group, PJ5NA (Sint Maarten) by K1NA, T32WW (Eastern Kiribati) by a large US group, TS7N (Tunisia) as above, V26K (Antigua) by AA3B, VP5X (Turks and Caicos) by US ops, ZD8Z (Ascension) by N6TJ. Many of these expeditions are from rental locations, in other words villas and similar locations, many of which have antennas and even equipment permanently installed. A list of such locations can be found on the 'DX Holiday' website.

**COUNTRIES WORKED, 2003**

(sorted this month by datamodes totals)

| CALL | CW | SSB | DATA | MIXED |
|---|---|---|---|---|
| G0ARF | 0 | 0 | 159 | 159 |
| GU0SUP | 0 | 0 | 132 | 132 |
| G3XTT | 219 | 159 | 107 | 231 |
| W1JR | 229 | 203 | 101 | 272 |
| MM0BQI | 92 | 74 | 101 | 132 |
| G4WFQ | 206 | 69 | 98 | 223 |
| G3LHJ | 167 | 65 | 95 | 183 |
| M3RDX | 0 | 170 | 93 | 187 |
| G4ZPL | 0 | 2 | 87 | 87 |
| M5PLY | - | - | 71 | 131 |
| GI0NQC | 1 | 70 | 69 | 102 |
| G4OBK | 142 | 22 | 68 | 152 |
| ZC4VG | 131 | 34 | 57 | 134 |
| G3JFS (QRP) | 93 | 57 | 55 | 117 |
| G3URA | 0 | 0 | 53 | 53 |
| M0CNP | 12 | 145 | 43 | 149 |
| M0AWX | 0 | 212 | 30 | 213 |
| G4UCJ | 124 | 10 | 24 | 126 |
| G4DDL | 68 | 9 | 21 | 70 |
| G4KIV | 158 | 165 | 2 | 202 |
| G0GFQ | 0 | 128 | 2 | 129 |
| G3TBK | 227 | 107 | 0 | 233 |
| G3SXW | 228 | 0 | 0 | 228 |
| G3TXF | 220 | 14 | 0 | 220 |
| GM0TGE | 149 | 172 | 0 | 219 |
| G3YVH | 190 | 136 | 0 | 215 |
| G0NXX | 200 | 0 | 0 | 200 |
| G4KFT | 199 | 0 | 0 | 199 |
| G4WXZ | 147 | 140 | 0 | 192 |
| G3VDL | 185 | 0 | 0 | 185 |
| G4EDG (QRP) | 180 | 0 | 0 | 180 |
| MU0FAL | 147 | 109 | 0 | 163 |
| G3ZRJ | 156 | 0 | 0 | 156 |
| M3CLY | 0 | 152 | 0 | 152 |
| G3YMC (QRP) | 131 | 0 | 0 | 131 |
| M5GUS | 0 | 127 | 0 | 127 |
| M0BVE | 117 | 0 | 0 | 117 |
| G4IFB | 115 | 0 | 0 | 115 |
| G4FVK | 60 | 99 | 0 | 112 |
| G0LGJ/M | 0 | 103 | 0 | 103 |
| G4YWY/M | 0 | 95 | 0 | 95 |
| GW4ALG (QRP) | 74 | 0 | 0 | 74 |
| G7FSI | 0 | 63 | 0 | 63 |
| M3NPB | 46 | 21 | 0 | 56 |

## AWARDS

The ARRL's Logbook of the World is now live, and all amateurs are encouraged to apply for a secure key in order to upload their logs. Even if you don't chase DXCC awards yourself, other amateurs may welcome credit for contacts with you. This applies especially if you have operated from a DX location, even if it was just a holiday operation from SV5 or whatever. Details from the ARRL website and October 2003 *QST*.

I was delighted to run into old friend John, G8XTJ, on the WAB stand at the Leicester show, and he tells me that the Worked All Britain awards are alive and kicking. This award programme was started over 30 years ago and became very popular in the 1970s, but has had its ups and downs since then. However, many overseas amateurs will be keen to know your WAB square when you work them; it is, of course, the large (10km) square that you will find on Ordnance Survey maps. More information from their web page. Incidentally, everyone who buys the WAB record book is issued with a Book Number, and there are awards for chasing and working book holders. With over 16,000 books issued, I guess being holder of number 195 makes me quite rare (or very old!)

## CORRESPONDENCE AND TABLES

Firstly, my comments last month about channelised operation on HF have already generated a couple of responses and, I dare say, there will be more to come. Peter, G3PLX, wrote a comprehensive and well-argued note which is hard to summarise

**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 **15 November** (note slightly earlier deadline as I will be off to West Africa for the *CQ* WW CW Contest).

here, but he makes the case that 4kHz spacing would be a waste of spectrum whereas 3kHz doesn't lend itself to easily-remembered frequencies (professional services such as marine and aeronautical have always used 3kHz channels on HF). He points out that, with channelisation, one would never get unreadable QRM. Either there would be no interference, or it would be co-channel and negotiations could then take place as to who should stay and who should move. In practice he suspects amateurs would be reluctant to adopt a fully-channelised approach on HF but might be persuaded, from a pre-agreed date, to operate only on whole-number kHz frequencies for HF SSB (to an extent this probably happens already, for psychological and practical reasons). This, he believes, would lessen, although obviously not eliminate, problems of co-channel interference.

Colin, MU0FAL, writes that he has been pleased to catch some late night openings on 15 deep into the USA. He refers to my comments on how *DX Cluster* spots often breathe life into an otherwise dead band, and postulates that the trend for tuning the bands is in great decline. He feels that, as a result, many newcomers to HF never really get to understand HF propagation, simply following *Cluster* spots as and when they appear. Colin makes particular reference to the excellent operation from S7 (Seychelles) and FH (Mayotte) by John, G4IRN.

Stewart, G3YSX, notes mention of

**QTH CORNER** F5OGL Didier Senmartin, PO Box 7, 53320 Loiron, France.

callsign piracy and rightly comments that many such instances are simply poor copying of callsigns. In his case he is frequently logged as G3YFX, but even when he realises this has happened it isn't always easy to persuade the station being worked that they have made an error.

Barry, G7FSI (previously using M3FSI on HF), reports some nice contacts in the late evenings on 20m, especially into South and Central America. He is using an FT-840 and a full-size G5RV sloping towards the west. Terry, G1UGH, writes in for the first time. Since starting on HF in late August he has worked 49 countries, including HS0/IK4MRH (Thailand, Phuket Island), Taiwan, Qatar, Australia, USA, Canada, etc. What is remarkable is that he is using 100 watts and a 10m length of wire run directly from the antenna socket on his transceiver, out to the roof of his shack (a garden shed). He rolls out enough of the wire to resonate on whichever band he is using, leaving the unused length in a ball! While I wouldn't necessarily recommend such a basic system, it obviously works for Terry, though, as I have commented to him, just think what he could do with a 'proper' antenna!

Chris, G7NRO, is another new arrival from the higher planes of VHF operating. With 80 watts and a half-size G5RV he has already notched up contacts with plenty of DX, including (20m) 4S7 (Sri Lanka), ZS2 (S Africa), YI (Iraq) and (40m) CX (Uruguay) and 6Y (Jamaica). Steve, G4KIV (ex-ZC4BS), returns to the fray, having now got himself established in Yorkshire. He and others are involved in setting up a pretty impressive contest station (the Brimham Contest Group), but I get the impression Steve is missing the pile-ups and propagation that he used to enjoy from Cyprus! Peter, G3JFS, is also a welcome new entrant. Peter had found his interest waning after so many years licensed, but turning to QRP (5 watts on CW, 10 watts on SSB) operation has renewed his enthusiasm. He is another to comment on G4IRN's excellent operating from FH (Mayotte), and he worked John on three bands under far from ideal propagation conditions. Finally, a special welcome to Joe, W1JR, our first table entrant from the USA. Joe is retired and has had both a professional and personal interest in antennas for many years, so he is well placed to work the DX. His results give a fair idea of what can be done from the US east coast. ◆

**WEB SEARCH**

| | |
|---|---|
| **ARRL** | www.arrl.org |
| **DX Holiday** | www.dxholiday.com |
| **TS7N** | http://ts7n.tk **and** www.qsl.net/ts7n |
| **Worked All Britain awards** | http://home.freeuk.com/wab |

## HF F-Layer, Propagation Predictions for November 2003

| | 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 | 757....67557 | ..6211366... | ...65566.... | ...89997.... | ...9999..... | ...1673..... | ....34..... |
| *** Asia | | | | | | | |
| Yakutsk | 21.....12344 | 3.33241673.5 | ...66..... | ...61..... | ...2..... | ..... | ..... |
| Tokyo | ...1...2212. | ...2..122.1. | ...21..... | ...2..... | ...1..... | ..... | ..... |
| Singapore | .....11... | .....231... | .....43.... | .....163.... | .....251.... | ...1134..... | ....122..... |
| Hyderabad | ..... | 2.....22221 | .....243... | ..122377.... | ...55677.... | ...78885..... | ...7788..... |
| Tel Aviv | 627....26455 | ..72..166.77 | ...74456.... | ...65452.... | ...3656..... | ....55..... | ..... |
| *** Oceania | | | | | | | |
| Wellington | ....33665... | ...277874... | ...488871... | ...16651.... | ....453..... | ....553..... | ....23..... |
| Well (NZ) (LP) | ..... | ..1..... | 223.....11 | ...411..12.. | ...52..... | ..... | ..... |
| Perth | .....11.1. | .....131... | .....23.... | .....266.... | .....354.... | ...23653..... | ...235..... |
| Sydney | .....111... | .....43.... | .....262.... | ....5784.... | ....677..... | ...3777..... | ...2666..... |
| Melbourne (LP) | ...5..... | ...76..... | ...78..... | ...581..... | ....7..... | ....6..... | ..... |
| Honolulu | ...1...2.... | ...422161... | ...1.1.21... | ..... | ..... | ..... | ..... |
| Honolulu (LP) | ..... | ..... | ..... | .....2... | .....11.3... | ...211..... | ...322..... |
| W. Samoa | ...11..1.... | ...37665.... | ...17774.... | ....465..... | ....253..... | .....3..... | ..... |
| *** Africa | | | | | | | |
| Mauritius | 1.....111 | ..... | .....1.... | .....2.... | .....2.... | ..... | ..... |
| Johannesburg | 87.....1577 | 74.....4666 | 3.1....26422 | .....33.... | ...111251... | ...56677.... | ...46677.... |
| Ibadan | .12..... | 316.....1112 | ..73....1... | ...864352... | ...98767.... | ...99899.... | ...99899.... |
| Nairobi | ..... | .1..... | 1.....1 | .3....11... | .22...1.... | ...53123.... | ...54442.... |
| Canary Isles | 6673....4656 | 66661..15566 | ...6422456.. | ...167777... | ...857778... | ...2.665.... | .....676.... |
| *** S. America | | | | | | | |
| Buenos Aires | 3327.....12 | 11.7..... | ...6..... | ...72..... | ...641111... | ...34222.... | ....3222.... |
| Rio de Janeiro | ...1..... | ...3..... | ...4..... | ...73..111.. | ...652132... | ....62241... | ....5224.... |
| Lima | ..... | ...1..... | ..... | .....2..... | .....421.... | .....5321... | .....432.... |
| Caracas | ..... | ...1..... | ....1..... | ....2..... | .....11.... | .....6651... | .....666.... |
| *** N. America | | | | | | | |
| Guatemala | ...1..... | ...1..... | ..... | ..... | ..... | .....121.... | .....21.... |
| New Orleans | ..... | 1..2..... | ...1..... | .....2645... | .....763... | .....77.... | .....87.... |
| Washington | 3333.....23 | 52.22.....42 | .....1..13.. | .....5335... | .....6566... | .....45.... | .....56.... |
| Quebec | 66.61....266 | ...32....2.. | .....1.121.. | .....7777... | .....7886... | .....588.... | .....88.... |
| Anchorage | 65541...2113 | 2...11.111.. | .....2... | ..... | ..... | ..... | ..... |
| Vancouver | 11..... | ..... | ..... | .....42... | ..... | ..... | ..... |
| San Francisco | ..... | ..... | ..... | .....31... | .....31... | .....3..... | ..... |
| San Fran (LP) | ..... | ..... | .....6.... | .....71... | .....71... | .....6..... | .....5..... |

**Key:** Each number in the table represents the expected circuit reliability, e.g.'1' represents reliability between 1 and 19% of days, ' 2' between 20 and 30% of days, etc. No signal is expected when a '.' is shown. **Black** is shown when the signal strength is expected to be low to very low, **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 2003 issued by the Sunspot Data Centre, Brussels, was 48.8. The daily maximum / minimum numbers were 79 and 17 on 27 September and 9 September respectively. The predicted smoothed sunspot numbers for November, December and January are respectively: (SIDC classical method – Waldmeier's standard) 58, 57, 56 (combined method) 58, 56, 53. Longpath predictions are shown with (LP) following the path name. Higher input power and superior aerials have been used for these predictions; less well-equipped stations may find the longpath predictions somewhat inaccurate.

By Roger Balister, G3KMA, La Quinta, Mimbridge, Chobham, Woking, Surrey GU24 8AR. E-mail: iota.hq@rsgb.org.uk

# IOTA



Just two months away from the start of IOTA's 40th Anniversary Year! Yes, it was in 1964 that Geoff Watts started it all off!

## IOTA 2004

To celebrate the occasion, the IOTA Committee and CDXC (Chiltern DX Club) – The UK DX Foundation – have teamed up to launch a year of IOTA activity – to be called IOTA's 40th Anniversary Awards Programme or IOTA 2004 for short. The IOTA Committee is grateful to CDXC for agreeing to run the event on its behalf and to Nevada who have agreed with CDXC to sponsor the costs of administration and certificate design.

IOTA 2004 will run from 1 January to 31 December 2004 and will adopt the same format and rules as the very successful IOTA Millennium Programme in the year 2000 (also administered by CDXC). Entrants will need to make contact with as many different IOTA island groups as possible within the calendar year, using any amateur band, HF or VHF, or any combination of band and mode. Contacts counting for credit come in two types – 'premium' contacts and 'normal' contacts. Premium contacts are made during a particular month that depends on the island's geographical location (for January and February, see **Table 1**) and these score extra points. Contacts made with the same island in other months are 'normal' contacts. No QSL cards are required, but there will be scrutiny of entries. A series of attractive certificates – gold, silver and bronze – will be available for various levels of achievement, as will certificates for stations who activate a specified number of island groups during the year.

Details of IOTA 2004 can be found at the CDXC website. The programme rules, a listing of island groups and the months when premium scores are made can all be downloaded from this site. Those of you who would like details and do not have Internet access but have a computer should send a floppy disk and a post-paid mailer to G3XTT – see Don's 'HF' column for contact details. Those without computers should send a C5 envelope and £1.00 (or $2.00) to cover printing and postage. Please note that the programme will, for ease of administration, be run wholly via the web page, so if you do not have Internet access yourself, you will need to find a friend who does, or perhaps use a local Internet café.

As well as commemorating a significant anniversary, the IOTA Committee and CDXC see the programme stimulating lots of activity and fun on the HF bands at a time of declining sunspots. So, prepare yourself for the start of the year – this could be a good opportunity to boost your score.

If there is sufficient demand, we will publish a table of scores in this column as the year proceeds. This will enable you to see how other participants are progressing. More on this next time.

## ANNUAL UPDATE

Advance notice. The last date for mailing applications or updates to checkpoints for inclusion in the 2004 Honour Roll and other performance tables is 1 February 2004. 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 2003 tables was restricted to those members who had updated their scores since February 1998. This implemented the new rule that limits inclusion in the listings to those members who update their scores at least once every five years. The 2004 tables will be prepared on the same five year rolling basis and will only include members who have updated since the 1999 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 2004. And a special message to newcomers: you have three months, why not 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). ◆

### IOTA 2004

| | | |
|---|---|---|
| **JANUARY 2004** | | |
| OC-004 | VK9 | Lord Howe Island |
| OC-005 | VK9 | Norfolk Island |
| OC-010 | V63 | Pohnpei Islands |
| OC-011 | V63 | Chuuk Islands |
| OC-016 | 3D2 | Viti Levu & Vanua Levu Group |
| OC-028 | V73 | Ralik Chain |
| OC-031 | C2 | Nauru |
| OC-032 | FK | New Caledonia Island |
| OC-035 | YJ | New Hebrides |
| OC-036 | ZL | North Island, New Zealand |
| OC-047 | H4 | Solomon Islands |
| OC-049 | A3 | Tongatapu Group |
| OC-064 | A3 | Vava'u Group |
| OC-134 | ZL | South Island, New Zealand |
| **FEBRUARY 2004** | | |
| AS-007 | JA1 etc | Honshu Island |
| AS-017 | JA6 | Okinawa Islands |
| AS-018 | R0F | Sakhalin Island |
| AS-020 | BV | Taiwan |
| AS-031 | JD | Ogasawara Islands |
| AS-076 | JA5 | Shikoku Island |
| AS-077 | JA6 | Kyushu Island |
| AS-078 | JA8 | Hokkaido Island |
| OC-001 | VK | Australia |
| OC-006 | VK7 | Tasmania |
| OC-012 | V63 | Yap Islands |
| OC-026 | KH2 | Guam Island |
| OC-034 | YB9, P2 | New Guinea |
| OC-042 | DU1-4 | Luzon Island |
| OC-086 | KH0 | Northern Mariana Islands |
| OC-130 | DU8-9 | Mindanao Island |
| OC-146 | YB8 | Celebes Island |

***Table 1: some of the regularly-activated island groups counting for premium points in January and February 2004***

### NEW REFERENCES

| | | |
|---|---|---|
| **AS-168** | HL2 | Kangwon-do Province group (Korea (South)) |
| **NA-225** | VY0 | Nunavut (Prince of Wales and Somerset Islands) group (Canada) |
| **OC-263** | V73 | Taongi Atoll (Marshall Islands) |

***IOTA DXpeditioner Pedro, HK3JJH, comes to London (see January 2003 RadCom). L to r: Roger, G3KMA; Pedro, HK3JJH; Cecilia, Pedro's wife; Martin, G3ZAY.***

### WEB SEARCH

| | |
|---|---|
| RSGB IOTA Programme | www.rsgbiota.org |
| IOTA Manager's website | www.g3kma.dsl.pipex.com |
| IOTA Contest rules | www.rsgbhfcc.org |
| CDXC | www.cdxc.org.uk |

**RSGB IOTA PROGRAMME, PO BOX 9, POTTERS BAR, HERTS EN6 3RH; E-MAIL: IOTA.HQ@RSGB.ORG.UK**

# HFC 2003
## International HF & IOTA Convention

THIS YEAR'S RSGB HF Convention takes place at an exciting new venue - the Britannia Country House Hotel Didsbury, Manchester. This is the place to come for everyone interested in HF. In fact 'HF' - in this context at least - encompasses both LF and 6 metres as well, so no-one is excluded! The Convention covers all technical and operating aspects of amateur radio from 136kHz to 50MHz.

The main draw for the HF Convention is always the excellent lecture programme. There's something for everyone, from newly-licensed M3s right through to seasoned DXers and old-timers. No matter how experienced a radio amateur you are, you are sure to learn something from the experts' presentations. But it's not just a learning experience, the HF Convention is also very much a social event, with the opportunity to participate in the lively exchange of views and tall stories that goes on in the informal bar area until well into the early hours! There are informative and interesting displays too, by various clubs and organisations, and you can get QSLs checked for the prestigious DXCC award - without the risk of having to trust your precious cards to the international postal services- and also lodge copies of identity documents for LoTW registration. Finally, there are just a select few trade stands from the sponsors of the Convention, Yaesu (UK) and ML&S, at which you can admire the latest HF equipment.

The Convention is a truly international event, drawing DXers, contesters, IOTA enthusiasts, QRP and 6m operators not only from the UK, but also from Europe, USA, Japan and even further afield.

The full list of presentations and events, correct at the time of going to press, is shown below. Day visitors are very welcome, and it will only cost you £7.50 for a whole day's entertainment (or just £12 for the full weekend). We look forward to seeing you at Didsbury, Manchester.

## Saturday 1st November 2003 Programme

| Time | Lancashire Suite | Derbyshire Suite | Boardroom |
|---|---|---|---|
| 9.15 | Welcome, Bob Whelan, G3PJT RSGB President | | |
| 9.30 | **IOTA Session** | HF Contest Forum by Justin Snow, G4TSH | Radio Sport - all aspects of sport radio for the beginner, by Fred Handscombe, G4BWP |
| 10.15 | 9.30: IOTA Stream - Welcome by Roger Ballister, G3KMA | | |
| 10.15 | ● H74C & IREF by Mike Crownover, AD5A | **COFFEE** | **COFFEE** |
| 10.45 | ● NA-225 Somerset Island K9AJ/VY0 by Mike McGirr, K9AJ | HF Contest Trophy Presentations, by Justin Snow, G4TSH | Summits On The Air programme (SOTA) by John Linford, G3WGV |
| 11.30 | | | |
| 11.45 | ● OC-078 Ulithi Atoll V63TXF/P and Yap Island V63SXW and V63TXF by Nigel Cawthorne, G3TXF and Roger Western, G3SXW | Why QRP? by Rev George Dobbs, G3RJV | |
| 12.30 | | | |
| | 12.45 Session Closes | | |
| 12.30 | **LUNCH** | **LUNCH** | **LUNCH** |
| 13.45 | ST0RY DXpedition by Chris Sauvageot, DL5NAM | DRM digital radio broadcasting in the AM bands and radio amateur adaptations by Cédric Demeure | Operating Awards for beginners by John Dunnington, G3LZQ |
| 14.30 | | | |
| 14.45 | Logbook of the World update by Wayne Mills, N7NG | DXing and contesting for beginners by M0DXR & M0TTT | |
| 15.30 | | | |
| 15.30 | **TEA** | 15.30 - 16.30 A software defined radio for the masses *(via internet/Conference call)* by Gerald Youngblood, AC5OG | **TEA** |
| 16.00 | Mellish Reef, VK9ML by Steve Taylor, G4EDG | | E20AJ & Radio Scouting by Royce Hunt, M0RHI |
| 16.45 | | | |
| 17.00 | K8O and K8T by Glyn Jones, GW0ANA | 16.45 - 18.00 Elecraft K2 by Eric Swartz, WA6HHQ (via internet/ conference call) | Basic HF operation & propagation forum by Gwyn Williams, G4FKH *et al* |
| 17.45 | | | |
| 19.30 | DX Dinner with Master of Ceremonies Martyn Phillips, G3RFX | UKSMG DX Dinner hosted by UKSMG Chairman Trevor Day, G3ZYY | |
| 20.00 | | | |

VISIT US IN **MANCHESTER** THIS YEAR

**THE WORLD'S PREMIER HF 6m & IOTA EVENT**
**The event covers all interests between 50MHz and 136kHz and will appeal to all amateur licence holder and SWLs**
**Many Open Forums**
**Major Technical Lectures**
**IOTA BUFFET, 6m Dinner, DX DINNER**
**Covered this year**
IOTA, Contest, 5MHz, 6m, 136kHz & G-QRP topics

**DXpedition lectures:** ST0RY, VK9ML, K8O / K8T & H74C
**International Presenters:** AC5OG, AD5A, DL5NAM, N7NG, SV1DH, W3EEE, WA6HHQ and Cédric Demeure

**Lectures:** DXCC & Logbook of the World, Elecraft K2 Transceiver, Amateur Digital Radio Mondiale, Software Defined Radio, CDG2000 Workshop, GB5HQ - IARU Contest story, 6m Propagation & Aerial Optimisation

**Introductory Sessions:** DX & Contesting, Radio Sport, HF Operation, HF Propagation & HF Awards

| DAY ADMISSION | | DINNER TICKETS | | GROUP TICKET | |
|---|---|---|---|---|---|
| Saturday | £7.50 | IOTA Buffet on | | "Buy 4 tickets but only pay for 3" | |
| Sunday | £7.50 | Friday 31st October | £20.00 | Saturday | £22.50 |
| All Week | £12.00 | DX Dinner on | | Sunday | £22.50 |
| | | Saturday 1st November | £30.00 | | |
| | | UKSMG Dinner on | | | |
| | | Saturday 1st November | £30.00 | | |

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FT-857 TO BE WON IN OUR RAFFLE


## Sunday 2nd November 2003 Programme

| Time | Lancashire Suite | Derbyshire Suite | Boardroom |
|---|---|---|---|
| 9.00<br>9.45 | Star Software. A new Windows based paradigm for optimising the performance of today's major DXpeditions by John Linford, G3WGV | Fitting a quart into a pint pot 6m DXpedition amplifier, by Chris Gare, G3WOS | Basic QSOs in a foreign language - German by Martyn Phillips, G3RFX |
| 10.00<br>10.45 | That's a funny callsign by Phil Whitchurch, G3SWH, FO/G35WH | VHF Propagation modes observed from Athens over the last three solar cycles by Costas Fimerelis, SV1DH | 5MHz forum by John Gould, G3WKL |
| 10.45 | **COFFEE** | **COFFEE** | **COFFEE** |
| 11.15<br>12.00 | DRM digital radio broadcasting in the AM bands and radio amateur adaptions by Céderic Demeure | UKSMG AGM | Evaluating receive antennas using a sound card by Steve Dove, W3EEE |
| 12.15 | ST0RY DXpedition by Chris Sauvageot, DL5NAM | | Break-in CW: How To Make It Work by Ian White, G3SEK |
| 13.00 | **LUNCH** | **LUNCH** | **LUNCH** |
| 14.00<br>14.45 | GB5HQ - into the Big League in the IARU Contest by Dave Lawley, G4BUO | Propagation Predictions at HF by Gwyn Williams, G4FKH | LF Forum by John Gould, G3WKL |
| 15.00<br>15.45 | Radio Sport - all aspects of sport radio for the beginner by Fred Handscombe, G4BWP | CDG2000 Transceiver Workshop, by George Fare, G3OGQ, Dave Roberts, G8KBB & Colin Horrabin, G3SDI | 6m Discussion forum |
| 16.00<br>16.30 | Raffle draw by John Gould, G3WKL & Farewell from Bob Whelan G3PJT RSGB President | | |

**www.rsgb.org/hfc**

# Contest

*Right: G6UQ/P: the Stockport Radio Society's entry to SSB Field Day, 2003.*

Once again we have lots of results to publish, so I'll keep the editorial to a minimum this time. A reminder though, that if you are eagerly awaiting a particular set of contest results, remember to keep an eye on the HFCC and VHFCC results websites. You can find the HF results on the RSGB members-only website at www.rsgb.org and the VHF results at http://www.blacksheep.org/vhfcc The respective contest committees and I apologise that some of the results contained in this edition are rather late in being published. We will all do our best to improve this.

## CONTESTS THIS MONTH

The highlight of the HF contests year for CW operators is probably the CQWW CW contest at the end of the month. This brings lots of activity from all over the world and is an opportunity for CW enthusiasts (or even reluctant CW operators!) to improve their country scores. I mention "reluctant CW operators" – thinking of a great contester I know, who I'm not going to name and who claims not to be much of a CW man – but he's always on in CQWW supporting the event. I think he copies the Morse just fine himself, but apparently *Writelog*'s CW decoder gives a good backup to the manual method.

For QRP operators, it's a great opportunity to make some interesting contacts – as we learned from Steve, GW4ALG, and Dave, G3YMC, last year. It just shows what can be done when good operators use simple but effective gear.

## KEEPING IT VARIED

People often ask what secrets there are to winning contests. Like most things, I don't think that there are many secrets. Experience and hard work count for a lot. In VHF contests in particular, and to some extent, on HF, there's a great deal in keeping changing things. I remember Chris, G8TFI, who, sadly, hasn't been on the VHF/UHF contest scene for a while, telling me that in a 432MHz contest if he didn't get a reply having made a CQ call, he would just edge the beam around a little and call for another three. On UHF and above, because beamwidths are so small, this makes good sense, but I think you can use the same principle on the lower VHF bands. Where there are multipliers in a contest, it makes good sense to be turning the beam – not to mention tuning around.

On HF, you probably won't be swinging the beam around quite so much as you would at VHF, though there are times when you do – with openings being available to both, say, North America and the Far East (late afternoon on 20m, for example).

The important thing, though, is that if you don't seem to be getting much response to your CQ calls, have a think about why it might be. Could it be that there's someone close to, or on your frequency? Could it be there is no propagation in that direction? So, just keep gently changing things until you find the contacts pick up. And don't ever be tempted to give up until the contest is over! ◆

### CONTEST CALENDAR

**HF CONTESTS**

| Date | Time | Mode | Contest | Bands | Exchange |
|---|---|---|---|---|---|
| 8 Nov | 2000–2300 | SSB | RSGB Club Calls | 1.8 | RS+SN+Club |
| 8/9 Nov | 0000–2359 | RTTY | Worked All Europe RTTY | 3.5–28 | RST+SN |
| 8/9 Nov | 1200–1200 | CW | OK/OM DX | 1.8–28 | RST+SN |
| 15/16 Nov | 2100–0100 | CW | RSGB 2nd 1.8MHz | 1.8 | RST+SN+District |
| 29/30 Nov | 0000–2359 | CW | CQ WW DX | 1.8–28 | RST+CQ Z (14) |
| **VHF Contests** | | | | | |
| 1/2 Nov | 1400–1400 | CW | RSGB 144MHz CW | 144 | RST+SN+Loc |
| 2 Nov | 0800–1400 | CW | RSGB 144MHz CW (6 hr) | 144 | RST+SN+Loc |
| 4 Nov | 1900–2200 | ALL | RSGB 144MHz Activity | 144 | RST+SN+Loc |
| 1 N1ov | 1900–2200 | ALL | RSGB 432MHz Activity | 432 | RST+SN+Loc |
| 18 Nov | 1900–2200 | ALL | RSGB 1.3GHz – 24GHz Activity | 1.3G – 24G | RST+SN+Loc |
| 25 Nov | 1900–2200 | ALL | RSGB 50MHz Activity | 50 | RST+SN+Loc |

### 1.3–2.3GHz TROPHIES 2002

A disappointing entry this year with many regulars absent. In spite of poor conditions, some good numbers of contracts were racked up by the leading stations. The Five Bells Group, G5B, takes the VHF Contests Committee cup, with Roger Piper, G3MEH, close behind. However, Roger did prevail on 13cm, being awarded the G6ZR Memorial Trophy.

*Andy Cook, G4PIQ*

**1.3GHz SINGLE OPERATOR SECTION**

| Pos | Call | Points | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|
| 1* | G3MEH | 7415 | 31 | 91QS | 50 | 4x44Y | DF0OL | 622 |
| 2* | G4BRK | 5391 | 20 | 91DP | 40 | 67Y | DF2JQ/P | 547 |
| 3 | G4NBS | 3066 | 14 | 02AF | 30 | 4x23Y | DF0HS/P | 435 |
| 4 | PE1EWR | 1545 | 12 | 11SL | 10 | 2x25QLY | G5B | 295 |
| 5* | G0UPU | 180 | 4 | 91AX | 10 | 35Y | G8JVM | 82 |

**1.3GHz MULTI OPERATOR SECTION**

| Pos | Call | Points | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|
| 1 * | G5B | 9158 | 34 | 03CE | 50 | 16x23Y | DL5DAW/P | 540 |
| 2 * | G3OHM/P | 2379 | 16 | 82QL | 150 | 8x23Y | PA6NL | 463 |

**2.3GHz SINGLE OPERATOR SECTION**

| Pos | Call | Points | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|
| 1* | G3MEH | 3291 | 16 | 91QS | 10 | 2x67QLY | PA0EZ | 403 |
| 2* | PE1EWR | 827 | 6 | 11SL | 7 | 25Y | PA6C | 265 |
| 3* | G4BRK | 678 | 4 | 91DP | 30 | 0.8m | PA5DD | 444 |
| 4* | G0UPU | 173 | 3 | 91AX | 1 | 0.6m | G8JVM | 82 |

**2.3GHz MULTI OPERATOR SECTION**

| Pos | Call | Points | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|
| 1 * | G5B | 1936 | 8 | 03CE | 100 | 0.9m | PA6C | 417 |
| 2* | G3OHM/P | 881 | 8 | 82QL | 70 | 1.2m | GD4GNH | 228 |

* Certificate winner. Checklog: G3XDY.

### NOVEMBER 2002 2m CW CONTEST

The fabulous conditions of 2001 were unfortunately not repeated for this year's event, and entries and UK activity clearly suffered as a result. In spite of this – and deep QSB – many entrants commented on how nice it was to work good DX with relatively low power on CW. This contest is an excellent opportunity to work good DX on 2m with uniquely high activity levels in Europe on CW.

There was a small aurora towards the end of the contest that allowed those sharp-witted enough to catch it to make some good QSOs, and GM4VVX/P and GM3POI, were particularly well-placed to take advantage of it from their sites in the north of Scotland. It made GM4VVX/P's regular trip out portable in rather stormy weather much more worthwhile, and enabled GM3POI to win his section.

The Windmill Contest Group, G0FBB/P, staged a token entry to win the 6-hour multi-operator section with only two QSOs – they really need more competition in that section. Congratulations to Roger Piper, G3MEH, for winning the 24-hour single operator section with Jonathan Constable, M5FUN, in second place. Clive Penna, GM3POI, took the lead in the 6-hour section with John Lemay being forced into 2nd place.

As usual, all entries will be forwarded to ARI for inclusion in the Europe-wide Marconi contest results. *Andy Cook, G4PIQ*

**24 HOUR SINGLE OPERATOR FIXED**

| Pos | Callsign | Loc | Pts | QSO | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|
| 1* | G3MEH | IO91QS | 24275 | 79 | 400 | 2x10Y | F5VHX | 778 |
| 2* | M5FUN | JO00DX | 11158 | 41 | 100 | 12Y | DK2ZF | 706 |
| 3 | GW4HBK | IO81KP | 3534 | 23 | 200 | 9Y | ON4TX | 535 |

**6 HOUR MULTI OPERATOR**

| Pos | Callsign | Loc | Pts | QSO | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|
| 1* | G0FBB | JO01EI | 471 | 2 | 10 | 2x17Y | ON4TX | 291 |

**6 HOUR SINGLE OPERATOR**

| Pos | Callsign | Loc | Pts | QSO | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|
| 1* | GM3POI | IO88OW | 35834 | 38 | 400 | 18Y | DO5WD | 1305 |
| 2* | G4ZTR | JO01KW | 30966 | 77 | 150 | 2x9Y | GM3POI | 812 |
| 3 | G0TPH | IO92IO | 11286 | 36 | 25 | 9Y | F5FNY | 850 |
| 4 | G4CKHJ | O02UK | 9463 | 29 | 25 | 9Y | F5FNY | 718 |
| 5 | GM4WXP | IO78WA | 7949 | 17 | 300 | 9Y | SM5CUI | 1272 |
| 6 | G0DVJ | JO01MX | 7107 | 24 | 50 | 5Y | DK2ZF | 615 |
| 7 | M0BPQ/P | IO91XL | 6687 | 25 | 150 | 9Y | DK2ZF | 705 |
| 8 | G3JJZ | JO01AJ | 5414 | 23 | 25 | 8Y | F5FNY | 689 |
| 9 | G4XPE | IO92GU | 3170 | 16 | 25 | 10Y | PA3BAS | 483 |

* Certificate Winners

### VHF Championship, 2002

Three very clear winners emerged in this year's VHF Championship. In the Open and Single Operator sections, both winners managed to enter all of the championship events. The QRP section winner entered seven of the nine contests (the 23cm and 13cm Trophy contests are counted as one contest for the purposes of the VHF Championship). Only 23 stations out of a total of 121 participants in the Championship contests entered three or more of the events. These stations are listed in the table below.

Congratulations to the Five Bells Contest Group and to Roger Piper, G3MEH, for winning their respective sections for the third year running. Top honours in the Single Operator QRP section goes to Graham Coyne, G3YJR. The Leading Intermediate station award goes to James Beatwell, 2E1GUA. *Ian Pawson, G0FCT*

**VHF CHAMPIONSHIP 2002**

**Open Section**

| Pos | Name | Points | No of Contests |
|---|---|---|---|
| 1* | Five Bells Contest Group | 6130 | 9 |
| 2* | Colchester CG of Colchester RA | 3708 | 7 |
| 3 | A1 Contest Group | 3615 | 4 |
| 4 | Northern Lights CG | 2476 | 3 |
| 5 | Bracknell ARC | 1397 | 4 |
| 6 | M0AFC/P | 820 | 3 |
| 7 | GW8ASA/P | 624 | 5 |
| 8 | GW1ATZ/P | 463 | 3 |
| 9 | Newquay & District ARS | 396 | 4 |
| 10 | GW8ZRE/P | 386 | 3 |
| 11 | GM4WLL/P | 349 | 3 |
| 12 | Herstmonceux Megacycles CG | 316 | 3 |

**Single Operator, Fixed Section**

| Pos | Callsign | Points | No of Contests |
|---|---|---|---|
| 1* | G3MEH | 6899 | 9 |
| 2* | G4DEZ | 3963 | 5 |
| 3 | G0GCI | 1551 | 4 |
| 4 | G1KHX | 1026 | 4 |
| 5 | G4BRK | 1021 | 3 |
| 6 | G3YJR | 439 | 6 |
| 7 | M1DUD | 268 | 3 |
| 8* | 2E1GUA | 146 | 4 |

**Single Operator, Fixed, 25W/Single Antenna**

| Pos | Callsign | Points | No of Contests |
|---|---|---|---|
| 1* | G3YJR | 4563 | 7 |
| 2* | M1DUD | 2053 | 3 |
| 3* | 2E1GUA | 1290 | 4 |

* Certificate winner.

By Tim Kirby, G4VXE, Willowside, Bow Bank, Longworth, Abingdon, Oxfordshire OX13 5ER. E–mail: tim@g4vxe.com

## OCTOBER 2002 UHF/SHF CONTEST

Once again October proved to suffer from dreadful weather and propagation to match. This clearly put off a lot of prospective groups from going out portable, and the multi operator section was seriously depleted over previous years. Similarly, the newly introduced Single Operator Portable section was very poorly supported and will not be repeated for 2003.

On the other hand, there was a significant and welcome increase in the number of single operator home stations active in the event, reflecting the increasing sophistication of people's home microwave stations. Great to see at least two fixed stations making QSOs on 24GHz.

Congratulations to Neil Whiting, G4BRK, for leading the all band assault from his home station, leaving Neil Underwood, G4LDR, in second place. The South Birmingham RS staged an impressive 8-band entry on all bands to 47GHz in the multi operator section and soundly beat the Five Bells CG into second place. The single operator portable section ended up being a small 70cm only contest with Gordon Wyatt, GW8ASA/P, seeing off Stephen Bunting, M0BPQ/P.

***Andy Cook, G4PIQ***

### SINGLE OPERATOR FIXED OVERALL RESULTS

| Pos | Call | Loc | 432MHz | 1.3GHz | 2.3GHz | 3.4GHz | 5.7GHz | 10GHz | 24GHz | 47GHz | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1* | G4BRK | 91DP | 297 | 883 | 315 | 765 | 1000 | 1000 | 1000 | 0 | 5259 |
| 2* | G4LDR | 91EC | 0 | 84 | 134 | 1000 | 991 | 460 | 155 | 0 | 2825 |
| 3 | G3MEH | 91QS | 370 | 1000 | 1000 | 0 | 0 | 0 | 0 | 0 | 2370 |
| 4* | PE1EWR | 11SL | 624 | 354 | 301 | 0 | 0 | 0 | 0 | 0 | 1279 |
| 5 | G4DEZ | 03AE | 1000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1000 |
| 6 | G4NBS | 02AF | 69 | 626 | 0 | 0 | 0 | 0 | 0 | 0 | 695 |
| 7 | M0DDT | 91JR | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 |
| 8 | G0UPU | 91AX | 0 | 22 | 47 | 0 | 0 | 0 | 0 | 0 | 68 |
| 9* | 2E1GUA | 01FR | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 10 | G3YJR | 93FJ | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |

### SINGLE OPERATOR PORTABLE OVERALL RESULTS

| Pos | Call | Loc | 432MHz | 1.3GHz | 2.3GHz | 3.4GHz | 5.7GHz | 10GHz | 24GHz | 47GHz | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1* | GW8ASA/P | 81FP | 1000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1000 |
| 2* | M0BPQ/P | 91XL | 742 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 742 |
| 3 | G3WHK/P | 900R | 194 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 194 |

### MULTI OPERATOR OVERALL RESULTS

| Pos | Call | Loc | 432MHz | 1.3GHz | 2.3GHz | 3.4GHz | 5.7GHz | 10GHz | 24GHz | 47GHz | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1* | S Birmingham RS | 82QL | 17 | 730 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 6747 |
| 2* | Five Bells CG | 03CE | 176 | 1000 | 898 | 0 | 0 | 0 | 0 | 0 | 2073 |
| 3 | Colchester CG | 01PU | 1000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1000 |

Checklog: G3XDY.

### 432MHz SINGLE OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G4DEZ | 27662 | 1000 | 82 | 03AE | 400 | 2x28Y | DL0GTH/P | 789 |
| 2 | PE1EWR | 17263 | 624 | 57 | 11SL | 130 | 2x21Y | OK1KIM | 700 |
| 3 | G3MEH | 10244 | 370 | 43 | 91QS | 250 | 2x23Y | DF0WD | 624 |
| 4 | G4BRK | 8202 | 297 | 21 | 91DP | 60 | 21Y | DL0PVD | 730 |
| 5 | M0DDT | 2839 | 103 | 20 | 91JR | 100 | 21Y | ON4CP | 421 |
| 6 | G4NBS | 1919 | 69 | 9 | 02AF | 10 | 21Y | OT2D | 458 |
| 7 | 2E1GUA | 1114 | 40 | 7 | 01FR | 10 | 19Y | PA6NL | 253 |
| 8 | G3YJR | 501 | 18 | 4 | 93FJ | 10 | 19Y | M1CRO/P | 257 |

### 432MHz SINGLE OPERATOR PORTABLE

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | GW8ASA/P | 4403 | 1000 | 24 | 81FP | 50 | 23Y | PA6NL | 528 |
| 2 | M0BPQ/P | 3269 | 742 | 11 | 91XL | 100 | 21Y | DF2VJ | 550 |
| 3 | G3WHK/P | 854 | 194 | 8 | 900R | 20 | 7ZL | G4DEZ | 279 |

### 432 MHz MULTI OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | M1CRO/P | 77414 | 1000 | 209 | 01PU | 400 | 4x21Y + 2x21YHB9Z | | 779 |
| 2 | G5B | 13592 | 176 | 38 | 03CE | 100 | 2x28Y | DL0UL | 838 |
| 3 | G8OHM/P | 1342 | 17 | 9 | 82QL | 75 | 19Y | PA6NL | 463 |

### 1296MHz SINGLE OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G3MEH | 8345 | 1000 | 38 | 91QS | 50 | 4x44Y | DF0OL | 622 |
| 2 | G4BRK | 7366 | 883 | 26 | 91DP | 40 | 67Y | PA6C | 577 |
| 3 | G4NBS | 5221 | 626 | 20 | 02AF | 30 | 4x23Y | DL5DAW/P | 523 |
| 4 | PE1EWR | 2950 | 354 | 19 | 11SL | 10 | 2x25QLY | G5B | 295 |
| 5 | G4LDR | 702 | 84 | 5 | 91EC | 8 | 55Y | G3PHO/P | 247 |
| 6 | G0UPU | 180 | 22 | 4 | 91AX | | | G8JVM | 82 |

### 1296MHz MULTI OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G5B 9158 | 1000 | 34 | 03CE | 5016 | x23Y | DL5DAW/P | 540 | |
| 2 | G3OHM/P | 6684 | 730 | 35 | 82QL | 150 | 8x23Y | DK0HN | 683 |

### 2320MHz SINGLE OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G3MEH | 3705 | 1000 | 18 | 91QS | 10 | 2x67QLY | PA0EZ | 403 |
| 2 | G4BRK | 1167 | 315 | 6 | 91DP | 30 | 0.8m | PA5DD | 444 |
| 3 | PE1EWR | 1116 | 301 | 7 | 11SL | 7 | 25Y | G5B | 295 |
| 4 | G4LDR | 498 | 134 | 4.5 | 91EC | 35 | 66QLY | G3OHM/P | 168 |
| 5 | G0UPU | 173 | 47 | 3 | 91AX | 1 | 0.6m | G8JVM | 82 |

### 2320MHz MULTI OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G3OHM/P | 2157 | 1000 | 13 | 82QL | 70 | 1.2m | PA6NL | 463 |
| 2 | G5B 1936 | 898 | 8 | 03CE | 100 | 0.9m | PA6C | 417 | |

### 3400MHz SINGLE OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G4LDR | 570 | 1000 | 4.5 | 91EC | 0.25 | 0.9m | G3XDY | 223 |
| 2 | G4BRK | 436 | 765 | 4 | 91DP | | | G3XDY | 206 |

### 3400MHz MULTI OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G8IFT/P | 1771 | 1000 | 10 | 82QL | 30 | 1.2m | PA6NL | 463 |

### 5700MHz SINGLE OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G4BRK | 784 | 1000 | 5 | 91DP | | | G3LRP | 219 |
| 2 | G4LDR | 777 | 991 | 5 | 91EC | 15 | 0.9m | G3PHO/P | 247 |

### 5700MHz MULTI OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G8IFT/P | 1469 | 1000 | 8 | 82QL | 15 | 1.2m | PA6NL | 463 |

### 10,368MHz SINGLE OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G4BRK | 2798 | 1000 | 16 | 91DP | 10 | 0.8m | PA5DD | 444 |
| 2 | G4LDR | 1287 | 460 | 11 | 91EC | 8 | 0.9m | G3PHO/P | 247 |

### 10,368MHz MULTI OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G4MAP/P | 3084 | 1000 | 19 | 82QL | 10 | 0.9m | PA6NL | 463 |

### 24,000MHz SINGLE OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G4BRK | 103 | 1000 | 1 | 91DP | 0.5 | 0.8m | GW3UKV/P | 103 |
| 2 | G4LDR | 16 | 155 | 0.5 | 91EC | 1u | 0.9m | G8ACE/P | 33 |

### 24,000MHz MULTI OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G8IFT/P | 69 | 1000 | 1 | 82QL | 0.3 | 0.3m | GW3UKV/P | 69 |

### 47,000MHz MULTI OPERATOR

| Pos | Callsign | Score | Norm | QSO | Loc | Pwr | Ant | Best DX | km |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G8IFT/P | 34 | 1000 | 0.5 | 82QL | 100u | 0.6m | GW3UKV/P | 69 |

## 144MHz AFS 2002

Entries for this contest were up this year, although scores were generally the same or slightly down on last year. However, some entrants, notably G1ZJP, G3MEH and G8HGN, did manage to improve their score. Once again the Northern Lights head the multi-operator section from the Isle of Man. Bryn, G4DEZ, takes over from an absent G4PIQ this year to take honours in the single-op section.

The geographical spread of entries is very much biased to the east of the UK, with only four entries from the IO80 and one from the IO70 locator lines – yet the highest score came from the most westerly station.

In the AFS section the Colchester RA have made a surge up the table to top spot this year, just beating Chesham & DARS into second place. It's the breadth of good scores across the whole team that counts in the overall results, although the Five Bells group managed a very creditable third place with only three members in their team.

Congratulations to all winners and runners-up and to John, G4ZTR, as the highest placed 25W station.

***Pete Lindsay, G4CLA***

### AFFILIATED SOCIETIES SECTION

| Pos | Club | Call | Norm | Call | Norm | Call | Norm | Call | Norm | Call | Norm | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Colchester RA A | G4ZTR | 552 | G1OGY | 563 | M0NAS | 714 | G0HKG | 969 | M0UTH | 1,000 | 3,798 |
| 2 | Chesham & DARS | G3MEH | 702 | G0XDI | 695 | G0ODQ | 1,000 | G0VFW | 1,000 | G1ABW | 311 | 3,708 |
| 3 | Five Bells CG | G4SIV | 1,000 | G1ZJP | 1,000 | G4NPH | 740 | – | – | 2,740 | | |
| 4 | Harwich ARIG A | G0DVJ | 387 | M0CGE | 133 | M0ZZO | 465 | G4EYE | 717 | M0GIM | 602 | 2,305 |
| 5 | Harwell ARS | M0CUL | 372 | G4HLX | 241 | G0AOZ | 651 | G0THY | 445 | M0DDT | 408 | 2,118 |
| 6 | Sutton & Cheam RS | G3WHK | 261 | G1POK | 282 | G0TXL | 478 | G3OLX | 367 | G3ORE | 326 | 1,714 |
| 7 | Wythall RC | G1WAC | 125 | M0COP | 133 | G6ZDQ | 435 | G0EYO | 408 | G4VPD | 544 | 1,645 |
| 8 | Clifton ARS | G7ULL | 276 | G0UJK | 172 | M0BPQ | 367 | G0UXM | 454 | G4TJE | 367 | 1,636 |
| 9 | Cray Valley RS | G4BUO | 85 | G3JJZ | 84 | G0BRV | 100 | G0WLF | 151 | G8ITB | 125 | 545 |
| 10 | QRZ AR Group of Sussex | M5FUN | 305 | G3YNN | 99 | – | – | – | | | | 404 |
| 11 | Mid Sussex ARS | G0APZ | 218 | G3JMB | 78 | – | – | – | | | | 296 |
| 12 | Reigate ATS | G8JXV | 157 | G3YSX | 20 | – | – | – | | | | 177 |
| 13 | West Kent ARS | G0GCI | 173 | – | – | – | – | | | | | 173 |
| 14 | Sheffield ARS | G0HSA | 151 | – | – | – | – | | | | | 151 |
| 15 | Ariel Radio Group (BBC) | G7BBC | 65 | G6XDI | 60 | – | – | – | | | | 125 |
| 16 | Yorkshire Cluster Support Group | G4OBK | 92 | – | – | – | – | | | | | 92 |
| 17 | Colchester RA B | G3FIJ | 59 | 2E1GUA | 10 | G4SOB | 7 | – | – | | | 76 |
| 18 | Wythall RC B | M5UGC | 41 | M0AEJ | 13 | M5DUO | 2 | – | – | | | 55 |
| 19 | Dacorum ARTS | G0TPK | 45 | – | – | – | | | | | | 45 |
| 20 | Harwich ARIG B | 2E1XJR | 16 | M3DZT | 3 | – | – | – | | | | 19 |
| 21 | Harwell ARS B | M0CJP | 11 | – | – | – | – | | | | | 11 |

### INDIVIDUAL SECTION

**Multi Operator**

| Pos | Call | Loc | QSOs | Points | Best DX | Loc | Dist | Power | Ant |
|---|---|---|---|---|---|---|---|---|---|
| 1 | GD0EMG | IO74QD | 212 | 85200 | DC8BP | JO310D | 864 | 400 | 2x17+8x9 |
| 2 | G4SIV | IO92ws | 208 | 59345 | DL9NEF | JN590P | 861 | 400 | 4x12 |
| 3 | G7ULL | JO01AK | 109 | 16388 | DG7TG | JO43SV | 696 | 150 | 11 |
| 4 | G3WHK | IO91VJ | 116 | 15486 | HB9RDE | JN37LI | 686 | 160 | 16 |
| 5 | G1POK | IO91VI | 118 | 14483 | GM4PPT | IO75SK | 534 | 100 | 13 |
| 6 | G0HSA | IO93GI | 44 | 8954 | F6CBH | JN19BH | 514 | 180 | 9 |
| 7 | G0VFW | IO91RR | 92 | 8737 | PA0PVW | JO22VA | 436 | 150 | 13 |
| 8 | G3BPK | IO83QN | 34 | 6769 | ON6ZT | JO10SS | 522 | 100 | 17 |
| 9 | G1ABW | IO91RS | 22 | 1626 | GD0EMG | IO74QD | 380 | 25 | 5 |

**Single Operator Fixed**

| Pos | Call | Loc | QSOs | Points | Best DX | Loc | Dist | Power | Ant |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G4DEZ | JO03AE | 226 | 72112 | DF0HF | JO50SF | 857 | 400 | 2x12 |
| 2 | G1ZJP | IO92WV | 171 | 51328 | DL9NEF | JN590P | 866 | 400 | 4x12 |
| 3 | G3MEH | IO91QS | 198 | 41649 | DL9NEF | JN590P | 865 | 400 | 2x10 |
| 4 | G0XDI | IO91RP | 177 | 35681 | DL9NEF | JN590P | 857 | 400 | 9 |
| 5 | G8HGN | JO01FO | 157 | 33641 | DL9NEF | JN590P | 788 | 150 | 2x15 |
| 6 | G4ZTR | JO01KW | 142 | 32763 | DL9NEF | JN590P | 769 | 25 | 12 |
| 7 | G1OGY | JO01GR | 166 | 28892 | DL9NEF | JN590P | 786 | 350 | 2x9 |
| 8 | MW1MFY | IO81FL | 107 | 26878 | ON4PS | JO20KQ | 594 | 400 | 9 |
| 9 | G0DVJ | JO02OD | 106 | 22950 | DL9NEF | JN590P | 754 | 50 | 17 |
| 10 | M0CUL | IO91JO | 147 | 22106 | HB9RDE | JN37LI | 755 | 150 | 14 |
| 11 | M5FUN | JO00DX | 127 | 18102 | HB9RDE | JN37LI | 630 | 100 | 12 |
| 12 | G8VYK | JO01FO | 104 | 14815 | DL5YET | JO41EV | 546 | 100 | 17 |
| 13 | PE1EWR | JO11SL | 57 | 14802 | GD0EMG | IO74QD | 623 | 80 | 10 |
| 14 | G0DDQ | IO91NQ | 104 | 13894 | MM1BXF | IO76PA | 543 | 120 | 11 |
| 15 | G0APZ | IO90WW | 79 | 12927 | HB9RDE | JN37LI | 651 | 100 | 8 |
| 16 | G4HLX | IO91FP | 89 | 12386 | F1CKB | IN97SL | 470 | 100 | 13 |
| 17 | G8ZRE | IO83NE | 55 | 10997 | F6CBH | JN19BH | 554 | 80 | 8XY |
| 18 | G0GCI | JO01ED | 85 | 10292 | DL9NEF | JN590P | 785 | 150 | 9 |
| 19 | G4NPH | JO02BI | 57 | 10282 | HB9RDE | JN37LI | 740 | 100 | 9 |
| 20 | M0NAS | JO01HW | 88 | 9919 | DG9YIH | JO32QI | 463 | 100 | 9 |
| 21 | G8JXV | IO91WE | 86 | 9303 | GD0EMG | IO74QD | 447 | 100 | 9 |
| 22 | G0AOZ | IO91GQ | 82 | 9048 | F6CBH | JN19BH | 366 | 160 | 16 |
| 23 | G0UJK | JO01AK | 91 | 8807 | PD4HDB | JO32HN | 468 | 60 | 11 |
| 24 | G0HKG | JO01IV | 71 | 8463 | DL4VAI | JN39PJ | 541 | 100 | 7 |
| 25 | G0RRC | JO02MB | 57 | 8128 | DL2GWZ/P | JN48ES | 635 | 50 | 14 |
| 26 | G1WAC | IO92BJ | 49 | 7427 | ON4LN | JO20IV | 484 | 100 | 18 |
| 27 | M0CGE | JO01OV | 52 | 6850 | HB9RDE | JN37LI | 653 | 50 | 9+5ZL |
| 28 | M0COP | IO92BK | 62 | 6825 | ON6ZT | JO10SS | 417 | 100 | 8o8 |
| 29 | G0TXL | IO91WI | 80 | 6647 | GD0EMG | IO74QD | 434 | 20 | 9 |
| 30 | M0ZZO | JO01PW | 47 | 6463 | DF2VJ | JN39LI | 492 | 50 | 4 |
| 31 | G4EYE | JO01OV | 43 | 6263 | DL9NEF | JN590P | 746 | 50 | 9+2 |
| 32 | G6ZDQ | IO92BJ | 57 | 6040 | ON6ZT | JO10SS | 415 | 50 | 9 |
| 33 | G4OBK | IO94OF | 21 | 5475 | ON6ZT | JO10SS | 483 | 100 | 9 |
| 34 | M0UTH | JO01HU | 52 | 5227 | GD0EMG | IO74QD | 434 | 60 | 12 |
| 35 | M0BPQ | IO91XL | 50 | 5099 | DL9NEF | JN590P | 819 | 180 | 9 |
| 36 | G4BUO | JO01CD | 51 | 5072 | GD0EMG | IO74QD | 466 | 25 | 9 |
| 37 | G3YNN | JO00EU | 43 | 5059 | HB9RDE | JN37LI | 617 | 25 | 9 |
| 38 | G3JJZ | JO01AJ | 62 | 4305 | GD0EMG | IO74QD | 438 | 25 | 8 |
| 39 | G3JMB | IO91WA | 41 | 3993 | HB9RDE | JN37LI | 656 | 20 | 7 |
| 40 | G0UXM | IO91TB | 45 | 3967 | GD0EMG | IO74QD | 447 | 80 | 11 |
| 41 | G0THY | IO91IT | 36 | 3891 | ON6ZT | JO10SS | 355 | 25 | 9 |
| 42 | G7BBC | IO91UM | 48 | 3831 | GD0EMG | IO74QD | 412 | 25 | 19 |
| 43 | G0EYO | IO92BJ | 31 | 3561 | GD0EMG | IO74QD | 267 | 50 | 11 |
| 44 | G3FIJ | JO01KV | 42 | 3511 | GD0EMG | IO74QD | 445 | 15 | 10 |
| 45 | G3OLX | IO91VH | 53 | 3205 | GD0EMG | IO74QD | 433 | 25 | 13 |
| 46 | M0GIM | JO01MX | 35 | 3149 | GD0EMG | IO74QD | 449 | 50 | 5 |
| 47 | G6XDI | IO91SM | 40 | 3084 | GD0EMG | IO74QD | 404 | 25 | 7ZL |
| 48 | G4VPD | IO92BJ | 20 | 2844 | ON6ZT | JO10SS | 415 | 100 | 17 |
| 49 | G0TPK | IO91RS | 36 | 2668 | GD0EMG | IO74QD | 380 | 25 | 9 |
| 50 | M5UGC | IO92BK | 18 | 2406 | ON6ZT | JO10SS | 417 | 50 | 6o6 |
| 51 | M0DDT | IO91JR | 20 | 2131 | GD0EMG | IO74QQ | 353 | 25 | 2 |
| 52 | G4TJE | JO01AK | 31 | 1917 | ON6ZT | JO10SS | 255 | 50 | 4 |
| 53 | G3ORE | IO91VI | 35 | 1702 | ON6ZT | JO10SS | 270 | 100 | 8Q |
| 54 | G0BRV | JO01AJ | 22 | 1386 | GD0EMG | IO74QD | 438 | 25 | 8 |
| 55 | G0WLF | IO91WJ | 38 | 1316 | G1ZJP | IO92WV | 167 | 25 | vertical |
| 56 | G3YSX | IO91WF | 18 | 1023 | G4DEZ | JO03AE | 218 | 25 | 9 |
| 57 | 2E1XJR | JO01PW | 19 | 973 | ON6ZT | JO10SS | 203 | 10 | 7 |
| 58 | M0CJP | IO91IQ | 10 | 680 | MW1MFY | IO81FL | 158 | 20 | Vert |
| 59 | M0AEJ | IO92BK | 9 | 657 | GD0EMG | IO74QD | 264 | 40 | 5ZL |
| 60 | G8ITB | JO01AI | 17 | 654 | M0CUL | IO91JO | 91 | 25 | Halo |
| 61 | G0VQR | IO91NK | 10 | 574 | G4DEZ | JO03AE | 204 | 10 | 7 |
| 62 | 2E1GUA | JO01FR | 10 | 501 | G4SIV | IO92WS | 122 | 10 | 13 |
| 63 | M3DZT | JO01PW | 10 | 148 | G0HKG | JO01IV | 40 | 3 | 5o5 |
| 64 | G4SOB | JO01KV | 6 | 99 | G0DVJ | JO02OD | 36 | 4 | Vert |
| 65 | M5DUO | IO92BM | 2 | 28 | G1WAC | IO92BJ | 14 | 50 | 9 |

**Single Operator**

| Pos | Call | Loc | QSOs | Points | Best DX | Loc | Dist | Power | Ant |
|---|---|---|---|---|---|---|---|---|---|
| 1 | G0WJR/M | IO81QJ | 25 | 3799 | GD0EMG | IO74QD | 334 | 40 | 7ZL |
| 2 | G3VQO/P | IO91VG | 20 | 791 | G4SIV | IO92WS | 167 | 50 | Whip |

By Bob Treacher, BRS32525, 93 Elibank Road, Eltham, London SE9 1QJ. E-mail: brs32525@compuserve.com

# SWL

G B0FMF, a special event station from 2001, takes pride of place this month for sending me my own QSL card back with "Not wanted" stamped on it. I have commented on the QSLing practices of GB stations in many issues over the last year or so, but this is the first time the 'unfriendly' side of special event stations has struck BRS32525. That is because I do not, as a rule, send QSL cards to special event stations. However, the reason for QSLing a few GB stations while we were in GW in 2001 was so that I might have a QSL card from G for the SWL DXCC that I hope to claim. Unfortunately, the GB0FMF QSL will not feature in my DXCC claim. I am disappointed to have met the vexed question of 40m special event stations and short wave listeners.

On a more positive note, I thank in this column the Poldhu ARC for their GB2LZL QSL, the Cockenzie & Port Seton ARC for their GB2LBN card, and the Wirral ARC for their GB2NBL card. One of yours will be in my DXCC claim!

## BACK ON LINE

With no explanation of what caused my eight weeks away from the Internet and e-mails, I am pleased to say that the difficulties have now been resolved. The brs32525@compuserve.com mailbox is now available for your news. I look forward to a bumper mailbag in time for the December issue.

## THE MONTH IN REVIEW

Only one report to mention and that is the one from my regular reporter, Robert Small, BRS8841. His last report bemoaned the poor state of the bands, but his September report was more upbeat, suggesting that conditions seemed to be showing slight signs of improvement. He noted that several interesting DXpeditions had helped, but he had logged five 'new ones' since his last report. He considered that things on the low bands were starting to look up, with some useful DX audible. However, on the other hand, HF – where most listeners spend most of their time – conditions had been pretty poor. He reports that on many days no signals had been heard on 10, 12 or 15m.


*QSL card from the 2001 3B6RF Agalega (Indian Ocean) DXpedition.*

Looking at Robert's successes, he logged TZ6RD for a new one on 80m CW, heard A61AR and TY2BN on 40m CW, and three new countries on 30m – JD1YAB (Ogasawara), TU2MA and S61FD (Singapore). Robert also logged a new one on 20m CW, thanks to V63SXW on Yap Island. Other DX heard on 20m included ZB3A, HI3TEJ, V73T, KG4NL, YI9R & VK9XAB. 17m had been disappointing, with 15m faring only marginally better. Surprisingly, VK9XAB was heard on 12m, together with some short skip Europeans.

## LOOKING FORWARD

The *CQ* WW DX Phone contest will probably have taken place before you read this. I can only hope that there was sufficient DX to keep everyone interested. No matter what the conditions, the *CQ* Phone contest is wall-to-wall activity. It is an ideal event in which to listen. If you only have 100, or even 200 DXCC entities logged, the contest is bound to have brought you a few new ones. With so much activity, if you want to send a QSL card to some of the better DX you hear, make sure that you search for the correct QSL information, as almost all the big DXpeditions will be using a QSL manager to look after their cards. Don Field, G3XTT, mentioned the invaluable ng3k website in his 'HF' column last month. If you intend to send QSL cards, check out that site for all the latest QSL information.

With the winter DX season around the corner, and with the sunspot minimum getting closer, the low bands should be better this year. It should be more rewarding listening on those bands from now until about February 2004. There are bound to be some DXpeditions about that will spice the low bands up quite nicely. If you hear any good low band DX in the next few months, do not be afraid to let me know. The best times for us are invariably around our sunrise and sunset. If you take a quality daily newspaper, you will find sunset and sunrise details given there.

## LAST TWO, QRZ?

Finally, who thinks that the practice of 'last two' is spoiling a listener's ability to identify and log two or three QSOs quickly? For a start, I do! In the past, an SWL could tune across a band and hear a moderately interesting DX station calling CQ. Two or three stations might call the DX station giving their own callsign and the DX station would make contact with them exchanging a report. In such circumstances, the SWL would, in a matter of minutes, have two or three callsigns of stations who worked the DX station, and could easily fill out his/her SWL card and move on to find another DX station.

Nowadays, with the advent of packet, a moderately rare DX station calls CQ, he is spotted on the packet, and suddenly there are 20 stations giving parts of their callsigns, hoping to complete a QSO. The frequency is something of a mess, and the poor SWL is left monitoring the frequency waiting for the pile-up to subside so that the DX station can attempt to complete a QSO. The SWL is left helpless and it might take a reasonably well-equipped SWL five minutes to log his two or three QSOs so he can send a worthwhile report.

What can be done? Actually, there is nothing that the poor SWL can do. He just has to sit at his/her receiver impatiently, and wait! Is this the next topic in 'SWL' that will run and run? ◆

# VHF/UHF

The rejection of claims for the Brendan Trophies by Mr and Mrs Dutkewych mentioned in the October 'VHF/UHF' has resulted in a lively e-mail discussion on how a terrestrial trans-Atlantic 2m QSO could be completed: this is the subject of this month's theme. So far over 200 postings have been sent to the vhf-dx-discuss@blacksheep.org forum, which began with the suggestion that propagation involving meteor scatter (MS) might enable a qualifying QSO to be achieved.

During the Perseids showers in 1979 and 1980 teams including Chris Bartram, G4DGU/P; David Butler, G4ASR; Ian White, G3SEK, and Bryn Llewellyn, G4DEZ, carried out tests from south-west England with VE1ASJ in which brief MS-type signals were definitely identified. These tests were reported in *RadCom* [1], [2].

The discussion then expanded to consider tropospheric mode bearing in mind that the distance (QRB) from Western Ireland to Newfoundland is less than that between Southwest Scotland and the Canary Islands and which has resulted in a number of 2m contacts. Also there are many instances of 2m tropo QSOs between stations in the Hawaiian Islands and the West Coast of North America, well in excess of 4000km. The consensus was that while these long ducts over the sea do occur at certain latitudes, the likelihood of their happening over the frequently-disturbed North Atlantic is fairly remote.

Multi-hop Sporadic E (Es) certainly occurs on 6m and has recently been reported on 3m [3] but could it happen at 2m? A problem highlighted in this 'thread' was the lack of stations in North America beaming to the east and those in Western Europe beaming across the Atlantic. This led to a lengthy discussion on the merits of a system such as the BEACONet project – see the list – which was discussed by Ev Tupis, W2EV. See also [4].

Another possible mode is auroral-E. There have been reports over the years of long distance reception of low power Band 2 FM broadcasts across northern Canada so one wonders if it is a mode that occurs fairly frequently? But here again, there are very few 2m operators either side of the Atlantic at these high latitudes who could explore this phenomenon. At the time of writing, this fascinating discussion is continuing. To join the group send an e-mail to: majordomo@blacksheep.org

**ANNUAL VHF/UHF TABLE – JAN TO DEC 2003**

| | 50MHz | | 70MHz | | 144MHz | | 430MHz | | 1.3GHz | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Callsign | Dist | Ctr | Dist | Ctr | Dist | Ctr | Dist | Ctr | Dist | Ctr | Points |
| G4DEZ | 91 | 69 | 33 | 7 | 102 | 26 | 52 | 12 | 20 | 9 | 421 |
| G3FIJ | 28 | 27 | 34 | 4 | 54 | 10 | 23 | 4 | – | – | 184 |
| M5MUF | 21 | 41 | 31 | 8 | 34 | 9 | – | – | – | – | 144 |
| G4APJ | 20 | 18 | – | – | 42 | 7 | 37 | 8 | – | – | 132 |
| G6TTL | 2 | 28 | – | – | 59 | 10 | 17 | 6 | – | – | 122 |
| M3CLY | 4 | 12 | – | – | 14 | 8 | 5 | 2 | – | – | 45 |
| G8RWG | – | – | – | – | 27 | 18 | – | – | – | – | 45 |
| G1UGH | 2 | 10 | – | – | 6 | 2 | – | – | – | – | 20 |

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 11 November.

## RESEARCH

One who has devoted many years to tropo mode investigation is Austin Uden who has produced two booklets on the subject. The first is *Your quick-check guide to tropo weather DX forecasting* in which he describes how to use cloud observation, the shipping bulletins and broadcasts from meteorological stations to forecast possible DX openings. It includes a useful 'Question and Answer' section.

The companion booklet is *The barometer and DX* in which he discusses the importance of interpreting atmospheric pressure and weather front patterns and analyses some past major events. Both booklets are well illustrated and include data and ideas sometimes glossed over in the propagation chapters of amateur publications, eg the effects of specific wind patterns. The author would welcome detailed reports from DXers to augment his data. His address for inquiries is 12 Hampden Close, Aylesbury HP21 8NS.

## SOLAR AND GEOMAGNETIC DATA

In the 30 days to 16 September the 10.7cm radio flux was below 100 units in the last nine. It peaked at 126 on 27 August, the lowest value being 94 on 12 September. The daily average was 109.1. The SESC sunspot numbers are now well down and were above 100 on only 11 days. The maxima of 146 were on 25 and 28 August and the minimum value was just 42 on 10 September. The number of new sunspot regions was 26.

In the same period the geomagnetic middle latitude data show that the A-index was in the sub-storm band on three days, in the unsettled category on 14 days the remainder being quiet. The maximum value at Fredericksburg was 29 on 21 August. At the high latitude of College in Alaska the A-index was well into the storm category in the 70s in the 21-23 August period. These data are obtained from the US Department of Commerce's NOAA Space Environment Center website – see the list. [NB: The URL works fine on CompuServe/Windows 95 but not on AOL/Windows XP; does anyone else have difficulty with this 'gopher' as opposed to 'http' URL? – G3FPK]

It seems that funding for the Space Environment Center is likely to be drastically cut leading to the loss of much valuable and essential data to many commercial as well as amateurs users. For example, warnings of coronal mass ejections are vital to all communication satellite operators, to mention just one phenomenon. The SEC staff would appreciate all the support they can get so please e-mail SEC.Webmaster@noaa.gov to confirm how important its data are for research purposes.

## TRANSMISSION QUALITY

Walter Blanchard, G3JKV, writes, "I am a participant in the Backpackers series of contests and the last two sessions have been somewhat spoilt for me by fixed high-power stations coming on with the no doubt laudable intention of giving out a few points but in fact wiping out large segments of the band with noise and splatter." He continues, "There is something about high-power linears that seems prone to do this – I don't know if they're being overdriven or if it's a weak PSU or simply poor design." So he asks those running high power to check their modulation very carefully.

Having myself often suffered from such interference at G3FPK from stations many miles away, it has frequently transpired that a minor adjustment to the drive level to the amplifier, the setting of the mic gain, or the loading of the PA when valves are used, can result in a far better signal. Much has been written about the design and operation of high-power VHF amplifiers and their power supplies [5] so there really is no excuse for anyone, perhaps unintentionally, polluting the bands.

## BAND REPORTS

### 50MHz

Ted Collins, G4UPS (IO81), was QRV in the aurora on 18 August his first QSO being with GD0TEP* (IO74) at

By Norman Fitch, G3FPK, 40 Eskdale Gardens,
Purley, Surrey CR8 1EZ. E-mail: g3fpk@compuserve.com

PHOTO: DR RUSSELL COCKMAN

***Left: The visual aurora of 22 August, as photographed near Edinburgh by Russell Cockman. This and numerous other aurora pictures can be seen on the www.spaceweather.com website***

## MOONBOUNCE

In the September *432 and Above EME News* the lead comments concern activity which appeared to slump this summer. It is suggested that because more EME-ers are making skeds via the Internet throughout the month there is less support for the concept of a sked weekend (SW). Editor Al Katz, K2UYH, suggests there should continue to be activity weekends (AW) in which everyone should try to be QRV even if they don't have any skeds.

Jonathan Naylor, G4KLX (ex-HB9DRD), is preparing for 23cm operation starting with 100W, and a 3 or 4m dish with septum feed. A 350W PA using a GS15B valve is planned. He has a long-standing interest in JT44 and has written a version for the Linux operating system and is working on JT44 for Mac users. His LinWSJT is available from his website – see the list.

Congratulations to Peter Blair, G3LTF (IO91), who filled a lifetime ambition by completing on 23cm on 30 July with ZL1KA for initial #195. They only had a 20min window and exchanged M/M reports fairly easily. Although he was only using 70W Brent was a good signal. Howard Ling, G4CCH (IO93), has been very busy and his latest 23cm activity report on his website – see the list – covers July. Back on 26 June he completed with OM6AA*, O/339, for the first G/OM QSO on the band. It was his 178th initial and 34th DXCC entity.

David Hilton-Jones, G4YTL (IO91), reports that his four 5-wavelength DJ9BV antenna array for 2m was damaged in a storm at the end of last year. He plans to replace it with four 4.5-wavelength I0JXX crossed Yagis. To keep in touch he is currently using JT44 mode and a single 5-wavelength M2 Yagi. He finds QSO partners on the Internet – see the list. David strongly recommends that people experiment if they have never listened to EME before. He writes, "With a 3-wavelength Yagi they would be able to copy QSOs and complete QSOs with the bigger stations. They can operate successfully with the Moon up to about 12° above the horizon, which gives over an hour at moonrise and moonset."

In the 2-5 July AW GW4DGU (IO71) completed on 2m JT44 with new initials AA7A (DM43), K2TXB (FM29) and I6BQI (JN72). Chris had a repeat QSO with UA4AQL (LO20). The second leg of the ARRL EME Contest is on the 15/16 November when London latitude stations will have 30.7 hours of Moon time. The declination varies from +25.52° to +19.16° and the signal degradation referred to perigee ranges from -1.46dB to -1.06dB. The 144/432MHz sky temperature range is 259/19K to 200/15K.

1558. He lists 11 stations worked on CW in DL, EI, G, GD, GM, ON and SM until close down at 1810. From 2043 he reports auroral-E conditions bringing contacts with LA8LA*, LA5KW* and LA9JKA (JP32) and LA4GHA (JP50). Beacons copied were GB3LER, GB3RMK, JW9SIX, JX7SIX, OH9SIX and OY6SMC.

The 23rd brought an Es opening from 1830 to Scandinavia and the Balkans and QSOs with OZ3ZW (JO54), OH3MF* (KP20), LY1CX* and LY500BH* (KO25), IZ3BJA* (JN65) and OK1HBT* (JN78) with rapid fade-out at 2000. In September, up to the 16th, only on the 13th was there any DX, when Ted worked three Italians via Es in a brief opening from 1223. Steve White, G3ZVW (IO91), completed SSB auroral QSOs with GM7PBB (IO68), MM5AJW (IO88) and GM8EOG (IO86) between 1700 and 1720 on 21 August.

Welcome to Chris Plummer, G8APB (IO83), who has been QRV from oil rigs in JO06 and JO07 in recent years. He runs an IC-756PRO MkII to a 3CX800A amplifier with stacked 5-el Yagis 50ft AGL. On 19 July an evening Es opening brought contacts with EH8 (IL18), OH/G1UZD (KP10) and VE1YX (FN74). In the super opening to North America on 21 July from 1320 he worked 31 Ws in the 1-5 call areas in FM and FN fields, 16 grids in all. The evening brought QSOs with UX0FF (KN45), UY5HF (KN66), three SPs and MU0FBO/MM (IN63).

Mike Johnson, M5MUF (IO92), caught the morning Es opening on 20 August working SP9WJS*, SP7BBF* (JO91) and IS0/F6IRF (JM48). In the evening he contacted EH7BYM (IM66). In the evening of the 23rd SP8AWL (KO11) was worked and next morning he completed on MS with F6FHP (IN94) using JT6M.

In the big aurora on 18 August Clive O'Hennessy, GM4VVX (IO78), was looking for new grids but found none. He worked DL, EI, G, OH, OZ, SM and SP stations, DL and OH being new countries on 6m aurora. The Es event on the 23rd from 1920 brought QSOs with F, HB9, IW and OK stations.

In the September VHF/UHF I mentioned that Dave Jarrett, G4DCJ, had been awarded his 50MHz DXCC certificate. He also achieved the Worked All Continents (WAC) certificate in 2002, that also taking 10 years. But on checking his log for 2002 he found he had worked all continents last year concluding, "What an extraordinary year 2002 was."

## 70MHz

GM4VVX was surprised to be called by OZ2LD* (JO54) at 1545 in the big aurora on 18 August as Clive was not aware that Danish amateurs had access to the band. In the auroral-E opening from 2220 he had QSOs with OZ2M*, OZ1DJJ* and OZ3SW (JO65), OZ3ZW* (JO54) and OZ3K (JO45). M5MUF's sole Es DX was S57LM* (JN76) at 1918 on 23 August.

## 144MHz

Geoff Grayer, G3NAQ (IO91), was QRV for three hours in the IARU contest on 7/8 September. He worked over 50 stations ODX being TM8MB (JN35) at 866km. Others over 700km were HB9/EA2URE/P and TM1Y (JN36), DK0TR (JO40) and DL0MWW (JO41) in average conditions.

In the excellent tropo opening on 15 September, Bryn Llewellyn's, G4DEZ (JO03), ODX was YL3AG but he reckons that the August opening was better. Commenting on his contact with TF/G4ODA (IP34) on 18 June, Tim Fern, G4LOH (IO94), says he is confident that the mode was auroral-E due to it's slightly reverbarative quality which sounded like Keith was operating in a large auditorium. Paul Pasquet, G4RRA (IO80) heard this QSO and agrees it was auroral-E. Tim has now moved to IO70 and his swan song QSOs were a tropo contact on 8 August with EA8BPX (IL18) at 3089km, FSK MS contacts with UA3ARC (KO85/2481km), RU3ACE (KO95/2577km) and next day RW3PF (KO93/2595km) for MS ODX. Those last three were aided by strong tropo across the North Sea.

GM4VVX completed on MS using

HSCW with SM2CEW (KP15) in the early morning of 16 August, with constant tropo backscatter, for a new grid. On the 18th from 0700 in the strong aurora he contacted DL, GM, LA, OZ and SM stations. Clive had another session from 1200 and an hour's operation brought QSOs with DL, G, GM, GW, LA, OH, OZ, PA and SM stations. More auroral activity occurred on the 21st and 22nd. On 7 September he was out portable at IO78VB for the Trophy Contest and made 44 QSOs, ODX being G4RRA at 811km.

Brian Clowes, GW4HBZ/P (IO83), using 300W to an 18-ele Yagi 500m ASL worked some EAs in the morning of 14 September and EA1VHF was audible when he was beaming at Scandinavia. In the evening some weak SMs and EB8BTV were worked. Next morning the band appeared flat but SM1MUT (JO97) was copied. He writes, "2m is still interesting after 35 years. No two tropo openings are quite the same. It pays to swing the beam around and listen carefully."

## WEB SEARCH

| | |
|---|---|
| **BEACONet** | http://www.PropNET.org |
| **Solar & geomagnetic data** | gopher://solar.sec.noaa.gov |
| **LinWSJT (G4KLX)** | http://www.qsl.net/g4klx |
| **G4CCH EME news** | http://www.g4cch.com |
| **JT44 EME partners** | http://www.chris.org/cgi-bin/jt44eme |
| **Space Weather CD-ROM** | http://www.df5ai.net |

Jamie Ashford, GW7SMV (IO81), lists 32 tropo SSB QSOs made in the 7-16 September period. ODX was EB3GEK (JN01) at 1176km and F0DJK (JN15) was a new grid on the 13th. Other contacts over 1000km were with EB3EXL/P (JN02) and OZ1IEP (JO55). M5MUF completed 65 contacts in the Trophy Contest ODX being DK0LT (JO31) at 554km. Mike spent a few days in Guernsey as MU5MUF/P (IN89) and, using 10W to a 10-el Yagi 4m AGL made 29 QSOs in the 14-16 September period. ODX was SK7MW (JO65) at 1237km and three OZs were over 1000km.

## 430MHz UP

On 23cm in the fine tropo opening in mid-September G4DEZ worked an SM at 1213km for ODX on the 14th. The evening of the 16th brought QSOs with an SM, nine OZs and six DLs. JO43 was another new grid, bringing Bryn's tally to 41. G4RRA runs 70W to four 21-ele Yagis on 70cm but says that activity is grim. In the Activity Contest on 12 August Paul worked a few OZs, SK6HD/6 (JO68/1390km) and SM6CEN at 1279km. Earlier in the month he worked EB8AYA (IL18).

## FINAL NOTES

Congratulations to G8TOK who has been awarded the first-ever RSGB Five Band Supreme Award for operation on 6m to 23cm. Derek writes, "I am really pleased – been chasing squares, countries and counties for more years than I care to admit!" Volker Grassmann, DF5AI, mentions The Space Weather CD-ROM published by the University of Greifswald. It is supported by the European Space and Technology Week (EU/ESTW 2002). If you would like a free copy it can be ordered from his excellent website – see the list.

The copy deadline for the January 2004 issue is **11 November** and for the February issue it's very early because of the Christmas holidays: **Friday 5 December**. My telephone answering and fax machine is on 020 8763 9457 and my CompuServe ID is g3fpk ◆

## FURTHER READING


[1] ***RadCom*** Oct 1979, 'Four Metres and Down' p944

[2] ***RadCom*** Oct 1980, 'Four Metres and Down' pp1043-4

[3] ***RadCom*** Sep 2003, 'VHF/UHF' p47

[4] ***RadCom*** May 2003, Ev Tupis, W2EV, 'An Innovative 2m Trans-Atlantic Recipe'

[5] ***The VHF/UHF DX Book***, edited by Ian White, G3SEK, Ch 10 & 11 (available from RSGB shop)




## 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.

- Phil, M0AYB, spotted this equipment (see the photos) at Uzhgorod in the Ukraine in May 2003. It appeared to be out of use, and stored in the Palace of Youth and Culture. Does anyone know what it is? M0AYB, QTHR.

- Recently, Chas, G3DXZ, was asked by a friend to attempt the restoration of a very old broadcast receiver which had been languishing in a barn for unknown years. The set was a 3-valve TRF design and, despite much dirt, nearly all of the components were in working order. Unfortunately, the receiver bore no identification marks and Chas would really like to know who made it and when. Can anyone please cast any light on this mystery? The photo may help. G3DXZ, QTHR. E-mail: g3dxz@thersgb.net

- Snowy, G0HZE, needs a Yaesu FT-227RA/B, dead or alive, to assist in the repair of an old and trusted one. In particular, the items needed are the photo-interrupters from the channel-change mechanism, part number ON1105BN (Mitsubishi). G0HZE, QTHR. Tel: 01733 342 439 or e-mail: snowy.howell@btinternet.com

- Richard, G3AAT, wishes to thank those who responded to his request for tunnel diodes for a Cossor oscilloscope. He now needs any information on the Farnell Synthesised Signal Generator SSG2000, 10Hz – 2GHz. G3AAT, tel: 023 9247 5077.

- Steve, VK6VZ / G3ZZD, needs a copy of the manual for the Panda Cub 160 – 10m AM / CW transmitter. All expenses will be reimbursed immediately. VK6VZ, e-mail: sire@iinet.net.au

- Michael, G0NEE, needs help and information regarding Transreceiver LHP219, Ref No SL No 2831, which could have been manufactured by BTH. Any data on operation, connections, and the unit that connects to the 'Power' socket, would be most welcome. G0NEE, QTHR. E-mail: mstott7302:aol.com

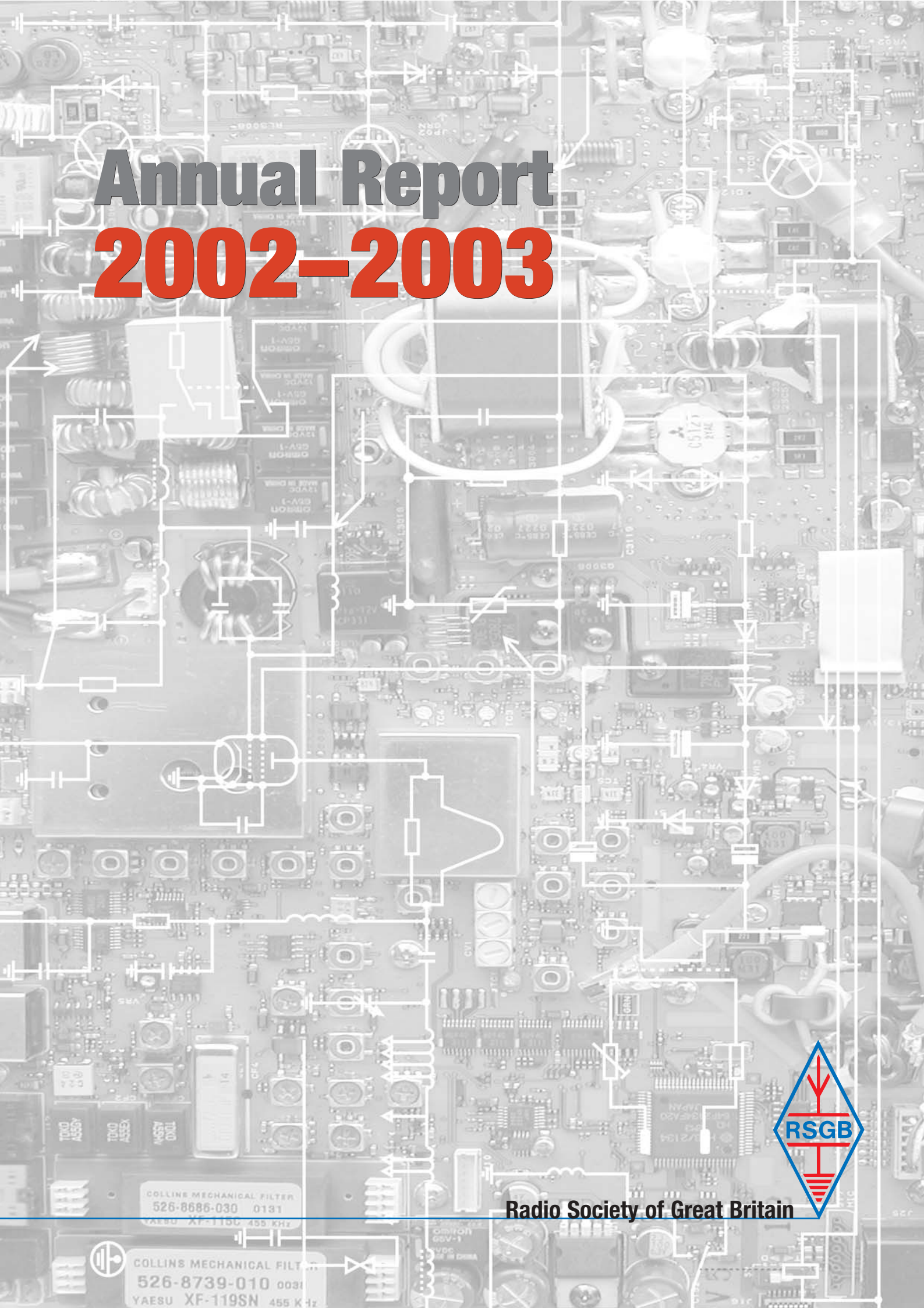
- Bob, G3XMB, is working on a local-community FM radio project for a third-world country, and needs a 100-200W class-C amplifier that can be modified to work between 88-101MHz. It must be solid-state and wideband, needing around 1W of RF input. If you can help, please contact Bob on 01245 493 493 extension 3074.

- Jim, G3UZB, would like help with the Yaesu FT-107. He needs some plug-in boards for the transmitter: PB2004A filter unit; PB2006A AF unit; PB2007A NB unit. G3UZB, QTHR. Tel: 01642 470 623, or e-mail: jim.shewan@ntlworld.com

- Phillip, ZS4PH, is looking for a source of 6KD6 valves and an RF choke for them, for the finals of his Yaesu FT-DX400. Please make initial contact with Chris, M3ERE, QTHR. Tel: 0151 924 1525, or e-mail: c.g.gibson@liv.ac.uk

- P O'Brien, GW1SXN, has recently moved house and has lost the instruction book and battery charger for his Kenwood TH-75E. Can anyone supply a photocopy and provide a source for the battery charger? GW1SXN, QTHR. Tel: 01286 675 468., or e-mail: pljob@hotmail.com

# Annual Report 2002–2003



Radio Society of Great Britain

# Review of the Year by the President

This has been another outstanding year for amateur radio. The key event, WRC 2003, took place in June. Broadly this conference has been an outstanding event for amateur radio. The removal of the mandatory Morse requirement for HF access confirms the approach the Society has been taking to the rejuvenation of UK amateur radio. The international importance attached to emergency communications was confirmed in the WRC changes. And closer to home the Society is forming a new positive working relationship with RAEN so that we can together present an integrated resource to UK emergency and community services.

But the real triumph of WRC 2003 must be the new spectrum which will become available at 7.1 to 7.2MHz over the next few years. One side effect of the increasing HF activity arising from the success of the Foundation Licence has been greater congestion on 40m, emphasised by the declining solar activity as we approach sunspot minimum. The Society has submitted proposals to the Radiocommunications Agency concerning access to this valuable spectrum. The Society wishes to recognise the efforts of all of those who made this outcome from WRC 2003 possible: the UK delegation, the IARU team and the many friends of amateur radio across the world.

I have updated you on the progress on Foundation and Intermediate courses etc elsewhere in this issue, but it is worth repeating that the new Foundation radio amateurs have played a significant role in reawakening interest in amateur radio. Many are starting to progress through the Intermediate courses as their interest develops. The Society will play a key role in the provision of courses and examinations from now on.

In the field of education, the GB4FUN demonstration vehicle continues to attract very favourable comment from the teaching community. There is a need to bring a second vehicle into our educational programme so that we can meet the demand from teachers for visits.

I announced last year that the Society was intent on forming an educational charity to support this work and I am pleased to report that the Radio Communications Foundation has now been formed. An independent board of trustees drawn from industry, Government and the Society has been appointed. This will allow tax-effective donations to be made by all: companies, members and those who believe bringing radio communications into education will benefit not only amateur radio but the economy in general.

The Society continues to be extremely concerned about the impact Power Line Telecommunications could have on HF operation if it were ever deployed. The Society believes the electromagnetic, and especially the HF, spectrum is a scarce resource which should he used responsibly. Administrations do have a responsibility to ensure that the best technology is employed to meet the needs of broadband access for the population. The Society is very much in favour of broadband access but is very much against the use of inappropriate technology, especially when far better techniques are readily available. PLT is not the best technology for broadband purposes. It is at best a transient technology and is probably not viable commercially in many cases. It therefore represents a bad investment for the UK. But it seems that politics can often overrule common sense, even when the evidence is overwhelmingly against PLT.

However, PLT is only the tip of a far greater threat to our UHF and Microwave spectrum. Already much of this is unsuitable for small signal experimental purposes and with the realisation of the potential economic value of such spectrum it will be essential that we mount a vigorous defence of our right of access.

That the amateur radio community is one of the most responsible users of the radio spectrum was clearly shown in the Radiocommunications Agency's Annual Report for 2002, where amateur radio was the only class of licence which had not been the subject of any prosecution or warning or fines for illegal operation.

Through the efforts of the Society the new legislation concerning hands-free mobile operation will not apply to amateur radio mobile operations. However, this only reinforces the need for all mobile operators to operate safely at all times and maintain our clean bill of health.

I would like to acknowledge the support we have had from the Radiocommunications Agency and we look forward to working with OFCOM in the years to come.

As I come to the end of my two year Presidency I would like to say I have gained a great deal from the experience and I thank you all for all your efforts and your support.

*Bob Whelan, G3PJT*
*2003 President*

# Introduction from the General Manager

As I sit at my desk I can only wonder where the last 12 months have gone! Last year I wrote of the introduction of the Foundation Licence. I don't think that any of us involved would have envisaged the success of the licence: over 5000 new radio hams have joined us in the hobby and nearly a quarter of these new entrants are under the age of 21. It is fair to say that the Foundation Licence has gone a long way in revitalising the hobby in the UK.

This last year will also be noted in historical terms as the year the class distinction between licences at last disappeared. The dropping of the Morse test has led to more interest in CW operation and more CW activity on the bands.

Internationally, it has been a busy year with two major conferences. The IARU Region 1 Conference in San Marino in November 2002 saw a major change in personnel on the Executive committee. There is now a much younger team in place committed to unifying the region and defending amateurs' rights, across the Region 1 boundaries. The RSGB has a strong influence in Region 1 with RSGB members holding key positions in the IARU structure.

The decisions affecting amateur radio made at WRC 2003 in June have been well documented. These decisions are fundamental to the future of amateur radio world-wide.

Closer to home, the Society continues to develop closer links with the education establishment through the Radio Communications Foundation and the work of GB4FUN which again has carried out a full programme of school visits throughout the UK.

What of the future? We have many challenges to face. From January 2004 the RSGB will be responsible for all amateur radio examinations. The City & Guilds will be a hard act to follow, but we believe we can continue the integrity of the examinations and improve the profile and worth of the three levels of skills by linking them to a vocational qualification. The introduction of the new admin authority OFCOM will be a challenge. We have to work hard in building the strong links we have enjoyed with the RA. Threats to the spectrum at all levels have to be combated and we must encompass new technology, modes of operation just as amateurs have done in the past.

The RSGB has had another very successful year in promoting and representing your interests. This report is but a brief insight into what goes on in any one year. The work that is detailed here is mainly carried out by volunteers, supported by the HQ staff. We are all indebted to them for their hard work and dedication.

You, the members, are the strength and backbone of the Society. Thank you for your continued support; please take time to read this report and I'm sure that you, like me, will be surprised at just what has been achieved in 12 short months!

*Peter Kirby, G0TWW*
*General Manager*

# RSGB Committees' and Officers' Reports for the Year ending June 2003

## Amateur Radio Development Committee

The Committee has been concerned with three main activities during the year. First, we have overseen the successful launch of the new Intermediate Licence, with its associated publications and examinations. Secondly, we have begun work on the new RAE syllabus, aiming for completion by the end of 2003, with the start of the complete integrated examination scheme due in 2004. Finally, we are working on several 'Beyond the RAE' projects, aimed at Full licensees.

Since the beginning of 2003, the new Intermediate licence has been in operation. Examinations are held every month, with a pass in the Foundation examination required for entry. A book has been produced by ARDC members for use by candidates. Despite some initial hitches, the scheme is working well.

We have started creating the new RAE syllabus, and begun consideration of the composition of the resulting examination. We are also working with RSGB HQ to create a textbook for RAE students, and are cooperating closely with RA staff in trying to achieve the goal of making the new RAE a worthy pinnacle for amateur radio achievement.

The rigour of the old examination system will be maintained – even increased – because the candidates need to submit to three examinations instead of one, which include practical work.

The 'Beyond the RAE' initiative is an education project, mainly aimed at Full licensees, but available to anyone. It is a plan to address the needs of those who want to learn more about diverse aspects of the hobby, both in technical and other areas. The first two elements are scheduled to begin in the autumn of 2003, and more will be introduced at a later stage.

We are creating a 'Train the Trainers' course for those who will be teaching the Full RAE courses to build up a core of amateurs who are skilled teachers of the RAE. In another field, the Committee is taking steps to deal with the removal of the Morse qualification for HF access. Although this will lead to a cessation of the Morse Testing Service, there will always be amateurs who wish to learn Morse and achieve recognition for their skill. We intend to set up a form of Morse teaching and assessment for those who are interested. These two projects may lead to more education initiatives in subsequent years.

## Amateur Radio Direction Finding

The first World Championship-style event to be held in this country took place at Kinver Million near Stourbridge, West Midlands. It was ably organised by Bob Titterington, G3ORY, who also built all six of the 2m transmitters and their antennas. There were four classes based on age group and the results were: M21 – Phil Smith, GW1XBG; M40 – Dave Burleigh, G4WIZ; M50 – Steve Stone, SWL; M60 – Bob Whelan, G3PJT (RSGB President). Two more events of this type took place during the year.

On the international scene three competitors (Graham Taylor, G3MDC; Robert Vickers, G3ORI, and Geoffrey Foster, G8UKT) took part in the German National Championships.

Eight Qualifying Events for participation in the RSGB 160m National Final were organised, and the 16 qualifiers plus the 2000 winner assembled at Salisbury racecourse to take part in the National Final, which was ably organised by Steve Holley and his team. The event and the RSGB 1950 Council Trophy was won by Geoffrey Foster, G8UKT, with Roy Emeney second and Dick Brocks third.

The Collier Cup was won by Alan Simmons, G1THD; the Gage Tyler Cup by Steve Stone (SWL) and the Bill North Trophy was shared by Brian Bristow, G4KBB, and Steve Stone. The Bert Simmonds Rose Bowl was awarded to Chris Plummer, G8APB, who also won the South Manchester Radio Club Winter Series.

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.

## Amateur Radio Observation Service (AROS)

Over the period, 30 cases were opened by AROS due to reports/complaints of abuses of licences/*BR68*. All these were dealt with and all were resolved by phone or correspondence, requiring none to be forwarded to the RA.

AROS has received more complaints from anonymous reporters with whom it is unable to go further. Also, when requesting further information to assist observations, cases have had to be dropped due to lack of requested information. All information remains confidential to AROS; no personal details of the sources are passed on to any other agency, even within the Society.

At present, there are about 65 volunteer Observers – many thanks to them – well placed geographically. Most modes are covered, but we are low on SSTV assistance.

AROS has been informed that no amateur radio cases have been taken forward by the RA to litigation. Perhaps we are more conscious of our obligations to comply with *BR68*?

The transition to accommodate Foundation Licences has generally gone well but scattered complaints are to hand questioning the M3s 10-watt limit, suggesting more around 100 watts may be in use. Suspected stations are informed and copied for information to the RA.

Over the last year AROS has given presentations to 25 radio clubs in order to give a more accurate understanding of our work.

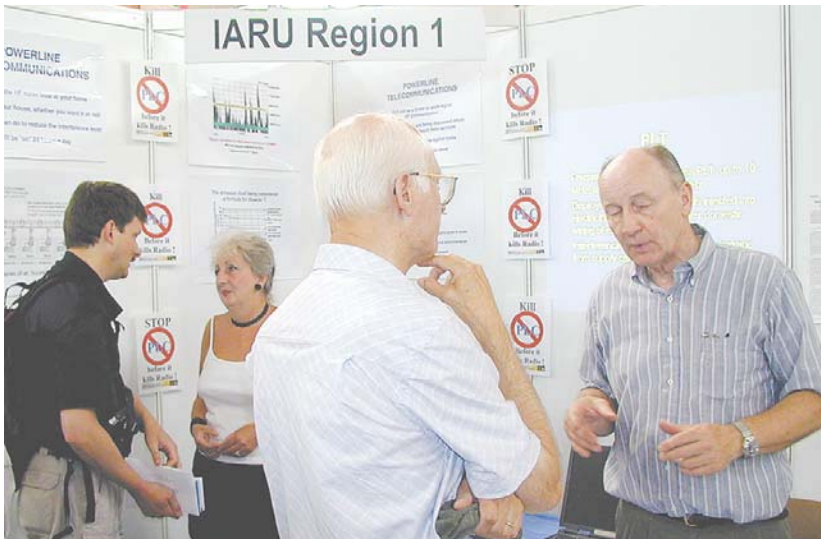
## Datacomms

The Data Communications Committee continues its specialist work within the two high-profile areas of 'Internet linking' and 'high-speed wireless data'. Both of these areas have once again required significant effort in negotiations with the RA, and our close working relationship with that organisation continues to be helpful in the extreme. Pending its review of the facility, the RA had decided on a moratorium for 145MHz Internet Voice Gateways, stating that until its formal review had been completed, discussed with RSGB and fully understood, no extensions to the facility (eg additional frequencies) would be allowed. However, further discussion saw the introduction of additional frequencies in the 70MHz band, plus new frequencies in the 1297MHz band.

The simplified web-based application process for these permits (which is hosted on the Committee's website www.dcc.rsgb.org) is a major contributory factor to the popularity and success of this experiment. The Committee plans to extend the online processing system to embrace all the NoV types for which it provides coordination within the next 12 months.

## Emergency Communications

The services of Raynet have been called upon in two emergencies. In September 2002, as a result of the Potters Bar rail




***Right: One of the EMC Committee's primary concerns is that of PLT, and EMC Committee members are involved in vital work at national and European levels. This photograph shows the PLT display on the IARU Region 1 stand at Friedrichshafe n in June.***

crash, Raynet was requested to assist with Local Authority communications. Earlier in the year, the failure of the Southampton telephone exchange in April resulted in Hampshire Raynet being called out by their Emergency Planning Unit and requested to be on standby with a VHF link from Hampshire Police HQ to the Police Command & Control Centre.

During 2002, the Board of the Society instituted a wide-ranging consultation on Raynet and a summary of the results of this review is on the RSGB's emergency communications web pages. These new pages include a newsboard carrying the latest information, including a listing of all known Raynet Groups in the UK together with contact details. Another decision taken by the Board was to use the term 'Radio Communications Voluntary Services' (RCVS), to try to describe more effectively to the general public and the media the work done by Raynet.

2003 is a momentous year in the history of Raynet, as it is 50 years since its foundation following the devastating East Coast floods of 1953.

Talkthrough permit forms have been revised and are now also available via the emergency communications web pages plus a new UHF wide-spacing 7.6MHz talkthrough channel has been negotiated to replace the previous one, which had become RU78. Liaison with specialist organisation The work of the Radio Amateurs' Emergency Network ('the Network') continues on both a day-to-day and long-term basis. A discussion recently took place with the Chairman of the Network's emergency planning team on a joint submission to the Draft Civil Contingencies Bill Consultation Document. A short submission was also made, via the Society, to the EC PLT Workshop, expressing substantial concern about PLT from the point of view of amateur radio emergency communications.

WRC-03 brought a significant number of benefits to amateur radio emergency communications. In the case of an emergency or disaster relief, amateur stations are now permitted to handle international third-party traffic and an entirely new regulation, 25.9A, encourages administrations "to take the necessary steps to prepare for and meet communication needs in support of disaster relief".

In a time when we increasingly have to justify our use of spectrum, amateur radio emergency communications provides the opportunity to do so in public view, demonstrating that amateur radio is worthwhile – and is something in which everyone in the hobby can participate in some way. If you feel you can help, contact the RSGB's Radio Communications Voluntary Services National Coordinator, Paul Gaskell, G4MWO, at rcvs@rsgb.org.uk or via RSGB HQ.

***VHF Contests. M1BQY/P, the Trowbridge club's station in the May 2003 RSGB 2m contest.***

## EMC Committee

The committee has been particularly concerned to ensure that, with the advent of the new Foundation and Intermediate Licences, the growing demand for support to members in EMC and related technical matters is addressed. During the year, the EMC Membership Services Administrator Charles Elliott, G4UJW, led an initiative, 'EMC Aid', to provide a higher level of service by setting up closer links between the EMC Coordinators, the Regional Managers and the local radio clubs. A new web page has been launched. This approach has been well received and further developments on this coordinated line will follow. A draft outline for EMC talks to clubs has enabled a higher level of engagement with the clubs. 'EMC clinics' have also been provided at some radio rally events.

There are continuing concerns about the possible EMC impact of broadband network services on HF radio communications. This concern is particularly acute in connection with Power Line Telecommunications (PLT). EMC Committee members are involved in committee work at national and European levels on EMC issues, pressing to ensure that appropriate standards are put in place in relation to RF emission controls and RF susceptibility for these new network technologies. The work has included BSI committees, the OFTEL PNO-IG Working Group and close cooperation with the RA. G4JKS, representing the RSGB, has attended the meetings of the CEPT/ERC SE35 Working Group, and was instrumental in focusing the issues for other HF spectrum users. G4JKS also represented the IARU on a joint working group of the CENELEC/ETSI standards bodies. This work will continue.

With the new system of licensing and widening participation in amateur radio in the UK, it is also inevitable that many of the newer entrants to the hobby do not have sufficient technical knowledge to be able to cope with complex EMC-related problems without some assistance. However, thanks to the excellent team of voluntary EMC Coordinators who give their valuable time and energy in helping our RSGB members with a huge variety of EMC problems, effective support has been available and all cases raised during the year by members have been satisfactory resolved.

The EMC website has proved to be an effective means of providing EMC information and it is recommended that any RSGB member with an EMC problem should first check the RSGB EMC website (linked from www.rsgb.org). The website now provides information on a wide range of known EMC problems and has a full set of the EMC leaflets. It also provides advice on the choice of filters. The EMC leaflets on the website have been updated by David Lauder, G0SNO.

Following a plea in *RadCom* for new EMC Coordinators, a good response was received, but there is still a shortage of Coordinators in the NI, NE, S and SE regions. The EMC Committee would welcome new members and applicants should preferably be licensed operators with a technical bias and a good knowledge of EMC issues. Meetings of the Committee are held six times a year at RSGB HQ. Any member interested should contact the Chairman, MM1CCR at a.annan@iee.org

The Committee wishes to acknowledge the important work undertaken by the RSGB Honorary EMC Consultants, Hilary Claytonsmith, G4JKS; Robin Page-Jones, G3JWI; and Richard Marshall, G3SBA, and the author of the *RadCom* 'EMC' column, David Lauder, G0SNO. In relation to PLT, the Committee would particularly like to acknowledge the outstanding work performed by Hilary Claytonsmith, G4JKS, in protecting the interests of amateur radio at international level.

## GB2RS

The GB2RS news service is 48 years old this year. It continues to provide a weekly news broadcast on Sundays serving radio amateurs and short wave listeners throughout the UK. The primary purpose is still to deliver the news over the air, and

the script is presented by some 130 volunteer operators. Currently it is broadcast on nine frequency bands: 1.9, 3.6, 5.4, 7.0, 50, 70, 144/145, 433MHz and 1.3GHz. We have dropped the trial transmission on 29MHz, but have instead introduced an experimental broadcast on 5405kHz USB. This has proved extremely popular, and is also making a useful contribution to the findings of the '5MHz Experiment'. It is hoped to introduce a data transmission also on 5MHz now that a planned 3.5MHz PSK31 emission has been dropped.

Between 65% and 70% of our newsreaders receive the weekly scripts by e-mail, and we are hoping that this may continue to increase. The GB2RS news script is also available on the RSGB website, and is widely read across the world. Jeremy Boot, G4NJH, delivers a voice reading of the news to the Internet, and he has recently added MP3 files to the streamed Real Audio version. This is now relayed to air in a number of countries on a regular basis. After discussions with the RA, we have been advised that the present licence does not permit delivery of GB2RS news via Internet Gateways, and this matter is being held in abeyance for the time being. In September 2005, we shall be celebrating the 50th anniversary of GB2RS, and we hope to introduce some new initiatives to coincide with this.

## HF

The period covered by this report ends with the historic agreement of the World Radio Conference (WRC-03) to allocate a further 100kHz to the amateur service in Regions 1 and 3 at 7100 to 7200kHz. The RSGB was invited to attend the conference as part of the official UK delegation and our thanks go to the RA for its assistance. While the result does not completely satisfy the IARU objective of an exclusive 300kHz world-wide allocation for the amateur service, it doubles the existing allocation and leaves room for further negotiations. The additional spectrum remains allocated to the broadcasting service until 29 March 2009; however, the Society has taken the initiative of seeking early access to this part of the band on a secondary (non interference) basis. Members should be aware, however, that this process may take some time to filter through official channels, although it is hoped to have a favourable decision by this time next year.

The end of June 2003 also brought about the end of the 73kHz amateur service allocation within the UK. The last few months brought about increased activity and the results documented over the past seven years will provide a useful source of information in the future. The Nevada Trophy was awarded to Jim Moritz, M0BMU, for his wide-ranging experimental work on 136kHz and activity continues to flourish on this with more countries becoming active.

The issue of 5MHz NoVs was suspended towards the end of 2002 due to the large number of NoVs in circulation. A monitoring programme was undertaken by the RA to establish actual activity and it was anticipated that the issue of NoVs would resume later in 2003.

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 Robert Morgan, M0TTT, and the RSGB ROTAB Trophy for outstanding and consistent DX work was awarded to Rob Ferguson, GM3YTS.

The unexpected and short notice cancellation by the Beaumont Conference Centre in Old Windsor meant a rapid reaction was required to secure a change of venue for the 2002 HF Convention. After a flurry of activity it was agreed to relocate to the Savill Court Hotel in Egham which proved to be a suitable but temporary venue. Attendance was up on the previous year and again a successful event was held.

## HF Awards

A busy year, with many certificates issued, boosted by the Queen's Jubilee Award, and with the new influx of M3 operators resulting in lots of enquiries for certificates such as IARU WAC, Region-1 Award etc. A total of 98 Jubilee Certificates and 49 other Awards/Endorsements were issued during the year. The most popular other award this year was again the IARU Region 1 Award, with 18 issued. The DX Listeners Century Award for short wave listeners had two certificates and 12 endorsement stickers issued. In addition, 10 WAC award applications were verified and forwarded to IARU HQ. Many applications from RSGB members for other overseas awards were also checked.

My predecessor Fred Handscombe, G4BWP, found time to update his 5B-CCC Supreme Award #7 by claiming Supreme endorsements for WARC (300 areas) and 160m (70 areas). His claim is only the second Supreme WARC Band and the first 160m Supreme Endorsement. Several other UK operators are close to claiming the 5-Band Supreme CCC with Endorsements. Regular e-mail database exchanges are used to assist and validate queries on these matters.

Overseas operators VK2DPD, JH4BTI and 7M3ESJ all claimed the regular CCC Award. The rules for the HF Awards were all reviewed during the year, and rules for a special electronic award are being formulated to benefit new licensees. All application documentation and rules for RSGB awards have been converted to PDF files for easy transmission via e-mail and subsequent printing.

Assistance was extended to the editor of the *RSGB Yearbook* to revise and increase the scope of the HF awards section for the 2004 *Yearbook*.

Award-checking was carried out during the HF Convention and at the GMDX Convention in Stirling. The RSGB has continued its participation in the ARRL Field Checking Programme for the WAS and DXCC Awards. ARRL accepted G3LZQ as a member of the UK field-checking team during the year for WAS only.

In addition to award claims, many items of correspondence were dealt with in order to assist members with their award-hunting problems. Once again the proportion of these arriving by e-mail has increased, and now represent more than 80% of the enquiries received. The e-mail address is hf.awards@rsgb.org.uk

## Intruder Watch

Broadcast station spurii from a number of countries were removed from our bands following action taken by the RA monitoring station at Baldock at our request. Problems resulting from malfunctioning transmitters in Pakistan, Russia, France, Romania and India have all been resolved.

Faulty transmitters and accidental mistuning of transmitters at various military installations have caused a few brief problems. On most occasions the owners accept responsibility and 'pull the plug' immediately. Occasionally there is outright denial, followed some minutes later by the abrupt disappearance of the offending signal! European and North American armed services signals on 7 and 14MHz were removed following contact from Baldock.

There have been several unexplained signals including a form of over-the-horizon radar from the Ukraine and a group of tones around 14000kHz from Baffin Island. A DGPS transmitter on an island off the north coast of Scotland malfunctioned yet again and made the 1.81MHz band unusable over a wide area. There is now an established procedure for reporting this problem to the owner, via Baldock.

## IOTA

Many expressions of appreciation have been received by the Committee in its everyday administration of IOTA. They illustrate the contribution made by IOTA to amateur radio and the gratitude that exists towards the programme and its management team.

2002/2003 was a year of further consolidation after the changes to the IOTA Programme introduced in year 2000. The listing in the *Directory* of all valid islands for each IOTA group has proved a great boon all round as has general compliance with the new rule that QSL cards confirming IOTA contacts must have a valid island name printed on them. It is pleasing to note that, when a rule breach does occur in either of these two areas, serious IOTA chasers are quick to intervene to explain the position to the errant station, an example, if one were needed, of their feeling of 'ownership' of the programme.

IOTA's success has not come

***Left: Jim Moritz, M0BMU, being presented with the Nevada Trophy for his wide-ranging experimental work on 136kHz.***

without problems. Management of the programme is very time-consuming and particularly detailed. It is inevitable that more growth means more work for the Committee and checkpoints, all of whom are volunteers. During the year, the IOTA Committee has been in discussion with the Board about IOTA's future and has agreed that the award application software needs to be rewritten to streamline the procedures and automate as far as possible the 'cleansing' of data input. This points to the need to make the full island listings in the latest *IOTA Directory* more easily available by placing them on Internet in a downloadable form at the earliest opportunity. It is also inevitable that, sooner rather than later, we will need to restrict award application and score updates to electronic means only.

Although the rules and qualifying islands are laid out in the *IOTA Directory*, this is just the backdrop to a programme of daily activity which requires constant central monitoring, direction and guidance. The dynamic nature of this programme means that it cannot run itself. In the 12 months under review, more than 3000 e-mails were processed, many involving considerable research and most a decision.

While most of the award-issuing side of IOTA is carried out by checkpoints liaising directly with the HQ IOTA Coordinator, Sylvia Manco, queries relating to the acceptance of particular operations and cards have to be referred to the IOTA Manager for decision. The 1000 Islands Trophy was added to the range of awards during the period.

The IOTA website at www.rsgbiota.org was completely re-written by Dominic Smith, M0BLF. There is now a database-driven site containing all the *IOTA Directory* information as well as an evolving listing of past and future expeditions and links to qrz.com and DX Summit. Anyone can search the *Directory* by island name to verify that the intended DXpedition destination is valid for IOTA, but access to the search by reference number is restricted at present to people who have submitted a claim. Intending DXpeditioners can also enter the details of their activity on a web form. The IOTA website continues to be managed by our webmaster Steve Lawman, G0UIH. The new website also contains a number of useful downloads including a more *Windows*-friendly record-keeping programme *IOTAMEM4WIN* developed by Michael Daehne, DF1ZN. This will import the data file sent to users by checkpoints and will output the standard update file required by checkpoints.

As in previous years, IOTA representatives attended, at their own expense, a large number of UK and overseas conventions. Preparations are being made for a more substantial representation at UK rallies in 2004. The IOTA Committee is extremely grateful to Yaesu UK for its ongoing role as Principal Sponsor. The Society owes a debt to a body of people many of whom neither live in the UK nor are Society members whose efforts, voluntarily given, have enabled IOTA to consolidate its position as a world ranking activity programme, second only to DXCC.


***The top-of-the-line Yaesu demonstration station, MB2HFC, at last year's RSGB International HF and IOTA Convention.***

## Management Committee

The Management Committee, which has met eight times this year, is responsible to the Board for the financial and commercial well-being of the Society and for HQ staff matters. As such, it is involved directly or indirectly in almost all activities undertaken by the Society.

Membership numbers in general have remained more or less constant. The introduction of the Foundation Licence has significantly increased the number of potential new members and the recent promotional activities have resulted in a reasonable number of recruits. However, only about half of all UK licensed amateurs are members of the RSGB, so it is vitally important that everyone tries to boost this number to maintain the Society's strength and credibility.

The maintenance of membership numbers together with a reasonable level of income from commercial activities – advertising, book sales etc – has resulted in a satisfactory financial performance overall. Production of *RadCom* and the development of advertising revenue are now carried out externally. This has resulted in increased revenue. However, to maintain this in the future we must make great efforts to secure new book titles which always form the bulk of sales. This will be done by direct involvement with potential authors and by collaboration with other publishing organisations, together with a move towards the computing sphere and its interfaces with amateur radio.

The administration of the Foundation and Intermediate licence examinations is undertaken under contract to the RA and we are hopeful that this will be extended in the next year by a similar arrangement covering the Full licence. However, the impending change in which the RA will come under the control of OFCOM will no doubt have an influence on this area of activity.

The demonstration vehicle, GB4FUN, is regularly in evidence at schools and at a number of events in various parts of the country. This has been very successful, not only in introducing amateur radio to a wider audience, but also in strengthening the links between HQ and members in the regional organisations and clubs.

It is expected that most Society participation at events such as rallies will be organised on a regional basis as this has now been shown to be effective and economical.

On a broader front, the Committee is currently preparing a new five-year Business Plan for presentation to the Board and is fully involved in the Foresight Review which is looking ahead to formulate a strategy for the Society in meeting the challenges which will arise from the rapidly-changing world of amateur radio in the 21st century.

## Microwaves

During this year, the Microwave Committee met twice, the majority of its business being carried out on line. The Committee raised two papers for the IARU Region 1 conference in November 2002 in San Marino concerning the 'harmonisation' (I prefer the use of the word 'rationalisation') of the microwave bands at and above 24GHz. In essence, the long-standing principle of the preferred use of amateur primary segments and adoption of usage practices similar to those in the VHF bands, were unanimously agreed within the IARU Committee C5 (VHF/UHF and Microwave) and adopted for implementation by 1 January 2004. There will be a four-year changeover period for the millimetre bands above 70GHz, during which both the 'old' and the 'new' bands will be available to UK amateurs, although it is recommended that UK amateurs make the change to the 'new' bands as soon as possible after 1 January 2004. The Society's objectives were therefore fully met. A general overview of the conference was given in the January 2003 issue, and more detailed accounts of the changes in the April 2003 issue of *RadCom*.

It is important to realise that, unless both the Amateur and Amateur Satellite Services *do* rationalise frequencies and usage in the microwave bands generally, *both* services are much more vulnerable to spectrum loss than at either HF, VHF or UHF, due to the extreme commercial pressures on this part of the spectrum.

## Planning

The Planning Advisory Committee's main written product, the advice booklet, continues to be well received, and is available to members either in paper form from HQ, or electronically on the members-only part of the website. The Committee looked at the Government's proposed changes to the General Development Order, but found that these were intended to cover telecommunications code operators' equipment, and did not affect the position of amateurs. The Society did not therefore comment on the proposals.

The panel continues to provide one-to-one advice to members to help them through the planning process, and much of this is now done via e-mail. In addition to a number of members in England and Wales, the panel is now represented in Scotland and Northern Ireland, both of which have planning systems differing from that in England and Wales.

A member who had been successful in achieving the grant of planning permission was encouraged to write an article for *RadCom*, and this was published together with an explanatory

piece with some general points about the planning process. Being a good neighbour is a crucial part of this: amateurs who do not try to maintain a good relationship with their neighbours are the ones most likely to experience planning problems.

We anticipate a growth in our work, as the many new amateurs, or those with access to new bands, seek to erect larger antennas which require permission. Before putting up new arrays of any size, members are encouraged to obtain and read the advice booklet.

New panel members are always welcome. Anyone interested in joining the panel is encouraged to contact the chair, at pac.chairman@rsgb.org.uk

***Left: The UK team at the important IARU Region 1 Conference in San Marino, November 2002, at which RSGB Microwave Committee papers concerning the harmonisation of microwave bands across Europe were adopted.***

## Propagation Studies (PSC)

Much of PSC's work has been on a continuing basis. In particular, solar reports and forecasts were prepared weekly by G0CAS, with a weekend update by G3USF, which was also published on the web. The take-up of the update by newsreaders has continued to expand. Unfortunately, it has so far not been possible to arrange an audio version. G4FKH has continued to provide monthly propagation predictions for *RadCom* and to update them on the web. Responding to comments from members, he introduced long-path predictions for a selection of paths in the course of the year. G3USF also continues to maintain the most widely-used HF and 50MHz beacon lists on the web, updated on a daily basis, and the most comprehensive listing of websites relating to propagation. G4FKH represented PSC on the 5MHz Experiment. Other members worked on continuing long-term projects, including G0KYA on greyline propagation and G3NYK on LF. G0AEV and G3USF continued production of *The Six and Ten Report*, transferring publication to the web in the course of the year, while continuing to make hard copy available to people without web access. The Committee reflected in some detail on its current and future programme in the course of framing its response to the President's Foresight Review. In particular, it saw the desirability of encouraging comparable activities in other national societies and, strengthening its own international reach, added further international Associates with an acknowledged record in propagation research.

## Repeaters

The last 12 months have been quite active on the repeater front; quite a few existing repeaters have changed location due to the increasing costs of site rentals. There has also been an increase in the number of repeaters to supplement existing ones in the same area for the purposes of internet linking. The RA's decision to stop issuing NoVs for the unattended operation of linked repeaters has caused a degree of concern amongst the amateurs who wish to progress this system; their concerns have been raised with the RA, which has undertaken a review of the linking system.

Repeaters operating on bands where the Amateur Service is only a secondary user have continued to cause concern amongst various primary users. We have seen many new applications turned down due to objections from primary users and, at the current time, we are unable to process any applications for the 70cm band due to a ban by the primary user. However, the RMC will continue to work with both the primary user and the RA to try to resolve the current issues.

Spectrum efficiency is still the key to a well-managed repeater network. The RMC is working with keepers to resolve some of the problems between existing units, and where frequency changes can be made this is being implemented.

During the year, the RMC received its first application for a digital TV repeater; this shows how the network is continuing to evolve and is far from stagnant.

The RMC is striving to work with the modern technological challenges and advancements balanced with the requirements of repeater users and keepers.

## Technical and Publications (TAPAC)

The main work of the Committee continued to be the review of technical articles for publication in *RadCom* and the generation of nominations for four trophies and prizes (Ostermayer, Courtney-Price, Norman Keith Adams and Wortley-Talbot). It is perhaps an indication of the changes that have taken place in the hobby that it is often difficult to find suitable nominations for all four trophies and prizes.

With 15 members and their very wide geographic distribution, TAPAC operates as a wholly corresponding Committee. Nearly all members have e-mail facilities and this is proving a very effective means of communication, although it is still necessary on occasions to revert to 'snail-mail' or the telephone.

Answering technical questions from members has continued to be a fairly low level activity. The EMC committee has included a link to TAPAC on its website and it may be that this will result in an increase in the number of questions being received.

## VHF

Since taking over the chairmanship of the VHF Committee there have been no meetings to report. As VHF Manager, it has been a relatively quiet period between conferences. It is important to mention that Iain, G0RDI (the IARU Region 1 VHF beacon coordinator) has been very busy allocating new frequencies to comply with the move of *all* Region 1 beacons within the 432MHz band. The changeover will commence on 1 January 2004.

## VHF/UHF Awards

As in previous years, claims for 50MHz awards predominate, which in some ways is a little disappointing, but an encouraging aspect is that several Foundation/Novice callsign-holders are now participating. Possibly the small numbers of claims for 144 and 432MHz reflect the general level of activity in these bands, from my perspective that is. Microwave claims for both squares and distance are maintaining their former levels.

All claimants now receive a 'standard check list' and former claimants now have details of their claims held on file by the Award Manager. Many claimants now provide claim information additionally in digital formats which eases my task.

Consultation has now started with the Commercial Manager to streamline the whole process using recently-installed equipment at HQ.

## VHF Contests

This year has seen some substantial changes on the committee. Martin Platt, G4XUM, felt the time had come to stand down as Chairman, and committee members Peter Bowyer, G4MJS; Ian Cornes, G4OUT; and Dave Edwards, G7RAU, also moved on. Many of these folks had spent 10 or more years on the committee and our sincere thanks are due to them. Their places have now been ably filled by Lee Volante, G0MTN; Roger Piper, G3MEH, and Tim Boon, M0AFC.

Entries are on the increase in many VHF events, and the calendar has been updated with the addition of new activity contests up to 24GHz and the removal of some poorly-supported contests. A new trophy – the Four Metre Cup – has been donated by Colin Smithers, G4CWH, and is awarded to the leading single-operator station in the Four Metre trophy.

The committee has developed a new strategy to take it forward. This will focus on maximising the number of stations entering events – and particularly aims to make contesting attractive to newcomers and within clubs. We now have a policy of pro-actively promoting contesting within radio clubs through talks, and a broad aim to increase participation in VHF contests by 10% each year. In response to feedback from contestants, we are now aiming to make contest results available on the website within two months of the event and issuing certificates within another month. We are also working much more closely with the HF Contests Committee and the first result of this has been the adoption of a common new, much more modern and colourful, certificate design.

# RADIO SOCIETY OF GREAT BRITAIN

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

## Report of the Board for the Year Ended 30 June 2003

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 2003.

**Principle Activities**

The principle 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, the Radiocommunications Agency (RA) and via the IARU to other international bodies.

**Review of the Year**

The past year has been one of progress and consolidation. The continued success of the Foundation licence has rejuvenated the hobby and has been followed by a revision of the Intermediate and Full licence syllabi. The results of this work will lead to the introduction of a fully progressive amateur radio licence scheme which will be available on demand from 1 January 2004.

A major project has been the complete redesign of *RadCom*; a move we hope has appealed to all members. We felt that the magazine should reflect the advances made in design and ideas so that visually it would be easier to read without impacting on the quality of the editorial. A further benefit was to make it more attractive to potential advertisers. This project has incurred some expenditure in professional fees this year but in the long term will prove to be cost efficient due to other administrative changes made at the same time. The selling of advertising space has been out-sourced to a third party. Advertising income has improved over the last quarter of the year and there are indications that this trend will continue during the new financial year.

The year has seen a further strengthening of the regional scheme and a heightened Society presence at amateur radio events throughout the country. The Society's membership has stabilised over the second half of the year and is currently showing a modest growth. Amateur radio clubs and related societies are reporting a renewed interest in their activities. The Society's membership on the 30 June 2003 stood at 24,460 compared to 24,627 at the start of the year.

The Society's demonstration vehicle GB4FUN has carried out a full programme of visits to schools and other public events.

In July 2002 your Board approved the setting up of the Radio Communications Foundation. This is an independent charitable trust the aims and objectives of which is to support the educational work of the Society.

Throughout the year extensive refurbishment work has been undertaken at Lambda House, the Society's Headquarters in Potters Bar. This has included repairs to the structure of the building, to the roof and the replacement of windows. Refurbishment and redecoration to the interior of the building will be undertaken during the course of the next financial year.

The Society continues to have a good working relationship with the Radiocommunications Agency and is establishing strong ties with the new telecommunications authority OFCOM.

***Financial Report***

The financial result for the year, after non-recurring items and interest income, was a surplus of £1,474 compared with a surplus of £8,414 in the previous year. The financial outturn has been affected by the costs of two major projects referred to above.

The first was essential repairs and renewals at the headquarters building incurring a cost of £47,000. The second involved the out-sourcing of the *RadCom* preparation and design, and the selling of advertising space in the Society's publications which incurred re-organisation costs of £15,000. There was an increase in Professional Fees over the prior year associated with the re-organisation.

Subscription income benefited from the second year effect of last year's increase, together with a smaller reduction in membership than has been the case in prior years.

Book income decreased partly due to the cessation of selling digital tuners, a high value product low margin item. Efforts continue to develop this area including the continued search for new book titles.

A full year of income and costs for the Foundation Licence is included in the financial year. More work is being undertaken on the Intermediate and Full licence examinations and costs will continue to be closely monitored.

The Society always plans for a break-even position which, despite budget contingencies, can be affected by non-recurring items. For the year to 30 June 2004 this objective continues.

***Outlook***

WRC03 completed its work in June 2003. A number of key decisions made at the conference will have a fairly dramatic effect on the future of the hobby world-wide, not least the removal of the mandatory requirement to hold a Morse qualification to gain access to the amateur bands below 30MHz. The Society will be working hard to ensure that the changes are introduced in a timely manner to benefit the amateur community in the UK.

Three years after its introduction the Board and Regional Council will carry out a review of the regional scheme to ensure that the structure is in place to provide a wide range of support to the membership. The Board will also review the Society's committees with a view to rationalise and modernise the structure to meet the demands of the advancement in technology and the changes in the licensing regime.

The second half of 2003 sees some key dates in the Society's history. The 90th Anniversary of the founding of the RSGB and the 50th Anniversary of the setting up of Radio Amateurs Emergency Network (Raynet); a number of events are planned to celebrate and promote the work of the Society.

From January 2004 the Society will be responsible for all amateur radio examinations. This presents an opportunity for the strengthening of the ties between the Society and the education establishment with a view to introducing the new Radio Communications examination into the national curriculum and aligning the new examinations with a national vocational qualification.

Two promotional videos have been commissioned; the first is designed to promote amateur radio to the general public and the second to promote the work of the Society to the amateur radio community at large. The films will be launched in the autumn of 2003.

The Society will continue to support the work of the IARU and play a full role within that organisation in the administration and support of amateur radio.

The threat of the introduction of Power Line Telecommunications systems still gives rise for concern and the Society continues to be pro-active in promoting awareness of the threat to users of the radio spectrum, which includes government, manufacturers, service providers and the general public.

To meet these goals a secure financial base for the Society is essential and the Board will continue to keep all aspects of the Society's commercial activities under review.

***Personnel***

The Society maintains a headquarters establishment of 24 salaried staff. The Society is an equal opportunities employer and gives full and fair consideration to employment applications from 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 these financial statements should be considered to be equivalent to "The Directors" under the Companies Act 1985.

***Bob Whelan, G3PJT*** — ***President***

***Ken Ashcroft, G3MSW*** — ***Treasurer***

**Board and Regional Council Members from 1 July 2002 - 30 June 2003**

| | |
|---|---|
| ***President*** | **Dr RC Whelan, G3PJT** |
| ***Hon Treasurer*** | **K Ashcroft, G3MSW** |
| ***Board of Directors*** | |
| G L Adams, G3LEQ | |
| R Constantine, G3UGF | |
| L Cabban, GW0ETU | |
| G Dover, G4AFJ | Retired 31 Dec 2002 |
| F Handscombe, G4BWP | |
| D Hicks, G6IFA | From 1 Jan 2003 |
| R Page-Jones, G3JWI | |
| E Taylor, G3SQX | |
| J Smith, MI0AEX | |
| ***Regional Council*** | |
| R S Atterbury, G4NQI | Co-opted until 31 Dec 2002 |
| P Berkeley, M0CJX | Co-opted until 31 Dec 2003 |
| E Cabban, GW0ETU | |
| R Clarke, M0RLY | Co-opted until 31 Dec 2002. Elected from 1 Jan 2003 |
| G Darby, G7GJU | |
| G Hunter, GM3ULP | Co-opted until 31 Dec 2002. Elected from 1 Jan 2003 |
| W Jenkins, MM0WKJ | Co-opted. Resigned Nov 2002 |
| B Llewellyn, G4DEZ | Co-opted until 31 Dec 2002. Elected from 1 Jan 2003 |
| S Lloyd-Hughes, GW0NVN | Resigned 1 Jan 2003 |
| R Piper, G3MEH | Co-opted until 31 Dec 2002 |
| I Rosevear, G3GKC | Co-opted until 31 Dec 2003 |
| R Ricketts, GW7AGG | Co-opted until 31 Dec 2003 |
| M Salmon, G3XVV | |
| B Scarisbrick, G4ACK | |
| J D Smith, MI0AEX | |
| K Wilson, M1CNY | |
| P Thompson, GM1XEA | Co-opted until 31 Dec 2003 |

**Political and charitable contributions**

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

**Annual General Meeting**

The 77th Annual General Meeting will be held at University of Wolverhampton, the Shropshire University Campus, Priorlee, Telford on 6 December 2003, commencing at 12.00 noon.

**Auditors**

KPMG LLP was re-appointed auditors on 7 December 2002. A resolution for the reappointment of KPMG LLP as auditors of the company is to be proposed at the forthcoming Annual General Meeting.

***By order of the Board***

***Dr R C Whelan, BSc MSc PhD, Chairman***

**Statement of the 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 and 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 2003

| | note | 2003 £000 | 2002 £000 |
|---|---|---|---|
| **Gross income from all sources** | 3 | 1,543 | 1,547 |
| Direct costs (cost of books and products sold) | | (162) | (197) |
| **Gross surplus** | | 1,381 | 1,350 |
| **Administrative expenses:** | | | |
| Sales and distribution expenses | | (236) | (258) |
| Other operating expenses: | | (1,161) | (1,101) |
| **Operating deficit** | | (16) | (9) |
| **Other interest receivable and similar income** | 6 | 17 | 17 |
| **Surplus on ordinary activities before taxation** | | 1 | 8 |
| Tax on surplus on ordinary activites | 7 | - | - |
| **Retained surplus for the financial year** | 11 | 1 | 8 |

All income and expenses for both years have been derived from continuing operations. There were no recognised gains or losses 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 11.

# Balance Sheet at 30 June 2003

| | note | 2003 £000 | 2002 £000 |
|---|---|---|---|
| **FIXED ASSETS:** | | | |
| Tangible assets | 8 | 547 | 513 |
| **CURRENT ASSETS:** | | | |
| Stocks | 9 | 89 | 86 |
| Trade debtors | | 35 | 62 |
| Other debtors | | 3 | - |
| Prepayments and accrued income | | 136 | 64 |
| Cash at bank and in hand | | 430 | 430 |
| | | 693 | 642 |
| **CREDITORS: amounts falling due within one year** | | | |
| Obligations under finance leases | 10 | (11) | (10) |
| Trade creditors | | (131) | (57) |
| Other taxation and social security | | (12) | (17) |
| Other creditors | | (369) | (393) |
| Accruals and deferred income | | (141) | (127) |
| | | (664) | (604) |
| **NET CURRENT ASSETS** | | 29 | 38 |
| **TOTAL ASSETS LESS CURRENT LIABILITIES** | | 576 | 551 |
| **CREDITORS: amount falling due after more than one year** | | | |
| Obligations under finance leases | 10 | (9) | (1) |
| **NET ASSETS** | | 567 | 550 |
| **CAPITAL AND RESERVES:** | | | |
| Income and expenditure account | 11 | 371 | 370 |
| Restricted funds | 11 | 24 | 8 |
| Revaluation reserve | 11 | 172 | 172 |
| **MEMBERS' FUNDS** | | 567 | 550 |

**These financial statements were approved by the Board on 27 September 2003 and signed on its behalf by Dr R C Whelan BSc MSc PhD (President), K Ashcroft FCA FCMA (Treasurer).**

# Independent auditors' report 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 2003 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 Auditors***

# 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 1999. 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.

The company is exempt from the requirement of Financial Reporting Standard No 1 to prepare a cash flow statement as it is entitled to the filing exemptions as a small company under sections 246 to 249 of the Companies Act 1985 when filing accounts with the Registrar of Companies.

**Fixed assets and depreciation:** Depreciation of tangible fixed assets (except freehold land which is not depreciated) is calculated to write off the cost or revalued amount less estimated residual value on a straight-line basis over the estimated useful lives of the assets. The annual rates used are as follows: Freehold buildings: 2%; Fixtures and fittings: 10%; Furniture and equipment: 20%-25%;Computer hardware and purchased software: 20%-33%; 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.

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

**Pensions and post retirement benefit:** 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 against income represents the contributions payable to the policies in respect of the accounting period.

## 3. ANALYSIS OF INCOME

| | 2003 £000 | 2002 £000 |
|---|---|---|
| Subscription income | 867 | 864 |
| RadCom advertising income | 176 | 177 |
| Book sales | 312 | 354 |
| Other income | 188 | 152 |
| | 1,543 | 1,547 |
| **Other income comprises the following:** | | |
| Morse tests | 9 | 18 |
| Novice licence | - | 10 |
| Rallies and exhibition fees | 19 | 20 |
| Repeaters | 22 | 25 |
| Foundation Licence | 54 | 27 |
| Intermediate Licence | 16 | - |
| Mailbox agreement | 23 | 22 |
| Special event callsigns | 5 | 5 |
| Newsletters | 2 | 2 |
| Sundry income | 38 | 23 |
| | 188 | 152 |

## 4. SURPLUS ON ORDINARY ACTIVITIES BEFORE TAXATION

| Surplus on ordinary activities before taxation is stated after charging: | 2003 £000 | 2002 £000 |
|---|---|---|
| **Auditors' remuneration:** | | |
| Audit | 10 | 9 |
| Other services | 2 | 8 |
| **Depreciation and other amounts written off tangible fixed assets:** | | |
| Owned assets | 26 | 28 |
| Assets held under finance leases | 16 | 17 |
| **Board and Committee expenses:** | | |
| Board expenses | 13 | 11 |
| Committee expenses | 16 | 22 |
| Other expenses | 13 | 12 |
| **Total Board and Committee expenses** | 42 | 45 |

## 5. INFORMATION REGARDING EMPLOYEES AND DIRECTORS

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

| The average number of persons employed by the Society excluding directors during the year was as follows: | Number of employees 2003 | 2002 |
|---|---|---|
| Headquarters staff | 24 | 24 |

| **The aggregate of payroll costs of these persons were as follows:** | 2003 £000 | 2002 £000 |
|---|---|---|
| Wages and salaries | 469 | 458 |
| Social security costs | 42 | 40 |
| Other pension costs (see note 13) | 15 | 16 |
| | 526 | 514 |

## 6. OTHER INTEREST RECEIVABLE AND SIMILAR INCOME

| | 2003 £000 | 2002 £000 |
|---|---|---|
| Bank deposit interest | 17 | 17 |

## 7. TAX ON SURPLUS ON ORDINARY ACTIVITIES

| | | |
|---|---|---|
| UK corporation tax | - | - |

The Society is liable to corporation tax on its investment and book sales income, less attributable expenses. However, due to tax losses brought forward there is no corporation tax charge for the year.

The amounts that are not provided for deferred taxation are set below:

| | 2003 Unprovided (Asset)/liability £000 | 2002 Unprovided (Asset)/liability £000 |
|---|---|---|
| Difference between accumulated depreciation and amortisation and capital allowances | 9 | - |
| Tax losses | (657) | (560) |
| | (648) | (560) |

No deferred tax asset has been recognised as the business is not expected to provide sufficient profits to utilise the tax losses.

## 8. TANGIBLE FIXED ASSETS

| | Freehold land & buildings £000 | Computer equipment £000 | Fixtures & fittings £000 | Furniture & equipment £000 | Motor vehicle £000 | Total £000 |
|---|---|---|---|---|---|---|
| **Cost or valuation:** | | | | | | |
| At beginning of year | 490 | 210 | 66 | 119 | 47 | 932 |
| Additions | - | 15 | 34 | - | 27 | 76 |
| Disposals | - | - | - | - | (28) | (28) |
| At end of year | 490 | 225 | 100 | 119 | 46 | 980 |
| **Depreciation:** | | | | | | |
| At beginning of year | 26 | 199 | 51 | 108 | 35 | 419 |
| Provided during the year | 8 | 10 | 4 | 4 | 16 | 42 |
| Disposals | - | - | - | - | (28) | (28) |
| At end of year | 34 | 209 | 55 | 112 | 23 | 433 |
| **Net Book Value** | | | | | | |
| **30 June 2003** | **456** | **16** | **45** | **7** | **23** | **547** |
| 30 June 2002 | 464 | 11 | 15 | 11 | 12 | 513 |

Freehold land included above and not depreciated amounts to £ 207,000 (2002: £207,000)

On a historical cost basis, land and buildings would have been included as follows:

| | 2003 £000 | 2002 £000 |
|---|---|---|
| Cost of revalued assets | 422 | 422 |
| Aggregate depreciation thereon | (51) | (49) |
| Historical cost net book value | **371** | **373** |

The freehold land and buildings (comprising Lambda House, Cranborne Road, Potters Bar, Hertfordshire EN6 3JE) were professionally valued on 30 June 1999. 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 £490,000. The Directors are not aware of any material changes in value and therefore the valuations set out above have not been updated. A full valuation will be carried out in the next financial year. Of the above assets, all motor vehicles are held under finance lease.

## 9. STOCKS

| | 2003 £000 | 2002 £000 |
|---|---|---|
| Consumable stock | 4 | 1 |
| Work in progress | 3 | - |
| Goods held for resale | 82 | 85 |
| | 89 | 86 |

## 10. OBLIGATIONS UNDER FINANCE LEASES

| | 2003 £000 | 2002 £000 |
|---|---|---|
| Gross obligations under finance leases | 23 | 13 |
| Less: finance charges allocated to future periods | (3) | (2) |
| | 20 | 11 |
| Due within one year | 11 | 10 |
| Due within the second to fifth years inclusive | 9 | 1 |
| | 20 | 11 |

## 11. RECONCILIATION OF MOVEMENTS IN MEMBERS' FUNDS

| | Restricted funds £000 | Income and expenditure account £000 | Revaluation Reserve £000 |
|---|---|---|---|
| **Opening members' funds** | 8 | 370 | 172 |
| Surplus for the financial year | 16 | 1 | - |
| **Closing members' funds** | 24 | 371 | 172 |

## 12. COMMITMENTS

There were no unprovided capital commitments at the end of the financial year (2002 : nil)

## 13. 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 £14,541 (2002 : £15,757). There were no outstanding contributions at the year end (2002 : £nil).

**END OF AUDITED ACCOUNTS**

# Prize and Memorial funds

| RESTRICTED FUNDS | Balance on 30 June 2003 £ | 2002 £ |
|---|---|---|
| The J Fraser Shepherd Prize Fund | 983 | 958 |
| DXpedition Fund | 2,010 | 1,325 |
| K M Bennett Legacy Fund | 944 | 1,018 |
| Radio Communications Foundation | 20,096 | 4,756 |
| Total Restricted funds | 24,033 | 8,057 |

| TRUST FUNDS | Balance on 30 June 2003 £ | 2002 £ |
|---|---|---|
| The Pilot Officer Norman Keith Adams Prize Fund | 938 | 905 |
| The Legacy fund | 12,185 | 11,884 |
| Total Trust funds | 13,123 | 12,789 |

# Income & Expenditure Account for the Year ended 30 June 2003

| | 30 June 2003 £ | £ | 30 June2002 £ | £ |
|---|---|---|---|---|
| **Income** | | | | |
| Subscriptions | 867,095 | | 864,106 | |
| RadCom Advertising | 175,635 | 1,042,730 | 177,444 | 1,041,550 |
| Books and Products for Resale | | 314,772 | | 356,302 |
| Other Services | | 185,756 | | 148,882 |
| **Total Income** | | **1,543,258** | | **1,546,734** |
| **Contribution from Subscriptions, *RadCom*, Publications and Services** | | | | |
| Subscriptions net of *RadCom* Publication Costs | 677,491 | | 656,875 | |
| Amateur Radio Costs, net of income | (96,875) | 580,616 | (115,679) | 541,196 |
| Books and Products for Resale | | 144,832 | | 139,637 |
| Other Services net of expenses | | 23,579 | | 19,563 |
| **Total Contribution from Activities** | | **749,027** | | **700,396** |
| **Less Non Activity Specific Overheads** | | | | |
| Commercial Costs | (144,167) | | (150,153) | |
| Administration | (315,612) | | (313,224) | |
| Despatch | (48,894) | | (47,876) | |
| Professional fees | (36,833) | | (8,725) | |
| Office Costs | (111,836) | | (112,766) | |
| Landlord Costs | (44,804) | (702,146) | (47,494) | (680,238) |
| **Net Surplus/Deficit from Activities** | | **46,881** | | **20,158** |
| Interest Income | | 17,016 | | 16,756 |
| Non-recurring expenditure | | - | | (28,500) |
| Building renovation | | (47,346) | | - |
| Re-organisation | | (15,077) | | - |
| **Retained Surplus for the Financial Year** | | **1,474** | | **8,414** |

**Note:** Amplification of the published accounts is confined to this section of the results.

# Formal Minutes of the 76th Annual General Meeting of The Radio Society of Great Britain

**Held on 7 December 2002 at the University of Wales, Swansea.**

**Resolution 1:** To receive and, if approved, confirm the minutes of the 75th Annual General Meeting.

**Proposed:** Jeff Smith, MI0AEX.

**Seconded:** Harry Bellfield, G3SBV.

The motion was carried on a show of hands with one abstention.

**Resolution 2:** To re-appoint the auditors KPMG and to authorise the Board to fix their remuneration.

**Proposed:** Bob Whelan, G3PJT.

**Seconded:** Don Beattie, G3BJ.

The motion was carried on a show of hands with one abstention.

A report of the informal proceedings of the meeting was published in the March 2003 edition of *RadCom*.

***Peter A Kirby, G0TWW***
***Company Secretary***

# Regional Managers' Elections

## PETER THOMSON GM1XEA (DOB 02.02.46)

**(CANDIDATE FOR ELECTION AS REGIONAL MANAGER FOR REGION 2 – SCOTLAND EAST & THE HIGHLANDS)**

**CURRICULUM VITAE**

Age 57. Married with two adult children. Employed as power electronics engineer. I have been licensed and an active member of Raynet for approximately 20 years. As a volunteer with the Red Cross I have been providing first aid service and training for 12 years. I was also a member of the Royal Observer Corps for 14 years until its stand-down in 1995. By being active in both the Red Cross and Raynet, I have been able to facilitate a good degree of co-ordination between the two organisations locally. My role in the ROC was largely on the communications side.

**PERSONAL STATEMENT**

My first aim, if elected, is to improve the effectiveness of the present system in this region of well spread members and clubs. Being resident in Aberdeen, as this is as near central as possible for Region 2, I shall work to ensure that all affiliated clubs are actively supported by the regional organisation.

**PETER THOMSON NOMINATED BY**

| | Known for (years) |
|---|---|
| **Andrew R Haxton**<br>**GM0ARH, Montrose** | 15 |
| **Adam Davidson**<br>**MM0KZV, Aberdeen**<br>President, Aberdeen ARS | 4 |
| **Ian Munro**<br>**GM4GVK, Aberdeen**<br>Treasurer, Aberdeen ARS | 1 |
| **George A Anderson**<br>**GM0VGI, Bridge of Don**<br>Committee Member, Aberdeen ARS<br>Secretary/Treasurer, Grampian Repeater Group | 12 |
| **Stanley Sutherland,**<br>**GM4BKV, Aberdeen**<br>Chief Instructor, Grampian area at least 13 years.Committee member, Aberdeen ARS | 20 |

## RAY RICKETTS GW7AGG (DOB 03.10.51)

**(CANDIDATE FOR ELECTION AS REGIONAL MANAGER FOR REGION 7 – SOUTH WALES)**

**CURRICULUM VITAE**

I am currently co-opted Regional Manager for South Wales after being a Deputy Manager for Ceredigion. I have appointed two new Deputy Managers, and am on the EMC Committee. I am the secretary and rally organiser for the Aberystwyth Amateur Radio Society, and co-edit a newsletter on behalf of five clubs in West and Mid Wales. I have been secretary of the Aberystwyth Society for 14 years, and on the committees of North Dyfed Raynet and a defunct Packet Group. I am active in putting on events, providing news and supplying communications for Raynet.

**PERSONAL STATEMENT**

I am widening the opportunities for promotion and networking to keep our hobby alive, active and developing, and would hope to continue by working with, training and learning from interested or potentially interested people to increase the numbers of amateur licence holders and members of the RSGB. Working now for a business support company and previously for a company making radio telemetry equipment has helped to create and encourage links between business, the public sector and private individuals. I advise on the communication requirements of businesses in rural areas, specifically on broadband, and work with the broadcasters, the Radiocommunications Agency and the Wales Information Society on bandwidth, frequency and satellite coverage - this experience can and will help to promote the Society and benefit those in the amateur radio fraternity.

**RAY RICKETTS NOMINATED BY**

| | Known for (years) |
|---|---|
| **Dr Julian C Eastwood**<br>**GW8ONP, Aberystwyth** | 11 |
| **David Lloyd Williams**<br>**GW4TUC, Borth**<br>Chairman, Aberystwyth Radio Society | 15 |
| **James Whitlock Davies**<br>**GW6JWD, Borth** | 15 |
| **Elfyn Thomas**<br>**GW3PXY, Bow Street** | 15 |
| **Christopher Michael Davies**<br>**GW7HAE, Aberystwyth**<br>Treasurer, Aberystwyth & DARS | 15 |

# Regional Managers' Elections

## PETER LOWRIE MI5JYK (DOB 11.10.68)

(CANDIDATE FOR ELECTION AS REGIONAL MANAGER FOR REGION 8 – NORTHERN IRELAND)

**PETER LOWRIE NOMINATED BY**

| | Known for (years) |
|---|---|
| **William Robert McVeigh**<br>**MI0CTA, Belfast**<br>Secretary, GI0URN<br>North Ireland Committee Member<br>Radio Amateur Invalid and Blind Club | 20 |
| **Jim Barr**<br>**GI1CET, Belfast** | 13 |
| **John Roberts**<br>**GI0USX, Belfast**<br>Chairman, GI0LIX | 11 |
| **David Kyle**<br>**MI5KAW, Ballyclare**<br>Member of Bangor & DARS<br>Member of Raynet NI | 15 |
| **Jeffrey Smith**<br>**MI0AEX, Kirkistown**<br>Chair, NI Packet Working Group<br>Committee member, Bangor Radio Society<br>Chair, Bangor & DRS<br>Council Member Zone F<br>Regional Manager Region 8<br>Director Membership Services<br>President-elect | 8 |

**CURRICULUM VITAE**

I have been a licensed amateur from 1991 but have been involved with radio for over 19 years. I manage a small commercial printing and graphic design business and through this have developed interpersonal skills in my daily dealings with the general public and the ability to see the needs of clients and how best to facilitate them and experience for budget management. I am currently serving as Deputy Regional Manager for District 81 and am a member of various clubs and groups within the Northern Ireland area.

**PERSONAL STATEMENT**

Over the years I have taken a keen interest in all aspects of amateur radio both North and South. I want to use the experience I have of our great hobby to ensure that Northern Ireland continues to flourish within the Society thereby maintaining the tradition of strong representation from this Region. I believe it is important to ensure that the needs, wishes and concerns of all amateurs are understood at national level. I am fully committed to the new regional structure and will ensure that I represent all members by managing the resources of the RSGB in Northern Ireland wisely whilst ensuring that the views of Northern Ireland amateurs are clearly heard nationally.

## PAUL BERKELEY M0CJX (DOB 21.02.51)

(CANDIDATE FOR ELECTION AS REGIONAL MANAGER FOR REGION 9 – LONDON & THE THAMES VALLEY)

**CURRICULUM VITAE**

Licensed in 1967 as G8CBN then M0CJX for the last six years. Started work as an apprentice for Decca. Held a number of appointments in management mainly in military and commercial radio comms. Has been running his own business for 10 years in engineering design and manufacturing and lately diversified into commercial photography and running radio rallies.

**PAUL BERKELEY NOMINATED BY**

| | Known for (years) |
|---|---|
| **John Weller**<br>**G0GNA, Dorking**<br>Vice-Chairman, Dorking & DRS | 5 |
| **Garo Molozian**<br>**G0PZA, Sunbury on Thames**<br>Chairman, Whitton ARG | 3 |
| **David Bowman**<br>**G0MRF, Hounslow** | 3 |
| **Brian Cannon**<br>**G8DIU, Worcester Park** | 5 |
| **Martin Charman**<br>**G4FKK, Carshalton** | 5 |

**PERSONAL STATEMENT**

My main activities in radio and HF DXing and have a special interest in aerial experimentation. I have produced quantities of PicATUne bare PCBs to help people undertaking this project. I am very keen to encourage young people in taking up the hobby and see the RSGB as the vehicle to strengthen all aspects of ham radio in the UK. I see rallies as an important aspect of the hobby, where we can meet each other and socialise with other like-minded people. As Regional Manager I believe I can work as part of a team to bring about the changes required to move the hobby forward.

# Election of Board and Regional Council for 2004-2006

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 two vacancies on the Board and five vacancies on the Regional Council. There being no 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:**

## Regional Council

**Region 2 (Scotland East & the Highlands) –** Peter Thomson, GM1XEA, Elected Unopposed.

**Region 7 (South Wales) –** Ray Ricketts, GW7AGG, Elected Unopposed.

**Region 8 (Northern Ireland) –** Peter Lowrie, MI5JYK, Elected Unopposed.

**Region 9 (London & the Thames Valley) –** Paul Berkeley, M0CJX, Elected Unopposed.

Note: No nominations were received for the vacancy in Region 10 (South & South East).

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

**Back of Election Form**

# 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 6 December 2003 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 76th Annual General Meeting as circulated to all members with the November 2003 RadCom. | | |
| **RESOLUTION 2** To appoint the auditors KPMG LLP and to authorise the Board to fix their remuneration. | | |

Signature .....Dated .....2003

**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 Dr R C Whelan, 36 Green End, Comberton, Cambridge CB3 7DY, 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 28 November 2003. 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**

# 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 77th Annual General Meeting of the Radio Society of Great Britain will be held at the University of Wolverhampton, the Shropshire University Campus, Priorslee, Telford on Saturday 6 December 2003, commencing at 12.00 noon for the transaction of the undermentioned business:

## Agenda

1. To receive and, if approved, confirm the minutes of the 76th Annual Meeting circulated to all members with the November 2003 edition of RadCom. (Resolution 1)
2. To receive and consider the accounts for the year ending 30 June 2003 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 2004.
4. To call for volunteer scrutineers for the 2004 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 11.50am. Doors will open at 11.30am. Refreshments will be available.

(b) A Society bookstall will be open from 11.30am – 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***
***15 October 2003***

## On Completion of the AGM

1. Presentation of awards
2. President's address

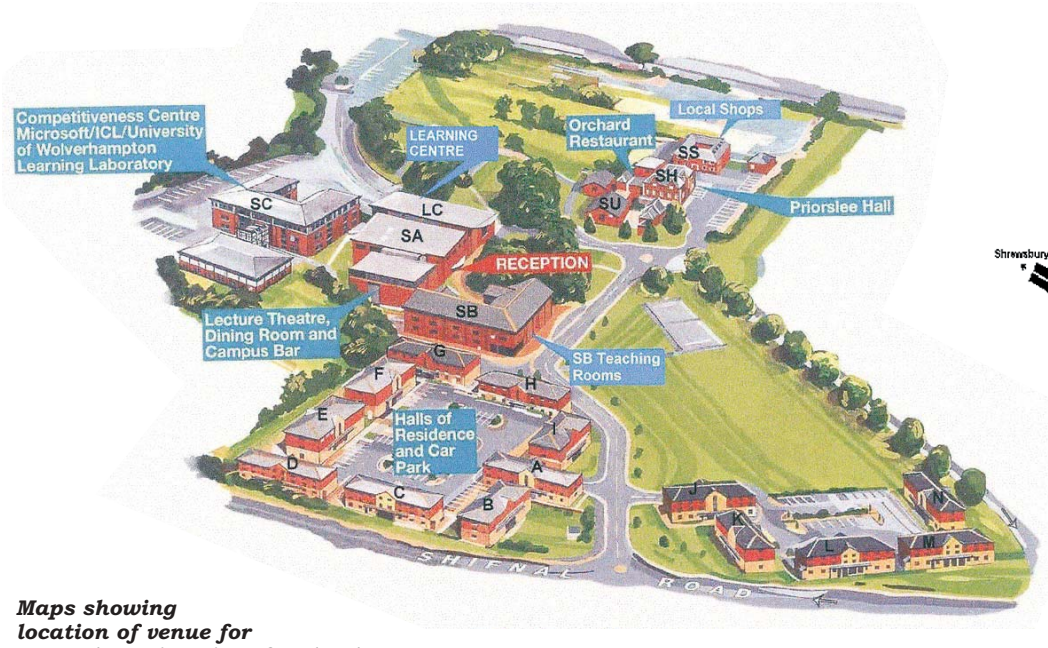
A buffet lunch will be available at 1.00pm. Lunch tickets, price £3.50, will be available on the day.

## Open Forum

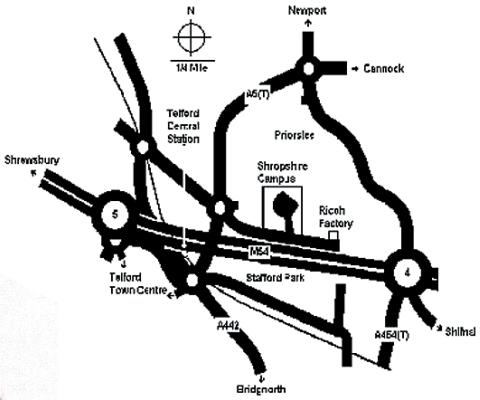
The Open Forum will commence at 2.00pm and end at 4.00pm.

## 2003 Amateur Radio Dinner

The 2003 Amateur Radio Dinner will be held in 'The Refectory', the Shropshire University Campus, Priorslee, Telford, commencing at 7.30pm. Tickets, price £20.00, are available from the following sources: RSGB HQ, tel: 0870 904 7373, and from Dr Roy Clarke, G8AYD, tel: 01952 820833, e-mail: roy@rclarke.com Please book as soon as possible. The dinner is open to members and non-members.




***Maps showing location of venue for AGM: the University of Wolverhampton, the Shropshire University Campus, Priorslee, Telford.***




***Leave the M54 at Junction 4 and follow signs for the University, or at Junction 5 follow signs for Stafford Park, Priorslee and then for the University.***

# The Committees of the Board

**The name and callsign of each Chairman is shown in bold. All full, corresponding and liaison members are shown. The President is an ex-officio member of all committees. Committee members listed served during the period 1 July 2002 to 30 June 2003.**

**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 (Board Liaison); F C Handscombe, G4BWP (Board Liaison).

**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: Colin Thomas, G3PSM**; M Phillips, G3RFX; K Kahn, G3RTU; Dr J Gould, G3WKL; Dr R Nash, G4GEE; S Kahn, G0STU; J Butcher, G3LAS; F Handscombe, G4BWP; C Cummings, G4BOH; P Maile, MI0BME; G L Adams, G3LEQ (Board Liaison).

**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**; Bob Whelan, G3PJT; Ken Ashcroft, G3MSW; Dave McQue, G4NJU; R Horton, G3XWH, Ed Taylor, G3SQX; Peter Kirby, G0TWW, General Manager, RSGB HQ; Mark Allgar, M1MPA, RSGB HQ; Marilyn Slade, RSGB HQ.

**MICROWAVE: Julian Gannaway, G3YGF**; G Shirville, G3VZV; R W L Limebear, G3RWL; L P D Kellett, G8KMH; D R Edwards, G8BFV; B Chambers, G8AGN; R A Stewart, G4PBP; P E F Suckling, G4KGC; P G Murchie, G4FSG; D J Robinson, G4FRE; E R Jewell, G4ELM; M G Kinder, G0CZD; S M Lewis, GM4PLM; S J Davies, G4KNZ; A C Talbot, G4JNT; S T Jewell, G4DDK; C W Suckling, G3WDG; P E H Day, G3PHO; M W Dixon, G3PFR; G L Adams, G3LEQ; M H Walters, G3JVL; S Chettle, G8ATB.

**MORSE TEST STEERING: David Waterworth, G4HNF**; Bob Whelan, G3PJT; P A Kirby, G0TWW; C I B Trusson, G3RVM (Deputy Chief Examiner).

**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

**PROPAGATION STUDIES: Prof Martin Harrison, G3USF**; G Williams, G4FKH; Dr S J Reed, G0AEV; N Clarke, G0CAS; R G Cracknell, G2AHU; C J Deacon, G4IFX; Dr G H Grayer, G3NAQ; C E Newton, G2FKZ; S Nichols, G0KYA; Dr A H E Williams, G4WWA; A Melia, G3NYK; C J W Thompson G3PEM, C J Deacon G4IFX, D Ackrill, G0DJA; Prof L W Barclay, G3HTF; W M Dunell, G3BYW; R G Flavell, G3LTP; Dr E H N Oakley, M1BWR; S J M Whitfield, G3IMW, G L Adams, G3LEQ (Board Liaison).

**REPEATER MANAGEMENT: Carlos Eavis, G0AKI**; W Mahoney, G3TZM; L Baddesley, G8LXI; A Horsman, G0MBA; A Barrett, G8DOR; C Dalzeil, GM8LBC; M Lewis, GW7KDU; D Wilson, M0OBW; G Shirville, G3VZV.

**TECHNICAL AND PUBLICATIONS ADVISORY: Tony Plant, G3NXC**; M J Willis, G0MJW; R J Newstead, G3CWI (resigned during the year); P B Dodd, G3LDO; J D Harris, G3LWM; D J Walker, G3OLM; P Chadwick, G3RZP; J Wilkinson, G4HGT; E David, G4LQI; R H Biddulph, M0CGN; P H Saul, G8EUX; P J Swallow, G8EZE; F Floyd, GW5AF; C V Smith G4FZH; P B Buchan, G3INR; M D Addlesee, M0BLP;R M Page-Jones, G3JWI.

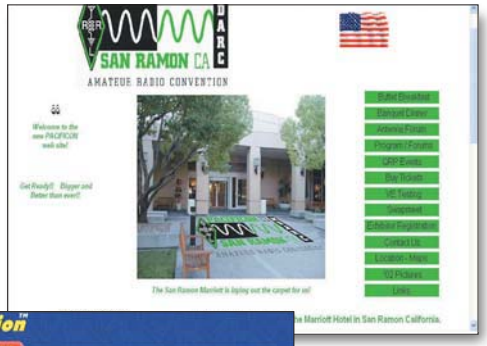
**VHF: Mike Adcock, GW8CMU**; A G Hobbs, G8GOJ; I Philipps, G0RDI; A Jarvis G6TTL; I L Cornes, G4OUT; D J Butler, G4ASR; J F Wilson, G3UUT; G Shirville, G3VZV; R W L Limbear, G3RWL; M W Dixon, G3PFR; J R Morris, GM4ANB; I F White, G3SEK; G H Grayer, G3NAQ; N A S Fitch, G3FPK; C V Farlow, G0RUZ; J P H Burden, G3UBX; G L Adams, G3LEQ

**VHF CONTESTS: Andy Cook, G4PIQ**; P S Lindsay, G4CLA; I W N Pawson, G0FCT; S W Redfern, G4AEQ; R Piper, G3MEH; T Boon, M0AFC; M Jeffery, M0MAT; R Dixon, G4BVY; L Volante, G0MTN; M Goodey, G0GJV.

**HONORARY OFFICERS:**
**Amateur Radio Observation Service:**
B H Scarisbrick, G4ACK
**GB2RS News Manager:**
G Adams, G3LEQ
**HF Manager:**
C Thomas, G3PSM
**HF Awards Manager:**
J Dunnington, G3LZQ
**IEE Liaison Officer:**
P H Saul, G8EUX
**Intruder Watch:**
C Cummings, G4BOH
**IOTA Manager:**
R Balister, G3KMA
**Microwave Manager:**
M Dixon, G3PFR
**Radio Communications Voluntary Services National Coordinator:**
P Gaskell, G4MWO
**Society Historian:**
John Crabbe, G3WFM
**VHF Manager:**
D Butler, G4ASR
**VHF Awards Manager:**
A Jarvis, G6TTL
**Volunteer Registered Instructors Coordinator:**
R Snary, G4OBE.

By Jeremy Boot, G4NJH.
E-mail: jp.boot@ntlworld.com

# WWW





*Top: The Pacificon homepage.*

*Left: Want to find a computer show? This may be the answer.*

**Rallies, conventions, meetings – any excuse for amateurs to get together! Here, we explore what the Internet has to offer to cheer us on during dark UK winter nights.**

## RALLIES, HAMFESTS & OUTINGS

By the time this article is published, the radio rally season in the UK will be all but finished. Rallies are fun to attend, however, and I have just been to the Leicester Show at Donington Park. As usual, it was professional, sophisticated, highly organised and a credit to the hobby.

## IMPACT

In its ancient form, the Leicester Show used to take place at the Granby Halls in Leicester, which were, to say the least, in a state of fast decay when I first went there in about 1978. I remember feeling very overawed by the erudite and sometimes somewhat eccentric brethren who frequented it. There was much old equipment around at that time and certainly nothing resembling a computer. Indeed transistors were somewhat sniffed at by purists. I had gone there to look for receiving equipment, being a new SWL. I can't remember what I did buy in the end, but the effect of that first visit was lasting and I have rarely missed a Leicester Show since.

I wanted this month to see what Internet pages I could discover broadly on the subject of rallies or at least get-togethers. Are they the same in all countries? But before doing that, useful UK pages I came across were the Bridgend and District ARC. The list of UK rallies was up to date and easy to follow. The pages indeed are well worth visiting for all their other content and I was impressed by the design.

### COMPUTERS TOO

I note that they include (separately) computer fairs. Now associating radio rallies with computers in some minds is a sore point, but interest in one will often include interest in the others these days, and most radio rallies combine the two. Speaking of computers, I would recommend as an invaluable guide to UK computer rallies the Computer Fairs page (commercial). It has searchable areas and up to date information.

Via the IRTS pages (Ireland), I jumped to the South Dublin Radio Club. I liked the site, which had a very smart photo album of various events as well as other local items. Not much about rallies, though.

### ABROAD

The US rarely keeps a low profile, and we all know about the Dayton Hamvention, so that seemed a good starting point. The Hamvention pages give various links and information as well as personal photos etc of happy participants. I have never been to Dayton, but aficionados never cease to sing its praises. It certainly is very big. You can find a good photo gallery of 2003's event on WD5BJQ's pages by Keith LaBorde, K4KAL.

Were I within reach of Duke City, Albuquerque New Mexico, I could be tempted to go to their rally which includes some very interesting talks from 'Getting Kids Involved in Ham Radio', presented by Margie Burgoin, KB1DCO, of the ARRL, through 'Batteries for Portable and Hamshack Operation', presented by Jim Duffey, KK6MC, to 'Transmitter Hunting Workshop', by Jerry Boyd, WB8WFK, I note too that the rally operates from 7.30am to 8pm – no half measures there.

Other US hamfests you can get from the Hamfest Calendar, which is exactly what it says it is. A last stop for the US is Pacificon in San Ramon, California. These events in the US start early with breakfasts - that seems an excellent idea.

More exotically, but without photos, is your personal invitation to Mexico's Convención Puerto Vallarta by the Federación Mexicana de Radio Experimentadores (FMRE) with a full programme of talks and experiments. Nearer home, the REF page from France announces 'Le plus grand salon de l'année' at Auxerre (too late by the time you read this, sorry).

Iceland (Íslenkir Radíóamatörar) shows us some pictures from their 1999 Scout get-together and some of their pages are in English.

I liked the Singapore Pages (SARTS) which give us a glimpse of the St John's Island SARTS field day. Very nice too.

I searched in vain for rallies in Japan. But I did find a nice trip around Japan call areas page, so, straying a little from the subject, see JJ1XPJ's page. Russian pages, likewise, are difficult to find, but see RK3AWL's HF Contest Club activities – very professional.

The South Burnett (Queensland) pages are a treat to navigate (radio separate). Again, not strictly a rally but what's a 'barbie' between friends in VK?

## CAREFUL SEARCHING

To the above, doubtless with a bit of careful searching, you can add more links. These (as always) are a taste of what is out there, not a definitive and exclusive list. As ever, it is worth taking a little time to refine your search. Global words or phrases, such as 'ham' or 'ham radio' can result in enormous lists which are not helpful. As I discovered in this article, a 'rally' is principally a UK term, and other words are used in the US and elsewhere. Alas, US usage in many subjects tends to be the norm, so bear that in mind. ◆

### WEBSEARCH

| | |
|---|---|
| **Bridgend & DARC** | www.hamradio-badarc.co.uk/radio_rallies.htm |
| **Computer Fairs** | www.computerfairs.co.uk/ |
| **IRTS** | www.irts.ie/links.htm |
| **S Dublin RC** | www.qsl.net/ei2sdr/ |
| **Dayton Hamvention** | www.hamvention.org/ |
| **WD5BJQ** | www.qsl.net/wd5bjq/hamvent03.htm |
| **Duke City** | www.qsl.net/dchf/ |
| **Hamfest Calendar** | www.suhfars.com/hamfest.htm |
| **Pacificon** | www.pacificon.org/ |
| **FMRE Mexico** | www.fmre.org.mx/convencion/index.html |
| **REF Auxerre Salon** | www.ref-union.org/auxerre/index.php |
| **Iceland** | www.ira.is/index_ensk.html |
| **SARTS (Singapore)** | www.sarts.org.sg/ |
| **Japan JJ1XPJ** | http://shinjuku.cool.ne.jp/jj1xpj/english/e_japan/seven/index.html |
| **RK3AWL** | www.rk3awl.ru/gallery.php?r=36&PHPSESSID=e2fb5f4ef43f74db7146f1d9dd87a231 |
| **South Burnett** | www.southburnett.net |

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By John Heath, G7HIA/M3BBX, Chestnuts, Desford Lane, Kirkby Mallory, Leicestershire LE9 7QF. E-mail: g7hia@amsat.org

Why not join in a real space project? This, and news of the latest SSTL contract are the main items this month.

# Space

## JOIN A SPACE RESEARCH PROJECT

The Russian Aviation and Space Agency (Rosaviacosmos), and its research organisation, are inviting radio amateurs with VHF capability to take part in their space 'Shadow' experiment.

Amongst space professionals, there is considerable interest in using electrical methods, rather than chemical rockets, for propulsion outside of the Earth's atmosphere. In one approach, electrical energy is used to heat up propellant to millions of degrees centigrade, creating a jet of plasma. Although producing a much higher exhaust velocity than conventional rockets, the thrust is much less. However, since electrical energy from solar panels is used, the plasma engine can run for long periods. Using propellants such as helium, hydrogen or ammonia, this technology offers the possibility to reduce the use of toxic rocket fuels. There is an important disadvantage to this technology, though. A plume of highly-charged plasma will scatter and reflect radio signals and produce a large radio shadow on Earth. Little practical research has been done on the effect, possibly because a large number of receiving stations would be needed with a good geographical spread to establish the extent and pattern of the shadow. Hence the invitation to radio amateurs from Rosaviacosmos.

In its experiment called 'SpEx Shadow', a plasma plume will be generated on the International Space Station (ISS) and a VHF signal will be transmitted at the same time using AX25 packet. Ground stations will monitor the signals and accurately time the point of signal cut of for their location. Using the Internet, observations will be collected and analysed, the shadow mapped and the data evaluated for refraction and scattering effects. This fundamental research is of great importance in the further development of this new technology. There will be a 'cold test' with no plasma released, so that participating stations will be able to set up and check out their systems. This should happen before the end of 2003. The 'hot test' will take place about 12 months later. Full details are on the website, together with registration details.



**WEB SEARCH**

| | |
|---|---|
| Shadow Experiment | www.tsniimash.ru/Shadow |
| The British Interplanetary Society | www.bis-spaceflight.com |
| Cubesat XI-IV | www.space.t.u-tokyo.ac.jp/index.html |
| Cute-1 | http://lss.mess.titech.ac.jp/ssp/cubesat |

## SURREY SATELLITE TECHNOLOGY WINS ESA CONTRACT

*Spaceflight* [1] reported SSTL's success in winning a contract with ESA worth £20 million, for the construction of the first test satellite for Europe's global navigation system *Galileo*. The demonstrator satellite called *Galileo System Test Bed V24* will provide the first *Galileo* signals from space, and measure the radiation environment in the proposed *Galileo* orbit which will be 23,616km circular with a 56° inclination.

## CubeSat UPDATE

Several of the cubesats are transmitting strong signals. XI-IV and Cute-1 have been monitored at my location, and at the National Space Centre. Signals from the CW beacons are easily decoded with soundcard software such as *Hamscope*, which I use. Pick some low elevation orbits, use the AFC feature in the software. You will still need to counteract the Doppler shift to keep the received audio centered for the decoder. If you have fixed-elevation antennas for 70cm, still give it a try. You will get good results on the low passes.

Both the websites have more information, telemetry decode equations and how to apply for the QSL cards. Cute-1 has downloadable analysis software, which converts your decoded CW into the spacecraft data.

## COLLISIONS IN SPACE

In May this year, the *Progress M47*, docked to the ISS, fired its thrusters for seven minutes to raise the station' orbit by 1.8km to avoid a potential collision with the Italian mini-satellite *MegSat* launched in 1999. This was the sixth time that the ISS orbit has been raised to take it outside the collision zone.

## AO-40 OPERATING TIP

Finding your downlink can be tricky, as there is Doppler shift to compensate, and the frequency change in your downconverter. You may not have a fully-computerised system for controlling your radio or, like me recently, your trusty old DOS PC may go on the blink. Faced with going back to doing it the old-fashioned way I came across this simple method, which works every time with my FT-847. The principle should work for several modern transceivers.

1. Unlock the transmit and receive.
2. Find the beacon and peak the received signal.
3. Set the transmit for 435.665MHz whilst continuing to receive the beacon.
4. Lock the transmit and receive for reverse tracking.
5. Move up to 2401.430MHz or so where there are few QSOs and find your signal.

I don't know where this tip came from, and neither did Don, KC4YRY, who gave it to me, but I am grateful to the originator. If you find it useful, please pass it on.

### MORE DETAIL FOR THE FT-847

If you are having difficulty setting this up on your FT-847, e-mail me, or send an SAE, and I will give you the fully-detailed description with the button presses. ◆

***To receive QSL cards such as these, send your reception reports to the CubeSat builders. Details are on the websites.***

**REFERENCE**

**[1]** *Spaceflight* is the monthly magazine of the British Interplanetary Society.

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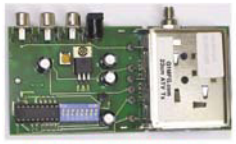

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By Steve Hartley, G0FUW, 5 Sydenham Buildings, Lower Bristol Road, Bath BA2 3BS. E-mail: newcomers.radcom@rsgb.org.uk

Another busy month with lots of news to cover. Keep it coming!

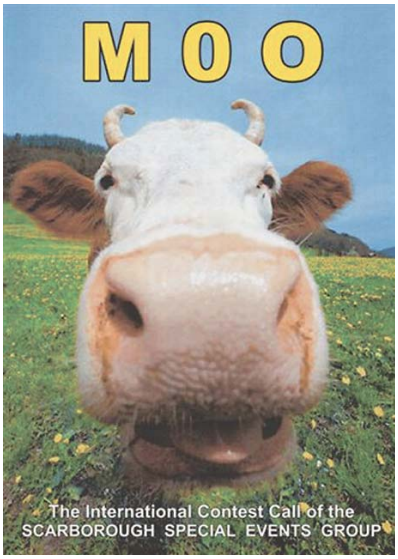
# Newcomers' news

The Foundation Licence is a great introduction to amateur radio but it does have its limitations. Probably the two best known are the 10W limit on transmit power and the absence of 28MHz from the licence schedule. However, there are a few more points that are not included in the licence, and are therefore not permitted.

Ian Carter, G0GRI, from the Trowbridge & District Amateur Radio Club, reminded me of an incident we came across back in the late spring that is worthy of a mention. A very well-meaning M3 operator was heard hosting a demonstration station and supervising non-licence holders passing greetings messages. He was doing a fine job, promoting the hobby and encouraging newcomers to get on the air, but unfortunately he was doing so illegally! Neither the Foundation nor the Intermediate Licences permit the passing of greetings messages or the supervision of others, even if they hold an amateur Licence themselves. The important thing to remember is that your 'Station' is your callsign. Another licence holder can operate your equipment but they would have to use their own callsign, suffixed /P or /M as appropriate.

Related to this is a point about radio contesting. Most contests have separate classes for single and multiple operator stations. However, only the *Full* Licence allows the holder to supervise other operators. So, even if a group of M3s and 2Es got together to enter a contest, only one of them could operate the radio. The rest could assist with antenna building, logging, brewing up the coffee, and all the other important contest activities, but they could only operate under their own callsigns.

The third point was made very well by Paul Gaskell, G4MWO, in the September *RadCom*. The Foundation Licence does not currently allow the holder to pass messages on behalf of User Services, so M3s cannot play a fully active role in Radio Communications Voluntary Services, such as Raynet. Again, they can assist with non-radio activities, or operate the station of a Full licence holder under supervision, but we should not hear Foundation callsigns in emergency exercises or acting as marathon marshals.




*Left: The contest QSL card of the Scarborough Special Events Group (see 'Scarborough Fun').*

So, if you hold a Foundation or an Intermediate Licence and find these restrictions too limiting, perhaps it is time to look to the next stage of your 'self-training in wireless telegraphy'? Give it a try, I am sure you will enjoy it and the additional licence privileges are well worth the effort.

## PETE'S PROGRESS

Pete Weymouth, M3XAT, came to one of my Foundation courses last year with the intention of getting on the air, but going no further. However, his success spurred him on to attend Intermediate and then Full Licence classes. In May this year he passed the RAE to gain his Full licence callsign, M1SOM.

Pete took a gamble and let his M3 callsign lapse in anticipation of the World Amateur Radio Conference (WARC) decision that the Morse test would no longer be a requirement for HF operation. His gamble paid off because the very day his Foundation Licence expired confirmation of the WARC news appeared on the RSGB website. That weekend he was back on HF with his M1 callsign and a little bit more power.

*Left: Jim Smith, M3CAH, now 2E0JPS, building a receiver as part of his Intermediate training (see 'More from CARS').*

Pete has recently acquired a 108ft trap dipole from G2DYM and reports that it is working a treat with no trace of EMC problems. He has it running around his garden in a rectangle about 20ft above the ground. Five days after putting up the antenna he had worked over 40 countries. He even broke through a pile-up to work Costa Rica. He is now planning to add a small beam antenna to his station in Taunton. Good luck Pete!

## MORE FROM CARS

The Chelmsford Amateur Radio Society (CARS) has been inundated with requests for Intermediate training. As well as offering additional formal courses the club hopes to introduce a 'fast-track' system to enable some Intermediate candidates to study at home and then attend the practical assessments and written exam. Sounds a good idea, especially for those who work shifts or live in remote areas.

The tutors at Chelmsford have already produced their own *PowerPoint* slide show to support their training. Clubs or course tutors who would like a copy of the CARS slides should send four First Class stamps to: CARS, PO Box 112, Danbury, Chelmsford CM3 4DF.

For further details on CARS Intermediate and Foundation courses contact the training officer Clive Ward, M0SIX, on 01245 224577 or e-mail: training@g0mwt.org.uk

## SCARBOROUGH FUN

Roy Clayton, G4SSH, says "amateur radio should be fun". The Scarborough Special Events Group, G0OOO, also holds the short contest club call, Mike Zero Oscar or M0O, which is often used by M1 and M3 newcomers to gain experience on the HF bands.

The group has shown that you do not need high power to enter contests, as they have a collection of certificates for leading G station in the QRP sections of the CQWW and *CQ* WPX contests. The group tends to use a Ten-Tec Argonaut transceiver with a vertical or inverted V antenna for the QRP contests.

Not only does the group have great fun operating Special Event Stations and entering contests, but their sense of humour also spills over to their QSL cards (see picture).

Further information about the Scarborough Special Events Group can be had from Roy, the chairman, at 9 Green Island, Irton, Scarborough YO12 4RN. ◆

# Kenwood TH-K2E and TH-K2ET 2m Handhelds

Kenwood describe the TH-K2 handheld as being "in a class of its own". It's a 'no-nonsense' single-band (144 – 146MHz) handheld thats built to do the job, tough enough to survive rough use outdoors, with uncomplicated controls. It *isn't* a sub-miniature, do-everything, handheld that's packed with 'bells and whistles' and a wideband receiver; if you're after a tiny multi-band handheld with selective calling, built-in clocks, pretty icon pictures on the display and so on, look somewhere else. But if instead you're looking for a 'Down To Earth' handheld – yet with all the facilities you need to get you contacts – you could be looking in the right place.

## VERSIONS

There are two versions of the TH-K2. The first is the basic no-keypad version, the TH-K2E, and the second the keypad version which adds the facility of direct frequency entry and DTMF on transmit, the TH-K2ET. A 70cm version, the TH-K4E (without key pad) is also available.

The transceiver isn't tiny, instead it's a comfortable 'hand-held' size of 58 x 110 x 35.8mm, weighing in at 320g with the supplied battery pack attached. The TH-K2E covers 144 – 146MHz on transceive, with a nominal 5W output from the transmitter. Mid and low power levels of 1.5W and 0.5W can also be selected. It can be switched between 'normal' (25kHz channel spacing) and 'narrow' (12.5kHz spacing) modes of operation.

*The TH-K2ET with the NiMH battery pack.*

It's also built for toughness, being compliant to the international IP54 standard for dust and water resistance and US Mil standards 810C, D, E and F for resistance to rain, vibration, shock and humidity. Which all means that yes, you *can* use it out in the rain, you *can* knock it about and drop it, get it covered in dust and still use it!

## TONES & MEMORIES

As well as CTCSS encode and selectable decode, Digital Coded Squelch is also fitted, as well as the usual 1750Hz toneburst for CTCSS-less repeater access – this of course is also very useful for use around Europe.

Up to 100 memory channels are available for you to store your favourite frequencies, each memory can also store a repeater shift and CTCSS/DCS frequency and status, scan status, and narrow/wide channel spacing. If 50 memory channels are enough for you, you can also add a six-character alphanumeric name to each memory channel, which you can display in place of the memory channel's frequency if you wish.

There are the usual selection of channel scanning functions, including VFO scan, memory channel scan, programmed VFO scan with three pairs of upper and lower scan limits, and a priority channel scan. As well as these, while you're receiving a signal on a given frequency you can start a CTCSS or DCS scan to see which, if any, sub-tone or DCS code is being used on that channel. Once it's found it, a single button press selects that tone for use. Handy if you're in a different repeater area to your own and you're not sure which, if any, CTCSS tone is being used. An 'automatic simplex check' can even be used, which briefly checks the repeater channel's input frequency every few seconds to see if you're in direct contact range.

You can connect the set to a PC with an optional cable and use Kenwood's MCP-1A software to manage the memory contents of the transceiver. This software is available for free download, go to www.kenwood.com/i/products/info/amateur.html if you'd like to take a look at it.

## POWER

The transceiver comes with a 7.2V 1100mAh nickel-metal hydride rechargeable battery pack, plus a mains charger which plugs into the side-mounted DC socket on the transceiver case. The set can also be powered, and charged at the same time, from an external 13.8V DC supply. For those times when you may not have a recharging source, an empty battery pack that holds six AA-sized alkaline cells is available as an option. To give you an idea of the battery life you've left while you're out in the field, the TX bar-graph doubles as a battery indicator in 'low power' transmit mode.

On receive, a switchable 'battery saver' can be used, which cycles the receiver power on and off during periods of no received signal. You can program the 'off' time in nine steps between 0.2s and 5.0s. To help your batteries going flat in the first place, an 'auto power off' facility can switch the set off after either 30, 60, 90, 120 or 180 minutes of no keys being pressed, and TX time-out timers of 3, 5, and 10 mins (but no infinite time-out) can be selected.

Besides the battery pack and charger, the transceiver comes supplied with a belt clip and carrying strap, a screw-on set-top antenna fitted with an SMA connector, and a user manual. Optional accessories include a clip microphone with earphone, a headset, another headset but with with VOX and PTT facilities, a DC power cable, various speaker microphones with some including extra push-button and volume controls, and a PC interface cable. The


*Right: The Kenwood TH-K2E and the TH-K2ET, with keypad,*

**Chris Lorek reviews what he calls a "Down To Earth" transceiver, suitable for beginners or anyone who wants a no-nonsense handheld without 'bells and whistles' but with good performance**

Revi

By Chris Lorek, G4HCL, PO Box 400, Eastleigh SO53 4ZF. E-mail: g4hcl@rsgb.org.uk

user manual even gives you the required connection details for external speaker/mic control buttons if you fancy having a go at making your own. In common with global manufacturing practice these days, rather than being Japanese-made the transceiver itself is made in Singapore, and the battery pack in Malaysia.

## IN USE

After having given the battery an initial charge, within seconds of switching the TH-K2E on I was having a contact. The radio really is easy to use, the TH-K2ET keypad version was also no problem at all. A dedicated 'Menu' button on the front panel accesses a multi-stage menu system via the click-step rotary knob to let you vary most of the settings, such a CTCSS tone, repeater offset, and so on. But I also found a few control methods which weren't immediately apparent, eg to vary the transmit power setting, rather than use the 'menu' facility, instead first push the 'F' button on the front panel, then the PTT. Repeated operations cycle the transmitter through High, Mid and Low powers settings, a small 'H', 'M' and 'L' being shown to the left of the large frequency display to show you which power setting you're on. Likewise to vary the squelch, a press of the 'F' button followed by a press of the small side-mounted MONI/SQL which otherwise unmutes the receiver is needed; the rotary knob then lets you vary the squelch level between six levels.

Just above the squelch defeat button is the lamp button. At nighttime this really came into its own, giving a superb and bright green backlight to not only the display but also the front-panel keys, including the digital keypad in the case of the TH-K2ET. At first I thought the added keypad buttons of the K H – K 2 E T wouldn't be of that much use, but I was surprised. As well as offering direct frequency entry, the keypad could also be used as a 'shortcut' for recalling memory channels and the like, simply by punching in the number rather than frantic knob-twiddling whilst watching the LCD. Eventually I became hooked with this simple and useful operation method. A slight 'oddity' I found with the keypad in VFO mode was that, when I tried a direct frequency entry of a 12.5kHz-spaced channel, such as my local repeater on 145.6625MHz, the set always jumped to the nearest 25kHz channel instead. But after a while I just used the memory channels, as there were plenty of them even in 'named' memory channel mode, for 2m use.

I tried the handhelds all around the UK, and although the user manual warns against the possibility of the receiver's S-meter 'lighting up' in cities due to overload without receiving any strong signals, I found not one instance of this, even in places like central London: top marks Kenwood! In fact the receiver's rejection of strong signals on a channel 25kHz away was very good indeed, when another handheld (my own, actually!) used in the same situation just couldn't cope. I did, however, get the impression the receiver wasn't quite as 'hot' in picking up weak signals as many other handhelds I'd used, possibly due to the relatively compact set-top antenna, although my transmitted signal usually seemed to cope quite well. Switching between narrow (12.5kHz) and wide (25kHz) modes not only gave a suitable decrease in the transmitted audio deviation, but also a comparative increase in receive audio level to compensate for the lower received deviation level, a nice touch!

Even in noisy surrondings, I found the stations contacted could hear my speech clearly despite the high background noise. To give an example, one instance was when travelling on a main-line steam train at around 70MPH with the usual noise (to say nothing of the dust, cinders and heat, which gave the handheld as well as the reviewer a nice coating to test the transceiver's climatic performance!) Although there was *some* background noise, my transmitted speech came through very well and was quite readable. Similarly on receive: plenty of audio from the front-panel speaker – no need for an earphone in noisy places.

**GLOSSARY**

| | |
|---|---|
| **CTCSS** | Continuous Tone Coded Squelch System; sub-audible tones used to activate repeaters. |
| **DCS** | Digital Coded Squelch; used to allow for quiet monitoring of signals within your own 'group'. |
| **Harmonics** | Unwanted emissions from a transmitter at multiples of the wanted frequency, eg 290MHz is the second harmonic of 145MHz. |
| **DTMF** | Dual Tone Multi Frequency signalling; telephone 'touch-tones', not much used in amateur radio in the UK. |
| **LCD** | Liquid Crystal Display, used for frequency displays etc. |
| **MONI** | Monitor button, allowing the Squelch to be bypassed. |
| **Nickel-metal hydride** | Type of rechargeable battery, an improvement on the earlier Nickel Cadmium or 'nicad' batteries. |
| **PMR** | Private Mobile Radio; professional business 'two-way' radio, as used by taxis, couriers etc. |
| **PTT** | Push To Talk (or 'Press To Transmit') button on transceivers. |
| **RF** | Radio Frequency, ie any radio transmissions. |
| **RX** | Receiver or receive. |
| **SMA** | A type of small screw-on antenna connector, typically used on handheld transceivers. |
| **SQL** | Squelch; a circuit which allows silent monitoring of a frequency (with no FM background noise) until a signal appears. |
| **Toneburst** | A short 'burst' of audio tone at 1750Hz necessary to activate some repeaters. |
| **TX** | Transmitter or transmit. |
| **VFO** | Variable Frequency Oscillator (often used to mean the frequency tuning knob). |
| **VOX** | Voice Operated Transmit; a circuit which automatically switches a transceiver from receive to transmit when a voice (or most other sounds!) is detected. |

*The TH-K2ET is a comfortable 'hand-held' size.*

## LAB TESTS

The receiver performance figures in terms of blocking and adjacent channel rejection were very good, although as found on air the receive sensitivity, ie the capability to pick up weak signals in the absence of others wasn't as good as many other current handhelds. Both sets gave the same sensitivity results to within 1dB, so as each were so similar only the results of one of the handhelds are given in the accompanying table. On transmit the harmonics were very well suppressed, with good control of peak deviation. After using and testing the transceiver, both on air and in the lab, I suspect it's actually of 'professional' performance, possibly being one of Kenwood's PMR designs that's been launched with amateur radio firmware instead (but I could be wrong!)

## CONCLUSIONS

A tough 'workhouse' of a 2m handheld, one that gets the job done and operates with no fuss. It's easy to use, offers very good receive signal handling for RF-congested locations, together with quality transmit performance. Both the TH-K2E and the keypad-equipped TH-K2ET were easy to operate, and would make a useful 'starter' 2m handheld or indeed as a second set to keep around the house or in the car.

Our thanks go to Kenwood Electronics UK Ltd for the loan of the review equipment. ◆

**KENWOOD TH-K2E LABORATORY RESULTS:**

Unless otherwise stated, all measurements taken on 145MHz, 12.5kHz channel spacing, high transmit power, using fully charged battery as supplied.

**RECEIVER**

**Sensitivity**
Input signal level required to give 12dB SINAD 0.21µV pd

**Squelch Sensitivity**
Level of signal required to raise receiver squelch
Threshold (1) 0.12µV pd (4dB SINAD)
Maximum (5) 1.06µV pd (25dB SINAD)

**Adjacent Channel Selectivity**
Measured as increase in level of interfering signal, modulated with 400Hz at 1.5kHz deviation, above 12dB SINAD ref level to cause 6dB degradation in 12dB on-channel signal.
+12.5kHz 43.9dB
-12.5kHz 46.6dB
+25kHz 75.8dB
-25kHz 75.2dB

**Blocking**
Measured as increase over 12dB SINAD level of interfering signal modulated with 400Hz at 1.5kHz deviation to cause 6dB degradation in 12dB SINAD on-channel signal.
+100kHz 85.9dB
+1MHz 90.2dB
+10MHz 94.2dB

**Intermodulation Rejection**
Measured as increase over 12dB SINAD level of two interfering signals giving identical 12dB SINAD on-channel 3rd order intermodulation product.
25kHz spaced signals: 65.4dB
50kHz spaced signals: 64.9dB

**Image Rejection**
Difference in level between unwanted and wanted IF image signal levels, each giving 12dB SINAD on-channel signals.
1st IF (38.85MHz) image: 74.7dB
2nd IF (450kHz) image: >90dB (blocking limited)
Half IF rejection: 84.8dB

**TRANSMITTER**

**Power Output**

| Level | Output |
|---|---|
| High | 4.23W |
| Med | 1.31W |
| Low | 0.43W |

**Harmonics**
2nd -79dBc
All others: <-90dBc

**Peak Deviation**
Narrow 2.20kHz
Normal 4.58kHz

**Frequency accuracy**
+72Hz

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**MR 650** 2 Metre 5⁄8 wave open coil (3.2 dBd Gain) (Length 52") (3⁄8 fitting) ..... **£9.95**

**MR268S** 2 Metre 5⁄8 wave 3.5dBd gain Length 51" S0239 fitting ..... **£19.95**

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*All of the above are suitable to any transceiver or scanner.*
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**RG213 best quality military spec** per mt ..... 85p
**H200 best quality military coax cable** per mt ..... £1.10
**3-core rotator cable** per mt ..... 45p
**7-core rotator cable** per mt ..... £1.00
***PHONE FOR 100 METRE DISCOUNT PRICE.***

## CONNECTORS & ADAPTERS

**PL259/9** ..... £0.75 each
**PL259/6** ..... £0.75 each
**PL259/7 for mini 8** ..... £1.00 each
**BNC (Screw Type)** ..... £1.00 each
**BNC (Solder Type)** ..... £1.00 each
**BNC for 9mm (RG213)** ..... £2.50
**N TYPE for RG58** ..... £2.50 each
**N TYPE for RG213** ..... £2.50 each
**SO239 to BNC** ..... £1.50 each
**PL259 to BNC** ..... £2.00 each
**N TYPE to SO239** ..... £3.00 each
**BNC to N-type** ..... £2.50
**SMA to BNC** ..... £3.95
**SMA to SO239** ..... £3.95
**SMA to PL259** ..... £3.95
**SMA to BNC (male)** ..... £3.95
**SO239 chasis socket round** ..... £1.00
**N-type chasis socket round** ..... £2.50
**SO239 double female** ..... £1.00
**N-type double female** ..... £2.50
**SO239 double female** ..... £1.00

## 10/11 METRE ANTENNAS

**G.A.P.12** 1/2 wave alumimum (length 18' approx) ..... £24.95
**G.A.P.58** 5/8 wave aluminium (length 21' approx) ..... £29.95
**S27-3** 3-element yagi. Freq: 27-28MHz. Length: 2.5mtrs. Gain: 8.5dB ..... £59.95
**S27-4** 4-element yagi. Freq: 27-28MHz. Length: 3.8mtrs. Gain: 10.5dB ..... £69.95

## BALUNS

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

## TRI/DUPLEXER & ANTENNA SWITCHES

**MD-24** HF or VHF/UHF internal duplexer (1.3-225MHz) (350-540MHz) SO239/PL259 fittings ..... £22.95
**MD-24N** same spec as MD-24 but "N-type" fittings ..... £24.95
**MD-25** HF or VHF/UHF internal/external duplexer (1.3-225MHz) (350-540MHz) SO239 fittings ..... £24.95
**MX2000** HF/VHF/UHF internal Tri-plexer (1.6-60MHz) (110-170MHz) (300-950MHz) ..... £49.95
**CS201** Two-way di-cast antenna switch. Freq: 0-1000MHz max 2,500 watts SO239 fittings ..... £18.95
**CS201-N** Same spec as CS201 but with N-type fittings ..... £28.95
**CS401** Same spec as CS201 but4-way ..... £49.95

## ANTENNA ROTATORS

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

## MOBILE MOUNTS

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

## ANTENNA WIRE & RIBBON

**Enamelled copper wire** 16 gauge(50mtrs) ..... £9.95
**Hard Drawn copper wire** 16 gauge (50mtrs) ..... £12.95
**Equipment wire** Multi Stranded (50mtrs) ..... £9.95
**Flexweave** high quality (50mtrs) ..... £27.95
**PVC Coated Flexweave** high quality (50mtrs) ..... £37.95
**300Ω Ladder Ribbon** heavy duty USA imported (20mtrs) ..... £15.00
**450Ω Ladder Ribbon** heavy duty USA imported (20mtrs) ..... £15.00
*(Other lengths available, please phone for details)*

## HF BALCONY ANTENNA

**BAHF-4** FREQ:10-15-20-40 Mtrs LENGTH: 1.70m HEIGHT: 1.20m POWER: 300 Watts ..... £129.95

## MISCELLANEOUS ITEMS

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

## TELESCOPIC MASTS (aluminium & fibreglass options)

**TMA3** 3" to 1 1/4" heavy duty aluminium telescopic mast set, approx 40ft when errect, 6ft collapsed ..... £199.95
**TMA2** 2 1/4" to 1 1/4" heavy duty telescopic mast set, approx 40ft when errect, 9ft collapsed ..... £149.95
**TMA1** 2" to 1 1/4" heavy duty aluminium telescopic mast set, approx 20ft when errect, 6ft collapsed ..... £99.95
**TMAF-1** 2' to 1 1/4" heavy duty fibreglass telescopic mast set, approx 20ft when errect, 6ft collapsed ..... £99.95
**TMAF-2** 2 1/4' to 1 1/4" heavy duty telescopic fibreglass mast set, approx 40ft when errect, 9ft collapsed ..... £189.95

## HF YAGI

**HBV-2** 2 BAND 2 ELEMENT TRAPPED BEAM FREQ:20-40 Mtrs GAIN:4dBd BOOM:5.00m LONGEST ELEMENT:13.00m POWER:1600 Watts ..... £329.95

**ADEX-3300** 3 BAND 3 ELEMENT TRAPPED BEAM FREQ:10-15-20 Mtrs GAIN:8 dBd BOOM:4.42m LONGEST ELE:8.46m POWER:2000 Watts ..... £269.95

**ADEX-6400** 6 BAND 4 ELEMENT TRAPPED BEAM FREQ:10-12-15-17-20-30 Mtrs GAIN:7.5 dBd BOOM:4.27m LONGEST ELE:10.00m POWER:2000 Watts ..... £499.95
40 Mtr RADIAL KIT FOR ABOVE ..... £99.00

## HF VERTICALS

**VR3000** 3 BAND VERTICAL FREQ: 10-15-20 Mtrs GAIN: 3.8 dBd HEIGHT:3.80m POWER:2000 Watts (without radials) POWER: 500 Watts (with optional radials) ..... £89.95
OPTIONAL 10-15-20mtr radial kit ..... £34.95

**VR5000** 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN:3.5 dBd HEIGHT:4.00m RADIAL LENGTH:2.30m (included). POWER: 500 Watts ..... £169.95

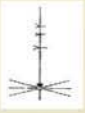


**EVX4000** 4 BAND VERTICAL FREQ:10-15-20-40 Mtrs GAIN:3.5 dBd HEIGHT:6.50m POWER:2000 Watts (without radials) POWER:500 Watts (with optional radials) ..... £99.95
OPTIONAL 10-15-20mtr radial kit ..... £34.95
OPTIONAL 40mtr radial kit ..... £12.95



**EVX5000** 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN:3.5 dBd HEIGHT:7.30m POWER:2000 Watts (without radials) POWER:500 Watts (with optional radials) ..... £139.95
OPTIONAL 10-15-20mtr radial kit ..... £34.95
OPTIONAL 40mtr radial kit ..... £12.95
OPTIONAL 80mtr radial kit ..... £14.95

**EVX6000** 6 BAND VERTICAL FREQ:10-15-20-30-40-80 Mtrs HEIGHT:5.00m RADIAL LENGTH:1.70m(included) POWER:800 Watts ..... £249.95



**EVX8000** 8 BAND VERTICAL FREQ:10-12-15-17-20-30-40 Mtrs (80m optional) HEIGHT: 4.90m RADIAL LENGTH: 1.80m (included) POWER: 2000 Watts ..... £269.95
80 MTR RADIAL KIT FOR ABOVE ..... £79.00

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

## TRAPPED WIRE DI-POLE ANTENNAS

(Hi Grade Heavy Duty Commercial Antennas)

**UTD160** FREQ:160 Mtrs LENGTH:28m POWER:1000 Watts ..... £44.95
**MTD-1** (3 BAND) FREQ:10-15-20 Mtrs LENGTH:7.40 Mtrs POWER:1000 Watts ..... £39.95
**MTD-2** (2 BAND) FREQ:40-80 Mtrs LENGTH: 20Mtrs POWER:1000 Watts ..... £44.95
**MTD-3** (3 BAND) FREQ:40-80-160 Mtrs LENGTH: 32.5m POWER: 1000 Watts ..... £89.95
**MTD-4** (3 BAND) FREQ: 12-17-30 Mtrs LENGTH: 10.5m POWER: 1000 Watts ..... £44.95
**MTD-5** (5 BAND) FREQ: 10-15-20-40-80 Mtrs LENGTH: 20m POWER:1000 Watts ..... £79.95
*(MTD-5 is a crossed di-pole with 4 legs)*

## PATCH LEADS

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

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

## COAX SWITCH SALE

**CS201** Two-way 3 X SO239 £18.95 ..... this month just **£12.95**
**CS201N** Two-way 3 X N-type £28.95 ..... this month just **£18.95**
**CS401** Four-way 5 X SO239 £49.95 ..... this month just **£39.95**
Plus £6.00 P&P

# The Spider

## A lightweight full-size tribander (20-15-10m) for portable operation

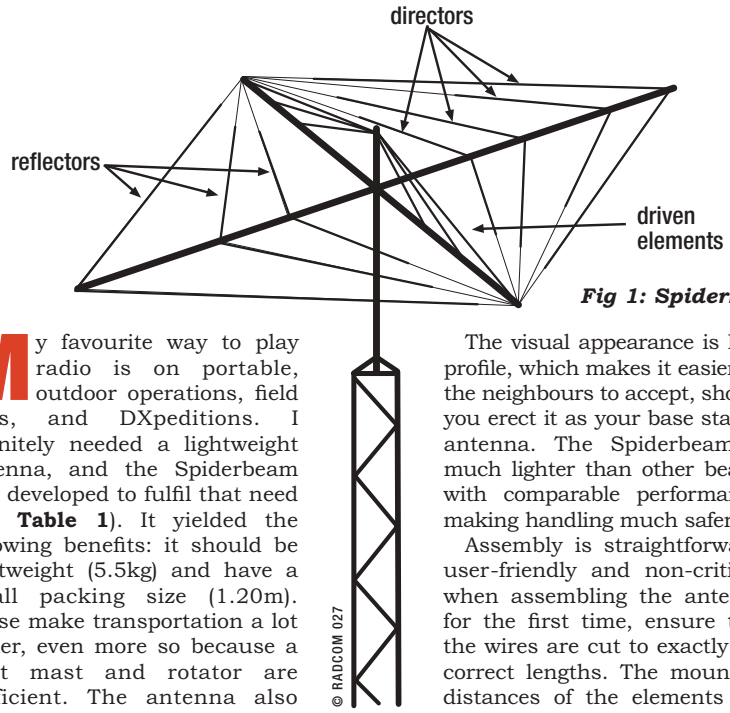



*Fig 1: Spiderbeam schematic diagram.*

My favourite way to play radio is on portable, outdoor operations, field days, and DXpeditions. I definitely needed a lightweight antenna, and the Spiderbeam was developed to fulfil that need (see **Table 1**). It yielded the following benefits: it should be lightweight (5.5kg) and have a small packing size (1.20m). These make transportation a lot easier, even more so because a light mast and rotator are sufficient. The antenna also presents low wind resistance.

Contrary to most boom-to-mast plates, which position the antenna on one side of the mast, the Spiderbeam is mounted exactly at its centre of mass. Antenna weight and vertical torque moment are optimally applied to the mast and rotator which means the load on these parts is reduced and makes it easier to raise the mast.

Setting up the antenna on site is greatly simplified because it can be carried and put up by a single person; it goes where you would never drag along a heavy conventional design of tribander. This makes it easy to select the most favourable location with the best radiation conditions.

| | |
|---|---|
| **Operating frequencies** | 14.0 – 14.35 MHz<br>21.0 – 21.45 MHz<br>28.0 – 28.8 MHz |
| **Feeding** | Single coaxial cable |
| **Continuous HF power** | Maximum legal |
| **Weight** | 5.5kg |
| **Dimensions (length x width)** | 7.0m x 7.0m |
| **Turning radius** | 5.0m |
| **Transportation length** | 1.2m |
| **Rotator requirement** | TV rotator |

*Table 1: Spiderbeam general data.*

The visual appearance is low-profile, which makes it easier for the neighbours to accept, should you erect it as your base station antenna. The Spiderbeam is much lighter than other beams with comparable performance, making handling much safer.

Assembly is straightforward, user-friendly and non-critical; when assembling the antenna for the first time, ensure that the wires are cut to exactly the correct lengths. The mounting distances of the elements are not critical. No complicated or fragile parts are involved. The tuning procedure requires only a VSWR bridge and can be done in 10 minutes.

## HISTORY

Five years ago, the Spiderbeam was just a dream. I was not convinced by the exaggerated claims by the mini-beam manufacturers of gain, front-to-back ratio and bandwidth. One day I stumbled on an antenna design called a 'bow-and-arrow-beam' (or 'Bird-Yagi' after its inventor Dick Bird, G4ZU). It is a three-element Yagi using director and reflector elements bent into a V-shape. Nowhere in the literature could I find a multi-band version to meet my requirements, so I decided to start development myself.

After countless simulation runs, the Spiderbeam eventually evolved. The remaining problems were mostly mechanical. The antenna had to be lightweight but sturdy; it had to be waterproof, have repeatable electrical parameters no matter how often it was put up and taken down, and should be easy to assemble with as few tools as possible. In the end it was a great pleasure to see the last prototype survive the heavy storms during my activity from CT3EE (*CQ* WW CW 2002).

The development is now completed and I have written a detailed step-by-step *Construction Guide* (details are given later) which is available free from me by e-mail (PDF file, 23 pages, 600KB). Thus, while the following text will not provide every constructional detail, it will give a general insight into the antenna design and constructional methods.

## BASIC ANTENNA PRINCIPLE

The Spiderbeam is a triband Yagi for 20, 15 and10m. It consists of three interlaced wire Yagi antennas strung on a common fibreglass spider. These are – three-element Yagis for 20m, and 15m, and a four-element Yagi for 10m. In contrast to a regular Yagi, the director and reflector elements are V-shaped.

The driven element is a multi-band fan dipole for 20, 15 and10m, ie three individual dipoles connected at their centre feedpoint. The feedpoint impedance is 50Ω, fed through a W2DU-type current choke balun, making a very simple and robust feeding system. No phasing lines or matching devices are needed (see **Fig 1**).

| Band (m) | Reflector (cm) | Director 1 (cm) | Director 2 (cm) |
|---|---|---|---|
| 20 | 1054 | 984 | - - - |
| 15 | 700 | 648 | - - - |
| 10 | 526 | 488 | 488 |

*Table 2: Parasitic element lengths.*

The wire lengths and mounting dimensions of the parasitic elements can be found in **Table 2** and **Fig 2**.

Please note that the

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73104 Breech, Germany. E-mail: df4sa@contesting.com

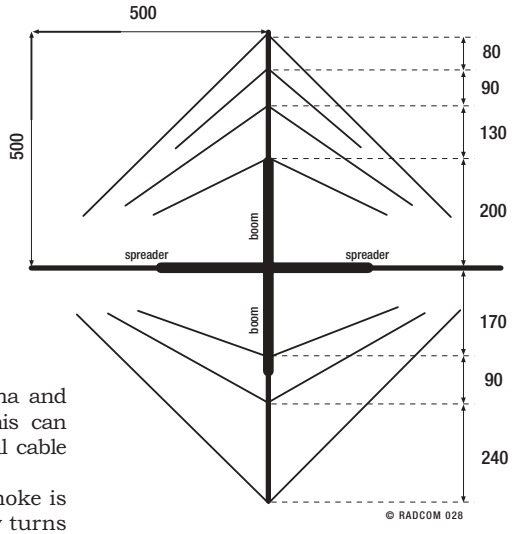



*Fig 2: Mounting the parasitic elements.*

specified wire lengths are only valid for bare wire of 1mm diameter! Other wire types (especially insulated wire) will result in different element lengths because of the change of velocity factor caused by the insulation. The same is true when mounting insulators at the wire ends, as they will also cause a change of the effective electrical wire length.

It is very important to cut the wires precisely to the specified lengths. Even an error of one centimetre will make a difference. Therefore it is also essential to use a wire type which does not stretch. I am using copper-clad steel wire (Copperweld®, DX-wire®). The first versions of the Spiderbeam were built using normal (soft) enamelled copper wire. Each time when assembling and dismantling the antenna, some elements had stretched up to 10cm. In turn, the resonant frequencies of the wire elements change, resulting in a deterioration of the radiation pattern, especially the front-to-back ratio. See the *Construction Guide* for further details.

The wire lengths and mounting dimensions of the driven elements can be found in **Table 3** and **Fig 3**.

The single dipoles of the driven multi-band dipole must be vertically spaced correctly, see Fig 3. The further apart they are spaced, the less is the mutual interaction, as with any multi-band-dipole. The distance between the highest dipole (20m) and the lowest dipole (10m) should be around 50cm. It is also important to keep the 10m dipole a few centimetres away from the fibreglass spreaders, otherwise the VSWR will change a lot when the spreaders get wet from rain.

Because the feedpoint impedance of the antenna is already very close to 50Ω, no impedance transformation is necessary, but a balun between the antenna and the coaxial cable is needed. This can take the form of a simple coaxial cable choke.

The simplest coaxial cable choke is constructed by coiling up a few turns

***Photo 1: Ural Contest Group setting up their own local WRTC-style competition. Each of these single-operator stations used a Spiderbeam and 100W.***

# rbeam

Fig 3

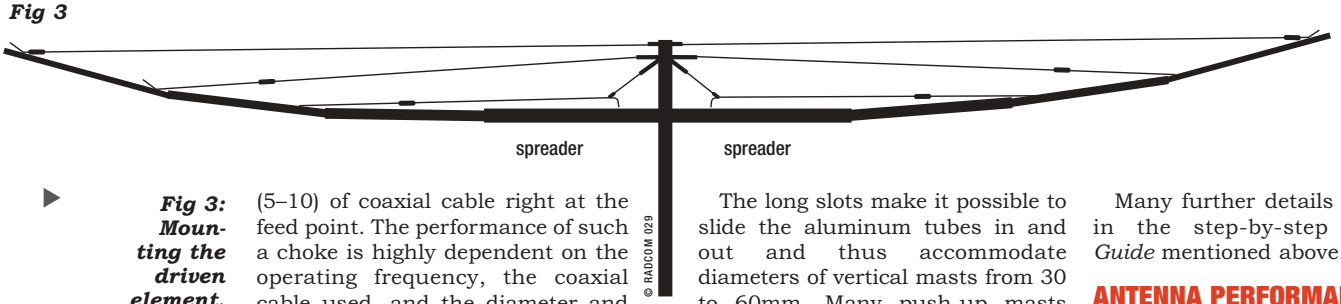



***Fig 3: Mounting the driven element.***

(5–10) of coaxial cable right at the feed point. The performance of such a choke is highly dependent on the operating frequency, the coaxial cable used, and the diameter and height of the coil.

A much better solution is the coaxial choke developed by W2DU [*QST*, March, 1983]. Take a piece of thin coaxial cable and slip a number of ferrite beads over the outer plastic jacket, which effectively stops current from flowing on the braid (outer conductor), resulting in a good match of the balanced antenna to the unbalanced coaxial cable. Using a piece of Teflon cable makes such a coaxial cable choke easily capable of handling 2kW continuous HF power.

After preparing the coaxial cable choke as described above, it is mounted into a suitable piece of weatherproof plastic 'U'-section. One end of the cable is connected to a SO-239 coaxial socket, the other end to two stainless steel M6 bolts. These connections are then made watertight with epoxy. A piece of flat plastic panel is glued on top and serves as the lid of the box. The choke is shown in the photograph.

The balun housing has a second function – it will be strapped to the antenna mast, thus serving as a stable mount for the feedpoint. The driven elements are then connected to the M6 bolts.

A few words are needed regarding the mechanical design of the antenna. The heart of the construction is the centre joint made from aluminum sheet metal and tube: **Fig 4**.

| Band (m) | Driven element (cm) |
|---|---|
| 20 | 2 x 502 |
| 15 | 2 x 347 |
| 10 | 2 x 262 |

***Table 3: Driven element lengths.***

| Band | Forward gain in free space | F/S ratio (dB) | F/B ratio (dB) |
|---|---|---|---|
| 20m | 6.5 dBi (4.3 dBd) | 12 | 15–20 across band |
| 15m | 6.6 dBi (4.4 dBd) | 15 | 18–25 across band |
| 10m | 7.2 dBi (5.0 dBd) | 18 | 20–30 across band |

***Table 4: Performance data.***

The long slots make it possible to slide the aluminum tubes in and out and thus accommodate diameters of vertical masts from 30 to 60mm. Many push-up masts have top sections smaller than 60mm. With the long slots, the tubes can always be positioned in a way that the mast is perfectly pinched between them. Hence most of the load that normally stresses the U-bolts is transferred to the tubes. U-bolts are necessary only to prevent the antenna from rotating on the mast.

With this construction, it is possible to use a wide range of vertical mast diameters without compromising stability. This means more flexibility when putting up the antenna.

As already mentioned, most boom-to-mast plates put the antenna on one side of the mast. With the centre joint described here, the mast goes right through the centre of mass. Antenna weight and vertical torque momentum are optimally applied to the mast and rotator, which means the load on these parts is reduced.

The fibreglass tubes are the bottom 5m elements of 9m fishing rods. All bolts are stainless steel M6 bolts (M6 = 6mm diameter).

The spider itself gets its extra stability by guying it completely within itself, a concept well known from sailboat masts (see **Fig 5**). The guys are Kevlar lines (1.5mm diameter, 150kg breaking strength). Kevlar has the big advantage of not stretching at all, so the guy-lines always stay as tight as you pulled them during assembly.

It is a good idea to use sailors' hitches for fastening the guy-lines, so they are easy to untie when dismantling the antenna (see **Fig 6**).

Attaching the wire elements to the spider is quick and easy, using cable-ties. Short pieces of polyamide hose are used for stress relief at the bending points and also to cover the joints between the wire ends and the fishing line insulators.

All the tools necessary for assembly are two spanners for M6 nuts, some cable-ties, and some sticky tape.

For transportation, all the wires and guy-lines are wound onto a big spool (in the most appropriate order for assembly). Such a spool could be found in kite stores.

Many further details can be found in the step-by-step *Construction Guide* mentioned above.

## ANTENNA PERFORMANCE & TECHNICAL DATA

The antenna was developed using the *NECWires* software by K6STI and the free software, *4NEC2*. During the test phase, the antenna was put up at 10m height in an open field and was measured extensively. It was found that the wire (DX-wire 1.0mm, black enamelled) had a unity velocity factor, ie the lengths derived from the computer model could be used directly in the real world. It also

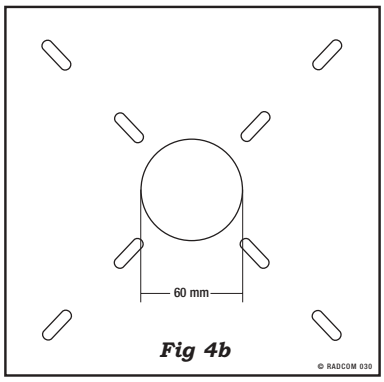
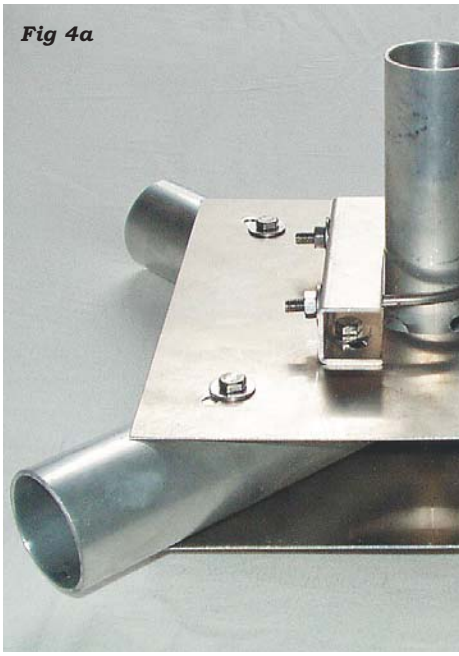



Fig 4b

***Fig 4: (a) The centre joint; (b) the aluminum plate.***

Fig 4a



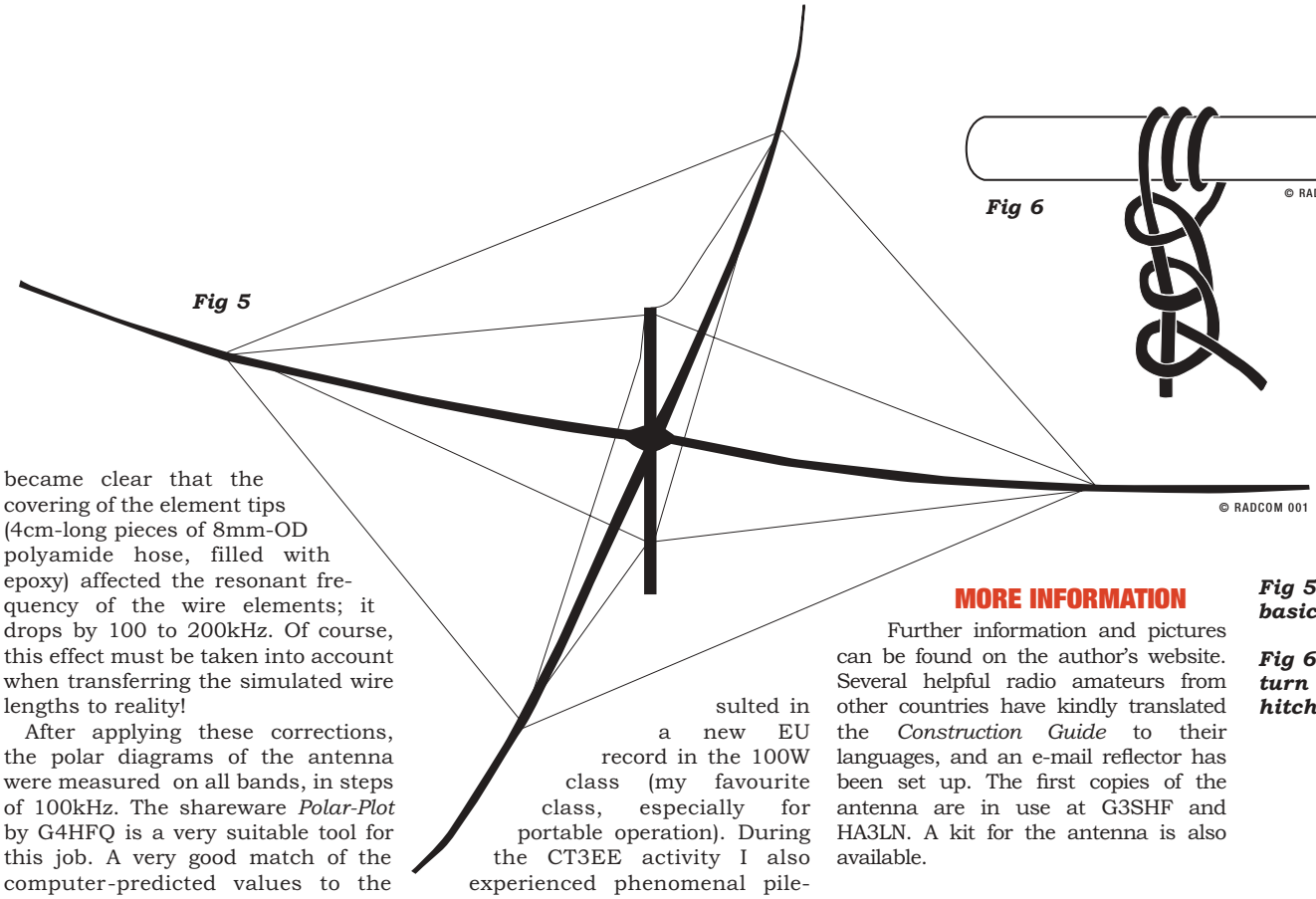



*Fig 5*

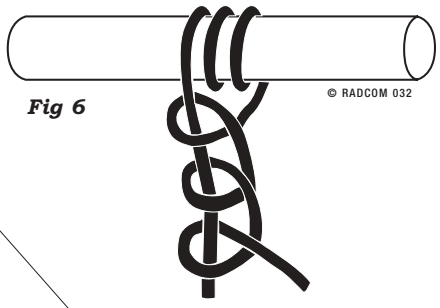



*Fig 6*

***Fig 5: The basic spider.***

***Fig 6: Round turn with half-hitches.***

became clear that the covering of the element tips (4cm-long pieces of 8mm-OD polyamide hose, filled with epoxy) affected the resonant frequency of the wire elements; it drops by 100 to 200kHz. Of course, this effect must be taken into account when transferring the simulated wire lengths to reality!

After applying these corrections, the polar diagrams of the antenna were measured on all bands, in steps of 100kHz. The shareware *Polar-Plot* by G4HFQ is a very suitable tool for this job. A very good match of the computer-predicted values to the measurements was found. The values are summarised in Table 4.

These are roughly the same data as for a typical modern tribander with a 6 or 7m-long boom.

Diagrams showing the calculated patterns at 10m height and the changes of gain and F/B ratio across each band are available from the author's website (see below).

## OPERATION

The Spiderbeam has fulfilled all my expectations in practical use. Since the year 2000 I was lucky enough to go on tour with it for all three *CQ* WW CW Contests (9H3MM, CS7T, CT3EE). The CS7T activity even resulted in a new EU record in the 100W class (my favourite class, especially for portable operation). During the CT3EE activity I also experienced phenomenal pile-ups, but unfortunately the heavy storm resulted in a power failure before the contest was over. Therefore I was very pleased (and the pain was eased a bit) by the fact that the Spiderbeam had survived the storm.

All in all, having a lightweight antenna that can be put up at the best suitable location has proved to be a very good concept.

The specified wire lengths are a good compromise for CW and SSB operation. For single-mode operation it is, of course, very easy to use one set of wire elements optimised for CW and another one optimised for SSB, thus squeezing the last decibel out of the design.

## THE FUTURE

Of course there are always more ideas and plans for the future, for example a lightweight stack of two Spiderbeams (where a normal tower should be sufficient), and a WARC version.

One advantage of this style of construction is that it is not limited to the tribander described here. Once the supporting structure has been built, other wire antenna designs can be tried easily and cheaply. Apart from the wire elements, everything remains the same.

There are also different ideas regarding the bending of the elements. For example, on the same supporting cross, a Moxon beam, an X-beam or a bent HB9CV could be constructed.

All you need is antenna simulation software and a few ideas! For some inspiration, W4RNL's web site can be recommended to anyone interested in antennas and simulation.

## MORE INFORMATION

Further information and pictures can be found on the author's website. Several helpful radio amateurs from other countries have kindly translated the *Construction Guide* to their languages, and an e-mail reflector has been set up. The first copies of the antenna are in use at G3SHF and HA3LN. A kit for the antenna is also available.

### CONSTRUCTION GUIDE

A detailed 24-page *Construction Guide*, including many pictures, and describing every single step is available directly from the author. If you are interested, please e-mail df4sa@contesting.com to receive this *Construction Guide* as a free PDF. If you do not have Internet access, ask a friend who has, to download it and print it out for you.

## THE KIT

A complete kit of parts is available from the author. It costs 300 Euros plus shipment, which is 25 Euros to the UK.

The box is 115 x 20 x 20cm, weighs around 8kg, and is shipped by regular mail.

Please remember that the author is not a big manufacturer. In fact, this is a secondary project which creates a lot of work for him.

Contact him by post or e-mail regarding payment details. ◆

***Photo 2: The coaxial cable choke.***

**WEB SEARCH**

| | |
|---|---|
| DX-Wire | www.dx-wire.de |
| 4NEC2 | www.qsl.net/wb6tpu/swindex.html |
| Plotting software | www.g4hfq.co.uk |
| DF4SA website | www.qsl.net/df4sa |
| E-mail reflector | http://groups.yahoo.com/group/Spiderbeam |
| W4RNL | www.cebik.com |

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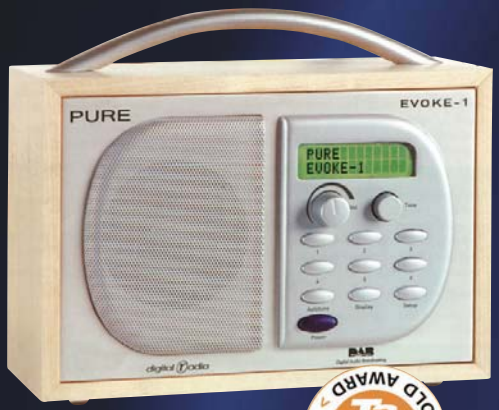


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# PIC-A-S

## PART 16 SOFTWARE TRANSMITTE

**The next four episodes cover the design and construction of the STAR front-end, namely the mixer/amplifier and band-pass filters. This development is of general application.**

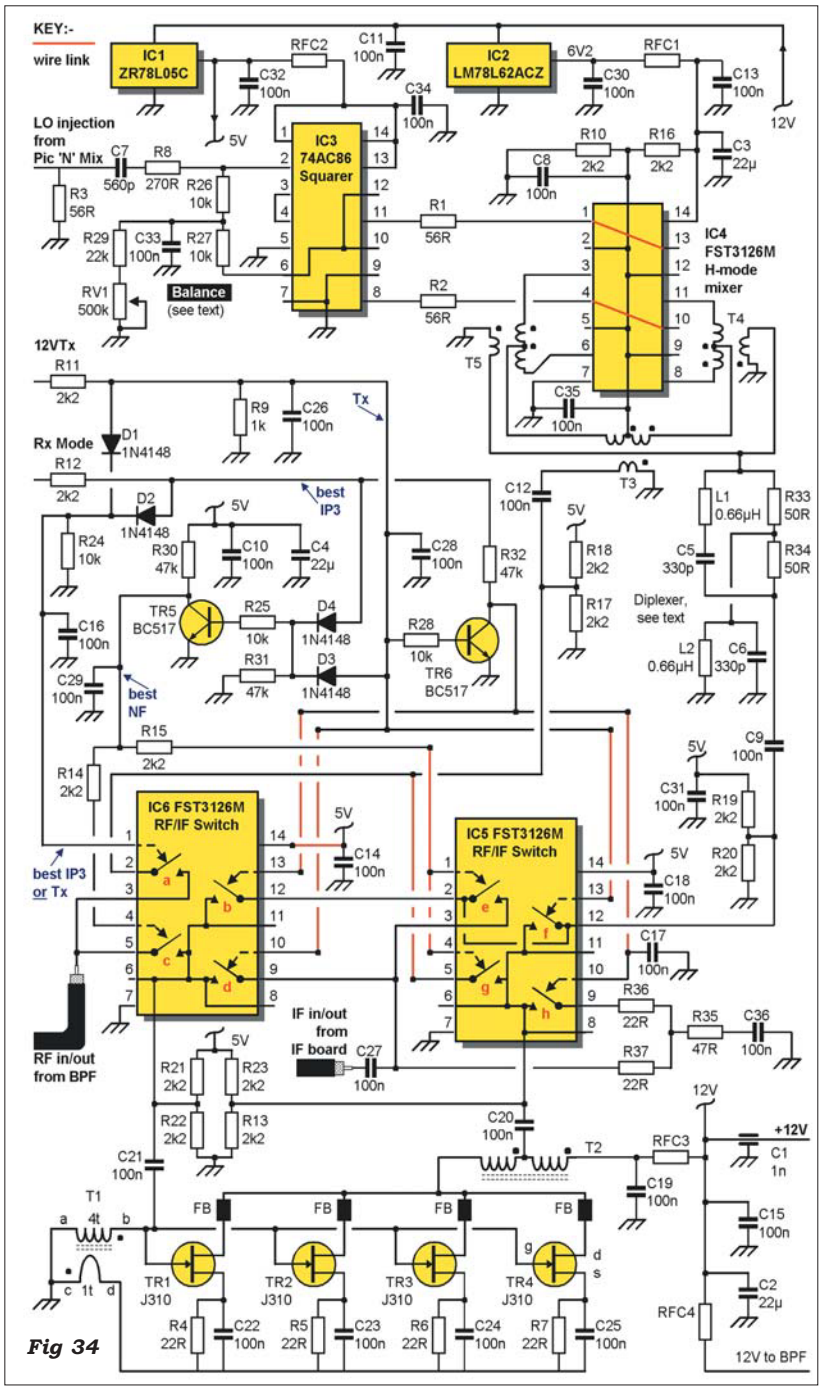


Fig 34

***Fig 34: Dynamically-configurable H-mode mixer – and quad J310 amplifier, better known as the 'Magic Roundabout'. The 'Rx Mode' line is set to +5V ie logic '1' for best intercept (IP3) – or to logic '0' for best noise figure (NF). 12VTx – when taken to +12V – selects the transmit configuration. The mixer requires fundamental frequency injection between -10 and +10dBm.***

### HOW GOOD?

When it comes to receiver front-ends, there are those who would scale the highest IP3 mountains, and those who explore the depths of classic simplicity and minimalism.

Each pursuit is valid and fascinating in its own right. I am typically to be found sitting on a fence (at sea level?), aware that better performance is always achievable – but unclear if it is of real operational value. Aware also that the law of diminishing returns cuts in exponentially when it comes to cost and complexity.

Conversely, faced with the delightful quality emanating from the STAR DSP, it would have been remiss not to provide it with a proportionate front-end. "How good?" is, as ever, the question.

I much enjoyed 'HF Receiver Dynamic Range: How Much Do We Need?' in *QEX* of May/June 2002 by Peter Chadwick, G3RZP, not least because it was written in practical and tangible terms. See also 'TT' in *RadCom* of February 2003 for a summary.

I conclude from this paper:

- Phase noise performance is critical especially when there are many unwanted strong signals in the pass-band.
- The strong-signal dynamic range (DR) requirement is not horrendous – if you are prepared to shift the DR up and down to suit conditions. That is, sometimes you need good sensitivity; sometimes you need good strong-signal performance. Rarely, in practice, can you use both. So I don't think I can use all the dynamic range offered by, for example, the CDG2000 design [1].

This argument assumes absolutely that you are not blessed with a specific point-source problem such as a strong nearby transmitter. Normally-propagated signals are assumed to apply. In real life – in Europe – the ability to handle 40m at night is the pragmatic test.

Pic 'N' Mix has intrinsically superb phase noise performance. The trick is to avoid degrading it (eg by adding a crude PLL) to get round the issue of DDS spurs.

By Peter Rhodes, G3XJP, Danvers House, Wigmore, Herefordshire HR6 9UF. E-mail: g3xjp@qsl.net

# TAR

## R AND RECEIVER

The strategy of moving the DR up and down is equally compatible with the need to extract the maximum possible range from a finite number of bits in down-stream DSP.

STAR achieves this with the ability to reconfigure the receiver gain distribution dynamically.

### THE MAGIC ROUNDABOUT

With early STAR, I used a mere SBL-1 mixer both with a bi-directional 2N3866 post-mix amplifier – and with a bi-directional J310. They both 'work'.

But, in 1998, Colin Horrabin, G3SBI, showed that there are no technical excuses for not using an H-mode mixer [2] – and Giancarlo Moda, I7SWX, showed that, with a fast bus switch, it can be truly affordable – except – in my view – for those *very* expensive transformers.

However, I can't turn away the opportunity of an H-mode mixer with home-brew transformers since, although this degrades the intercept somewhat, there is still plenty in hand. And no great cost.

In fact, there is so much in hand that I contemplated the heresy of fitting an RF amplifier *before* the mixer. Or should I settle for less sensitivity and instead fit an IF amplifier *after* the mixer? I wanted *both* options; and after doing the performance arithmetic, I was convinced I needed both under different operational circumstances. Typically, on 10m I want the sensitivity; on 40m I want the higher intercept.

So, pragmatically, I decided to make it configurable – so that I indeed have both options and can compare and contrast them under differing real-life conditions – at the touch of a button.

Thus I can switch between 'best NF' and 'best IP3' modes to suit the prevailing conditions – with the key-related benefit that I can have enough RF gain for DDS spurs to be below the band noise.

This approach takes care of T/R switching also – and the whole concept has become known in STAR circles as the 'Magic Roundabout'.

The circuit diagram is shown in **Fig 34** and the switching arrangements are summarised in **Fig 35**. The switch references are common to both.

### CIRCUIT DESCRIPTION

The LO injection is squared up and made symmetrical by IC3. Critically, this removes the even harmonics. RV1 is best adjusted for minimum DDS spurii on 10m. In 'best NF' mode these should be very hard to find. IC4 is a conventional fundamental-injection H-mode mixer. See also [2].

TR1-TR4 comprise a quad J310 amplifier used either as an RF or IF amplifier. I first saw the feedback arrangement in *Introduction to RF Design* by Wes Hayward, W7ZOI; and the use of multiple FETs (to raise the intercept) in an IF amplifier design by Bill Carver, W7AAZ.

With an 8dB pad (R35 – R37) in 'best IP3' mode only, the system gain is essentially constant in either receive mode. On transmit, the J310s are *always* used as an IF amplifier – irrespective of the receive mode.

IC5 and 6 with TR5 and TR6 control the roundabout switching.

### I7SWX IMPROVEMENTS

Fig 34 uses the original squarer and mixer from [2] – but in private correspondence with Giancarlo in early 2003, he suggested two improvements. You may wish to incorporate either or both. I certainly have and commend them.

**Fig 36** shows changes to the squarer which improve the symmetry and 'squareness' of the switching waveform. Also, IC3 now does not require (nor gets hot in the absence of) LO drive.

Some people (including myself) have reported unstable lumps of RF energy apparently emanating from the original squarer – and with this modification I have seen/heard no further evidence of them.

Giancarlo omitted the balance arrangements; but I prefer to retain them for the STAR application. The LO injection level requirement is between 0dBm and +10dBm.

**Fig 37** shows Giancarlo's two-transformer mixer. This is to be preferred in principle, since when it comes to improving the mixer intercept, the only really good ferrite transformer is an eliminated one. ◆

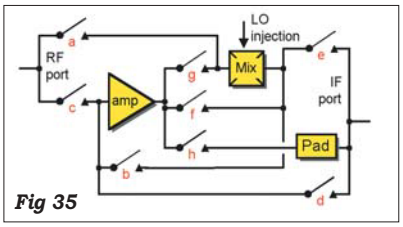


Fig 35

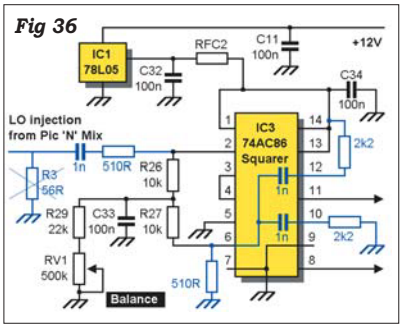


Fig 36

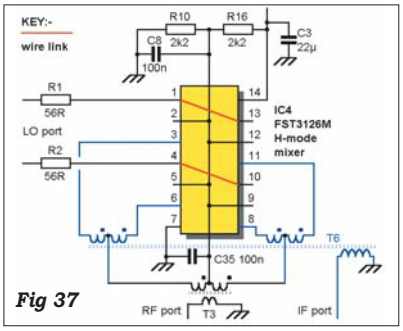


Fig 37

**COMPONENT LIST**

| | |
|---|---|
| **Resistors 1206 SMD** | |
| R1-R3 | 56R |
| R4-R7, R36, R37 | 22R |
| R35 | 47R |
| R33, R34 | each 2 off 100R in parallel to give 50R |
| R8 | 270R |
| R9 | 1k |
| R10-R23 | 2k2 |
| R24-R28 | 10k |
| R29 | 22k |
| R30-R32 | 47k |
| RV1 | 500k multi-turn preset pot |
| **Capacitors** | |
| C1 | 1n feedthrough |
| C2-C4 | 22µ radial electrolytic |
| C5, C6 | 330p ceramic plate (see next month) |
| C7 | 560p ceramic plate |
| C8-C36 | 100n SMD 1206 |
| **Semiconductors** | |
| D1-D4 | 1N4148 or similar |
| IC1 | 5V regulator, 150mA eg ZR78L05C |
| IC2 | 6V2 regulator, LM78L62ACZ |
| IC3 | 74AC86 SMD |
| IC4-IC6 | FST3126M (IC4 could be FST3125M) |
| TR1-TR4 | J310 |
| TR5, 6 | BC517 Darlington |
| **Inductors** | |
| L1, L2 | 0.66µH on T25-2 (see next month) |
| RFC1-RFC4 | 6t thin enam wire on type 43 FB |
| FB | small ferrite bead on J310 drain lead |
| T1-T6 | wound with 32SWG self-fluxing copper wire on EPCOS (was Siemens) B62152A4X1 binocular core (available from ElectroValue) |
| T1, T6 | details follow next month |
| T2 | 4 bifilar turns (wire wound at 5tpi) |
| T3-T5 | 4 trifilar turns (wire wound at 5tpi) |

### REFERENCES

**[1]** 'The CDG2000 HF Transceiver' by Colin Horrabin, G3SBI, Dave Roberts, G8KBB, and George Fare, G3OGQ, RadCom June – December 2002.

**[2]** 'Technical Topics', RadCom, Sept 1998.

***Fig 35: Magic Roundabout block diagram. For 'best NF', switches c, g and e are closed. For 'best IP3', switches a, b and h are closed and the pad improves the intercept. For 'transmit', switches d, f and a are closed.***

***Fig 36: Modified squarer by I7SWX. The changes from Fig 34 are shown in blue. Please note that neither the changed nor the incremental parts are included in the component list.***

***Fig 37: Two-transformer H-mode mixer by I7SWX. Details of transformer T6 (which replaces T4 and T5) will be provided next month. It is wound on the same ferrite as the other transformers.***

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## CARE & MAINTENANCE

There is a well-recognised adage that if solid-state equipment is working, it is prudent to leave it alone. In other words don't go prodding around with test probes, etc. This is good advice although it still leaves a quandary in the common case where the equipment is working, but there is a suspicion that it is not working as well as it used to. This can, of course, be simply that propagation conditions are poor, a factor that has to be taken into account in the present declining phase of the sunspot cycle.

However, this does not mean that complex equipment does not require at least some care and maintenance. It has been stressed in 'TT' that one of the worst enemies of electronic equipment is cigarette smoke, and the resulting discolouration and gunge that accumulates over time. The answer would seem to be don't smoke – or, if you must, not in the shack; it is also advisable to avoid buying second-hand equipment from heavy smokers (or late heavy smokers!).

H Ward Silver, N0AX in 'Amplifier Care and Maintenance' (*QST,* September 2003, pp33-37) is concerned primarily with high-power valve linear amplifiers, but his advice is generally applicable although it is stressed that "With few moving parts, your amplifier can be easy to overlook". Solid-state amplifiers, he notes, operate at lower voltage and generally have fewer points of failure, but they still need occasional maintenance.

Valve amplifiers operate at high, potentially lethal, voltages. To quote: "Tube amplifiers use power supply voltages well in excess of 1kV and the RF output at full throttle can be hundreds of volts, as well. Almost every voltage in an amplifier can be lethal. Take care of yourself and use caution!"

N0AX provides a formidable list of safety checks and practices. In brief:

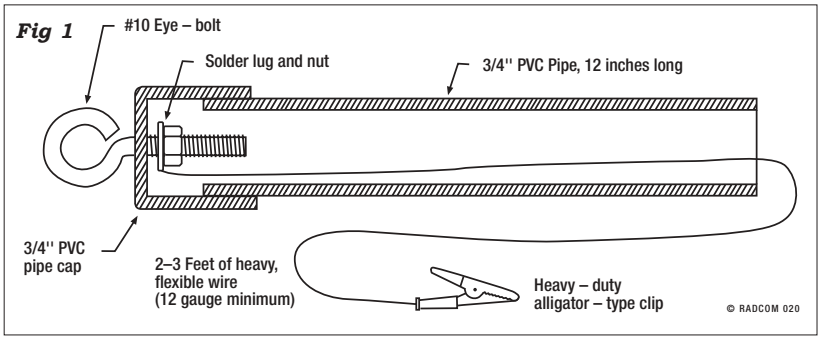
• **Power Control**: Know and control the state of both AC line voltage and DC power supplies. When not working on live equipment disconnect all power cables. Use a lockout on circuit breakers. Double-check visually and with a meter to be absolutely sure power has been removed.

• **Interlocks**: Unless instructed to do so by the manufacturer, never bypass or 'rig' an interlock. It should only be done when absolutely necessary. "Interlocks are there to protect you."

• **One-Hand Rule***:* Keep one hand in your pocket while making any measurements on live equipment. [This usually avoids current passing through the heart, the most vulnerable organ. Even a few milliamperes can induce potentially lethal fibrillation – *G3VA.*] If working on damp or conductive surfaces, wear shoes with rubber soles [or stand on a rubber mat].

• **Patience**: It's not a race. Take your time. Don't work on equipment when tired or frustrated. Wait several minutes after switching off before opening the cabinet. Capacitors can take several minutes to discharge through their bleeder resistors [beware of open-circuit bleeder resistors].

• **Chicken Stick***:* Devices such as the home-made 'chicken stick' shown in **Fig 1** are used by professionals the world over, when working on high-power transmitters. Use one on any equipment in which hazardous voltages have been present (bleeder resistors may have failed). N0AX recommends: "When equipment is opened, touch the tip of the stick to *every* exposed component and connection you may come in contact with. Assume nothing – accidental shorts and component failures can put voltage in places it shouldn't be."




• **Working alone**: Try to avoid working alone on high-voltage equipment. N0AX calls this "the buddy system and CPR". Someone in the household, or a friend, need not be an amateur, but should know how to remove power and administer basic first-aid including resuscitation procedures.

The amateur is responsible for his own safety regime while working on high power transmitting equipment – unlike the professional who is governed by the Health and Safety at Work Act, or company regulations, that can be exhaustive. I still have a 5th edition (1976) pocket book copy of *IBA Safety Regulations*. It runs to 66 pages including: definitions, general instructions, health and welfare, general hazards, technical instructions, mechanical hazards, and electrical hazards plus a five-page appendix on First Aid, including resuscitation from electrical shock. It stresses that "accidents do not 'just happen' anything like as frequently as they are *caused."*

To sum up "Never take unnecessary risks. Safety is more important than speed."

On general maintenance, N0AX stresses that the first rule of taking good care of an amplifier is cleanliness. Amplifiers need not be kept sparkling new, but their worst enemy is heat. Excess heat accelerates component ageing and stresses the valves and transformers. On the outside, prevent dust and obstructions from blocking the paths by which heat is removed. Keep all ventilation holes free from dust bunnies, human or pet hairs, and insects. Fan intakes are particularly susceptible to inhaling all sorts of 'goop' and 'gunge'. Use a vacuum cleaner to clean not only the amplifier, but also the surrounding

***Fig 1: N0AX recommends the use of a 'chicken stick' as an effective means of ensuring that everything inside a high-power amplifier (disconnected from the AC mains) is really at zero volts. It can be a life saver! (Source: QST)***

areas. Keep liquids at a distance. One spilled mug of coffee can prove very costly!

He also advises: keep papers or magazines off the amplifier even if the cover is solid metal. Paper acts as a heat insulator and prevents heat from being radiated by the cover. Leave a couple of inches of free space surrounding an amplifier – top, back and sides. Some makers make specific recommendations and these should be followed.

N0AX points out that the insides of an amplifier also need occasional cleaning. High voltages attract dust that slows heat dissipation and builds up to the point where it arcs or carbonises. Use a 'crevice cleaner' vacuum cleaner attachment combined with a small paintbrush. Where the dirt or dust is still inaccessible, a spray can of compressed air can be used. He stresses: "If you use a rag or towel to wipe down panels or large components, be sure not to leave threads or lint behind. Never use a solvent or spray cleaner to wash down components unless the manufacturer advises doing so – you may leave behind a residue or damage the component."

N0AX adds: "Once the amplifier has been cleaned, it's time for a visual inspection. Remove any internal covers or access panels and... *stop!* Get out the chicken stick, clip its ground lead securely to the chassis and touch every exposed connection. Now, using a strong light and possibly a magnifier, look over the components and connections... It's quite feasible to look at every component and insulator. Look for cracks, signs of arcing, carbon traces (thin black lines), discolouration, loose connections, melting of plastic, and anything that doesn't 'look right'... Does anything smell burnt? The nose can quickly detect the odours of toasted transformer, cooked capacitor or roasted resistor. Make a note of what you find, repair, or replace – even if absolutely nothing. If you don't already have a shack notebook, start one."

The *QST* article continues with detailed information on taking care of the heavy-duty HV (high voltage) and RF components that can be expensive and hard to replace, with particular emphasis on the power supplies, cables and connectors, relays, switches and "the single most expensive component - the power valve(s)". N0AX writes: "Follow the manufacturer's instructions for input drive levels, duty cycles, tuning and output power level. Frequently check all metered voltages and currents to be sure that the tubes are being operated properly and giving maximum lifetime. Penta Labs has an excellent web page on 'Tube Maintenance & Education' [www.pentalaboratories.com/maintenance.asp]".

## PA0FRI's 1.5kW QSK HF LINEAR

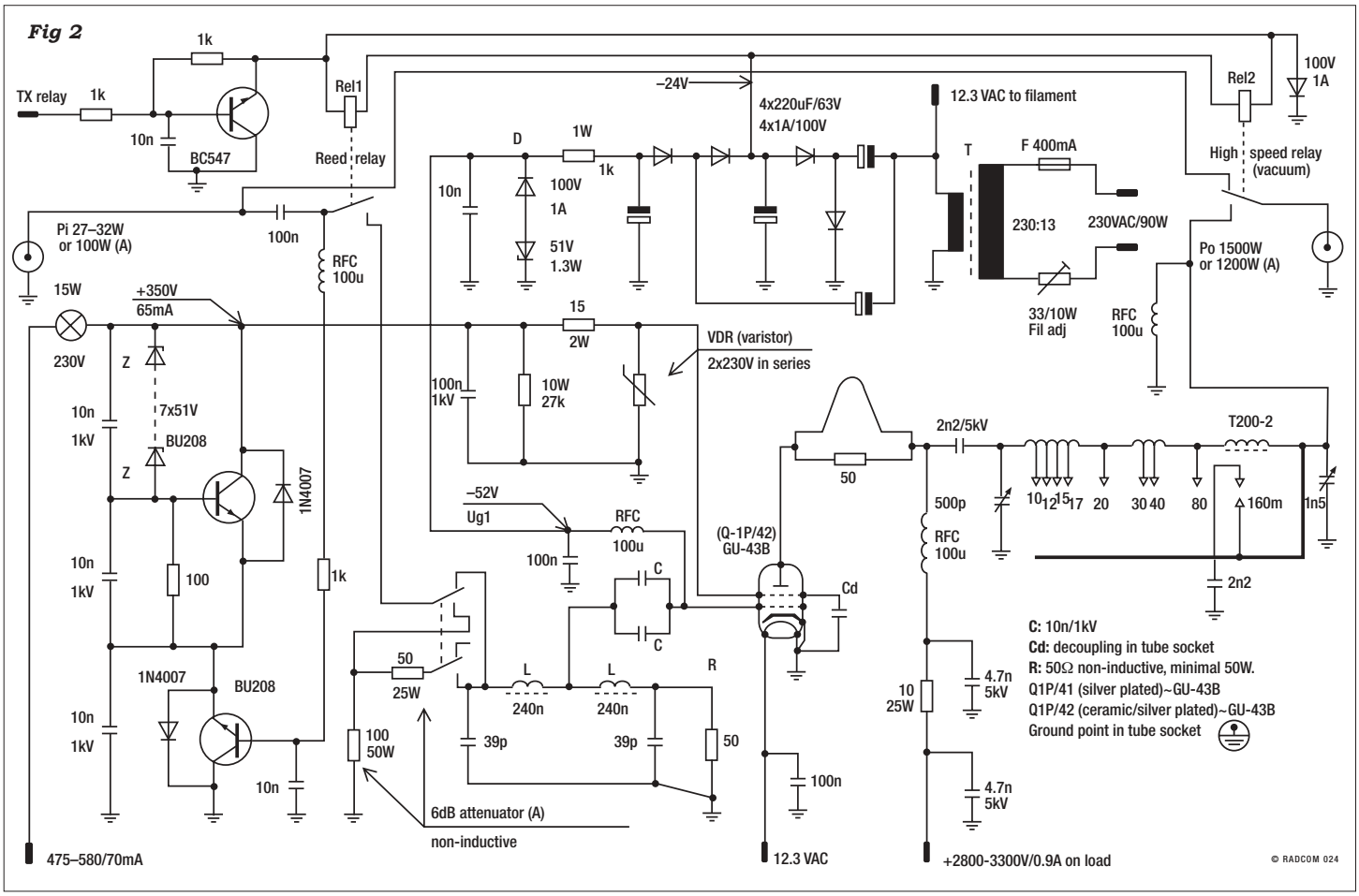
Over the years, 'TT' has presented several high-power 'FRINEAR' HF linear amplifiers designed by Frits Geerligs, PA0FRI. These are capable of being built and tested by readers with considerable technical expertise, *fully conversant with the safety problems inherent with building and maintaining high-power, high-voltage linear amplifiers.*

He is currently constructing his highest power amplifier yet, capable of delivering 1.5kW output throughout the range 1.8 to 30MHz with only 30W drive: **Fig 2**. With 5W drive it can deliver 300-400W output. All of the input drive is absorbed in the 50Ω control-grid resistor, eliminating the need to match the input circuit on individual bands.

PA0FRI points out that while this amplifier clearly runs well over the legal limit for amateurs in the UK and the Netherlands, the design features (passive input circuit, screen supply, T/R switching, QSK, multi-purpose filament transformer, etc) are of general interest even for amplifiers intended to be run at lower power.

The simple screen supply incorporates adequate protection circuitry with the 230V/15W small domestic lamp as a constant current device. If

***Fig 2: Circuit diagram of PA0FRI's 1.5kW QSK 1.8-30MHz linear amplifier (input 50Ω, SWR less than 1.2) using GU43B valve. Illustrations and information on www.n2dx.net/PA0FRI.html***



the HV supply fails or the amplifier is not correctly tuned and overloads, the screen-grid dissipation is limited to a safe value. Provided that the π-network output circuit is determined empirically for lowest screen current and maximum output, the screen supply is adequate and stable.

In practice, the GU-43B power valve and the equivalent Polish-manufactured Q-1P/41 and Q-1P/42 are very rugged. During development of the amplifier, the valve withstood temporary overloads: screen grid current 300mA, anode current 2A and 100W drive without the 6dB attenuator.

In connection with Fig 2, PA0FRI provides the following notes. The components of the output π-filter must be determined empirically for lowest screen current with maximum output. With normal speech, the screen current is ± 5mA. With key down, it is about 20mA positive. The lowest screen current is with the anode voltage between 3 and 3.3kV.

**A** With a power input of 100W and 6dB attenuator switched 'on', then with the GU-43B valve, the power out is 1250W with 3kV HT and anode current 0.65A. With Q-1P/41 or 42, the power output is 1.3-1.4kW with anode current greater than 0.65A.

**L** T68-6 toroid – 5 turns 0.6mm wire. If necessary, pull or squeeze for minimum SWR on 28MHz.

**D** Idle current 140-160mA. If needed, connect more 1A diodes in series. (Q-IP/41 and 42 need more negative bias).

**Z** Zener diode 51V, 5W or more for a stable voltage with natural convection cooling. PA0FRI used 20 5.1V/1.3W Zener diodes in series/parallel.

The basic design of this amplifier is simple, although the circuit diagram (Fig 2) may appear rather complicated. This is primarily because all relevant details have been incorporated in the one diagram. PA0FRI has also provided suggested screen grid power supplies for the GU43B: **Fig 3.** It will be noted that the protective circuitry is incorporated in the main amplifier circuit, Fig 2.

It should again be stressed that the construction of such an amplifier, even when intended for lower power output should be undertaken only by experienced constructors fully conversant with all the safety precautions needed, using high-quality components of adequate rating.

## STAN LEWER, G6LJ – SAVIOUR OF 1.8MHz, SK

In my '90 Years' feature in the August issue, I wrote: "Real dangers of losing 7MHz and 1.7MHz arose at the Atlantic City ITU conference of 1947, and we all owe a debt to Stan Lewer, G6LJ, the then President of the Society, and A H Mumford of the Post Office, who succeeded in inserting a footnote which ensured that the UK alone retained a 200kHz allocation at 1.8MHz". It was thus with particular sadness that I found him listed as a Silent Key (26 June) in the September *RadCom.* His obituary appears elsewhere in this issue.

In December 1925, he was involved in a mysterious incident when he made a late-night contact with a station using the callsign GB1, (apparently located in the Middle East). GB1 asked him to forward an urgent encoded message to the Foreign Office. He phoned the message through from his school the next morning. This brought him into contact with an 'A J Allenby', who thanked him in writing and later presented him with a wavemeter. It was not until some 65 years later that by chance I was able to identify for G6LJ that this was, in reality, Leslie Lambert, G2ST (who used the same AJA initials for his BBC broadcasts as 'A J Alan'), a long-time member of the Government Code & Cipher School). GB1 is believed to have been an experimental station used to examine the use of low-power HF equipment by the British Secret Services.

As mentioned in his obituary, Stan was the designer of the British Army Wireless Set No 17, MkI and MkII. The initial testing was carried out in the summer of 1939 by taking a super-regenerative receiver to the roof of the Territorial HQ at Edgware and receiving phone transmissions from amateurs working in the 56MHz band. This was followed by full-scale demonstrations. On the outbreak of war in September 1939, he was given the go-ahead for GEC to make 24 sets at the utmost possible speed to provide communication between individual barrage balloon units, soon followed by two further orders of 5000 each.

Range, depending on antenna, was from about 3-5 miles (dipole) to about 15 miles (rhombic). RF power output about 300mW, with 120V HT battery and 2V LT accumulator, all mounted in a substantial wooden carrying case with a total weight of some 40lb. The prime use was to provide R/T communication between Searchlight Section HQs and the AckAck batteries etc (but see the next item).

G6LJ was consistently interested in the historical development of radio and made this the subject of his Presidential address (published in *Proc RSGB*, No 1, Spring 1947). In his youth he used the now-forgotten 'electrolytic rectifier' to obtain an HV supply from the AC mains. This system was described in 1924 by E H Robinson, 5YM as follows: "Rectifying valves of this period [1920s] were very expensive and, in many cases, were not sufficiently robust to withstand amateur demands. The electrolytic rectifier, consisting of a strip of lead and another of aluminium, immersed in a solution of ammonium or sodium phosphate, was very popular and the writer used as many as 36 of these cells for the production of an HT supply. The sight of one of these banks of rectifiers operating in a darkened room was most fascinating, the myriads of bright scintillations on the surface of the aluminium, which also showed a faint phosphorescent background, will be ever remembered. These rectifiers, because of their inherent capacity of several microfarads, needed little smoothing; this was a big advantage at a time when high voltage condensers were very expensive." The electrolytic rectifier may have disappeared but the electrolytic capacitor is still very much with us!

## RADIO & THE AUXILIARY UNITS

One application of W/S No 17, designed by Stan Lewer, G6LJ, was researched a few years ago by Richard Aixill. The set was issued to the highly secret 'Auxiliary Units' of the Home Guard. The Operational branch was intended to form covert 'behind the lines' resistance; there was also a civilian Special Duties branch intended to set up 'stay behind' intelligence gathering of military intelligence. The AUs were set up in 1940 at the time when invasion of Britain was threatened; they were not finally stood down until December 1944.

The AUs were originally formed as the 'D Organisation for Home Defence' under Section D of MI6/SIS in conjunction with the special War Office department MI(R) for irregular warfare. When, in June 1940, Section D

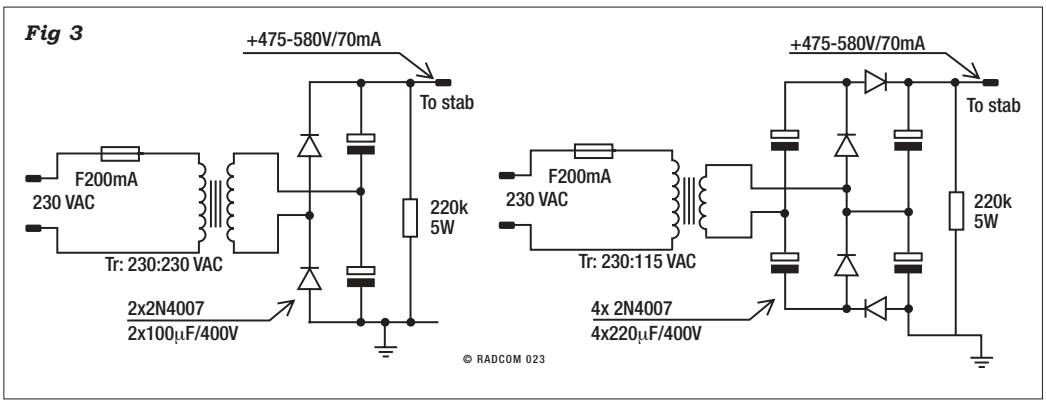



***Fig 3: Screen grid power supply for PA0FRI's linear amplifier (protective circuitry incorporated in Fig 2).***

and MI( R) were merged into the newly-formed SOE, the AUs came under military control. The 'Operational' (Resistance) branch comprised some 4200 hand-picked members of the Home Guard told "to harry and embarrass the enemy by all means in their power from the first day he lands". The Special Duties branch included some 3250 civilians. They were given two functions: first to gain information about the enemy by use of a network of intelligence gatherers, ie 'stay-behind spies'; second, to transmit this information to the Army. This was to be via radios manned by ATS and Royal Signals personnel based at around 30 underground locations, fed from about 200 civilian-manned out-stations. Responsibility for communications remained with Section VIII of MI6/SIS at Whaddon. R/T equipment was provided by Section VIII (Whaddon-built) and by the War Department from Woolwich.

Altogether, about 500 radios were involved, half from Whaddon and half from Woolwich. Woolwich provided the W/S 17 developed by G6LJ and also the more powerful W/S 36 (10 –60MHz, 25 watts R/F output). Whaddon provided about 250 'Special Wireless Set Type TRD' (or the similar TRM and TRF). Some 50 ATS were trained as R/T operators at the Section VIII training school in Knightsbridge.

The TRD was a VHF R/T transmitter-receiver with a frequency coverage of 48-65MHz (transmitter frequency pre-set) powered from a 6V, 85Ah battery using a vibrator PSU, with a consumption of 6-7A. The transmitter had about 1.5W output and comprised a push-pull oscillator, speech amplifier and modulator. The receiver had an RF stage, super-regenerative detector, and output stage. Its normal range was up to 30 miles, dependent on terrain. The longest operational link in use in 1944 was 64 miles.

Fortunately, neither branch was ever called upon to fulfil their hazardous tasks under operational conditions, but much time and effort were spent in training exercises. When the AUs were stood down, all the TRD sets were returned to SCU1 at Whaddon. It is believed that they were then destroyed as was so much Section VIII equipment; I have never heard of or seen any surviving sets, photos or drawings.

## BRIGHT FUTURE FOR LEDs

Recent years have seen the development and introduction of much brighter LEDs. Ultra-bright types consuming some 20mA are now reaching the market at reasonable prices, and other developments are in the pipeline.

Phil Salas, AD5X in 'Solid-State Those Pilot Lamps' (*QST*, September 2003, pp38/39) poses the question "Tired of replacing pilot lamps in your [old] radio gear? Use light-emitting diodes (LEDs) instead." He points out that many of the old 'boat-anchor' rigs use pilot lights fed from their 6.3V AC (heater) supplies. They tend to have limited life as well as being a source of heat and contributing to the discoloration of plastic tuning dials etc. In the UK, local shops stocking suitable replacement bulbs are becoming scarce.

AD5X notes that the prices of ultra-bright white LEDs have dropped significantly and are actually three times brighter than the incandescent pilot lamps found in vintage radios. But they need to face forward and this may involve mounting the LED in the base of a burnt-out pilot lamp. He used the '5mm 3000 med ultra-bright' LEDs available from Radio-Shack (about US $2 each). When fed from 6.3V supplies they require a series resistor to limit the current to 20mA: **Fig 4.** The value of the dropping resistor (R) depends on the LED colour: White (4V) 82Ω; Green (3V) 120Ω; Amber (3V) 120Ω; Blue (3V) 120Ω; Red (2V) 160Ω. AD5X builds the dropping resistor and LED directly into the base of a (discarded) lamp; in his case bayonet-type bases.

He prepares the base as follows: (1) Put on safety glasses! (2) Wrap the pilot lamp in a small plastic sandwich bag and gently crush the glass part with pliers. (3) Using the pliers, gently squeeze and rotate the base. This should break up the remainder of the glass and cement in the base. When complete, ensure the base is as round as possible. (4) Shake out the glass, then use a solder sucker or wick to remove the solder from the tip of the base. (5) Using needle nose pliers, pull the remaining pieces of bulb and wiring out of the base, if necessary using the solder sucker or wick to clear out any remaining solder.

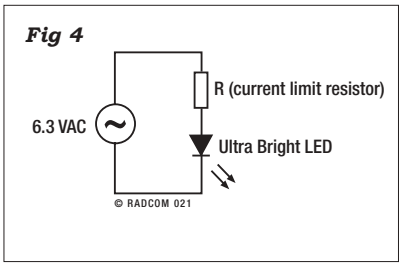
To fit the LED into the base, he writes: "Cut one lead of the resistor, and one lead of the LED to one-eighth inch. Overlap these short leads and solder them together. The use of a desktop 'helping hand' is great for holding these parts together while soldering. Now bend the remaining LED lead over and up. Insert the long resistor lead through the hole in the base until the body of the resistor bottoms out in the base. Solder the resistor lead in place. Solder the bent-up LED lead to the side of the lamp base. Optionally, fill the base with epoxy or hot glue to give it some stability. Clip off excess lead lengths."

Fitting the LED decreases current drain by at least a factor of ten, and significantly increases reliability. In most cases the light intensity will also be noticeably higher.

The future should see a wide expansion of LED applications. 'Let there be light', by Glenn Zorpette (*IEEE Spectrum*, September 2002, pp70-74) shows how the gallium nitride (GaN) LED is seen as a possible replacement for the venerable incandescent light bulb. He reports seeing a demonstration of an array of 56 white and 7 amber-coloured GaN LEDs that throws out about 1900 lumens – more than both headlights on the average car. In such a package, the brightest of the white LEDs now reaching the market would throw an astounding 7500lm, almost as much as a typical sodium vapour street light. The key was the development of the GaN LED making it possible to get white light from an LED. Such devices are already impacting on architectural and stage lighting, indoor and outdoor access lighting, traffic and railway signalling, commercial and retail signs and displays, and outdoor illumination on bridges, walkways, gardens and fountains. Forget any notion that LEDs are just dim and dowdy indicator lights!

An application of a white LED as a 'frugal pilot light' is contributed by André de Guérin to the 'Circuit Ideas' feature of *Electronics World* (August 2003 p32): **Fig 5.** It uses a negative-resistance oscillator (see 'TT' July 2003, pp74/75) comprising a complementary pair of FETs to double the voltage of a 1.5V cell in order to light a low-power white LED. It provides an output of 2.9V with a consumption measured at 250µA (60µA with LED removed).

If a piezo-electric transducer is added across L1, the device will produce an audio tone dependent on the series resonant frequency of the inductor. L1 should be as large a value as possible to obtain a low frequency output. Apart from its use as a tone oscillator, the circuit will also detect shorted turns in an inductor as it will not work if one is present. ◆



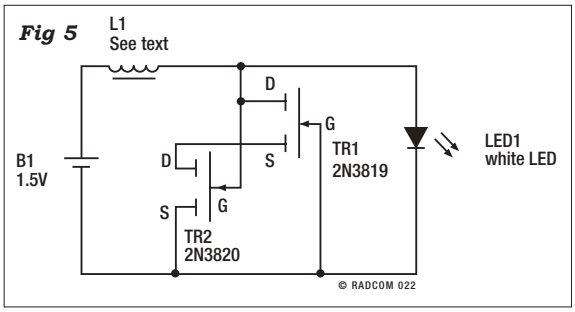




***Fig 4: LED replacement circuit for 6.3VAC pilot lamps used in many older equipments. For value of R see text. (Source AD5X, QST)***

***Fig 5: Frugal pilot light using an LED fed from a 1.5V cell using a negative resistance oscillator to double the voltage. Consumption about 250µA. (Source Electronics World)***

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## Vine now stocks OPTIBEAM from Germany

August's RadCom featured a review of the OB9-5 mulitband yagi. The reviewer described the antenna as "the best of the best" We are pleased to offer the full Optibeam range. Contact us for more details for the *Mercedes-Benz* of multi-element HF antennas.

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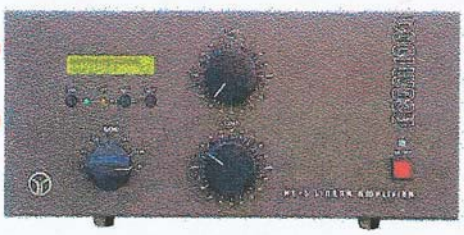

This amplifier, and the automatic 2000A, were described by Peter Hart in March 2001 RadCom as "**highly recommended**", and "**beautifully constructed and engineered**". These extremely well-made and reliable units are the choice of operators who require RELIABILITY as well as HIGH POWER.

Here are a few user comments about the ACOM 1000 - "I am really glad and delighted that I made this choice as it has lived up to all my expectations and more !!" (GI4MMJ) - "I worked for many years in the scientific instrument business., and in my opinion, this equipment is of that standard." (G3IOE) "Superb" (G0CHQ) "It's very quiet with almost no fan noise and a silent changeover relay....A very well built and civilized amplifier". (EI6IZ) Check our website for pictures, specs and many other complimentary user comments.

**ACOM 1000 is now back in stock at £1,599. ACOM2000A automatic 2kW no-tune 160-10m amplifier £4,295 ACOM 1006 (6m only) £1,295**

## Rotators & Filters

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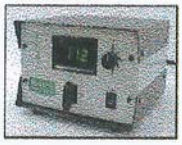

PST have recently introduced a range of **elevation rotators** for 90 and 180 degrees travel, as well as a control unit with direct RS-232C output for computer control, and a speech synthesiser for operators with a visual impairment. It is the only **talking rotator** in the world!

**I.F. Filters from International Radio** make a good radio really superb!. Models are available for nearly all transceivers. Still available - kits to improve the **FT1000MP (and FT1000MP MkV)** For **just £54.95**

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| AEA | PK-232MBX | TNC | £125.00 |
| AEA | PK-900 | TNC | £200.00 |
| AEA | PK-96 | TNC | £90.00 |
| AKD | 4001 | 4m FM Transceiver | £135.00 |
| ALAN | HQ-2000 | 2kW 26 - 30MHz SWR / Watt Meter | £25.00 |
| Alinco | DJ-G5EY | Dual Band Handheld | £199.00 |
| Alinco | DJ-X10 | Wide Band Receiver | £200.00 |
| Alinco | DR-150 | 2m Transceiver with Air-band Receive | £150.00 |
| Alinco | DX-70 | HF & 6m Transceiver | £599.00 |
| Alinco | DX-70TH | HF & 6m Transceiver (100W Output) | £675.00 |
| Alinco | DX-77E | HF Base Station | £599.00 |
| Amerition | Q&K-5 | Amplifier Switch / Pre Heat | £200.00 |
| Amerition | RCS-4X | 4 Way Switch | £99.00 |
| AOR | AR-3000A | Wide Band Receiver | £450.00 |
| AOR | AR-3030 | HF Receiver, Including PSU | £350.00 |
| AOR | AR-7030 | Top Receiver | £550.00 |
| AOR | AR-7030+ | HF Receiver | £625.00 |
| AOR | AR-8600 | Base Scanner / Receiver | £425.00 |
| AOR | AR-8600mkII | Base Scanner / Receiver | £499.00 |
| AOR | AR-950 | Communications Receiver | £89.00 |
| AOR | ARD-2 | Decoder | £200.00 |
| Cubic | CDR-3550 | State of the Art 20 - 1300 MHz Digital Receiver | £4,999.00 |
| Daiwa | CN-1001 | Auto ATU | £99.00 |
| Datong | ASP | Automatic Speech Processor | £70.00 |
| Datong | FL-2 | Filter | £60.00 |
| Diamond | SX-100 | SWR & Power Meter - 1.6 - 60MHz | £65.00 |
| Drake | SW-8 | World Band HF Receiver | £375.00 |
| Fairhaven | RD-500VX | Wide Band Receiver | £525.00 |
| Global | AT-1000 | Manual Short Wave Tuner | £50.00 |
| Hunter | 750 | Linear Amplifier | £599.00 |
| Icom | AT-150 | Auto ATU - IC-735 etc | £175.00 |
| Icom | IC-2100H | 2m FM Mobile Transceiver | £150.00 |
| Icom | IC-2710H | Dual Band Mobile | £225.00 |
| Icom | IC-271E | 2m Multimode Transceiver - 25W | £299.00 |
| Icom | IC-32E | 2m / 70cms Handheld Transceiver | £99.00 |
| Icom | IC-451E | 70 cms Base AC | £299.00 |
| Icom | IC-471E | 70cms Multimode Transceiver | £299.00 |
| Icom | IC-490E | 70cms Mobile Transceiver | £250.00 |
| Icom | IC-505 | 50 MHz Multimode Transceiver | £275.00 |
| Icom | IC-575A | 50 MHz Multimode Transceiver | £450.00 |
| Icom | IC-720A | HF & FM Transceiver | £400.00 |
| Icom | IC-735 | Base Or Mobile Transceiver | £399.00 |
| Icom | IC-740 | HF Base Transceiver | £350.00 |
| Icom | IC-746 | HF / 6m / 2m Built In ATU | £875.00 |
| Icom | IC-746pro | HF / 6m / 2m Built In ATU Latest DSP Radio | £999.00 |
| Icom | IC-756 | HF / 6M All Band Transceiver | £950.00 |
| Icom | IC-756pro | High Class Transceiver | £1,400.00 |
| Icom | IC-E90 | Tri-Band Handheld | £220.00 |
| Icom | IC-R2 | Handheld Scanner | £99.00 |
| Icom | IC-R5 | Handheld Scanner | £125.00 |
| Icom | IC-R10 | Handheld Scanner | £229.00 |
| Icom | IC-R70 | HF Receiver | £299.00 |
| Icom | IC-R7000 | MINT CONDITION!!! Receiver | £550.00 |
| Icom | IC-R71E | Receiver | £525.00 |
| Icom | IC-R72 | Receiver | £350.00 |
| Icom | IC-R75 | Receiver (With DSP Unit) | £499.00 |
| Icom | IC-W2E | 2m / 70cms Handheld Transceiver | £140.00 |
| Icom | PS-55 | Power Supply Matching IC-735 | £100.00 |
| Icom | SP-20 | External Speaker | £99.00 |
| IPS | NIR-10 | Noise / Interference Reduction Unit | £99.00 |
| JRC | JST-245 | HF 50MHz 150w AC Base Transceiver | £1,295.00 |
| JRC | NRD-525 | HF Receiver | £375.00 |
| JRC | NRD-545 | DSP Receiver | £899.00 |
| JRC | NRD-L2000 | 1kW Linear Amplifier Solid State | £1,600.00 |
| Kantronics | KAM | Multimode TNC | £140.00 |
| Kenwood | 23cms | 23cms Module for Kenwood TS-790E | £299.00 |
| Kenwood | AT-230 | ATU for TS-830S etc | £130.00 |
| Kenwood | PS-31 | Power Supply (TS-870, TS-850, etc) | £135.00 |
| Kenwood | PS-430 | Power Supply | £100.00 |
| Kenwood | PS-50 | Power Supply | £145.00 |
| Kenwood | R-2000 | Receiver Including Converter | £275.00 |
| Kenwood | R-5000 | Receiver | £499.00 |
| Kenwood | R-5000 | Receiver With VHF Converter | £600.00 |
| Kenwood | R-600 | Receiver | £175.00 |
| Kenwood | SP-930 | Speaker with Built In Filters | £65.00 |
| Kenwood | SW-100E | SWR Meter | £25.00 |
| Kenwood | TH-215E | 2m Handheld Transceiver | £99.00 |
| Kenwood | TH-235 | 2m Handheld Transceiver | £85.00 |
| Kenwood | TH-47E | 70cms Handheld Transceiver | £80.00 |
| Kenwood | TH-79E | 2m / 70cms Handheld Transceiver | £175.00 |
| Kenwood | TH-F7E | Dual Band Handheld | £199.00 |
| Kenwood | TL-120 | Low Drive Linear Amplifier 100W HF | £150.00 |
| Kenwood | TM-241E | 2M Mobile Transceiver | £120.00 |
| Kenwood | TM-251E | Mobile Transceiver | £140.00 |
| Kenwood | TM-255E | 2m Multimode Transceiver (Fair Condition) | £299.00 |
| Kenwood | TM-255E | 2m Multimode Transceiver (MINT) | £395.00 |
| Kenwood | TM-451E | 70cms Mobile Transceiver - Data Ready | £175.00 |
| Kenwood | TM-V7E | Dualband Mobile | £299.00 |
| Kenwood | TR-2400 | 2m Handheld Transceiver | £50.00 |
| Kenwood | TR-751E | 2m Multimode Transceiver | £250.00 |
| Kenwood | TS-450S | HF Base / Mobile | £499.00 |
| Kenwood | TS-50S | HF Mobile / Base Variable Power | £425.00 |
| Kenwood | TS-570DGE | Mobile / Base HF Transceiver | £575.00 |
| Kenwood | TS-790E | Dual Band Base - All Mode | £750.00 |
| Kenwood | TS-850SAT | HF Base Station with Built In ATU | £699.00 |
| Kenwood | TS-950SD | HF 150W DSP Base Station | £1,200.00 |
| Kenwood | TS-950SDX | Kenwood's Flag Ship | £1,650.00 |
| Kenwood | VC-10 | VHF Converter | £99.00 |
| Kenwood | YG-455CN-1 | 270Hz CW Crystal Filter | £100.00 |
| MFJ | MFJ-1272B | TNC / Mic Switch | £20.00 |
| MFJ | MFJ-1278 | TNC All Mode | £175.00 |
| MFJ | MFJ-784DSP | DSP Tunable Filter | £140.00 |
| MFJ | MFJ-921 | VHF 200 Watt ATU | £20.00 |
| Microwave | 28/144 | 28 / 144 MHz Transverter | £125.00 |
| Microwave | MOD-144/30 | 30 Watt Amplifier | £79.00 |
| Microwave | MML-144/100-S | 100W 2m Amplifier | £99.00 |
| Microwave | MML-432/50 | 50 Watt 70 cms Amp, with Built-In-PreAmp | £85.00 |
| Midland | PowerPack | CB Power Pack (BOXED) | £20.00 |
| Nissei | TM-3000 | 1.6 - 60MHz, 10W / 3kW, SWR Meter | £40.00 |
| OptoElectronics | MiniScout | Frequency Counter | £129.00 |
| PacCom | TNC-320 | TNC | £90.00 |
| Pres. Lincoln | 10 METRE | 10 Metre Multimode | £175.00 |
| RadioShack | Pro-60 | 200 Channel Handheld Scanner | £99.00 |
| RevCo | RS-2000 | 60 - 519 MHz Home Base Scanner | £79.00 |
| Sangean | ATS-909 | World Band Receiver | £130.00 |
| SGC | SG-2020 | HF Transceiver | £450.00 |
| Sommerkamp | FT-290R | 2m Multimode Transceiver | £150.00 |
| Sony | SW-100E | FM/SW/MW/LW Portable Receiver | £90.00 |
| Standard | C-156E | 2m Handheld Transceiver | £125.00 |
| Standard | C-500 | Dual Band Handheld | £99.00 |
| Standard | C-510 | 2m / 70cms Handheld Transceiver | £125.00 |
| Standard | C-510E | Dual Band Handheld | £99.00 |
| TenTec | RX-350 | HF Receiver | £999.00 |
| Tokyo | HL-30V | 2m - 25W Amplifier | £75.00 |
| Tokyo | HL-35V | 2m Power Amplifier with Pre-Amp | £89.00 |
| Tokyo | HL-37V | Linear Amplifier | £60.00 |
| Tono | T-777 | Communications Terminal | £120.00 |
| Transverter | QM-70 | 28/144 Transverter | £100.00 |
| Trident | TRX-200 | Latest Scanner | £175.00 |
| Trio | TR-9000 | 2m Multimode | £199.00 |
| Trio | TR-9130 | 2m All Mode Transceiver | £250.00 |
| Uniden | UBC-860XLT | Base Scanner / Receiver | £99.00 |
| Uniden | UBC-9000XLT | Base Scanner | £199.00 |
| Welz | AC-38M | 200W Mobile Matching Network | £50.00 |
| Welz | CT-150 | Dummy Load | £50.00 |
| WinRadio | WR-1550E | Trunking Software | £450.00 |
| Yaesu | ATAS-100 | Yaesu Active Tuning Antenna System | £175.00 |
| Yaesu | FL-2025 | Amplifier | £90.00 |
| Yaesu | FP-700 | Power Supply | £100.00 |
| Yaesu | FP-707 | Power Supply Unit | £80.00 |
| Yaesu | FP-757GX | Power Unit for FT-757 | £300.00 |
| Yaesu | FR-101 | HF, 2m, 6m Base Transceiver | £399.00 |
| Yaesu | FRG-8800 | Receiver Including Converter | £399.00 |
| Yaesu | FRT-7700 | Antenna Tuner for FRG-7700 | £60.00 |
| Yaesu | FRV-7700 | Converter for FRG-7700 | £60.00 |
| Yaesu | FT-100 | HF / 6m / 2m / 70cms Mobile Transceiver | £499.00 |
| Yaesu | FT-1000MP | HF Base Station with Built In ATU with DSP | £1,199.00 |
| Yaesu | FT-1000MPmkV | 200W DSP HF Transceiver | £1,800.00 |
| Yaesu | FT-1000MPmkV-Field | Top HF Radio - AC | £1,500.00 |
| Yaesu | FT-1500M | 2m 50W Mobile Transceiver | £129.00 |
| Yaesu | FT-221R | 2m Multimode Base Station | £200.00 |
| Yaesu | FT-2800M | Mobile VHF / FM Transceiver | £120.00 |
| Yaesu | FT-290RmkII | 2m Multimode Mobile Transceiver | £225.00 |
| Yaesu | FT-41R | Handheld Transceiver | £120.00 |
| Yaesu | FT-50R | Dual Band Handheld | £150.00 |
| Yaesu | FT-5100 | Dual Band Transceiver | £199.00 |
| Yaesu | FT-51R | 2m / 70cms Handheld Transceiver | £199.00 |
| Yaesu | FT-690R | 6m Multimode Mobile Transceiver | £199.00 |
| Yaesu | FT-707 | HF 100W Transceiver | £275.00 |
| Yaesu | FT-7100M | 2m / 70cms Mobile Transceiver | £220.00 |
| Yaesu | FT-726R | 6m / 2m / 70cms / HF Transceiver | £575.00 |
| Yaesu | FT-726R | 2m / 70cms / HF Transceiver | £425.00 |
| Yaesu | FT-730R | 70cms Mobile Transceiver | £120.00 |
| Yaesu | FT-736R | 2m / 70 cms Base Transceiver | £575.00 |
| Yaesu | FT-736R | 6m / 2m / 70cms Transceiver | £650.00 |
| Yaesu | FT-96R | 70 cms Handheld Transceiver | £99.00 |
| Yaesu | FT-790R | 70cms Multimode Transceiver | £175.00 |
| Yaesu | FT-790RmkII | 70cms Multimode Transceiver | £250.00 |
| Yaesu | FT-8100R | 2m / 70cms Mobile Transceiver | £220.00 |
| Yaesu | FT-817 | Mobile HF, VHF, UHF Transceiver | £450.00 |
| Yaesu | FT-920AF | HF / 6M Base Transceiver | £899.00 |
| Yaesu | FTV-1000 | 200 W Transverter | £475.00 |
| Yaesu | FTV-430MHZ | Module for Transverter | £99.00 |
| Yaesu | FTV-707 | 2m Multimode Transverter Including Module | £125.00 |
| Yaesu | FTV-901 | Transverter including 2m Module | £165.00 |
| Yaesu | FTV-902DM | Transverter | £225.00 |
| Yaesu | MW1 | Remote Control Microphone & Infra-Red | £60.00 |
| Yaesu | SP-980 | Speaker | £60.00 |
| Yaesu | System 600 | HF Commercial Radio | £900.00 |
| Yaesu | VR-120 | FM / WFM / AM Receiver | £99.00 |
| Yaesu | VR-5000 | Top Class Base Scanner | £450.00 |
| Yaesu | VX-1R | Handheld Transceiver | £120.00 |
| Yaesu | VX-5R | Triband Handheld | £220.00 |
| Yaesu | VX-7R | Triband Handheld | £240.00 |
| Yupiteru | MVT-8000 | Base / Mobile Scanner | £199.00 |

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# Whatever next

## This month Steve White looks at wireless networking and local loops.

*High-gain commercial antenna for 2.4GHz wireless networking.*

Many computer users will already be familiar with the term IEEE 802.11. In its various incarnations it is either a Frequency-Hopping Spread-Spectrum (FHSS) or Direct-Sequence Spread-Spectrum (DSSS) wireless LAN standard for computer networks. It is commonly known as Wi-Fi. Operating in the 2400-2483.5MHz range, IEEE 802.11b is an increasingly popular standard for distributing data around offices, hotels, homes, industrial sites etc. Able to transfer data at up to 11Mbits per second, one of its features is the ability to reduce the transmission rate automatically as signals get weaker. In more recent times, you may have seen antennas appearing on people's roofs, such as the one shown. Often they are found in parts of the country where broadband Internet is not easily available. Some enterprising individuals are also adapting redundant satellite TV dishes for Wi-Fi.

The RA's stance on wireless networks is to "support the Government's policy objective to make the UK the most extensive and competitive broadband market in the G7 by 2005... RA's main strategic objective is to provide spectrum that will maximise operators' opportunities to provide access to a full range of broadband services, now and in the future. A number of frequency bands can (and do) accommodate Fixed Wireless Access (FWA) operations between 2.4GHz and 40GHz".

In fact it was almost a decade ago that the European Radiocommunications Office set out the plan that we are now seeing underway, when they published T/R 66-02 – *High Performance Radio Local Area Networks (Hiperlans) in the 5GHz and 17GHz Frequency Range*. The document noted that "the frequency band 5000-5250MHz is allocated to the Aeronautical Radionavigation Service to be used for Microwave Landing System (MLS) but there are no plans for the use of the frequency band 5150-5250MHz by the aeronautical community". As well as the 2.4GHz band, the RA web site gives a number of additional frequency bands. The list is shown in **Table 1**.

Frequency auctions for all the licensable bands (except 40GHz) have already taken place, indeed some operators seem to have started deploying systems. In the case of the licensable bands, they all fall outside the amateur bands, but the opposite is true for the non-licensable bands.

- The 2.3GHz (13cm) amateur band extends from 2310MHz to 2450MHz. The segment 2400-2450MHz – which is allocated to satellites – overlaps part of the band used for Wi-Fi.
- The three segments of the 5.7GHz (6cm) amateur band all fall within the frequency bands allocated to end-user access. The most worrying aspects are Band B, where 1W will be permitted, and Band C, where a probable power limit of 2W is being quoted.

In both instances, as Secondary users, radio amateurs have no course for redress.

Taking wireless networking a stage further, Intel is talking about the 'death of copper'. Pat Gelsinger, its Chief Technology Officer, has pledged to enhance wireless LAN standards and the technologies they encompass to such an extent that copper cabling can be eliminated as a network medium. Intel feels it can achieve this by steering future standards, such as the much-mooted 802.11n. What they are looking at doing is spreading data transfer across a number of standard-speed wireless channels using multiple-antenna systems, in a technique called Multiple-Input Multiple-Output (MIMO).


***A satellite TV dish adapted for use as an IEEE 802.11b antenna. Being an offset dish, it needs to be angled down when pointing towards a target on the horizon. This arrangement is quoted as providing a gain of about 22dB at 2.4GHz.***

Fixed Wireless Access systems have distinct advantages in areas that are thinly populated because they are much cheaper to install than miles of cable. Radio LANs are all-but essential for mobile data, but they both place additional pressure on an already crowded frequency spectrum. Moreover, with the move to ever-larger amounts of data being moved around in ever-shorter periods of time, huge swathes of the spectrum are required. I think you'll agree that, with government approval and industry backing, it's pretty clear where we're going here – up in frequency and wider in bandwidth. Although infra-red and optical communication can play their parts in fixed links and within rooms, I see radio as King of the data distribution methods for some considerable time. ◆

| Band (GHz) | Frequency Range(s) | Licence required? |
|---|---|---|
| 2.4 | 2400-2483.5MHz (IEEE 802.11b) | No |
| 3.4 | 3480-3500MHz paired with 3580-3600MHz | Yes |
| 3.6 – 4.2 | 3605-3689MHz paired with 3925-4009MHz | Yes |
| 5 | 5150-5875MHz (IEEE 802.11a) | No |
| | Band A = 5150-5350MHz, max EIRP 200mW | |
| | Band B = 5470-5725MHz, max EIRP 1W | |
| | Band C = 5725-5875MHz, probable max EIRP 2W | |
| 10 | 10.125-10.155GHz | Yes |
| 17 | 17.100-17.300GHz | ? |
| 28 | 28.0525-29.4525GHz | Yes |
| 40 | 40.5-43.5GHz | Yes |

***Table 1: The frequency bands for UK Fixed Wireless Access, Wireless LAN, Wi-Fi and Hiperlan. User access is – or will be – on the frequency bands that do not require individual licensing.***

**WEB SEARCH**

| | |
|---|---|
| Frequencies for wireless LANs, etc | www.radio.gov.uk/topics/broadband/tablefrequencyupdate.doc |
| IEEE 802.11a and 802.11b channel allocations and power levels | www.cisco.com/univercd/cc/td/doc/product/wireless/airo1200/accsspts/ap120scg/bkscgaxa.htm#1013020 |
| Intel 'Death of Copper' | www.theregister.co.uk/content/69/32917.html |

# In Practice

## LINEARITY FOR PSK31

**Q Why do you need a 'highly linear' transmitter for PSK31? Isn't phase-shift keying a constant-amplitude mode, like frequency-shift keying?**

A Part of the answer is that PSK31 is *not* a constant-amplitude mode. The other part is that a PSK31 QSO on a nearby frequency can suffer interference from the distortion sidebands produced by a non-linear PSK31 transmitter.

Traditional frequency-shift keying (FSK) *is* a constant-amplitude mode. If the transitions between frequencies are accomplished without breaks in phase continuity (in effect, as a rapid slide between frequencies) then the amplitude remains constant and the sidebands generated by keying transitions are minimal. That means that it's fine to amplify an FSK signal using a non-linear power amplifier [1].

Phase-shift keying is often described as changing the phase of a carrier on one constant frequency - but that's an over-simplification. The inventor of PSK31, Peter Martinez, G3PLX, points out [2] that if you flip the phase of a carrier by 180°, that is equivalent to instantly turning the transmitter off, and instantly turning it on again with reversed phase. Remember what happens when you instantly turn a transmitter on or off? That's right - key-clicks! So instead of occupying only one frequency, a simple phase-flipping PSK transmission would also generate key-click sidebands extending far out on either side. To avoid this problem, G3PLX decided to shape the modulation envelope of PSK31 so that the phase transitions only take place when the signal amplitude is close to zero (**Fig 1**). This deals with the key-click problem, but it also means that PSK31 is not a constant-amplitude mode.

PSK31 is one of a family of so-called 'binary phase-shift keying' or BPSK modes. **Fig 2** shows typical hardware used to generate a BPSK signal. The phase of the carrier at the centre frequency of the transmission is reversed by feeding it into one port of a balanced modulator, and feeding into the other port a data modulating signal which is essentially polarity-reversing DC. Controlled by this signal, the balanced modulator acts as a DPDT switch that reverses the carrier phase. In the case of PSK31, the 'idling' data signal consists of a steady stream of phase reversals at 15.625Hz, with the transitions shaped as shown in Fig 1, so the modulating signal is actually 15.625Hz AC. But the balanced modulator also has a better-known property: at the output, the original carrier is balanced out and replaced by the mixing products of the original carrier and the modulation frequency – the upper and lower sidebands. That is how the PSK31 signal comes to consist of *two* carriers separated by 31.25Hz.

In fact the 'waterfall' diagram of the received frequency spectrum clearly shows that an 'idling' PSK31 signal really does appear as two RF carriers (**Fig 3** – the crosswise lines like rungs of a ladder are the keying transitions generated when the operator types at the keyboard) [3]. The hardware method of generating PSK31 (Fig 2) is easier to imagine, but I could equally have explained the PSK31 modulation process using maths – for that is how PSK31 is generated in practice. Based on the maths, a PC sound card is programmed to generate audio signals that, when fed into an SSB transmitter, will come out as a PSK31 transmission.

Do you see the linearity problem now? Since the BPSK modulation has generated two carriers, they can then intermodulate to produce additional sidebands. This is very clearly shown

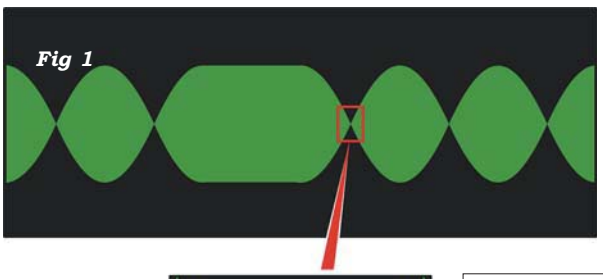



***Fig 2: Generation of BPSK in hardware using a balanced modulator.***

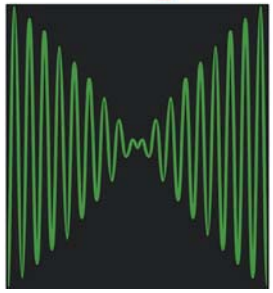
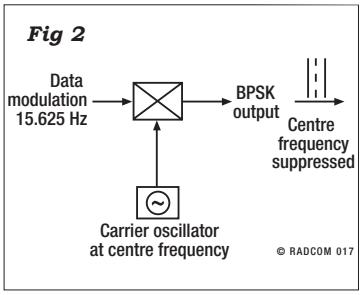


***Fig 1: PSK31 signal, with close-up of the phase reversal at almost zero amplitude.***




## LONG YAGI DESIGNS

**Q There are lots of different designs for VHF/UHF long Yagis that supposedly have different strong points. Suppose I just want to go for maximum dB. Is there a website that explains what parameters to use to achieve that?**

A I hope not. If a long Yagi is optimised for gain and nothing else, it is usually quite poor in other respects. All long Yagis have a gain-frequency curve that rises gradually to a peak from the low-frequency side, but falls very rapidly at the high-frequency side. If you're designing for only one specific frequency, the effect of the gain-frequency curve is to make it safe for the elements to be a little short, but potentially disastrous if they are a little long. The majority of gain-maximised Yagis have simply been shifted to the peak of their gain-frequency curve... which places them on the brink of a big fall in performance.

Such Yagis usually have large sidelobes on each side of the main lobe, which makes the main lobe narrower and more sharp-pointed. This in turn makes the antenna more difficult to aim accurately. Front/back ratio reaches its maximum at a lower frequency than the gain, so at the gain peak it can be quite poor; and the same may be true of other rearward lobes too.

If the elements are just on the edge of being too long, they will have poor tolerance to small differences in element mounting methods, and poor tolerance to constructional dimensions (although this has often been exaggerated beyond belief). Equally important, the effect of raindrops and hoar frost is to make the elements electrically longer, so in our climate such an antenna may be under-performing for much of the year.

I don't believe that gain-maximised long Yagis automatically have a low feed impedance, but these two features have certainly been associated in older designs. A low feed impedance increases the currents in the elements and thus increases the resistive loss due to skin effect. It also makes matching much more difficult and tends to reduce the SWR bandwidth.

These conclusions have been confirmed many times over, whether by traditional cut-and-try or by computer. Automatic computer optimisation only gets you to the same dead-end sooner. However, computer analysis has provided a lot more insight into what was going wrong with these gain-maximised designs, and has proved that it doesn't have to be that way. Modern optimised Yagis often achieve as much forward gain as the old gain-maximised types, but don't share their vices to anything like the same degree. Because the modern designs are much more tolerant to build, to match and to aim, in practice you'll almost certainly achieve *more* gain.

There is more information in the 'VHF/UHF Long Yagi Workshop' on my website. By the way, I recently fixed a minor bug in the long-established design program for DL6WU Yagis. It won't have affected anyone (the bug produced designs that couldn't actually be built) but if you have the program, it would be worthwhile to download the corrected update.

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Website: www.ifwtech.co.uk/g3sek E-mail: g3sek@ifwtech.co.uk

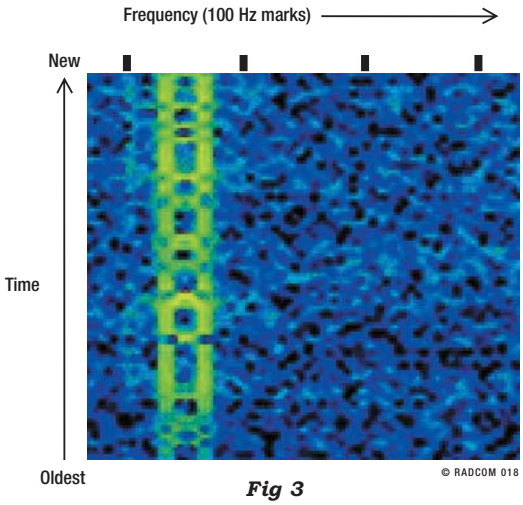



*Fig 3*

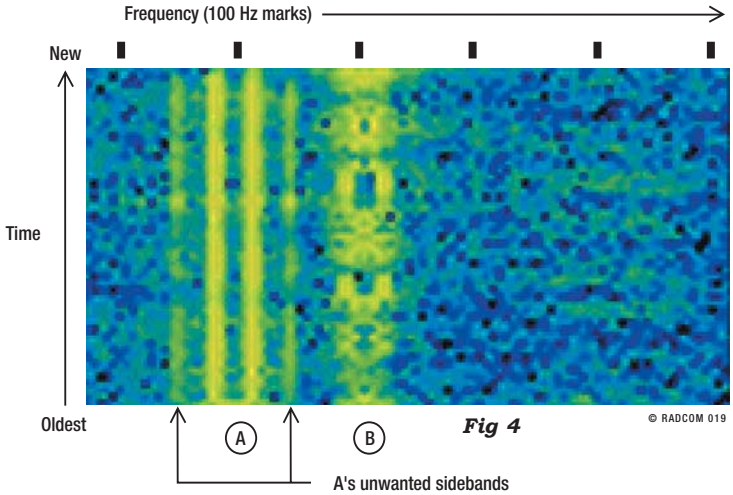



*Fig 4*

***Fig 3: PSK31 signal showing the two RF carriers (interrupted by typing).***

***Fig 4: Station A's unwanted sidebands are close to causing interference with station B.***

in **Fig 4** [3] where station A is transmitting a steady idling signal which produces the two uninterrupted carriers, the bright yellow lines. But on either side of those carriers you can see the intermodulation products, the fainter yellow lines. Meanwhile, weak station B is typing away, only about 100Hz higher. If station A had been just a little closer, his intermodulation products would have landed right on one of B's carriers. The interference would become even worse when A starts typing too, because PSK31 does not have good tolerance for interference from other PSK31 transmissions.

Therefore it is very important that a PSK31 signal is ultra-clean, with no intermodulation occurring at *any* stage in the transmitter. This requirement is far more stringent than for SSB, where intermodulation tends only to occur on speech peaks – but intermodulation in a PSK31 transmission is there *all the time*. For an acceptable signal, the intermodulation products should be completely invisible on the waterfall display (as in Fig 3, or station B in Fig 4). Most PSK31 software displays the level of the intermodulation products of the station you're receiving, so that you can warn them about it if necessary. Many PSK31 users find that their transmitters need to be reduced to about half their normal SSB output power in order to achieve socially acceptable sideband levels. However, you should also be aware that intermodulation may be taking place in earlier stages of the transmitter. For example, if you have the audio input level set too high, reducing the RF output power may not help as much as it should.◆

## NOTES AND REFERENCES

**[1]** However, if you are generating FSK from audio tones, your transmitter must be correctly adjusted as explained in the footnote to the April 2003 column.

**[2]** G3PLX has written extensively on PSK31, starting with its introduction in *RadCom* for December 1998, January 1999 and February 1999. Many other references are available on the web, and there are links from the 'In Practice' website.

**[3]** Figs 3 and 4 were generated from the Help file for the popular *Digipan* software – see the link from the 'In Practice' website.

## WHAT SIZE GENERATOR?

**Q What size of generator should I use for a 400W output SSB/CW station?**

**A** That's very difficult to answer in general, except to say that the generator's VA (volt-amps) rating needs to be many times higher than the expected RF output. This is partly for obvious reasons of efficiency – even with the 'solid' mains at home, the AC power input required for 400W RF output is likely to be well over 1kW. More difficult to assess is the extra capacity that's necessary to handle to the fluctuating power demands of SSB and CW.

A small engine-powered AC generator is a difficult thing to control. Over the years, many different ways have been tried, none of them totally successful. The alternator speed should of course be constant at 3000rpm, in order to deliver a steady 50Hz AC. Typically, the speed is controlled partly by a governor but also, obviously, by the fuel supply. The voltage should also remain fairly constant, and this is controlled partly electrically but again partly by the fuel supply. What *should* happen when you apply a sudden load is that both the alternator speed and the output voltage remain constant, and the engine simply works harder. Power stations do this rather well, but small generators do not.

With a small generator, the speed and voltage both drop when the load comes on, and the controller reacts to this over the space of a second or two. This initial sag is generally acceptable for loads that will then remain constant, but the fluctuating load of SSB in particular can cause real trouble. No sooner has the controller reacted, but the operator pauses for breath – so the load drops and the engine over-revs. The controller cuts right back, but just then the operator starts speaking again and the output sags alarmingly. This 'hunting' due to the wrong time-constant in the generator controller can be a major problem. Sudden dips in generator voltage can make power amplifiers perform very poorly compared to the home situation, because the anode voltage drops far below normal at full modulation – just when it most needs to hold up. Also the continual cycling in heater voltage can do significant damage to valves, especially if the generator voltage is already on the low side. And all of these problems are made worse by the use of long, under-rated distribution cables to reduce the generator noise at the operating position.

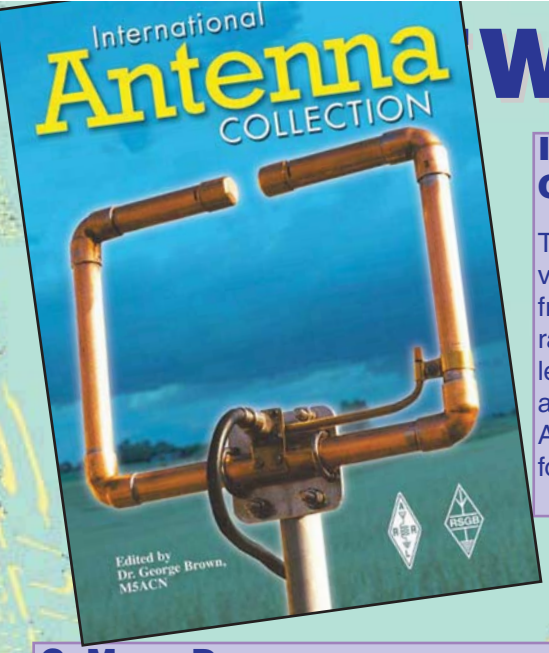
The usual solution is to use a much higher-rated generator than you first thought of. A 400W SSB/CW station will be a struggle for a 1.5kVA generator, but many 2.5kVA generators are comfortable. This policy of over-rating is not entirely 'brute force and ignorance', because a larger generator has a larger spinning mass which acts as a flywheel energy store. You can draw power from it while the controller is catching up with events, and it also helps to absorb the overruns when the load comes off. This gives a much easier life for both the controller and the radio equipment, and the whole situation becomes tolerable.

Hiring a generator for a contest or DXpedition is always something of a lottery, until you know how it gets along with the peculiar load patterns of a portable amateur radio station. So much depends on the response of the controller. Buying a generator is an even greater risk, unless you've already hired that model first and know how it will perform.

The only items that are relatively immune to these problems are solid-state radio equipment operated from regulated power supplies. Within fairly wide limits, the generator can do what it likes and the electronics will keep the supply voltages constant. This is also a strong hint to power the valve heaters from regulated supplies, eg a modified computer power supply. Some newer generators are based on electronic AC inverters, which offer the possibility of greatly improved output regulation, but I haven't heard reports of how they perform with portable stations; and they are also very expensive as yet.

One other thought: the AC waveform from most generators is pretty poor, so it really does help to use a mains filter. Once again, use a filter that is generously rated - the HF performance deteriorates if the inductor cores come close to saturation. Large mains filters can be surprisingly cheap from rallies.

# W NEW NEW NEW N

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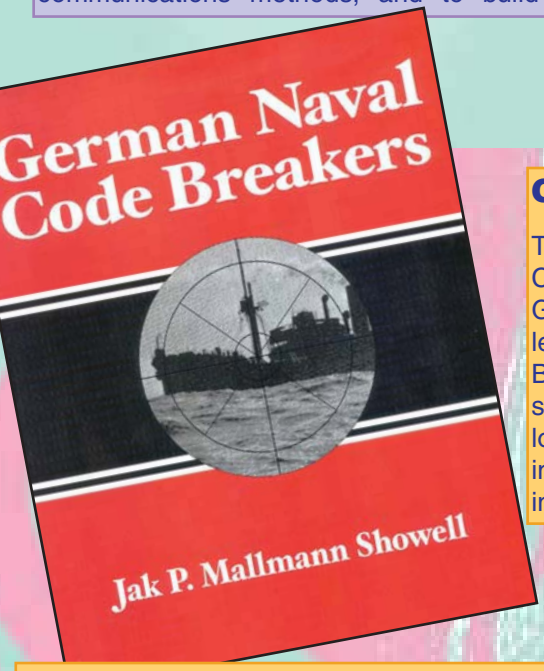


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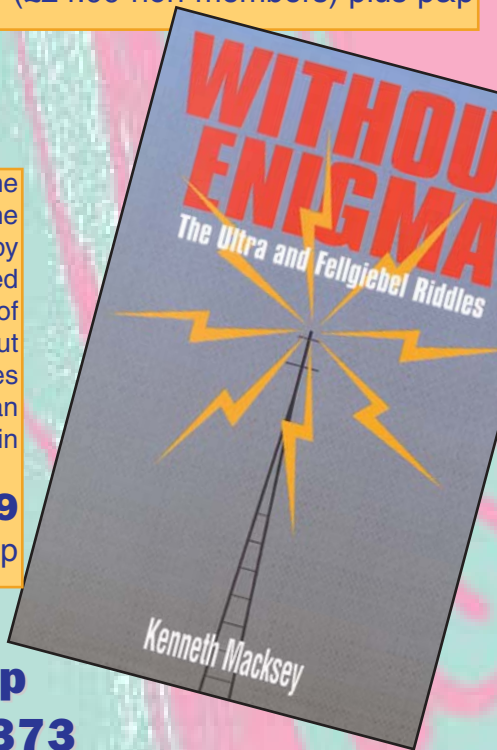


## Without Enigma
### The Ultra & Felgiebel Riddles

Without Enigma is a reassessment of just how much the breaking of German Enigma codes contributed to the Allied war effort. The author sets out to explore if this breakthrough's importance has been over-exaggerated by historians.

Written in a semi-fictional style the book explores how large the contribution to the Allied victory the breaking of the Enigma codes were. The author then proposes the possible results would have been had the breaking of the code had been discovered by the Germans. In this way we are provided with a counter-argument to the importance of the breaking of the Enigma code. Without Enigma is a hardback book of 160 pages which are packed with detail and are an essential read for anyone with an interest in Bletchley Park and the Enigma code.

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By Peter Dodd, G3LDO, 37 The Ridings, East Preston, West Sussex BN16 2TW. E-mail g3ldo@ukonline.co.uk

# Antennas

## A design is offered here for those who like experimenting with small (or not-so-small) loops.

The conventional transmitting loop is a solution to HF operating from a site where there is insufficient room to erect a conventional wire antenna. It comprises a loop of large diameter tubing tuned by a substantial capacitor. The reason for this heavy engineering is the very high currents involved; these are typically 15 to 20amps through the loop element and capacitor when fed from a standard 100W transceiver. The efficiency of the loop antenna is the subject of much debate [1], and can be from 10% to 50% depending the coupling into nearby electromagnetic obstructions and other factors. A low insertion loss transformer/balun is also necessary to match to balanced loop to 50Ω coaxial cable.

### THE I5TGC LOOP ANTENNA

An alternative loop has been designed by Cesare Tagliabue, I5TGC. This antenna employs inductive rather than capacitive loading and the one about to be described operates on frequencies from 14 to 28MHz. The I5TGC antenna, shown in the photograph, actually comprises two loops set at 90° to each other in an 'X'-configuration to allow the selection of polarisation.

The electrical length (see **Fig 1**) of the loop is a half-wave at the lowest frequency (in this case, 14MHz.). This is made up from the lengths of the conductors A to B (1500mm), C (1500mm), two lengths of D (700mm), plus the inductive and capacitive loads. Details of the loop construction are shown in **Fig 2**. The diagrams are I5TGC's originals, and anyone interested in building the antenna can obtain the full-size diagrams (including the ATU and the loop switching mechanism) from me on receipt of an A4 or A5 SAE.

Other dimensions are:

Inductive load = 6 turns 235 mm. diameter.

Capacitive load = 1 ring 235 mm diameter.

Sections A, B are constructed from aluminium tubing 16/12mm diameter.

Section C is made from aluminium tubing 12/10mm diameter.

The coils and capacitive rings are aluminium tubing 6/4mm diameter and the coils are supported with MOPLEN rods, fixed to the coil ends and some intermediate turns.

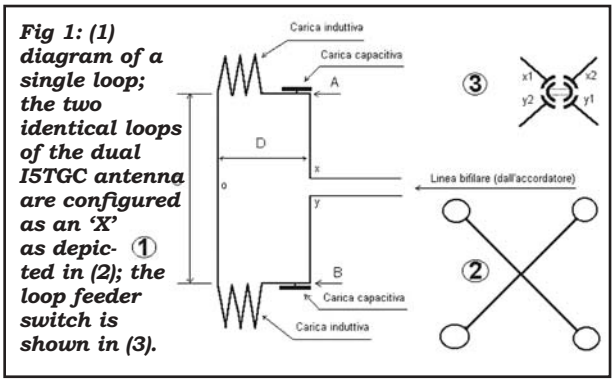



*Fig 1: (1) diagram of a single loop; the two identical loops of the dual I5TGC antenna are configured as an 'X' as depicted in (2); the loop feeder switch is shown in (3).*

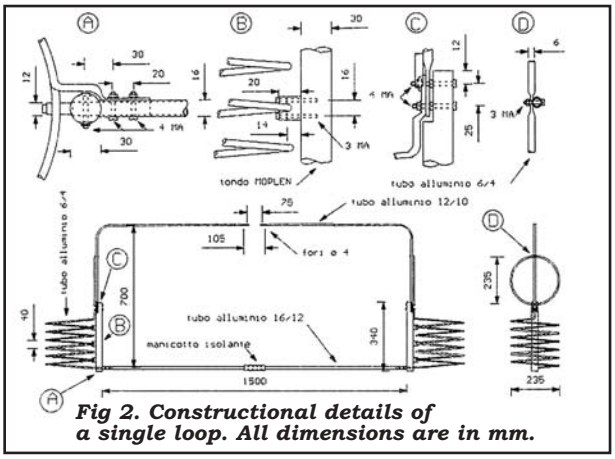
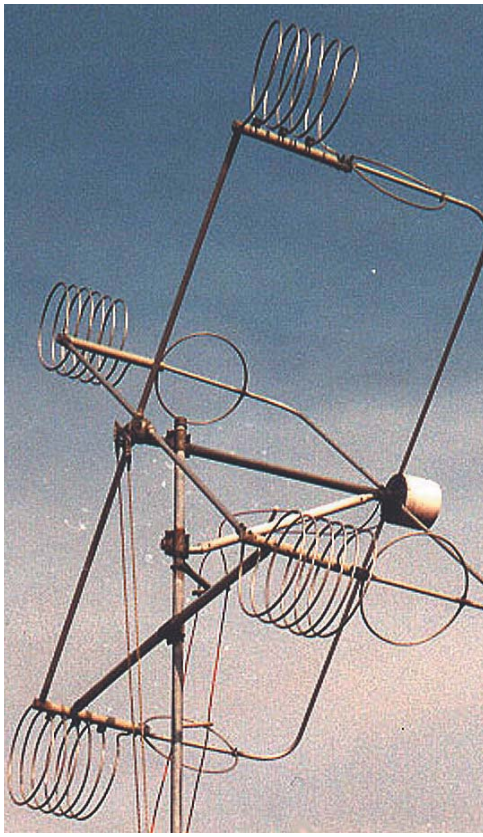



*Fig 2. Constructional details of a single loop. All dimensions are in mm.*



*The I5TGC loop antenna in position.*

There is more than one way of looking at this antenna. On 14MHz you could think of it as a short loaded dipole, voltage-fed at the tips. On 28MHz it is more like a full-wave loop with a low-impedance feed. The main objective of this design is to increase of the efficiency, compared with a conventional loop, by increasing the radiation resistance.

As you can imagine, the feed impedance varies considerably over the design frequency range. This problem is solved by using a true balanced ATU and 450Ω balanced twin-wire feeder. The ATU used by I5TGC is situated relatively close to the antenna and is remotely-controlled from the shack. This arrangement allows the open-wire feeder to be relatively short to minimise losses caused by the high SWR. This arrangement also allows the crossed loop to operate on 10 and 7MHz. In this case, the antenna works more like a conventional loop with noticeable losses compared with the design frequency range.

As already stated, the feeder is connected to the extremities x, y, of one of the loops (Fig 1 part 1). Points x, y, of the other loop are connected to a switch, a diagram of which is shown in Fig 1 part 3. This switch allows the loop not directly connected to the feeder to be connected with 0° or 180° shift relative to the fed loop - or not fed at all. By this means, very quick variation of polarisation, horizontal, vertical, or oblique can be selected. The switch is remotely controlled by means of two nylon cords wound on a drum driven by a small motor. This antenna is fully insulated from the mast, constructed on a small boom of PVC high-pressure tubing.

### OPERATION

I5TGC notes that the polarisation of most signals is elliptic, with horizontal and vertical polarisation at the same time. However, on some propagation paths, only one polarisation plane is present; in this case a switchable loop is a distinct advantage when working some DX stations.

This loop has proved to be an effective DX antenna, with countries such as VP8, BV, JW, and many others, being worked in pile-up situations.

This antenna was described in *RadioRivista*, the official magazine of the ARI (Italian Radio amateurs Association) in October 1996. The extent of the experimental antenna work done by I5TGC can be seen on his website, see below. ◆

### REFERENCE

[1] This subject is covered in great detail in the new RSGB book International Antenna Collection, available from the RSGB Shop.

**WEB SEARCH**

I5TGC http://dai5tgc.dadacasa.supereva.it

# Basic HF

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# QRP

## QRP NEWS FROM RUSSIA

Oleg V Borodin, RV3GM, Chairman of the RU-QRP Club, e-mailed me about a new QRP operating event, The QRP Express-Test. It runs each Sunday with follow timetable (frequencies in kilohertz):

1000 UTC .....7,030
1010 UTC .....10,106
1020 UTC .....14,060
1030 UTC .....18,096
1040 UTC .....21,060
1050 UTC .....24,906
1100 UTC .....28,060
1900 UTC .....3,560

It offers QRP operators a chance to monitor conditions, test their equipment and antennas, and to make two-way QRP QSOs. There is also an International QRP Net on Saturdays at 1000 and 2200 UTC on 14060kHz.

### Antentop

Igor Grigorov, RK3ZK, a member of the RU-QRP and UR-QRP clubs, is running a free e-magazine ***Antentop***, located at www.antentop.bel.ru

The first issue is available and contains over 100 pages and more than 25 topics, all in downloadable PDF format.

### CQ-QRP Magazine

From the Autumn (issue number 4) the RU-QRP Club's journal ***CQ-QRP*** will be published in English as well as Russian. It is A5 size with a colour cover and contains articles of interest for any QRP operator or constructor. The cost of a single issue is $4 (or 4 Euros) and $15 (15 Euros) for a one-year subscription (4 issues). Issues 1 to 3 (in Russian only) are also available. Contact Oleg V Borodin, RV3GM, to order the journal, or look at the RU-QRP website and link to '***CQ-QRP*** journal'.

## THE G QRP CLUB WINTER SPORTS

The G QRP Club Winter Sports is one of the most popular QRP operating events. Each year between Boxing Day (26 December) and New Year's Day (1 January), the club invites any operators to join in a QRP 'QSO Party' using 5W or less of RF output. The operating takes place on and around the international QRP calling frequencies. These are: CW – 1843, 3560, 7030, 10106, 14060, 21060, 28060kHz, and SSB – 3690, 7090, 14285, 21285, 28360kHz

The Winter Sports is not a contest, although the G4DQP Trophy is awarded to the operator thought to have made the best overall contribution to the event. So '5NN BK' exchanges are not heard and participants often linger over interesting QSOs. It is usual for operators to exchange their G QRP Club membership number, if they have one.

The event does provide an opportunity for operators who do not usually use low power to turn down their power to 5W or below, and see what can be done. Those taking part are invited to submit logs and comments to the G QRP Club Communications Manager, Peter Barville, G3XJS, 40 Watchet Lane, Holmer Green, High Wycombe HP15 6UG (g3xjs@gqrp.co.uk). The G4DQP Trophy is awarded to the station making the best overall contribution, which may not necessarily be the station with the most QSOs or working the most DX. So turn down the power and have a go at this popular event. It is one of the few times I have heard QRO stations complaining about QRM from QRP stations! ◆

**WEB SEARCH**

| | |
|---|---|
| RU-QRP Club | http://ruqrp.narod.ru |
| RU-QRP Club sales page and link to 'RU-QRP Shop' | http://ruqrp.narod.ru |
| UBA website | www.uba.be |


***Below: The latest CW QRP homebrew transceiver by Tony Breathnach, EI5EM. It is a 40m superhet based on the NorCal-40 design, although it now bears no resemblance to its ancestor. It includes a 5W amplifier and has tighter IF and audio filtering. The case houses a built-in SWR meter and ATU. The transceiver also includes RIT and a Curtis Iambic Memory chip and LCD frequency readout.***

## A (VERY) LOW POWER CHALLENGE

Helmut Verdegem, ON4AXW, has sent me detailed information about a series of very low power tests, the UBA Candlelight Challenge 2003-2004, which are offered as a challenge to other radio amateurs.

### The aim

The aim of this challenge is to promote (very) low power and narrow-band techniques on HF. For this purpose, a series of low-power transmission sessions will be held in the period November 2003 to April 2004. Each session will be on a Sunday from 1700 to 1800UTC and the callsign, followed by a five-character code word will be transmitted at very slow CW speed. The challenge for all participating radio amateurs is to copy the code word.

**Transmit hours:** 1700 to 1800UTC.
**Transmit frequencies**: 80m band: 3.5850kHz; 40m band: 7.0370kHz; 30m band: 10.1400kHz.
**Mode**: CW at 0.4 words per minute (also called QRSS3). dit length – 3s; dah length – 9s; dit/dit or dit/dah pause – 3s; character pause – 9s; word pause: 21s.
**Codeword**: The codeword consists of five arbitrary unique alphanumeric characters such as AMTOR, MORSE, 3GLK5, XTA24.

**Transmit schedule**:

| Date Sunday | QRG MHz | Callsign | WW locator | RF Power mW |
|---|---|---|---|---|
| 23/11/03 | 3.5850 | ON4AXW | JO10VW | 500 |
| 07/12/03 | 3.5850 | ON5UK | JO10TX | 150 |
| 21/12/03 | 3.5850 | ON5SL | JO10TT | 60 |
| 04/01/04 | 3.5850 | ON4LP | JO11PE | 30 |
| 18/01/04 | 7.0370 | ON5EX | JO10UX | 500 |
| 01/02/04 | 7.0370 | ON4LP | JO11PE | 150 |
| 15/02/04 | 7.0370 | ON7YD | JO20IX | 60 |
| 29/02/04 | 7.0370 | ON5SL | JO10TT | 30 |
| 14/03/04 | 10.1400 | ON7YD | JO20IX | 500 |
| 28/03/04 | 10.1400 | ON5UK | JO10TX | 150 |
| 11/04/04 | 10.1400 | ON4AXW | JO10VW | 60 |
| 25/04/04 | 10.1400 | ON5EX | JO10UX | 30 |

Transmissions start at 1700UTC precisely. The message consists of the callsign and the codeword. The codeword is repeated until 1800UTC.

**Example**: ON4AXW AMTOR AMTOR AMTOR AMTOR
**Reporting**: Please mail your signal reports to on5ex@pandora.be within one week following the transmission date.

A valid monitoring report contains: (a) Your callsign/SWL identification; (b) Your WW QTH locator; (c) The codeword as copied by you.

Supplementary data such as a full station description, snapshots, etc, are most welcome.
**Score**: Score = Distance (in km) multiplied by the number of correct copied characters and divided by the transmitter power (*in watts*). Distances are calculated from the centre of the locator squares and rounded to the nearest kilometre. At least two correct copied characters are required.

The final score is the sum of the scores from all transmit sessions. It is not required to participate in all sessions. The intermediate results after each session will be published on the UBA website – click on the language you prefer, then click on HF, then click on QRP.
**Awards**: Awards will be granted to all participants. Special certificates of merit can be granted for outstanding performances.
**Additional experiments**: All radio amateurs are also invited to take part in other experiments of a similar nature organised on intermediate Sundays. For more details, please refer to the QRP page of the UBA website (see 'Websearch')

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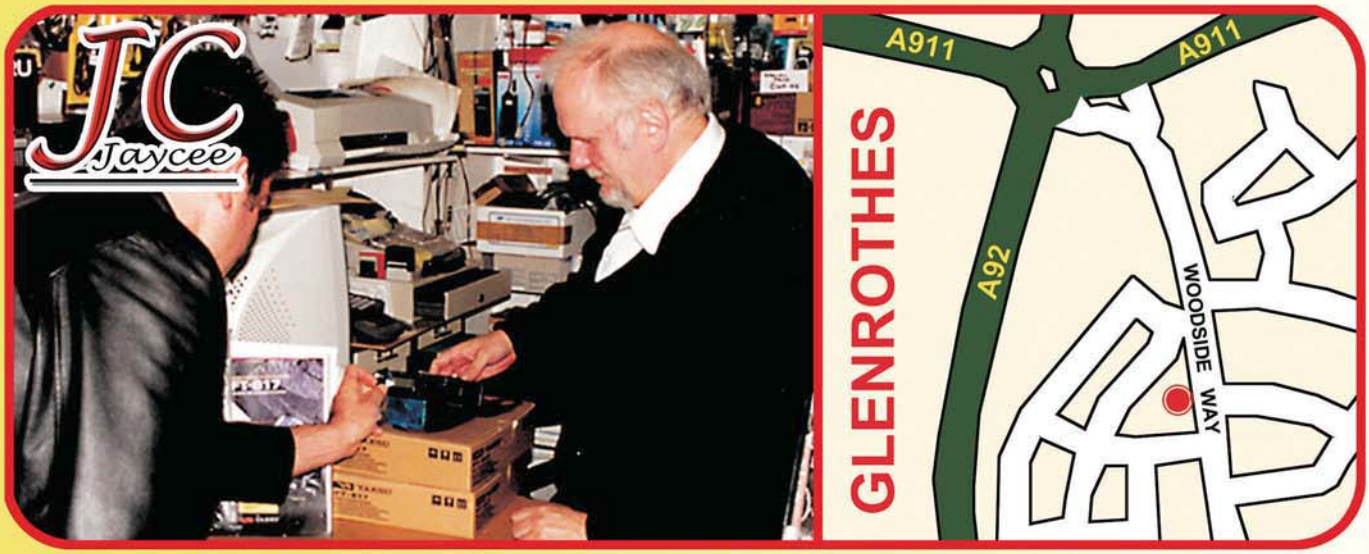


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Kings Heath, Birmingham B14 6DE. E-mail: lf.radcom@rsgb.org.uk

# LF

## Items from around the world this month – from Canada, Alaska, Poland and Costa Rica.

*The experimental class-D transmitter of Marek, SQ5BPM.*

### NEWS FROM POLAND

Things have moved on a little since last time when I reported on the first short-range LF QSO in Poland. Club station SP2PZH is now close to launching its higher power station. It plans to use a rebuilt audio power amplifier running at a few hundred watts.

Meanwhile, Marek, SQ5BPM, has beaten them to it with his 150W class-D transmitter matched into the top-band dipole at club station SP5ZCC.

Marek had been testing for a few weeks with his new transmitter, but was beginning to doubt that the signal was getting out at all. Local hams had failed to receive the transmissions due to noise problems and it wasn't until SM6PXJ announced that he had set up his grabber that things changed. Marek sent a test call and was delighted to see a trace appear on the screen. He contacted Christer, SM6PXJ, and arranged a sked.

On the evening of 8 September, SP5ZCC transmitted on 136.500kHz using 30s-per-dot QRSS, Christer replied on 137.000kHz with 3s dots, and a QSO was made.

Marek used 30s dots to give his weak signal a better chance of making it, but there was no need for Christer to use anything slower than the usual 3s dots. It was the first QSO on LF for SP5ZCC and was the first international QSO from Poland on the 136kHz band.

Marek thanks all those in the international LF community who helped him get on the air, and is hoping to improve the station over the next month or so. He is working on a bigger power supply and a more stable VXO which will allow him to transmit in the top half of the band. Some improvements to the aerial are possible too.

### WINDOWS ON THE WORLD

As mentioned above, SM6PXJ has a 'grabber' running on the Internet. Several of these are running in various parts of the world and they are useful in allowing distant stations to conduct tests when there is sparse activity.

The principle is simple. A receiver is left tuned to the 136khz band with *Argo*, or a similar FFT program, taking regular screen grabs which are uploaded to the Internet. These sites come and go as people change servers or move on to different experiments so it is pointless to publish a list of URLs here. I will try to keep an up-to-date list on my grabber page (see 'Websearch').

### WD2XDW BEACON

Laurence, KL1X, now has his experimental permit and his beacon, WD2XDW, has been on the air since August. As I write this, it is transmitting on 137.7735kHz with 60s QRSS in the hope of getting a signal across to Europe. Following various improvements to the aerial system and the G0MRF transmitter, Laurence now has the ERP up to about one watt with 24-hour reliability. The best report so far has been from VE7SL at 2200km.

### COSTA RICA TRIP

In early September, Laurence took his trusty portable receiving setup (as used in Ghana) to Costa Rica. He was hoping to see some signals from Europe and maybe even WD2XDW. The static was bad, but German commercial station DCF39 was visible on a couple of occasions.

### TRANS-ATLANTIC CONDITIONS

Steve McDonald, VE7SL, in British Columbia, reported his first reception of DCF39 in early September. British Columbia is on the west coast of Canada and is about as far away from Europe as Canadians can get! Steve is a keen listener - I mentioned his LF website in a previous column - and he has received ZL6QH on many occasions.

DCF39 is proving to be a useful indicator of conditions across the Atlantic. It transmits a mostly-continuous carrier on 138.830kHz from its site at Burg near Magdeburg in northern Germany. Its EIRP of 40kW gives it a 46dB advantage over a 1W amateur station. When DCF39's signal rises to about 40dB above the noise at trans-Atlantic sites, the operator knows that there is a good chance of receiving amateur signals from the same area.

On this side of the ocean, the Canadian station, CFH, on 137.000kHz is a similarly good indicator of conditions, but it is not always on the air.

As far as amateur signals crossing the pond are concerned, VO1NA was still being received here at various times throughout the summer. These results, and the ZL6QH tests, show that DX on LF is not solely a winter activity. It's just that the short hours of darkness and the high static levels make it more difficult.

### MOBILE RECEPTION

When setting up a beacon, measuring ERP, or searching for sources of noise, it is useful to have a portable receiving setup. Bill Ashlock's experience with hundreds of hours of signal mapping using an E-probe has shown two problems that have to be addressed:

1 Power lines cause nasty interference and reduction of the wanted signal due to the shielding effect. Keep away from them.
2 Dense woodland will cause a signal reduction unless you are at least 150ft away.

He suggests seeking open receiving sites such as cemeteries, school yards and even large shopping centre car parks (when the lights are off).

A calibrated loop antenna is preferred by some, because of its insensitivity to trees, but Bill is convinced that the E-probe is by far the more convenient aerial. He also says "you don't look like a weirdo getting out of your vehicle, with headphones, loop and receiver in hand, untangling all the wires!" He can just pull off to the side of the road; turn off the engine, and take a reading from the receiver on the passenger seat, without even changing his position in the car. ◆

**WEBSEARCH**

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| Grabber information | www.wireless.org.uk/grab/ |
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By Simon Lewis, GM4PLM, Creoch Farm, Ochiltree, Ayrshire KA18 2QH. E-mail: uwave.radcom@rsgb.org.uk

# Microwave

## Tropo openings produce new distance records!

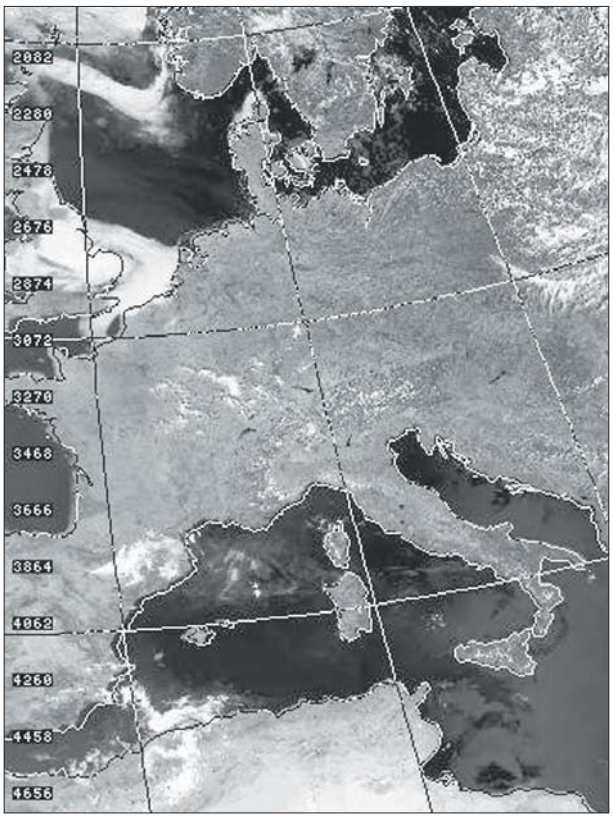
The past few months have seen some amazing microwave propagation. Most of Europe has experienced some excellent enhanced conditions that show the real capabilities of modern amateur microwave equipment. Along with these reports, we also have news of the biggest dedicated microwave event, the legendary Martlesham Round Table.

August saw by far the best tropo openings in the microwave spectrum for many years. Indeed, many VHF/UHF frequencies were blessed with excellent conditions, and several distance records were extended. For many, the conditions also coincided with some record-breaking temperatures which, after a number of wet summers in Scotland, was very welcome with temperatures peaking at a very warm 33°C!

Many parts of the UK saw good microwave propagation, with contacts being made from the South Coast to southern France and into middle Europe. The south coast was not the only winner – Peter, G3PHO, made a spectacular contact with Klaus, DL3YEE (JO42), through an open window of his house in Sheffield on the 10GHz band, using his old standby 10GHz transceiver! Peter then ventured out portable to work stations well into Europe proving that you do not need to be located on the south coast to work the DX! Scotland did not miss out either, and in one case was working DX when the rest of the UK was missing out.

Nick, GM4OGI, located on the east coast of Scotland, was at the end of some very interesting propagation, particularly on 7 and 8 August. Nick sums this up very well in an e-mail: "Beacons heard on the evening of 7 August: SK6MHI, SK6YH, OZ1UHF, OZ5UHF and DB0GHZ. On 8 August, all the beacons listed above were present and especially DB0GHZ (at one point it was literally end-stopping). At 0735UTC, I logged for the first time DB0VC. I have never heard this beacon on 23cm, so it was a surprise to hear it on 3cm! Stations worked: OZ1CTZ 559/519 at 1920 07/08/03 on CW, OZ1CTZ 59/59 at 2015 on SSB, OZ2OE 519/– at 2025 on CW (I heard him but signal lost). SM7ECM -/- 2030. SM7ECM and I tried every hour on the hour and more (check the ON4KST chat!) but no signals heard. Then, SM7ECM was 549/419 at 0550 on 08/08/03 on CW, confirmations received at 0605 (IO85DX – JO65NQ being about 1049km).

"Other unsuccessful contacts were with DL3YEE, DF5JJ and DK1KR on 8 August. During the evening of the 8th at 2125, on a seemingly dead band, I had an SSB contact with OZ1CTZ 59/59. It shows what can be done when one tries!" Indeed, Nick, and congratulations on such a fine set of results so far north. Nick also sent an interesting satellite picture showing a thick sheet of fog across the southern North Sea but clear skies across the GM-Scandinavia path during the 7/8 August period. Hopefully, with such high summer temperatures, the autumn tropos will have a much bigger temperature variation than in past summer/autumns leading to similar great openings.




*From Nick, GM4OGI, a satellite picture showing a thick sheet of fog across the southern North Sea but clear skies across the GM-Scandinavia path.*

## MICROWAVE ROUND TABLE

Now, here is the news that we have all been waiting for! This event is the premier microwave event for the UK and one that must not be missed if you're interested in microwaves! John, G3XDY, sends the following information.

The 2003 Martlesham Microwave Round Table will take place on the 8/9 November, 2003. There will be a dinner on the evening of the 8th, with the main event on the 9th at the BT offices at Adastral Park, Martlesham, Ipswich. There will be a wide range of test equipment available, a flea market, a full programme of talks, and the opportunity to take part in the biggest microwave meeting in the UK. Full details are on the website at http://mmrt.homedns.org and you can book for the event using the web booking system. Enquiries to G3XDY (QTHR) or at g3xdy@btinternet.com

So book now and don't miss this superb chance to meet the top names in European microwaves and talk microwaves over a beer and some good food and great company.


*Left: The QSL card from SM7ECM.*

## EME ACTIVITY

The first-ever US-Czech Republic EME QSO on 24GHz – Amateur Radio moonbounce and microwave history was made on 24 September at 1400UTC when Josef Sveceny, OK1UWA, and Al Ward, W5LUA, completed the first-ever 24GHz EME QSO between the Czech Republic and the US. "This was Josef's first 24GHz EME QSO, and he was my third initial on 24GHz," reports Al Ward. He noted that the successful effort marked the second scheduled attempt during September. OK1UWA has a 3m prime focus dish with 35W at the feed, vertically polarised. W5LUA's station is a 3m prime focus dish with 70W at the feed, horizontally polarised to account for the spatial offset between North America and Europe. Previous international 24GHz EME contacts have taken place between the US and Canada, the US and Russia and Canada and Russia. Well done to both stations on another superb effort. ◆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By Trevor Brown, G8CJS.
E-mail: chairman@batc.org.uk

# ATV

**This month's items include: BATC at the Telford Rally, ATV for GB4FUN and the ISS, and some ATV repeater news.**

Let me start by thanking everyone who took the time to visit the BATC stand at the Telford rally, The sun shone and we were able to set up a Marconi MkVIII studio camera on the grass outside. The whole event was nostalgic. The Marconi camera dates back to the 1970s, while inside we were treated to even more nostalgia, this time from the VT archives which included Dud Charman, G6CJ, and his 'Aerial Circus', and Steve Birkill talking us through a home-made satellite receiver adapted from his first UK reception of the Indian broadcast Satellite, ATS6. The home-made LNB for reception of the OTS satellite has to be seen to be believed, and made us all realise what real amateur pioneering was and still is all about. We gave out around thousand complimentary *CQ-TV* magazines, and answered questions on every aspect of ATV.

One question was raised regarding the supply PCB's for the Electronic test card designed by Richard Russell, G4BAU, which first appeared in the Blue *ATV Handbook*. The *Handbook* is no longer available in printed form (it is some 20 years old now), but it has been preserved in electronic form on the BATC CD. Richard has now developed an updated and much improved version of his Test Card Generator. This latest model is colour capable (outputting a PAL-coded baseband video signal) and incorporates four pages of teletext. It is self contained, requiring only a 9VDC power supply but, unlike its predecessor, it can be reprogrammed by the user via a connection to a standard PC. The *Windows* software supplied allows the test-card image and teletext pages to be changed as required.

## FUN WITH ATV

I also had a long chat with Carlos, G0AKI, about GB4FUN. Carlos has wanted to add ATV to GB4FUN for some time now and, thanks to a little help from G1MFG among others, it seems that this will soon be a reality. While still on the subject of future ATV projects, the International Space Station may soon be radiating SSTV as part of the ARISS project. This was first pioneered on the Russian *Mir* space station back in 1985. SpaceCam1 will be "a whole generation different", to quote one of the projects managers Miles Mann WF1F. "A standard-looking webcam plugs into one of the astronauts' laptops, and software translates the Webcam imagery into audio data. Those signals then pass through cables to the ham radio equipment, which transmits the screech of data down to Earth. On the ground, radio receivers pick up the signals and pass them to a computer for conversion back into on-screen images." He goes on to say "I know you would all like FSTV instead of SSTV even with its webcam face lift. The 440MHz band only has 3MHz allocated for satellite usage, meaning that to transmit ATV from space we would need to go to 2.4GHz or above, and those bands involve larger costs." Instead of ATV, Miles is looking at DATV by using the format called H323. "Using 128Kbit digital modems, it may be possible at some future date to add this mode. We may then see DATV from the space station; the details are still being worked out."

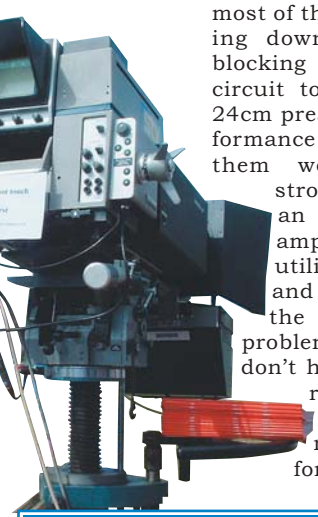
## TERRESTRIAL ATV REPEATERS

Back on earth, GB3EN (24cm ATV repeater, Enfield) may be adding 13cm and 10GHz inputs and possibly a digital transmitter. Moving further north-west, a 24GHz repeater has been proposed for a site on the Malvern Hills. This would be a first in the UK for this band and would, I hope, open the way to developing ATV equipment for this part of the spectrum.

For those of you who have not yet seen an ATV repeater in operation, we now have more than 20 throughout the country on the 24cm band. Reception can be as simple as connecting a 24cm aerial direct to a redundant analogue satellite receiver, but don't forget most of them have phantom powering down the coax that needs blocking if your aerial is a short-circuit to DC. The addition of a 24cm preamp will improve the performance of these units, as most of them were designed for the stronger signals delivered by an LNB. Some of the preamps that are available can utilise the phantom powering and can then be located at the aerial end, solving the problem of feeder loss. If you don't have a redundant satellite receiver, there are some excellent commercial ATV receiver units available for under £50. ◆

***Below, left: Brian Summers and his Marconi MkVIII camera.***

***Below, right: The Marconi MkVIII Studio camera.***



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| Electronic testcard | www.rtrussell.co.uk/products/tccgen/tccgen.html |
| BATC CD | www.batc.org.uk |
| ARISS | www.ariss-eu.org |

# Members' Ads

## FOR SALE

**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 Manning Publishing Ltd (advertising agents). **The closing date for copy is the first day of the month prior to publication, eg the deadline for the May issue is 1 April.**

Warning: ***Members are advised to ensure that the equipment they intend to purchase is not subject to a current hire purchase agreement. The 'purchase' of goods legally owned by a finance company could result in the 'purchaser' losing both the goods and the cash paid. Members' Ads also appear on the members-only website:***
***www.rsgb.org/membersonly/membersads***

**40/80M** K1 tcvr, 8W o/p, c/w built-in ATU & noise blanker, with man, £120. FT-530 2m/70cm, h/h, tcvr c/w man, 7.2V/1.5A NmH battery & charger £90. MH12 A2B spkr-mic, £10 with the above. MFJ-8100 world band, s/w radio c/w man, £30. All three in ex wkg cond. G3JKX, 01952 299 677 (Telford), E-mail: mstreet@g3jkx.freeserve.co.uk

**6416B** GE USA 3 new but untested. German Morse key WW2 Wehrmacht or Baumuster T1, believed made 1937. Bendix USA LM-13/CRR-74028 heterodyne frequency meter, similar BC-221, dated 27 Dec 1939. Fair cond, works ok, no charts. Offers? G3HGT, QTHR, 01489 570 735 (Fareham). E-mail: pjball@beeb.net

**A WINNER**! FT-225RD + Mutek 2m multimode. Helped our club win NFD 1995 & 2002. All leads & h/book, £190 ono. G3UKV, QTHR, 01952 255 416 (Telford). E-mail: ukv@globalnet.co.uk

**ALINCO** EDX2 auto tuner, 3.5-30MHz, boxed, man, 200W, £150. Vgc. 01422 316 576, (Halifax). E-mail: leslie@lmullin.freeserve.co.uk

**ALINCO** EMS-14 desk mic, as new, boxed, instructions, ideal for DX-70TH, £40. 01395 273 090 (Exmouth).

**AMERITRON** AL-84 Compact HF linear amp, 600W PEP, spare valves, man £300. TB3 Tribander HF Beam, dismantled, (fits on roof rack), requires some TLC, man, £50. Buyer collects or pays carriage. Eves, w/ends only.GM0RTY, QTHR, 01436 672 364 (Helensburgh). E-mail: dave@gm0rty.freeserve.co.uk

**ANTENNA** HF portable with ground-coupled base MFJ-1795 vert 4-band auto-switching ant. MFJ-1904 self-supporting, stainless steel base. Exc cond. The two, £85. M0TOM, QTHR, 01843 843 718 (Margate).

**BNOS** 6m 5-ele beam antenna, boom 3.45m, longest element 2.99m, £40. 2m 9-ele beam antenna, boom length 3.48m, longest element 1m, including Mirage masthead preamp plus control box switch to pass 12V via coax feed, £100. Daiwa ATU, CNW-727 dual 144/430MHz, 200W max, £75. Alan, G7CDK, 01763 262 443 (Royston). E-mail: aj.flo@virgin.net

**COLLINS** equipment available. KWM2 tcvr, 32S1 transmitter, 30L1 linear amplifier, PM2 PSU, winged emblem. Mans included plus Rockwell Collins 516F2 PSU, vgc & working – offers please. MM 6m linear 10W in, 100W out, vgc £150. Gavin, G6GDK, 01825 722 045 (Uckfield). E-mail: gavin@hurstfields.prestel.co.uk

**CUSHCRAFT** A-45, £250. Yaesu FT-8000, £200. Ameritron AL-811, power/SWR meter, 1kW dummy load, £425. Packratt PK-232, all in gwo. Eddie, G0SVH, QTHR, 01254 238 424 or 07762 639 183 (Accrington).

**DELL** laptop Pentium 3 500MHz, DVD ROM, 20GB hard drive, external burnproof CD writer, car 12V PSU, *Windows XP*, and carry case vgc £400. Buyer collects or pays carr. 01455 449 602(Hinckley).

**FOR** sale 7ft x 8in square, very strong white-painted tower, sections bolt together, believe similar used as gantries for pop concerts etc. Occasional very slight surface-only rust spots, ideal for lightweight base tower and field days. Eight only, £12 per section. Buyer collects. Genuine bargain. G3FEV, 01706 211 339 (Rawtenstall).

**FREE –** Strumech single 20ft tower with floor-mounted ground post & winch. Remover must dismantle. G3FWN, QTHR, 0115 972 6599 (Long Eaton).

**FREQUENCY** counter Meteor 600. 5Hz – 600MHz. Battery/mains, £80. G3PTN, QTHR, 0113 265 4644 (Leeds).

**FT-817** in pwo with limited home use only. One owner & boxed. Complete with normal accessories & charger plus carrying case, VE3AYR pocket ref book, home-built stand, £350 ono. GW3KAJ, QTHR, 01686 413 511, (Llanidloes). E-mail: gw3kaj@tiscali.co.uk

**GARMIN** GPS III + Mapsource CD (UK), case, leads & man, boxed, £280. Kenwood TM-D700E dual-bander with TNC, mans, boxed, £300. G8VHG, QTHR, 01482 809 274 (Hull). E-mail: g8vhg@igower.karoo.co.uk

**GOLDSTAR** oscilloscope OS-5020P, 20MHz, dual trace. Two probes (x1/x10), man and in gwo, original packing, £275, ono or offer. Prefer buyer collects or delivery extra. Paul, G7VAK, 07818 660 493 (London). E-mail: g7vak@yahoo.co.uk

**ICOM** 290 25 or 1W m-mode 2m tcvr, c/w mob mtg bracket, 5-ele Yagi + rotator, man (6A drain on tx), £265. Yaesu FRG-9600 m/mode scanner c/w HF adaptor, £155, (£400 the pair). P/Ex HF rig (incl PSU)? Rod, GW7RDV, 01352 715 244 (Flintshire).

**ICOM** 746 tcvr c/w Icom HM-36 h/mic plus EP-925 PSU. All in mint cond with original packing & mans, £895 ono. Buyer to collect or carriage at cost. M0PGW, QTHR, 0191 284 8618 (Newcastle-Upon-Tyne). E-mail: peterm0pgw@hotmail.com

**ICOM** 756PRO Mk 1 c/w PSU, clean, £1000. Yaesu FL-7000 linear, £875. Tiny-2 modem, £50. Hitachi WorldSpace sat rx c/w Yagi, £100. Yaesu FT-50 2m/70cm h/h, £100. Davis Weather Monitor II c/w software, £350. Global AT-2000 rx ATU, £50. Vectronics VC-300 tx ATU, £65. Brendan, EI7CS, 00353 71 916 2132 (Sligo).

**ICOM** IC-78E h/h, 6m/2m/70cm – h/book, antenna, remote mic, Sony in-ear headphones, mains charger, Icom car lead, £170 (Raynet members, £140). Steve, M3GTJ, 07768 223 781.

**KENWOOD** TR-751E 2m multi-mode exc cond, £285. Microwave Modules 2m 100W amp, £85. Also available several 2m 9ele Tonna; make me an offer on these. Buyer collects or pays p&p. M5JON, 01454 326 869 (Bristol).

**KENWOOD** TS-140S tcvr/gen cov rcvr, (100W) 31 memories. SSB, AM, FM, CW. Including crystal filter, £280. PSU 25A, 14V, type DPS-2521M, £50. All in vgc. Butternut HF-V9 vertical antenna, £35. Neil, G0LNV, 07850 119 453, (Sheffield). E-mail: tnealapple@onetel.com

**KENWOOD** TS-850SAT, £650. Full set of CW filters available separately. TS-830S, CW filter, Inrad SSB filters, selectable, £375. SM-220 monitor scope £160. Goldstar dual beam scope £80. Drae 24A PSU, £60. Datong FL3 audio filter, £60. Daiwa DK-210, keyer, £40. Titanex titanium 80m vertical, tubing only, £120. Titanex tuning box, 5kW, 160, 80, 40m, £200. Kenwood boxed, mans, with all items. 01352 771 520 (Mold). E-mail: jhj@gw3tmp64.freeserve.co.uk

**KENWOOD** TS-940S tcvr, SP-940 matching spkr, MC-60A desk mic, AT-230 tuner, all inclusive, £685 ono. Also have Carolina Windom CWS-80, £80. Steve, M3BUJ/G2BUJ, 07791 670 160 (Swindon).

**LOT 1** AKD Target all-HF rcvr + powered aerial + 30ft coax, £75. Lot 2: Morse oscillator (kit) & Morse key + MFJ-418 tutor and tapes and set of 'Rapid Results' amateur radio course £45. Lot 3: Howes DXR 20 rcvr 20/40/80m + 10 & 160m cards, 50ft aerial wire, £45.00. Lot 4: Piccolo 6m tcvr + ATU + SWR/pwr/dummy load + 13.8V PSU + 20ft coax £145, or all four lots & goodies for £249 or first sensible offer. All exc cond + h/books, circuits etc. Stan, 2E1FLW (QTHR), 01260 252 631 (Macclesfield). E-mail: stanandsylvia@btinternet.com

**MAST** c/w antenna & rotator – 12V operated. Buyer dismantles & collects – price negotiable. 01603 782 109 (Norwich). E-mail: idt@ivor.evesham.net

**MIRAGE** 70cm amplifier D3010N 5W-30W in, 100W out. Cost £385, sell £200, vgc + p.p. G1WPR QTHR, 01536 761 490 (Kettering). E-mail: terry.bromley@btinternet.com

**MML-144/100LS** linear 1W or 3W in for 100W out as new, £100. MML-144/25 linear 3W in for 25W out exc cond, £50. 2x 5ele folding Yagis 2m with phasing harness, halbar, £25 the set. Icom IC-2E 2m h/h FM orig packing with IC-BP4, £50. 2m 5/8 whip magmount, £15. 70cm colinear whip magmount, £15. Andy, G3NNF, 01473 271 727 (Ipswich). E-mail: g3nnf@btinernet.com

**NAVICO** AMR-1000S fwo, £55. Watson W-10AM, PSU, fwo, £48. Hansen F-55E pwr/SWR meter, £30. Hansen SWR3 pwr/SWR meter, £30. Altai GDO, £20. G3AZW, QTHR, 01225 752 655 (Trowbridge).

**QTH** move sale. Steel towers – one 95ft self-supporting tower. Two guyed towers, 12ft sections, one 110ft, with all fittings. Call to discuss. Daiwa MR-750E very heavy-duty rotator with four motors, £350. FT-1000MP, £1,200. IC-746,

**CONGRATULATIONS** to the following, whom our records show as having reached 50 years' continuous RSGB membership this month:

**G3JHP** Mr E W G Allen

**G3NSX** Mr I Miller

**OUR CONGRATULATIONS ALSO** to two gentlemen who were omitted from recent lists – Dr G M King, G3MY, who joined the Society in 1943, and Mr D Bootman, G3MWG, who joined in 1952.

## SILENT KEYS

We regret to record the passing of the following radio amateurs:

| | | |
|---|---|---|
| G0BFI | Mr V E Heard | |
| G0BQY | Mr P F Hawes | 26/08/03 |
| G0HHJ | Mr R A Fuller | 08/03 |
| G0NEL | Mr G Kirby-Parkinson | 01/03 |
| G0SWZ | Mr J A Sharp | |
| G0TCM | Mr S G Poulter | |
| G0VPI | Mr F Bortoloni | 17/06/03 |
| G3APN | Mr D B Rabbage | 30/08/03 |
| G3BGG | Mr C O Titley | 07/09/03 |
| G3COA | Mr M McKavney | 11/02 |
| G3CU | Mr H F Knott | 04/08/03 |
| G3EBH | Mr C Newby | 30/01/03 |
| G3FLQ | Mr F Robinson | 08/03 |
| G3FSZ | Mrs J Salter | 28/08/03 |
| G3LRO | Mr J Tinker | 11/02 |
| G3MYE | Mr F A H Keen | 08/03 |
| G3OPK | Mr T Proud | 14/08/03 |
| G3SFT | Mr E J Bailey | /09/03 |
| G3SYC | Mr B K Booth | 06/09/03 |
| G3UHY | Mr L R D Ling | 18/09/03 |
| G3YHY | Mr H Young | /07/03 |
| G4BU | Mr R Draper | 30/11/02 |
| G4CKO | Mr D C Matheson | 10/08/03 |
| G4IRM | Mr D Warburton | 21/09/03 |
| G4JXO | Mr M A Lawrence | 08/03 |
| G7CEM | Mr G M Lewis | 18/08/03 |
| G7DLU | Mr J Ward | 12/08/03 |
| G7PQE | Mr G Dilley | 09/09/03 |
| G8ODT | Mr J S Laing | 08/09/03 |
| G8SC | Mr C Collins | 12/09/03 |
| GM8HLV | Mr RJC Coats | 06/03 |
| GW3IEQ | Mr P Hudson | 04/03/03 |
| M1ZZZ | Mr E C Thew | 24/08/03 |
| M3RWB | Mr R W Baker | 22/09/03 |
| RS88634 | Mr P G Horsley | 29/09/03 |
| VK5AJF | Mr J W Pearson | 13/03/03 |

We apologise for printing the wrong callsign for Mr C Ramsbottom last month. It should have been G3BZQ, not G3BSQ.

Mr I D Brown, G3TVU, appeared in 'Silent Keys' last month. The entry should have read 'Mr J D Brown, G4PHE'. We apologise profusely to the families of these radio amateurs.

## STAN LEWER, G6LJ, SK

**Stanley Karl Lewer** (RSGB President in 1947) was licensed in the mid-1920s while still a schoolboy studying for his Higher Schools Certificate examination. He was one of the youngest of the 22 delegates from the UK (led by Gerry Marcuse, G2NM) at the Amateur Radio Congress held in Paris in May 1925 at which the IARU came into being.

After graduation, Stan joined the Patent Department of the GEC Research Laboratories. In 1935-37, along with a former school-friend (Ernest Gardiner, G6GR, who became a wartime President of the Society and was a pioneer of bandpass crystal filters) he began experimenting on 56MHz using a simple battery-operated two-valve transceiver (super-regenerative self-quenching detector plus AF amplifier). Such units were popular in that era for local and occasionally medium-distance contacts.

G6LJ described how, in early 1939, he was asked informally by a GEC colleague (a Territorial Army officer): "Would it be possible to set up a radio network for distances of about 5 miles using only very low power?"

From this casual question was to emerge the British Army Wireless Set No 17 MkI (46-64MHz) and MkII (44-61MHz). A 'back of an envelope' design, based directly on his 56MHz gear, it was initially tested in the summer of 1939. On the outbreak of war in September 1939, he was given the go-ahead for GEC to make 24 sets at the utmost possible speed. This was soon followed by an order for 5000 sets. Later, a second batch of 5000 was produced.

This was probably the only piece of British Service equipment directly based on pre-war amateur VHF practice.

Pat Hawker, G3VA

£750. LDF4-50 & 5-50 with connectors. Lots of control cables, heavy-duty tubing etc. Everything in good cond & working. GW3YDX, 01691 831 111 (nr Oswestry). E-mail: info@vinecom.co.uk

**SAILOR** marine R/T outfits. Offers invited for several classic MF/HF, AM/SSB rigs. Most working, buyer collects. List from G3JMG, QTHR, 023 9246 2426 (Portsmouth).

**SELLING** up reluctantly, age, but equipment good. Strumech P-60 tower. HAM IV rotator. Tribander 4-ele Explorer 14 aerial. 2m aerial 10XY. Linked Yaesu items. FT-107 solid-state tcvr plus extra units. Linked Y-901 multiscope. FT-480 2m multimode tcvr. FR-880 all-mode gen cov rcvr. FL-2100Z 160-10m linear amp. Mans plus some service mans. Vertical HF aerial. Sensible offers. G4MFP, 01235 835 253 (Harwell). E-mail: w.woollen@ntlworld.com

**SHURE** desk mic model 550L brand new never out of box c/w wiring diagram, £45 ono. John, G3OAZ, QTHR, 01256 465 126 (Basingstoke).

**SILENT** key sale. John Hallatt of Chorley, G3DBY. Panda Cub tcvr (ex army), Skyrider Defiant Halicrafters HF rcvr. R-106 MkII (USA), two small home-built rcvr sets. Boxes of valves, keys etc. Offers? 01704 577 366 (Southport) or Email: lyn@bigsed.com (daughter).

**SILENT** Key, G3OXC. Books: *The Admiralty Handbook of Wireless Telegraphy*, 1932 and 1938 editions; one year (bound) of *Modern Wireless*, ed. Scott-Taggart, 1923. Valves: QQVO6/40A, C178A/5894, 6JS6C (4off), QQVO3/10. Details from M0CGN, QTHR or biddulph@intonet.co.uk or 020 8399 8787 (Surrey).

**SSB** UEK-3000 2.4GHz satellite downconverter, 144MHz IF for AO-40, £170 ono, G7NFO, 01788 843 224 (Rugby). E-mail: malcolm.hall2@ntworld.com

**STATION** clearance. Cash & collect basis only, buyer dismantles (tower/beam), examines. The entire collection, £2000. Offers for individual items may be considered in the event of incomplete sale. Kenwood TS-940S HF tcvr. TS-850S HF tcvr. TM-241E 2m tcvr, 5, 10 or 50W. PS-430 PSU (for TS-850). AT-230 ATU. SP-230 speaker. SP-430 speaker. DL-150 150W 50ohm dummy load. MC-60 (two) desk mics. LF-30A low pass filter. Heathkit SB-200 linear amp. Icom HP-2 headphones. German DRP Junkers? Morse key. Homebrew HF power meter calibrated to 2kW (mains powered). BC-221M (untested). Versatower telescopic 40ft, tilt over, base mounted, fitted 2 winches. Beam rotators, heavy-duty homebrew & HAMII-CD44 with control units. 3-ele tri-band beam, hybrid built around G4ZU & Mosley traps, all the original bits/spares included. Free to buyer: prop-pitch motor & gearbox (for spares) with mains transformer. Racal FM deviation meter LF to 1200MHz (untested). Belcom Liner 2m SSB. GM3CIG, QTHR, 01383 419 282 (Inverkeithing, Fife). E-mail: je@jpriddy.freeserve.co.uk

**TRIO** 599S separates, superb cond, GWO, boxes, mans, leads, non smoker, £175. 1.5kV ATU, Versatuner MFJ-962D cost new, £275 in March 2003, now £170. Box/man. G4MGX, QTHR, 01234 743 176 (Bedford).

**TRIO** JR-310 rcvr + man, £60. Buyer collects or arranges collection, ex cond. Paul, M0BSW, 01733 331 403 (Peterborough). E-mail: paul.collins4@tesco.net

**TRIO** TS-510 HF 100W tcvr, matching PSU/speaker, Kenwood MC-35S dynamic mic, £100. Old but little used & can be seen working and/or tested on air, buyer collects. Boxed with man. G3CTZ, QTHR, 01246 862 288, (Chesterfield). E-mail: a.jones@tinyworld.co.uk

**VERSATOWER** P60 three-section tiltover c/w winches, rotator cage & ground post. Moving QTH. Buyer collects, £300. GM4LCP, 01355 248 102 day, 0141 571 5351 eve (nr Glasgow). E-mail: calibration@dial.pipex.com

**YAESU** FT-290R 2m multimode portable. 2.5W, £100. Yaesu FT-2700RH 2m/70cm FM mobile. 25W. Mobile mount, £50. Buyer collects. G4RIK, QTHR, 07887 591 051. E-mail: rlk@btinternet.com

**YAESU** FT-902DM all-mode HF tcvr, mint cond, boxed, with man, little used, £450. Yaesu FL-2100Z matching linear, mint cond, boxed, with man, £450. Daiwa CNA-2002 auto antenna tuner 2.5kW PEP, mint cond, boxed, with man, £150. 01530 836 840 (Coalville).

**YAESU** FT-980, SP-980, MD-1 and man, gwo,£375. Yaesu FT-ONE, hand mic, mans,gwo,£275. Buyer collects or carriage extra. AR88LF (R1556B), £60. Buyer collects. G0JNT QTHR, 01472 509 753 or 07796 853 559 (Grimsby). Email: les-g0jnt@ntlworld.com

**YAESU** VX-75, mint cond, 10 months left on guarantee c/w case, mic adaptor, DC load, earpiece, £225 + p&p. G4SLG, 01522 808 072 (Lincoln). E-mail: kolivor@ntlworld.com

## WANTED

**ARMY** wireless set No 12 high power unit, or any parts of it, in any cond. The HP unit is a rack about 5in high with the following sub-units: amplifier RF No 1; modulator RF No 1; aerial coupling unit No 2. Will collect and pay cash. Richard, G7RVI, QTHR, 01989 769 654 (Ross-on-Wye). E-mail: g7rvi@richard-hankins.org.uk

**COPY** of owner's h/book for KDK FM-2030 2m tcvr, can copy & return. 01443 436 678. E-mail: davida@jones7176.freeserve.co.uk

**DRAKE** TR4C good cond – plus any extras, ie PSU, etc. Tel or fax after 8 rings, 01283 532 616.

**EDDYSTONE** 750 or later rcvr. GW4JQQ 01639 638 653 (Neath). E-mail: rongw4jqq@tiscali.co.uk

**HARD** disc for Atari STE computer. E-mail: poisonpen@poisonpen.freeserve.co.uk

**KENWOOD** TS-850 internal ATU wanted, G8WXU, QTHR, 01277 623 019, (Billericay).

**KENWOOD** TS-940 accessories, SP-940 speaker, SM-220 station monitor, AT-940, BS-8 etc. All must be in good cond. 01547 510 211 (Knighton, Powys). E-mail: marion@trevland.freeserve.co.uk

**KW** Electronics KW 160 or similar 1960s 160-metre 10W AM/CW tx, such as Labgear 160 Twin, or Minimitter Top Two to Seven. I will arrange collection/postage to a UK address. Steve, VK6VZ/G3ZZD. Email: sire@iinet.net.au

**MORSE** keys wanted by private collector. Straight & Bug keys, sounders, relays, Morse inking machines, heliographs, all telegraphy-related items. For a friendly chat ring Gerald, 0118 983 4307 (Reading). E-mail gerald.beaver@btopenworld.com

**OLD** wooden base Morse key, brass hardware, with or without knob. The base should be about 5in x 10in and about 3/4in thick. May or may not have a lever on one side. Needing some repair or clean up is fine. May have brass ID plate on top front or front edge. Dave Johnson, 15514 Ensenada Drive, Houston TX, 77083 5008, USA. 281 498 8945. E-mail: fullerphone7150@yahoo.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. G4UZN, 0113 269 3892 (Leeds). E-mail: g4uzn@qsl.net

**SWAN** or Shure mic for 100MX. Other Swan items wanted WHY? GW8VUG, QTHR, 01492 517 786 after 8.30pm (Colwyn Bay).

**TS-440S** service man, will pay all costs. Peter, G3HEE, 01780 755 001 (Stamford). E-mail: p.fancourt@btinternet.com

**WANTED** All-band automatic linear amplifier, to use with IC-7400 tcvr and Gem quad or similar antenna – must be in usable condition. Gavin, G6DGK, 01825 722 045 (Uckfield). E-mail: gavin@hurstfields.prestal.co.uk

**YAESU** FR-DX400 working or non-working. FL-DX400 working. Also old Collins equipment, h/books & advertising material. 01362 688 430 (Norwich). E-mail: g3zig@freenet.co.uk

**YAESU** FT-290R – must be mint cond, unscratched, unmodded (except perhaps for Mutek front end), & have all original bits & pieces & man + if possible, original packing, must be as new cond. Also wanted – PSU (internal unit) for FT-106. John 01603 483 783 (Norwich).

## EXCHANGE

**PART** of my key and paddle collection for HF vertical and station accessories – WHY? Anton, MW0EDX. 287 Heol-Y-Coleg, Vaynor, Newtown, Powys, SY16 1RA. E-mail: mw0edx@yahoo.co.uk

## RALLIES & EVENTS

**1 NOVEMBER 2003**

**RAEN Annual General Meeting** – celebrating 50 years of Raynet – Durham. All members are asked to attend.

**2 NOVEMBER 2003**

**23rd North Devon Radio Rally** – Holsworthy Memorial Hall. OT 10am B&B etc. G8XMI, 01409 241 202.

**SOUTH YORKSHIRE RG 13th Great Northern Hamfest** – Metrodome Leisure Complex, Queen's Road, Barnsley. Less than two miles from jn 37, M1. Five minutes' walk from train and bus station (follow the brown 'Metrodome' signs from all directions). OT 10am, £2.50. DF, TS, SIG, B&B. Ernie, G4LUE, 01226 716 339 or 07787 546 515.

**8/9 NOVEMBER 2003**

**North Wales Radio & Electronics Show** – North Wales Conference Centre, Llandudno. OT 10am, £2, accompanied under-14s free. TS, B&B, C, LB, components etc, TI on 145.550MHz. Jenny, MW0BET, 01492 549 413.

**9 NOVEMBER 2003**

**BISHOP AUCKLAND RAC Rally** – Spennymoor Leisure Centre. OT 10.30/11am, £1, accompanied under-14s free. B&B, C, LB, MT, DF, FAM. Mark, G0GFG, 01388 745 353, or Brian, G7OCK, 01388 762 678.

**16 NOVEMBER 2003**

**MIDLAND ARS 15th Radio & Computer Rally** – King Edward's Grammar Camp Hill School, Vicarage Road, King's Heath, Birmingham, jn A4040 and B4122. OT 10am, £1.50. TS, clubs, SIG, B&B, CP free, C, DF, RSGB regional stand/bookstall. Peter, G6DRN, 0121 443 1189 or 07808 078 003, or nlgutteridge@aol.com

**22 NOVEMBER 2003**

**ROCHDALE & DARS Traditional Radio Rally** – St Vincent de Paul Catholic Church, Caldershaw Road, off the A680 Edenfield Road, 2 miles west of Rochdale. Follow orange arrows from M62 jn20. 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), or radars@mbc.co.uk (www.mbc.co.uk/radars)

**23 NOVEMBER 2003**

**COULSDON ATS Radio Bazaar** – Scout Hall, behind the Post Office, Lion Green Road, Coulsdon. OT 10am, £1 incl free tea/coffee. CP free in adjacent public car park. TS, etc. Andy, G0KZT, 01737 552 139 or andy@briersa.fsbusiness.co.uk

**30 NOVEMBER 2003**

**PENCOED ARC Radio & Computer Show** – Bridgend Recreation Centre. OT 10am, £1, children free. TI, CP, TS, B&B, LB, C, DF, FAM. MW5MWR, 01656 864 579, or mw5mwr@tesco.net

**7 DECEMBER 2003**

**WEST MANCHESTER RC Red Rose Winter Rally** – Lowton Civic Centre, just off the A580 East Lancs Road. OT 10.30am. TI on 145.550MHz, CP free, TS, B&B, SIG, LB, C, DF, RSGB bookstall. Steve, 01942 895 198. [www.wmrc.org.uk]

**Worcester Radio & Computer Rally** – Worcester Rugby Club, access from M5 jn 6. RSGB stand & bookstall. [www.qsl.net/gb2tcr] 18 JANUARY 2004

**OLDHAM ARC Rally** – Oldham Sports Centre. Mike, 01706 367 454, m1cvl@thersgb.net

**25 JANUARY 2004**

**Horncastle Winter Amateur Radio Rally** – Horncastle Youth Centre, The Old School, Cagthorpe, Horncastle, Lincs (nr Horncastle Police Station). OT 10.30am, £1. C, DF, TI on 145.550MHz. Chris, G0PXB, 01526 860320 or Tony, G3ZPU, 01507 527835. [www.fenlandrepeater.org.uk]

**1 FEBRUARY 2004**

**SOUTH ESSEX ARS Mobile Radio Rally** – Brian, G7IIO, 01268 756 331 or briang7iio@yahoo.com [www.southessex.ars.btinternet.co.uk]

**8 FEBRUARY 2004**

**HARWELL ARC Radio & Computing Rally** – Ann, G8NVI, 01235 816 379 or ann.stevens@btinternet.com. [www.hamradio.harwell.com]

**15 FEBRUARY 2004**

**RADIOSPORT Communication & Computer Show** – Stevenage Leisure Centre. RadioSport 01923 893 929. [www.radiosport.co.uk]

**29 FEBRUARY 2004**

**CAMBRIDGE & DARC Rally** – [www.cdarc.org.uk]

**SWANSEA ARS Amateur Radio & Computer Show** – Roger, GW4HSH, 01792 404 422.

**6 MARCH 2004**

**CRYSTAL PALACE R & EC Spring Radio Fair** – Bob, 01737 552 170. [www.members.aol.com/rfcburns]

**7 MARCH 2004**

**BLACKMORE VALE ARS Valve Day** – Tony, 01258 860 741.

**Vintage Valve Technology Fair** – VVT Holdings 01274 824 816, vvt@supanet.com www.myciunka.supanet.com/VVTF2003 (case-sensitive)]

**14 MARCH 2004**

**ABERYSTWYTH Amateur Radio & Computer Rally** – *** **New Venue** *** – Ray, 01970 611 853 or mwmg01@aber.ac.uk

**WYTHALL RC Radio & Computer Rally** – *** **New Venue** *** – Woodrush Sports Centre, Shawhurst Lane, Wythall, approx one mile from previous venue. 0121 474 2077, or enquiries@wrcrally.co.uk [www.wrcrally.co.uk]

**16 MAY 2004**

**MIDLAND ARS Drayton Manor Radio & Computer Rally –** Norman, G8BHE, 0121 422 9787 or 07808 078 003.

**6 JUNE 2004**

**SPALDING & DARS Annual Rally** – John, G4NBR, 07946 302 815. [www.sdars.org.uk]

**20 JUNE 2004**

**NEWBURY & DARS Car Boot Sale** – [www.nadars.org.uk]

**25 – 27 JUNE 2004**

**HAM RADIO 2004** – [www.messe-friedrichshafen.de]

**27 JUNE 2004**

**SEVERNSIDE TV GROUP West of England Radio Rally** – Shaun, G8VPG, 01225 873 003 (OH), 01225 873 098, shaunosullivan@breathemail.net

**SWINDON & DARC Car Boot Sale** – Mike, M5CBS, 01793 826 465.

**18 JULY 2004**

**McMICHAEL Amateur Radio Rally & Car Boot Sale** – Dave, G4XDU, 01628 625 720 or g4xdu@amsat.org

**8 AUGUST 2004**

**FLIGHT REFUELLING ARS Hamfest** – Mike, G0MJS, 01202 883 479, hamfest@frars.org.uk [www.frars.org.uk]

**17/18 SEPTEMBER 2004**

**LEICESTER Amateur Radio Show** – Geoff, G4AFJ, 01455 823 344, fax 01455 828 273 or g4afj@argonet.co.uk

**19 SEPTEMBER 2004**

**LINCOLN SWC Hamfest** – [www.hamfest2004.secretbunker.org.uk]

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| | |
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| 2 Nov | GB5MC: Mayors Charities. Broomfield, Smethwick. L2 (M0CEN) |
| | GB6MC: Mayors Charities. Sandwell, West Midlands. LH2 (M0BPT) |
| | GB8MC: Mayors Charities. Wednesbury, High Bullen. LH27 (G0KNM) |
| 8 Nov | GB0TSK: T S Kingfisher. Worcestershire. LHV27 (M5DRW) |
| 21 Nov | GB4YOU: Youlbury Scout & Guide Radio. Oxford. TLH27P (G0RJX) |
| | GB4YOU: Youlbury Scout & Guide Radio. Oxford. TLH27P (G0REL) |

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# The Last Word

## Keep Hanging On In There!

I passed the RAE in 1977 whilst still at school, was licensed as G8NWZ, and joined the RSGB. For five years I was very active and, on leaving school, motivated by the interest in radio, became an electronics technician. My main interest was home construction but, because I had no interest in learning or using Morse code, my interest waned, as I felt I had exhausted the areas of 'homebrew' that interested me.

Subsequently there were many times when I seriously considered dropping my RSGB membership, thinking "what's the point of staying?"

20 years later, I realise the importance of the fact that I stayed in the RSGB. The fact is that my subscription in some small way helped fight for better privileges for radio amateurs by helping to justify the need to drop Morse as a requirement for a Full 'A' licence. As a result, my interest has been rekindled, and I will be resuming my homebrew activity.

I am not anti-Morse – I appreciate that a lot of operators get a lot of pleasure from using it – I could just never understand, even back in '77, why it was a requirement. Ironically, I will probably start making a few slow Morse contacts – it will probably be quite enjoyable, now that it is no longer compulsory.

Again, thanks to all at the RSGB for your help in making this commonsense decision happen.

***Martin Percy, G8NWZ***

## Poynting Out the Flaws

I must take issue with Peter Martinez, G3PLX, and his argument against Poynting Vector Synthesis (PVS) ('The Last Word', October 2003). He made a similar argument in July 2002, followed by a clarification two months later. Before taking this argument further he should consider what happens in a conventional antenna when it is radiating an e-m wave. The excitation from his transmitter produces separate electric (E) and magnetic (H) fields that differ in phase by 90 degrees. At some distance ($\lambda/2\pi$) from the antenna where their time phase is correct, these fields combine to form an e-m wave. Does he argue that this interaction causes inter-modulation? Or perhaps he has a different explanation of how an e-m wave is produced by his antenna. I would suggest that he is confusing the mixing of two e-m waves in a non-linear device, eg the input stage of a receiver or a mixer or a rusty joint in a wire fence, with this situation where we are considering the constituent fields of an e-m wave.

In my review of the E-H antenna (*RadCom* September 2003) I carefully avoided discussing the theory of operation as I considered that it was adequately covered by information on the inventor's website and his published patent. Having re-read Peter's letters of 2002 it is clear that he has a misunderstanding of the operation of PVS which is confirmed by his latest communication. If indeed the added pi-section network is, as he says, solely responsible for the improved bandwidth, then why is Peter not designing such networks for conventional antennas and increasing his personal fortune thereby?

***H R Henly, G3IHR***

## Make the Polluter Pay!

I write with renewed concern about interference potential of Internet access using PLT. I note in the November issue of *Personal Computer World* magazine a news item entitled: 'Data-on-mains looks good'. It says that "trials in Scotland have been successful", and "Southern Electric... has formally opened a marketing pilot in Winchester to see what the take up will be in an area already served by ADSL and cable services." Nowhere on the Southern Electric website does it advise what to do if radio interference is experienced – in fact it makes no reference to the issue at all.

We now seem to be in a phase where PLT is a *fait accompli*. As far as I can see, the technical arguments against PLT are unassailable, but the political decision has been taken that existing users of the HF spectrum are to be swept aside. PLT is being pursued of course, not because other broadband access systems are not available, but because it is cheap, and thus profitable to the companies offering it. I note that the standard that the RA managed to put in place to control emissions from DSL services (MPT1570) unfortunately will not help HF users, as it only covers 9kHz to 1.6MHz.

I suggest that the commercial viability of PLT could be effectively undermined if the regulatory authorities could be persuaded to apply the principle that 'the polluter pays'. Thus if a radio amateur or other HF user has their HF access damaged by PLT pollution, they would at least be able to demand suitable compensation. That may not be much comfort, but if widely adopted, it could undermine the commercial attractiveness of PLT, and persuade companies to use other techniques that are interference-free.

It may be that we are too far down the road to be able to incorporate such compensation conditions into licences. In that case, it may be appropriate for the RSGB to gather evidence of the damage that PLT causes as it rolls out, and then launch a class-action suit against one or more of these companies for compensation. I would certainly approve of some of my subscription being used for such purposes.

***Richard Hankins, G7RVI***

*[This would be a very desirable policy but, as things stand at present, amateur radio is not a 'protected service' (see EMC leaflet 04 'Interference to Amateur Radio Reception' on the EMCC website). On the standards front the work of the ETSI/CENELEC Joint Working Group (JWG), referred to in 'PLT and the Future of the HF Spectrum' (RadCom February 2003) is coming to a head. IARU Region 1 has representatives directly in this JWG, and these are strongly supported by the RSGB and other national societies within the EU. The RSGB is also represented on the various UK organisations feeding into the JWG. Again they are putting the case for all HF radio users but particularly for amateur radio. If all goes as we hope, this will result in an emission standard which will give a reasonable degree of protection to amateur radio. – Robin Page-Jones, G3JWI]*

## Holding Two Callsigns

There are times when I would like to reply to some letters published. But I feel I *must* reply to 'Holding Two Callsigns' ('The Last Word', October). I cannot understand why any amateur would need or want to have two callsigns. What a way of creating unwanted problems. I also don't think anyone has a "moral" right to have or obtain a callsign, they have to be earned. Hopefully the RSGB will not waste any time or effort pursuing this request. I also think giving this letter space has denied valuable space to matters more important.

***Tony Cunliffe, G4EII***

*[On the final point, G4EII is entitled to his opinion, but M0MAA / G8BUR and several others who have written would clearly not agree with him. – Ed.]*

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## AUDIO

### HEIL GOLDLINE HAND MICS

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.

| | | | |
|---|---|---|---|
| **GM-4** | Goldline HC-4 hand mic | **£129.95** | B |
| **GM-5** | Goldline HC-5 hand mic | **£129.95** | B |
| **GM-V** | Goldline Vintage Hi-z hand mic | **£159.95** | B |

**SPECIAL OFFER!**


***Free***
***SB-1 Boom worth £38 with every Goldline Mic sale.***

### HEIL CLASSIC DESK MICS

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 | **£259.95** | B |
| **HCL4** | Classic retro-look HC-4 desk mic | **£259.95** | B |
| **HCLic** | Classic retro-look IC desk mic | **£259.95** | B |

### HEIL TRAVELER HEADSETS & BOOM MICS

**PORTABLE OR MOBILE**
The Traveler lightweight single side headset with boom mic. Many models to choose from. Supplied with an interface cable. Choice of extra interface cables, for modular or 8-pin.

| | | | |
|---|---|---|---|
| **HST-817** | Traveler single side headset for FT-817 | **£89.95** | B |
| **HST-706** | Traveler single side headset for IC-706 | **£89.95** | B |
| **HST-IC8** | Traveler single side h/set for ICOM 8-p | **£89.95** | B |
| **HST-K8** | Traveler single side h/set for Kenwood | **£89.95** | B |
| **HST-KM** | Traveler single side h/set for Kenwood | **£89.95** | B |
| **HSTA-817** | Extra interface cable for FT-817 | **£24.95** | B |
| **HSTA-706** | Extra interface cable for IC-706 | **£24.95** | B |
| **HSTA-IC8** | Extra interface cable for IC 8-pin | **£24.95** | B |
| **HSTA-K-M** | Extra interface cable for K mod | **£24.95** | B |
| **HSTA-K-8** | Extra interface cable for K 8-pin | **£24.95** | B |

### HEIL PROSET HEADPHONES & BOOM MICS

Top quality headphones with boom microphones. Choice of mic. elements, HC-5 ideal for "rag chewing" or HC-4 for DX communications. Icom models fitted with IC element. Choice of AD-1 (£16.95) interface leads for most makes of rigs.

| | | | |
|---|---|---|---|
| **PRO-SET-PLUS** | Large H/phones with HC-4 & HC-5 | **£199.95** | B |
| **PRO-SET-PLUS-IC** | Large H/phones with IC & HC-4 | **£219.95** | B |
| **PRO-SET-4** | Large H/phones with HC-4 element | **£129.95** | B |
| **PRO-SET-5** | Large H/phones with HC-5 element | **£129.95** | B |
| **PRO-SET-IC** | Large H/phones with ICOM element | **£149.95** | B |

### HEIL Quiet Phones NEW

**Active Noise Cancelling Headphones**
Ambient noise drops away as you switch NR unit on. Amazing reduction! Fitted 3.5mm / 1/4" jacks. Requires 1xAA battery.

**£99.95 B**

## AUDIO

### WATSON SP-2000 SPEAKER £19.95 A

No where to place your mobile speaker then consider the SP-2000. This can be easily clipped out the way to your sun visor. 8 Ohms, 1W max, 3m lead, 3.5mm mono plug

### WATSON SP-160 SPEAKER £9.95 A

Low cost mobile speaker with adjustable mobile bracket. Also useful in the shack for base rigs. 8 Ohms, 1.5W max, 3m lead, 3.5mm mono plug

### 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

### SGC ADSP² SPEAKER NEW £119.95 B

The ADSP² Speaker has three modes of operation - no noise reduction - original ADSP noise reduction - or the new ADSP² noise reduction mode which provides up to 26dB of noise reduction within the passband.

### SGC ADSP² MODULES NEW £149.95 B

ADSP² is supplied in two versions. One for low level audio power ADSP-2 Board Low (70-11) and the ADSP-2 Board High (70-12) for high level audio power installation. Both versions contain full instructions and identify the relevant wire connections. They can be installed by the user or by a dealer. All SG-2020 upgrades will be done at the factory.

### WATSON Safe-2-Way £89.95 B

***AT LAST ! !***
***A HANDS FREE SYSTEM THAT REALLY WORKS!***

**Approved to Pan-European Standards*
**True Hands-Free*
**Noise Reducing*
**Acoustic Tailored Mic*
**Also matches handhelds.*
**Ready made rig leads (£14.95 extra)**

The **Safe-2-Way** mobile Interface is made for Watson in the UK by the same company that equips UK Police and Emergency services with similar units. The plug-in PTT and boom mic both have 3m leads for dressing around vehicle. Don't risk your Licence or people's lives! Drive with **Safe-2-Way**.

### bhi NES10-2 & NES-5

**NES10-2**

**£99.95 B**

**Speaker with built-in DSP noise filters *Dip switches for 8 filter settings (NES10-2) *DSP settings preset, no user adjustment (NES-5) *Plugs directly into 3.5mm speaker socket *Handles up to 5 Watts input *Max 2.5 Watts output *Requires 12V at 0.4 Amps max*

**NES-5**

**£79.95 B**

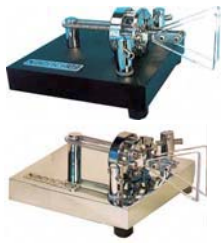
### bhi NEIM1031 NEW £129.95 B

**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*

### bhi 1042 SWITCH BOX NEW £29.95 B

Connect more than one piece of equipment to your bhi noise eliminating speaker with the 1042 Switch Box. Allows 6 pieces of equipment to be connected, 3 inputs loaded at 8 Ohms and 3 unloaded inputs (for low level signals). Two audio leads provided.

## BENCHER, INC.



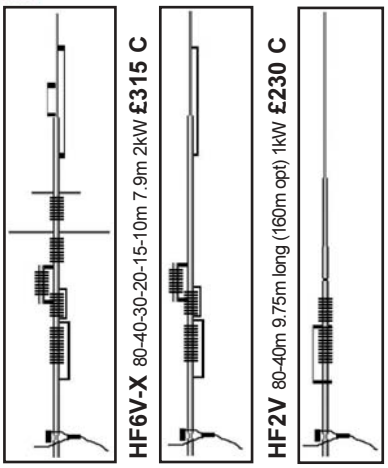
**Bencher Keys**

**BY-1** Iambic twin Paddle Key. Black Base, Chrome components **£89.95 B**
**BY-2** Iambic Twin Paddle Key. Chrome Base & Components **£99.95 B**

**ST-1** Single Paddle Key. Black Base, Chrome Components. **£89.95 B**
**ST-2** Single Paddle Key. Chrome Base & Components. **£99.95 B**

**HF5B 5-Band 3-Element Beam Antenna** 20, 17, 15, 12, 10m Width 3.8m 500W (CW), 1200W PEP **£330 C**

**Butternut Antennas from Bencher inc, USA**




**CPK Counterpoise Kit** Acts as missing half of dipole, allows HF6V & HF9V to operate more efficiently. Bolts onto base, each side 2.5m. **£129 C**
**STR-II Resonant Radial Kit** 4 radials for 40, 20, 15 & 10m. Each radial is 9.5m long **£115 C**
**RMK-II Roof Mount Kit** Includes tripod/STR-II/hardware **£155 C**
**TBR-160S 160m Resonator Kit** **£115 C**
**A17-12 17 & 12m adaptor** for HF6V-X **£115 C**
**A-6 6m Resonator** for HF6V-X **£15 B**
**30-MRK 30m Resonator** for HF2V **£89 C**
**TLK Top Loading Kit** Increased band width on 80 & 160m, 4x7.62m wires + fixing bolts. For HF2V **£38 B**

# WEB ORDERING www.wsplc.com

PRICE MATCH

THE ONLY THING WE CUSTOMER SERVICE WON'T DISCOUNT

## WATSON W-25XM PSU NEW £99.95 B

A compact sized switch mode power supply that will run your base HF station with ease. **Output voltage 10-18V *Output current 22A/25A peak *Over current protected *Switchable dual Voltage input*

## 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

**AV-200 £49.95 B**

Ideal for HF and VHF operation. It features high power handling up to 400W * 1.8-180MHz * 5W, 20W, 200W, 400W * Av or PEP

**AV-400 £49.95 B**

Ideal for VHF and UHF operation. It features high power handling up to 400W * 140-525MHz * 5W, 20W, 200W, 400W * Av or PEP

**AV-600 £69.95 B**

Two sensors used for HF and VHF/UHF operation. * 1.8-160MHz, 140-525MHz * 5W, 20W, 200W, 400W * Av or PEP

## NEW SGC Master Antenna Controller

**MAC-200 £339.95 C**

- *** 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 | £299.95 | B |
| RIGblaster Plus | Data interface 8-pin/mod, Cd & cables | £139.95 | B |
| RIGblaster M8 | Data interface 8-pin, software & cables | £109.95 | B |
| 4T8-KIT NEW | Conversion Kit from M8 or Plus to 4pin | £19.95 | A |
| RIGblaster nomic8P | Data interface 8-pin, software & cables | £59.95 | B |
| RIGblaster nomicRJ | Data interface RJ, software & cables | £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 | £59.95 | B |
| FC-130 | Frequency counter 1MHz-3GHz | £59.95 | B |

### OPTOELECTRONICS

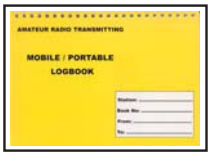
Top-of-the-range product from Optoelectronics, the **X-Sweeper** is a fully featured nearfield receiver that displays frequencies analogue signals in spectrum format on a 64x128 graphical display. It has 20 memory banks storing 100 freqs in each.

| | | | |
|---|---|---|---|
| X-Sweeper NEW | Nearfield Receiver 30MHz-3GHz | £1699.95 | C |
| Xplorer | Freq. cnter / CTCSS/DTMF decode | £849.95 | B |
| Digital-Scout | Digital Freq. counter 60MHz-2.6GHz | £529.95 | C |
| Scout | Freq. finder 10MHz-1.4GHz | £379.95 | B |
| Mini-Scout | Freq. finder (no memories) | £199.95 | B |
| Micro-Counter | Micro freq. counter 10MHz-1.2GHz | £119.95 | B |
| Cub | Mini counter 1-2.8GHz | £134.95 | B |

## TRANSMITTING LOGBOOK £4.99 A


Traditional Logbook for Radio Amateurs, A4 spiral bound for ease of use plus updated Prefix List and room for extra notes. A logbook is a legal requirement for any radio station.

## MOBILE LOGBOOK £4.99 A




You've asked for one so here it is - the Radio Amateurs Mobile/Portable Logbook. A5 size, it also contains relevant repeater information. A mobile logbook is not a legal requirement.

## EVOKE-1 DAB RECEIVER NEW £99 B

DAB receiver with full Band III reception of all UK DAB broadcast modes 1-4. **Frequency range: Band III (174-240MHz) UK only *6 preset memories *High visibility LCD with 16x2 char. *Pwr: 12V AC mains pwr adaptor (supplied) *Size 210x175x110mm*

## EVOKE-2 STEREO DAB/FM RADIO NEW £159.95 B

The Evoke-2 is a battery powered stand-alone DAB and FM radio. **Frequency range: Band III (174-240MHz) UK only & FM 87.5-108MHz *6 DAB & 6 FM preset memories *Up to 55 DAB stations *High visibility LCD with 16x2 char. *Pwr: 230V AC-9V DC external or 6xC cell batteries (10hrs approx) *Size 290x185x100mm*

**For our full DAB range see our website**

# 5 WAYS TO BUY WITH CONFIDENCE

**1 Scotland & Borders**

***WATERS & STANTON @ JAYCEE***

**20 Woodside Way, Glenrothes, Fife, KY7 5DF**
**Tel:01592 756962 Fax:01592 610451**
***closed mondays***

**2 Midlands & North**

***WATERS & STANTON @ LOWE***

**Bentley Bridge, Chesterfield Rd, Matlock, Derbyshire, DE43 5LE**
**Tel:01629 832375 Fax:01629 580020**

**3 South**

***WATERS & STANTON HEAD OFFICE***

**Spa House, 22 Main Rd, Hockley, Essex, SS5 4QS**
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# HF EXCITEMENT

# INTRODUCING YAESU'S ALL NEW HF MOBILE

**Blending leading-edge technologies developed on the FT-897 and MARK-V FT1000MP transceivers, the FT-857 is the world's smallest HF/VHF/UHF Multimode Transceiver, and it's available now!**

## FT-857 DESIGN HIGHLIGHTS

The FT-857 is a high-performance, ultra-compact transceiver operating on the 160-10 meter HF bands, plus the 50, 144, and 430 MHz VHF/UHF bands. Providing 100 Watts of power on HF/6 meters, 50 Watts on 2 meters, and 20 Watts on 70 cm, the FT-857 is ideal for mobile, vacation, DX-pedition, or home use when space is at a premium.

Utilising the renowned receiver performance of the FT-897 and MARK-VFT-1000MP, the FT-857 features wide dynamic range, optional Digital Signal Processing, and outstanding audio.
(*DSP supplied as standard in the UK)

The wide array of convenience features includes a 32-colour display; Spectrum Scope; built-in keyer with memory and beacon mode; U.S. Weather Band reception; 200 memories with Alpha-Numeric labels; AM Aircraft reception; detachable front panel (optional YSK-857 required); and much, much more.

You've asked for it, and it's here today: the FT-857 New Mobile. . .from the engineers at Yaesu!


**New Remote Control DTMF Microphone MH-59A8J (Option)**

The optional MH-59A8J Remote Microphone provides control of the major functions of the FT-857 from the microphone's keypad. The MH-59A8J includes a rotary control knob for adjusting the operating frequency and the receiver volume level.




Actual Size

HF EXCITEMENT

# FT-857

**ULTRA-COMPACT HF/VHF/UHF 100 W ALL-MODE TRANSCEIVER (HF/6m 100W, 2m 50W, 70cm 20W)**

YAESU
*Choice of the world's top DX'ers*

**YAESU UK Ltd, Unit 12, Sun Valley Business Park Winnall Close, Winchester, Hampshire, SO23 0LB, U.K.**

**For the latest Yaesu news, visit us on the Internet: http://www.yaesu.co.uk**

Specifications subject to change without notice. Some accessories and or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.