

COULSDON AMATEUR TRANSMITTING SOCIETY  
**G4FUR**  **M1FUR**  
**CATS WHISPERS**



**Aug 2011**

Affiliated to the RSGB

**CATS Committee**

Chairman: Glenn Rankin, G4FVL  
Secretary: Steve Beal, G3WZK  
Treasurer: Steve Conway, G7SYO  
Members: Stuart Barber, G6CJR  
Frank Emery, G3ZMF  
Dennis Noe, M0NDJ  
James Flint, G0SDB

**CATS Whispers Editor:**

Steve Beal, G3WZK

email address for contributions: [newsletter@catsradio.org](mailto:newsletter@catsradio.org)

**Regular Society Meetings**

These are held on the second Monday in each month at:  
St. Swithun's Church Hall, Grovelands Road, Purley, Surrey, CR8 4LA at 20:00 to 22:00

**Society Nets**

1st Saturday of Month - 17:15 - Crescenta Valley / CATS Net on Echolink/ GB3NS  
Sunday mornings - 11:00 - Call on 145.400 MHz  $\pm$  QRM  
Sunday evenings - 17:00 - Call on 3.700 MHz  $\pm$  QRM  
Wednesday evenings - 21:00 - Call on 70.425 MHz

**CATS Website**

[www.catsradio.org](http://www.catsradio.org)

**Email**

[enquiries@catsradio.org](mailto:enquiries@catsradio.org)

**Forthcoming Meetings**

Monday Aug 8th CATS Barbecue at G4RWW QTH  
Monday Sep 12th CATS Equipment Sale (change of event)  
Monday Oct 10th Radio in the scouting movement – G6CJR/ M0NDJ



CATS is twinned with the Crescenta Valley Radio Club  
Glendale California USA [www.gsl.net/cvrc](http://www.gsl.net/cvrc)

## CATS July Meeting



John, G8MNY, and Radio Susy Equipment Rack

The July meeting featured a talk by John Stockley, G8MNY, about Radio Susy, the community radio station for the Redhill and Reigate area.

John began by explaining that he has been involved in 38 RSL (Restricted Service Licence) projects to date. Short-term RSLs are typically for low-power FM (1 W–25 W) or AM (1 W) and for a maximum of 28 days. They can only be applied for twice in any period of twelve months. A 28 day licence (for FM) typically costs £5,500 but AM licences are half that price and five year licences are much cheaper pro rata. For more information on RSLs visit:

<http://stakeholders.ofcom.org.uk/broadcasting/radio/rsls/>

Generating the funding for an RSL project is therefore quite a challenge as money is also needed for a licence to broadcast music, studio and transmitting equipment including antennas, and links from studio to transmitter. Very specific technical conditions are imposed such as on antenna height, antenna length, and the requirement for an omni-directional radiation pattern.

John's talk featured a lot of technical content including mixer desk design, filters and modulation techniques. For the CATS Newsletter Editor, the Medium Wave Antenna design was probably the most interesting part

of this section of the talk as the issues are similar to trying to radiate effectively on 160 m.

Earthing often consists of ten or so one metre copper pipes driven into the ground: this proves surprisingly effective particularly when the site was on clay rather than chalk and flints. Such antennas are tuned very sharply to the intended frequency of operation with multiple parallel wires to increase bandwidth and capacitance to earth.



A Radio Susy AM Antenna

Radio Susy has had several incarnations including a two-year spell when it broadcast from a studio in the Belfry shopping centre in Redhill town centre.



For more information, visit:

[www.susyradio.com/](http://www.susyradio.com/)

## Membership Matters:

We are pleased to welcome a new member to CATS: Kim G6JXA. Kim is a frequent visitor to the CATS bazaar and to our stand at Kempton Park. He is also a member of SRCC, Wimbledon and Caterham ARG. His main interests are operating on 160m and 2m nets, and on HF above 18 MHz.

## CATS August Meeting

This will be our annual barbecue again kindly held at the QTH of G4RWW. As usual, this event is open to fully paid up CATS members. You must bring your own drink but the food is free. We look forward to seeing as many members (and partners) as possible.

As this event is now less than a week away, please contact Prue or me urgently ([secretary@catsradio.org](mailto:secretary@catsradio.org)) if you are planning to attend and have not already advised either of us.

## CATS September Meeting

This meeting will now be the sale of surplus equipment from the CATS Asset Register. Please note that as this equipment is already owned corporately by CATS members, bidding at the sale will only be open to fully paid up CATS members.

To prepare for this meeting, the committee has verified the asset register, decided what to sell, and set reserve prices for the items it considers suitable for disposal.

Items not disposed of at this meeting will be made available for sale at the Kempton Park rally and/or the CATS Bazaar. (To avoid possible confusion, please note that the date of this event is November 20th 2011, not as published in Radcom.)

As an added attraction at the CATS September meeting, Frank G3ZMF is also planning to sell off some of the contents of Banstead Central Stores.

## CATS October Meeting

This meeting will feature a talk by CATS members Stuart G6CJR and Dennis M0NDJ about radio in the scouting movement.

Hopefully this will include a report on their activities at the recent scouting jamboree in Kristianstad in Sweden that was attended by forty thousand scouts and guides. Stuart and Dennis were among the operators of the special event station SJ22S. Your editor was pleased to be able to work them on both 40 m and 17m. Colin G3YCR also managed a contact on 17m.

## A Dual Band Hand-held For Under £35.00?

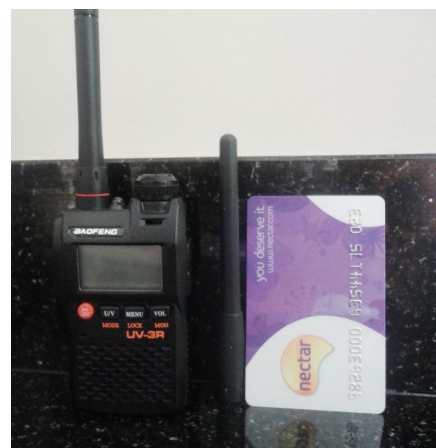
Andy G0KZT writes:

"I recently had the pleasure of contacting Dave G8IXA via the Tring 70cms repeater GB3TU while he was taking his dog for a walk. He had recently brought a Baofeng UV-3R hand-held transceiver via eBay and was trying it out. He asked me for an audio report and in my opinion it was as good as I had ever heard. It was then he revealed that he had only paid £34.00 which also included postage and packing! He directed me to have a look at the G4ILO blog on the internet where it had been reviewed. This was a favourable review and as I was looking for a replacement for my old Alinco rig I decided to give it a try.

"This was my first ever eBay purchase although I already had a PayPal account. After selecting a seller, I made the transaction and waited for it to arrive. On the 24th June I received an email saying that it had been despatched and on 30th June it arrived, not bad considering it came from Hong Kong!



The package arrives!



Yep, it really is that small!

“On opening the box, I found a VHF and a UHF aerial, an AC adaptor, a 4.2V 150mAh Li-ion battery, a belt clip, a mic/earphone and a clear English instruction manual.

“I should point out that the rig transmits between 136-174 MHz and 400-470 MHz. But as we're all responsible Radio Amateurs, I can't see that being a problem. It also receives between 88-108 MHz.

“Normally it transmits 2 watts of RF plus but there is also a low power setting. There is no keypad but it is still fairly easy to change repeater shift, CTCSS tone etc using the menus as described in the manual. Storing your favourite channels in the memories is also easy to do.

“The audio on transmit sounds fine. The only niggle it has is that the output audio level is incrementally too high. There is a published modification but for the price, it's not worth it and as it stands, it's usable. A dual band aerial would also be an advantage.

“I have had several contacts via GB3NS from home and I used it on the club net from Caterham On The Hill on Sunday 10th July. I seemed to get heard which is what it is all about.

“I personally think that it was £34.00 well spent and good value for money (or should I say, a no brainer!). An ideal rig to stick in your pocket at a rally or when you're just out and about. The receiver seems sensitive enough but I could do with more activity on 2-metres to really put it through its paces.”

73 de Andy G0KZT

[http://www.radioshop888.com/radioshop\\_product.php?id=104205](http://www.radioshop888.com/radioshop_product.php?id=104205)

## **Aloha de G3SEA/KH6**

CATS Whispers recently received an interesting email from Hawaii. Paul G3SEA/KH6 wrote to say that he had been speaking to CATS member Frank G3ZMF on GB3NS via Echolink and had enjoyed several long and interesting chats. Apparently this is Paul's only way to get into the UK reliably. Paul explained that due to unusual June weather there was currently 8 inches of snow on 13,796

ft Mauna Kea on the big island of Hawaii, some 200 miles south of the island of Paul's location on Oahu. There is also a photo of Paul on [www.qrz.com](http://www.qrz.com) taken one February when there were 8 foot deep snowdrifts and the services of a US Navy snow plough was required.

After praising the CATS website [www.catsradio.org](http://www.catsradio.org), he mentioned that as a schoolboy in North London he had been an SWL member of the RSGB and of Southgate ARC who, he said, also have a great website.

This struck a chord with your newsletter editor who also a member of the Southgate group as an SWL in the 1960's although they called themselves the “Southgate and Finchley Group Of The RSGB” then – hence their callsign G3SFG. I therefore replied to Paul's email as we compared notes on whose callsigns we could remember from back then. Most of these are people that CATS members probably won't have heard of and some of course are now silent keys. However two that may be of interest are John Clarricoats G6CL who was at one time RSGB Secretary and who wrote “World At Their Fingertips,” and Rod Wilkinson G3TXA, recently retired from Ofcom.

Look out for Paul again on GB3NS.

For more information see the CATS website and check out the Visitors' Book page.

## **Farewell varicap, hello DuNE**



I came across this in the June edition of Elektor magazine. Basically, it is claimed to be a 5-bit 32-state digitally tuneable capacitor. A frequency range of 100 to 3000 MHz is claimed and according to the blurb the

capacitance can be altered in steps of 126 fF (femtoFarads) in series mode.

Applications include tuneable filter networks, tuneable antennas, RFID tuneable matching networks, phase shifters, and wireless communications.

I believe this is probably the first ever time that femtoFarads (one thousandth of a picoFarad) have been mentioned in *CATS Whispers* – no doubt someone will correct me if I'm wrong!

For more information visit:

[www.peregrine-semi.com](http://www.peregrine-semi.com)

## Two CATS Links

Mike M1CCF sent in the first link. It describes and demonstrates how commercial Morse is being kept alive by enthusiasts in the USA:

[http://www.nytimes.com/2011/07/14/us/14morse.html?\\_r=1&ref=us](http://www.nytimes.com/2011/07/14/us/14morse.html?_r=1&ref=us)

The second link was supplied by Steve G7SYO. It describes the use of broadband equipment (typically 100 MHz to 15 GHz) to capture and harness energy transmitted by such sources as radio and television transmitters, so beware of your neighbour stealing those watts from your rig!

<http://www.gatech.edu/newsroom/release.html?nid=68714>

## PSK 31

Mike M1CCF has also emailed *Cats Whispers* about PSK31:

"I saw this on the internet and thought I would pass it on. For those of you who have Apple iPhones or iPads, I found a PSK31 programme in the Apple Apps called PSK31 for the mighty price of less than £2. At this price I thought I would try it. I tuned my radio to the data section of 14 MHz. I placed my headphones next to the iPad and there I was reading PSK31 for the first time! The connection is by audio only so I was surprised how well it worked. You get a view of the audio spectrum coming out the headphones so you see the PSK31 signals and then just move the cursor onto the signal. Look carefully as you can see

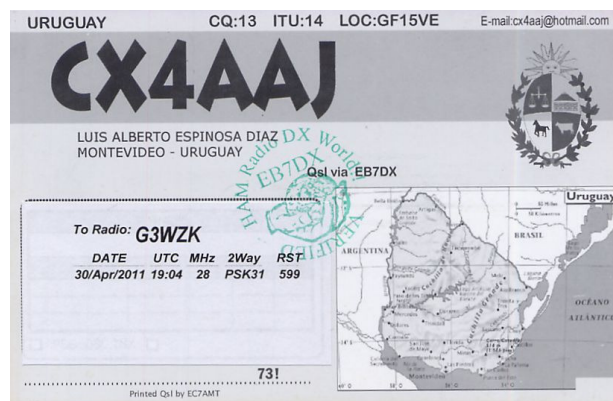
some weak signals. I have no financial interest in this app or in any way connected. I just thought some of you might be interested, especially as the investment is under £2.

73 de Mike M1CCF

*Editor's note: I have been using PSK31 (and some PSK63) at G3WZK for about 2 years, during which I have enjoyed making about 450 QSOs with a total of 53 countries on all bands from 160m to 6m. My latest new PSK country was Uruguay in April this year on 28 MHz – and I have the QSL card to prove it – see below. I thoroughly recommend this mode. Ten metres has been good lately, too!*



QSL card recently received by G3WZK



The all-important confirmatory information

## March 144/432 MHz 2011

Andy G0KZT writes:

"The results for our efforts in March have been published on the VHF Contest Committee's website. On 2-metres we came 4th out of 6 entries (open section) while on 70-cms we came 3rd out of 5 entries. For comparison, I have also shown the top scores for the other sections.

"Please see page 8 of this issue of Cats Whispers for detailed information.

"For the future, we should continue to enjoy taking part as we're clearly out gunned by the winning entrants. Should we consider entering a different section and if so, limit operation to a 6 hours section?"

"May I offer my thanks to all those members who contributed, either by operating or supporting the team in other ways."

73 de Andy G0KZT

## **Contests Coming Soon**

### **2011 :**

Aug 6: 4th 144MHz Backpackers  
Aug 6: 144MHz Low Power Contest  
Aug 7: RoPoCo CW  
Aug 7: 432MHz Low Power Contest  
Aug 10: 80m Club Sprint CW  
Aug 14: 70MHz Cumulatives #5  
Aug 25: 80m Club Sprint SSB  
Sep 3-4: Sep SSB Field Day  
Sep 3-4: 144MHz Trophy Contest  
Sep 4: 5th 144MHz Backpackers  
Sep 11: Second 70MHz Contest  
Oct 1: 1.2GHz Trophy / 2.3GHz Trophy  
Oct 1-2: 432MHz-248GHz IARU  
Oct 16: Second 50MHz Contest  
Nov 5-6: 144MHz CW Marconi  
Nov 12: Club Calls  
Nov 19-20: 2nd 1.8MHz Contest  
Dec 4: 144MHz Affiliated Societies Contest  
Dec 26-29: 50/70/144/432MHz Christmas Cumulatives Contest

## **Local Rallies & Events**

**14 August 2011 (Please note we published the wrong date for this in the July edition of CW)**

### **Flight Refuelling Hamfest**

Cobham Sports and Social Club Ground, Merley, Nr. Wimborne, Dorset BH21 3AA  
Open 10:00  
Further information: [www.frars.org.uk](http://www.frars.org.uk)

**28 August 2011**

**Milton Keynes 51<sup>st</sup> Amateur Radio Society Rally**  
Bletchley Park, Sherwood Drive., Bletchley MK3 6EB  
Open 09:30 trade stands, catering  
Contact: Steve 07866 673192 or  
[www.mkars.org.uk](http://www.mkars.org.uk)

**10-11 September 2011**

### **Gatwick Vintage Radio Weekend**

Vintage Operating Group (M0VOG)  
Hunters Moon, Reigate Rd (A217), Holmwood, RH6 0HU  
Plenty space for overnight stay, BBQ on Saturday  
Contact: Mike, M1CCF: 0208 654 2582 or  
[m1ccf@talk.talk.net](mailto:m1ccf@talk.talk.net) or Andy G8JAC  
[www.radioclubs.net/m0voq/](http://www.radioclubs.net/m0voq/)

**30 September/ 1 October 2011**

### **National Hamfest**

George Stephenson Pavilion, Newark & Nottingham Showground, Lincoln Road, Winthorpe, Newark NG24 2NY. For the latest details and ticket information, visit:  
[www.nationalhamfest.org.uk](http://www.nationalhamfest.org.uk)

**7-9 October 2011**

### **RSGB 2011 Convention**

#### **Horwood House near Milton Keynes**

Lecture streams

[www.rsqb.org/rsqbconvention](http://www.rsqb.org/rsqbconvention)

**11-12 October 2011**

### **EMCUK Exhibition**

#### **Newbury Racecourse**

RSGB stand

IEEE demonstration bench

You need to register on line for free tickets at:

[www.emcuk.co.uk](http://www.emcuk.co.uk)

**6 November 2011**

### **West London Radio & Electronics Show**

Kempton Park Racecourse.

Open 10:00. Parking, trade stands, catering, disabled facilities. Contact [info@radiofairs.co.uk](mailto:info@radiofairs.co.uk)

*NOTE: CATS involvement in this event.*

**20 November 2011**

### **CATS 34th Annual Radio and**

#### **Electronics Bazaar**

#### **Provisional arrangements as follows:**

1st Coulsdon Scout Group headquarters, Lion Green Road in Coulsdon, Surrey. [Map](#)

Open 10:00 to 13:00

Parking, trade stands, bring and buy, refreshments

Contact: [enquiries@catsradio.org](mailto:enquiries@catsradio.org) or

[www.catsradio.org](http://www.catsradio.org)

**15 January 2012**

### **7th Dover Radio Rally**

Whitfield Village Hall, Sandwich Road, Whitfield, Dover, CT16 3LY.

Open 09:00

Parking, Boot Fair, Refreshments. Talk in on GB3KS

Contact: Ian, G3ROO, 01304 821588 or

[ian.g3roo@gmail.com](mailto:ian.g3roo@gmail.com)

[www.doverradiorally.com/index.html](http://www.doverradiorally.com/index.html)

**5 February 2012**

### **27th Canvey Radio & Electronics Rally**

'The Paddocks', Long Road, Canvey Island, SS8 0JA  
Open 10:30

Parking, Catering, Disabled Facilities, Trade Stands

Contact: Dave, G4UVJ, 01268 697978 (evenings)

[rally@southessex-ars.co.uk](mailto:rally@southessex-ars.co.uk)

[www.southessex.ars.btinternet.co.uk](http://www.southessex.ars.btinternet.co.uk)

## Other Club News & Contact Information

### BROMLEY & DISTRICT ARS

Website: [www.bdars.org.uk/](http://www.bdars.org.uk/)

Email: [info@bdars.co.uk](mailto:info@bdars.co.uk)

Meetings: 3<sup>rd</sup> Tuesday of every month at Victory Social Club, Kechill Gardens, Hayes, Kent, 19:30 for 20:00.

16 Aug - BBQ / Natter Evening

20 Sep - 5 MHz Experiment Data Analysis

18 Oct - Construction Contest

15 Nov - PIC's (JAL)

### CPREC (CRYSTAL PALACE)

Website: [www.qsl.net/g3oou/](http://www.qsl.net/g3oou/) or <http://www.g3oou.co.uk/>

Club Net: Wednesdays 20:00 on 145.525 MHz

Meetings: 1<sup>st</sup> Friday at All Saints Church Parish Rooms, Beulah Hill at 19:30

05 Aug – BBQ

02 Sep - Junk Box Aerials by Martin M1MRB

07 Oct - Military Radio Equipment for the Amateur' by Dennis Noe M0NDJ

04 Nov – Evening of short talks

### CRAWLEY ARC

Website: [www.carc.org.uk](http://www.carc.org.uk)

Club Nets: Tuesdays 20:00 on 145.550 MHz and Fridays 19:00 on 1.970 MHz

Meetings: Every Wednesday at Hut 18, Tilgate Forest Recreational Centre, Tilgate Forest, Crawley from 19:30, and Sundays, 10:30 to 13.00.

### CRAY VALLEY RS

Website: [www.cvr.org.uk](http://www.cvr.org.uk)

Contact: Richard Perzyna, G8ITB (see website)

Meetings: 1<sup>st</sup> and 3<sup>rd</sup> Thursdays at Progress Hall, Admiral Seymour Road, Eltham, SE9 1SL

18 Aug – Natter nite and members' expo

15 Sep – Christmas Island Dx'pedition Part 1 - G0VJG

6 Oct - High performance antennas

20 Oct – Buildathon

3 Nov – Junk sale

17 Nov - Christmas Island Dx'pedition Part 2 - G0VJG

### DORKING & DISTRICT

Website: <http://www.ddrs.org.uk>

Email: [ddrs.secretary@yahoo.co.uk](mailto:ddrs.secretary@yahoo.co.uk)

Contact: David Smith, M0SXD, 07808579501

Club Nets: Sunday 08:15 on 3.770 MHz & Thursday 20:00 on 144.775 MHz

Meetings: Friends Meeting House, Butterhill, South Street Dorking at 19:30.

Aug 23 - Social evening.

Sep 27 - The STEPPIR antenna, Rob Barter M0ZAF.

Oct 25 - Software Defined Radio, Olof Lundberg G0CKV.

Nov 22 - The 4 Square Antenna – results - Garth Swanson.

### HORSHAM ARC

Website: [www.harc.org.uk](http://www.harc.org.uk)

Club Nets: Saturdays 21:30 on 144.725MHz and Sundays 10:00 on 3.722 MHz

Meetings: 1<sup>st</sup> Thursday at The Guide Hall, Denne Road, Horsham, Sussex

4 Aug – Repairing Vintage Radios by David Smith M0SXD

1 Sep – Tony Crake - RF Transmitters and Other Experiences

6 Oct – Junk Sale

3 Nov - TBA

### MID SUSSEX ARS

Website: [www.msars.org.uk](http://www.msars.org.uk)

Club Nets: Sundays 08:00 on 3.740 MHz and at 11:00 on 145.350 MHz, Wednesdays 20:00 on 145.350 MHz and Daily 13:30 on 21.330 MHz

Meetings: Every Friday at Cyprus Hall, Cyprus Road, Burgess Hill, West Sussex for 19:45

12 Aug - Fox Hunt/Direction Finding evening

26 Aug - Talk on Windmills

30 Sep - Talk by Tony G3NPF on home construction

21 Oct - AGM

28 Oct - Surplus Equipment Sale

11 Nov - Construction Contest

25 Nov – Talk on Sussex trams by Ian Gledhill

### REIGATE ATS

Website: [www.qsl.net/rats](http://www.qsl.net/rats)

Email: [rats@qsl.net](mailto:rats@qsl.net)

Club Nets: Thursdays 20:00 on 145.500 MHz and Sundays 20:00 on 3.740 – 3.760 MHz

Meetings: 3<sup>rd</sup> Thursday at RNIB, Redhill College, Philanthropic Road, Redhill for 19:30

### SRCC

Website: [www.g3src.org.uk](http://www.g3src.org.uk)

Contact: John Kennedy G3MCX, 020 8688 3322

Club Nets: Sunday 09:30 on 1905 kHz

Daily natter channel – 144.215 MHz at 19.30.

Meetings: 1<sup>st</sup> & 3<sup>rd</sup> Mondays at Trinity School, Shirley Park, Croydon CR9 7AT 19:45 for 20:00

15 Aug – SDR Radio Part 2 with Martin G3OQD

5 Sep – Radio Fox Hunting with Terry G4CDY

3 Oct – Autumn Surplus Equipment Sale

7 Nov - Talk (TBA)

### SUTTON & CHEAM RS

Website: [www.scrs.org.uk](http://www.scrs.org.uk)

Contact: John Puttock G0 BWV 020 8644 9945

Club Nets: Monday 20.00 on 145.500 MHz

Saturday 11.00 on 145.500 MHz

Meetings: 3<sup>rd</sup> Thursday at Sutton United Football Club, The Borough Sports Ground, Gander Green Lane, Sutton. 19:30 for 20:00

18 Aug – 3D TV – Mike Cox

15 Sep – Repairing Vintage Radios - M0SXD

20 Oct – Noise Eliminating Products' by Graham Somerville M3ZGS of BHI Limited

17 Nov – TBC

### WIMBLEDON & DISTRICT ARS

Website: [www.gx3wim.org.uk](http://www.gx3wim.org.uk) (currently unavailable also checked 26.7.11))

Contact: Jim Bell M0CON 020 8874 7456

Club Net: Mondays 20:45 on 145.500 MHz

Meetings: 2<sup>nd</sup> & last Friday of each month at

Martin Way Methodist Church, Buckleigh Avenue, Merton

5 Aug - Summer Camp BBQ

7 Aug - Summer Camp ends

9 Sep - Summer Camp Retrospective

28 Oct - AGM

25 Nov - Surplus Equipment Sale

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## March 144/432 MHz 2011

### Detailed Results:

Section O								
Pos	Callsign	QSOs	Score	ODX Call	ODX Kms	Power	Ant	Group
1	* G5B	452	175,219	OK1KTT	1,078	400	6 * 12 ele	Five Bells Group
2	* M9T	219	90,228	OK2M	1,263	400	10 + 10 ele	Moors Contest Group
3	G7HOA/P	232	61,454	DK5LO/P	1,173	50	12 ele	Widnes & Runcorn ARC
4	G4FUR/P	127	39,099	OK2M	992	100	17 ele	Coulsdon ATS
5	GU6EFB	38	16,482	DR2X	860	200	8 ele	GARS
6	G0LGS	24	4,247	ON4MCL	483	100	8 ele	

Section SO								
Pos	Callsign	QSOs	Score	ODX Call	ODX Kms	Power	Ant	Group
1	* G3XBY/P	147	55,221	DF7ZS	1,037	400	17 ele	
2	* M0ICK/P	126	43,022	DA0Y	1,019	40	7 ele	Bolton Wireless Club
3	* M6OXO/P	62	5,147	F8BRK	499	1	9 ele	Widnes & Runcorn ARC
4	* 2E0TXT/P	27	4,356	F6APE	709	17	Moxon rectangle	
5	GW0PEB/P	2	1,267	PE1RLF/P	676	10	3 ele	Travelling Wave CG

Section 6O								
Pos	Callsign	QSOs	Score	ODX Call	ODX Kms	Power	Ant	Group
1	* MM0GPZ/P	143	58,281	HB9G/P	1,223	400	12 ele	Mid Lanark ARS
2	* G3PYE/P	163	47,625	DL6NAA	835	400	17 ele	Camb-Hams
3	G4G	127	33,307	DF5GZ/P	948	400	9 ele	Richmond Radio Group
4	M4W	83	25,650	DF5GZ/P	803	100	5 ele	Swindon & District ARC
5	G8APB	135	23,579	DF5GZ/P	919	400	17 ele	Macclesfield & DARS
6	G8NEY	71	16,332	DF7ZS	879	100	17 ele	
7	G0VJG/P	35	10,172	GM6VXB	766	300	15 ele	
8	M0BAO/P	34	9,409	PI4GN	719	180	13 ele	

### 432MHz

Section O								
Pos	Callsign	QSOs	Score	ODX Call	ODX Kms	Power	Ant	Group
1	* G5B	193	73,756	OL3Z	1,057	400	6 * 28 ele	Five Bells Group
2	* M9T	80	26,760	DF0MU	796	150	2 * 21 ele	Moors Contest Group
3	M1FUR/P	44	6,868	DK8ZB	728	50	19 ele	Coulsdon ATS
4	GU6EFB	8	3,517	DF0MU	752	75	21 ele	GARS
5	G0LGS	8	1,008	G4DEZ	206	75	14 ele	

Section SO								
Pos	Callsign	QSOs	Score	ODX Call	ODX Kms	Power	Ant	Group
1	* GW0PEB/P	16	6,688	F6DUL/P	961	10	6 ele	Travelling Wave CG
2	G3XBY/P	10	2,949	PA6NL	606	25	19 ele	

Section 6O								
Pos	Callsign	QSOs	Score	ODX Call	ODX Kms	Power	Ant	Group
1	* MM0GPZ/P	54	23,010	F6DUL/P	1,125	70	28 ele	Mid Lanark ARS
2	* G0EHV/P	61	22,419	F6DUL/P	991	200	21 ele	
3	G3PYE/P	59	13,422	DK8ZB	721	200	21 ele	Camb-Hams
4	G8NEY	55	12,976	DF0MU	658	400	23 ele	
5	G8APB	66	12,890	DK8ZB	897	250	2 * 21 ele	
6	GM4GUF/P	13	9,251	OK1XFJ	1,250	25	13 ele	
7	G4G	30	7,643	DF0MU	614	50	48 ele	Richmond Radio Group