

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



Affiliated to the RSGB

March 2011

SYCOM - Official CATS Sponsor
Visit www.sycomcomp.co.uk

CATS Committee

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Frank Emery, G3ZMF
Dennis Noe, M0NDJ
James Flint, G0SDB

CATS Whispers Editor: Steve Beal, G3WZK
email address for contributions: 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 **Email** enquiries@catsradio.org

Forthcoming Meetings

Monday Mar 14th Building and using the Ten-Tec 1330 by Martin, M1MRB
Monday Apr 11th WSPR by Walter Blanchard, G3JKV
Monday May 9th (provisional) Talk on motorcycle trip to Himalayas by M0NAT



CATS is twinned with the Crescenta Valley Radio Club
Glendale California USA www.gsl.net/cvrc

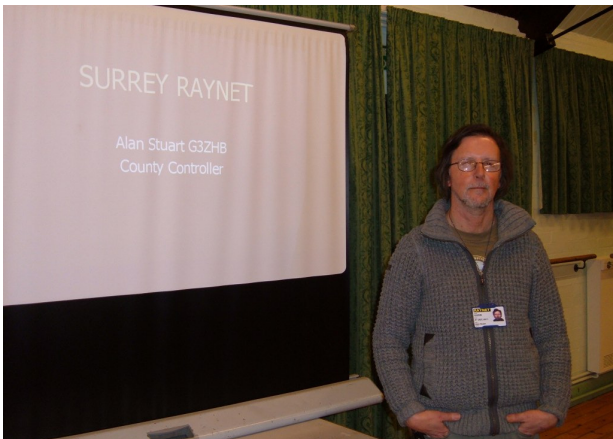
February Meeting Report

For our February meeting Alan Stuart, G3ZHB, kindly stepped in at short notice to give us a talk about Raynet.

Alan is the County Controller for Raynet in Surrey and he began by explaining how Raynet began back in 1953 after the East coast floods.

Raynet was introduced as part of a layered structure to the emergency telecommunications networks that was developed throughout the UK at County level for use in all sorts of emergencies.

In the depths of the cold war the need was seen for a comprehensive network of radio links to connect each county council's bunkers. These typically included RTTY links, the amateur 2 metre band, a scanner, VHF low band and high band equipment, and a network of repeaters, powered by either standby generators or batteries.



Alan Stuart, G3ZHB, at the beginning of his talk

At National level, Raynet fits into the much larger Cabinet Office Briefing Room (COBR) system. COBR is a Government crisis management facility that is activated in cases of national or regional emergency or crisis, or during events abroad with major implications for the UK. Risk assessments and plans are developed to cover, for example, transport, flooding, fuel supplies, telecommunications and, more recently, cyber attack. COBR operates, when required, from an incident room close to Downing Street.

However the advent of new technologies such as mobile phones in the early 1980s was to prompt a major rethink. Mobile phone networks tend to become grossly overloaded under emergency conditions and, in the

absence of mains electricity, cell site batteries will only keep each cell on the air for about six hours.

Many of radio networks of the emergency services have been replaced with new technology that doesn't permit easy or straightforward interoperability. For example a helicopter hovering over the site of a train crash may not be able to talk to emergency crews on the ground.

Satcomms can be used – but only permits one-to-one communication (as in a 'phone call) and so is of limited use. It is however completely independent of mains power – or indeed the availability of any network at all in the UK.

What is key is to have a layered, inter-operable VHF-based network. Raynet fits well as the last ditch system when all else fails (although, obviously it can be used before that!) Alan made the point that radio amateurs possess the skills to make communications get through even when there have been severe failures of the country's infrastructure.

However modern-day Raynet is not limited to VHF: 4m, 6m and 2m are of course used, but so is 70 cm and HF NVIS (Near Vertical Incidence Skywave.) Technologies include D-Star (voice and data), APRS, PSK31, GMSK and EasyPal for pictures. For more on EasyPal visit:

www.g4rob.co.uk/easypal.htm

Locally, Raynet Surrey can and does use amateur repeaters (such as GB3NS) but there are also three dedicated Raynet repeaters. There is also a command vehicle with a pump-up mast that can be driven to locations as required and is able to operate on a wide range of frequencies and modes.

Surrey Raynet also supports local events and this year will attend the Fleet Half Marathon in March, the Woking Hospice Midnight Walk in June and the Farnham Charities Bike Ride in July.

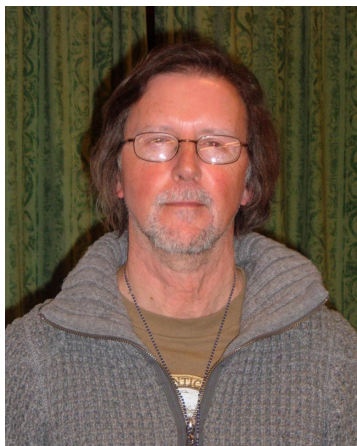
It only costs £15 to join Raynet. For more information, visit:

www.surreyraynet.net/

Alternatively CATS members may email Alan directly at:

raynetg3zhh@gmail.com

Thanks to Alan for an interesting talk delivered to CATS members at very short notice.



Alan Stuart, G3ZHB, Surrey Raynet Controller

Membership Matters

As mentioned in the February edition of *Cats Whispers*, Paul (M0JXN) and his XYL recently became parents for the first time. Paul sent CW a photo of the first harmonic, Harry, but it arrived too late for the February edition so we are publishing it here now.



Harry monitoring GB3NS

Some other good news is that CATS Member Les, M3IBN, has passed his Intermediate exam and is now 2E0IBN. He is now hard at work studying to gain a Full licence.

Transponder Net:

The March transponder net with Crescenta Valley was cancelled but it is hoped to run the net as normal on the first Saturday of April (April 2nd 2011.)

CATS March Meeting

This will be a talk by Martin Butler - M1MRB entitled 'Building & Using the Ten-Tec 1330'.

Martin will be familiar to some of you as the lead instructor on the Foundation, Intermediate and Full licence courses run by the Sutton and Cheam Radio Society (SCRS.)

Martin has already given this talk to SCRS but it is strongly suggested that you DON'T rush out to buy one of these kits until you have heard what Martin has to say about it. If you want to know why - come to his talk at CATS on March 14th!

CATS April Meeting

This will be the talk on WSPR (Weak Signal Propagation Reporter) by Walter Blanchard, G3JKV that was originally scheduled for our October 2010 meeting.

Walter has given this talk at a number of local clubs and CATS member Lawrence has used WSPR from various worldwide locations – see reports in previous issues of *Cats Whispers*. This promises to be a most interesting evening.

Walter writes:

“The Weak Signal Propagation Reporter (WSPR), to give it its proper title, was designed as a way of getting real-time propagation information by using low-power digital signals. A transmitter radiates a short digital signal using a power of a watt or two, then listens to see if any similar signals are coming in. If they are, it decodes them and puts the information on a website. If anyone hears you, they do the same. Then the process repeats itself, all controlled by a PC. The signals you receive are listed by the controlling program and you can see them on your PC at any time. If you want to see if anyone has received you, then you have to go on the Web and find out. It's a sort of automatic DX machine and can be left running, unattended, for many hours at a time. What you do with the information is up to you. At first, it's fascinating to see just how many stations, world-wide, are receiving your pipsqueak transmissions, then more serious applications may occur to you. Some amateurs

leave their WSPR stations running for months at a time and log all the results so they can see how propagation varies hour by hour and day by day. Others use them to catch very short duration DX openings that you will never hear by just listening casually. Yet others use them for comparing aerials - verticals vs. horizontals, loops vs dipoles, and so on. It's fun to see just how low a power you can get away with to be heard on 80m in the USA, etc, etc. Over the last few years I've done all of these things; my current project is to leave it running during daylight hours on 10m to see how often that band is open outside Europe even in these low-sunspot days. The answer is - most days, something I would never have suspected just by casually tuning over the band now and again."

CATS May Meeting

It is hoped that this meeting will feature a talk by M0NAT on a motorcycle trip to the Himalayas – a name which incidentally means "Land Of Snow." This talk was originally rescheduled for February.

CATS Contesting

CATS took part in the "Brass Monkeys" contest on 144 and 432 MHz over the weekend of 5/6 March 2011. We are claiming 144 QSOs on 2 metres and 48 on 70 cm for 43261 and 7131 points respectively. Best DX on 2m was OK2M (991 km) and on 70 cm was DK8ZB (727 km.)

Andy, G0KZT, has written a full report of our contest entry for inclusion in the next issue of CW.

Kempton Park

The first Kempton Park rally of 2011 takes place Sunday on April 17th and helpers are required to run the CATS Bring and Buy stand at this event. Please contact Glenn, G4FVL if you would like to help.

Where do rigs come from?

Mike, M1CCF, has thoughtfully sent CW some information about a visit to an Icom factory that was made by attendees to the Asia-Pacific DX Convention (APDXC 2010) that was held in Osaka, Japan, in November last year.

Slides of the visit include some interesting shots of the Icom production line. To see them, visit:

www.nsarca.ca/hf/icom2010.pdf

Contests Coming Soon

2011 :

Mar 12-13: Commonwealth Contest
Mar 13: 70MHz Cumulatives #2
Apr 3: RoPoCo SSB
Apr 3: First 70MHz Contest
Apr 10: First 50MHz Contest
May 7: 432MHz Trophy Contest
May 7: 10GHz Trophy Contest
May 7-8: 432MHz-248GHz Contest
May 15: 70MHz Contest CW
May 21-22: 144MHz May Contest
May 22: 1st 144MHz Backpackers
May 22: 70MHz Cumulatives #3
Jun 4-5: NFD
Jun 12: 2nd 144MHz Backpackers
Jun 18-19: 50MHz Trophy Contest
Jun 26: 70MHz Cumulatives #4
Jul 2-3: VHF NFD
Jul 3: 3rd 144MHz Backpackers
Jul 17: Low Power Contest
Jul 17: 70MHz Trophy Contest
Jul 30-31: IOTA Contest
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

Shak Nowtz

Over the page you will find the ninth in the series of articles written by "mad" Frank, G3ZMF. This one covers RF Test Gear that Frank has used over the years.



SHAK NOWTZ BY "MAD" FRANK - G3ZMF

SHAK NOWTZ No 9 – Test gear old(e) and new

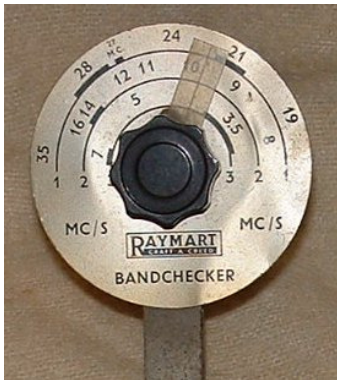
Introduction

Sorry it's been so long since the last Shak Nowtz (No 8) but I've been doing a lot of jobs for others, a few for myself, plus researching items for the next batch of Shak Nowtz.

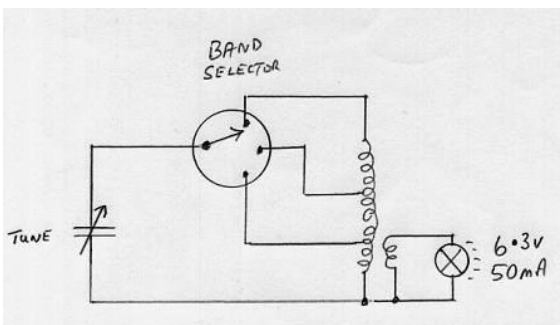
So .. Merry Christmas, Happy New Year, Happy Easter, Happy Birthday and Happy Anniversary. There. That covers most of it I think!

I wonder how many of the commercially made items in the following pictures you will recognise – if you're old enough, that is!

The Raymart Band Checker was an absorption wavemeter from the 1950s and 1960s when it was essential to have this or similar piece of kit to comply with licence conditions. It used a lamp as an indicator of RF energy and covered 3.3 to 36 MHz in three ranges.



The Raymart Band Checker Dial



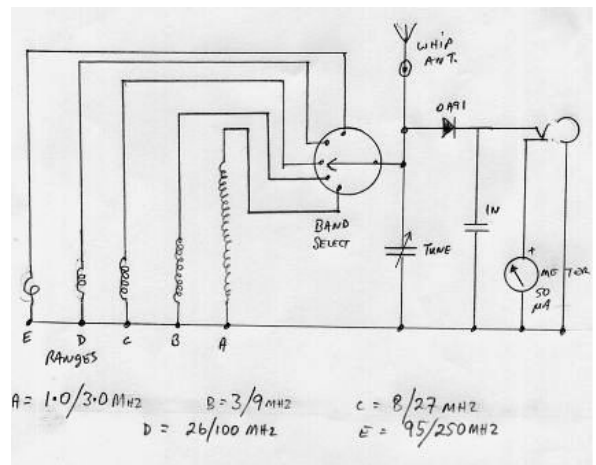
Circuit Diagram Of The Raymart Band Checker

The Eagle Products RF-40 RF Field Indicator

was in common use in the 1960s and 1970s and covered 1.0 to 250 MHz in five ranges. Being that AM (amplitude modulation) was the only speech mode that was in general use (unless you were rich and had SSB) there was a diode detector output to a 3.5 mm socket for use with a crystal earpiece to monitor your modulation. A telescopic whip antenna provided signal pick-up.



The Eagle RF40 RF Field Indicator



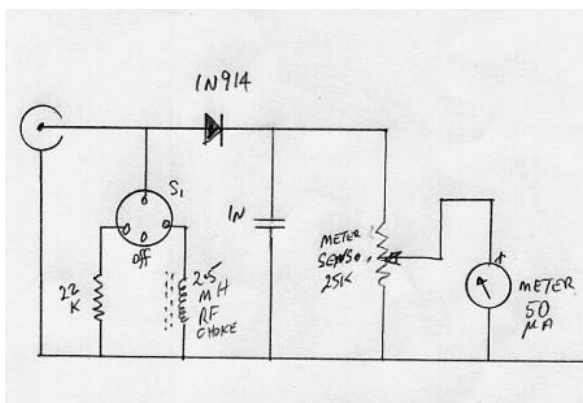
Circuit diagram of the RF40

SHAK NOWTZ No 9 – Test gear old(e) and new

This simple **AF/RF sniffer** was something I built in the 1990s when I was out of work and had no pennies to spare. I had an opportunity to modify some ex-PMR gear for use on 70 MHz and 144 MHz but lacked suitable test gear to get it working properly. My solution was to build myself some – but keep it simple!



External view of G3ZMF's all-purpose sniffer



Circuit diagram of the G3ZMF all-purpose sniffer A 1N4148 or 1N60 can be used instead of the 1N914 if preferred



Internal view of G3ZMF's sniffer

I constructed three probes for use with the sniffer - see pictures below:



Probe 1: Coax lead with large loop

The above pick-up loop consists of 3 turns of 20/22 SWG enamelled copper wire with an internal diameter of 6 mm.



Probe 2: Coax lead with pick up loop

The pick up loop consists of 4 turns of fine insulated single core wire with an internal diameter of 3 mm. This is ideal for placing over the aperture of an IF transformer while using a trimming tool to adjust the core.



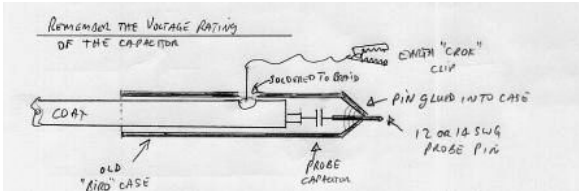
Probe 2: Close-up of the pick up coil

SHAK NOWTZ No 9 – Test gear old(e) and new



Probe 3: A coax lead with a probe constructed from an old ball point pen case.

In Probe 3, the coax braid is connected to a short fly lead that emerges through a small hole in the side of the pen case and is terminated in a crocodile clip. The coax inner is connected to the contact probe (18 to 14 swg copper wire) via a suitable capacitor. I use 100nF for audio, 1nF for HF and a few pF (eg a “gimmick” capacitor) for VHF/ UHF – see diagram below. Don’t forget the safe working voltages of these capacitors when carrying out tests.



Schematic of G3ZMF’s probe

Now to the most complex piece of test kit that I ever built. The diecast box contains three tuned circuits and I used it to tame a Pye Westminster (W15FM) that was prone to self-oscillation and mis-tuning. It covers the following frequency ranges:

- F1: 46 – 50 MHz or 56 – 72 MHz
- F2: 66-189 MHz
- F3: 136 – 270 MHz

Separate tuning controls are provided for each of the 3 frequency ranges, with sensitivity controls and selection switches. The meters provide an indication of the power levels of both required and spurious signal levels.

(Editor’s note: the design of this sniffer is that it must only be used with probes such as those described by G3ZMF. It must not be connected

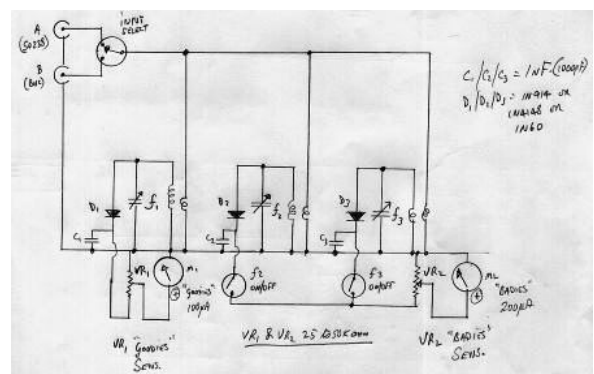
directly to any equipment without a suitable probe.)



The G3ZMF test rig.



Inside the G3ZMF test rig



Circuit diagram of G3ZMF’s test rig

The next Shak Nowtz will feature designs for a QRP LF/HF VSWR bridge and a quad loop antenna for 1296 MHz plus several other goodies.

73 de Mad Frank G3ZMF

Local Rallies & Events

13 March 2011

Cambridge and District ARC Rally

Wood Green Animal Shelter, King's Bush Farm, A1198
London Road, Godmanchester, Cambs, PE29 2NH.
Open 10:00/10:15. Admission £3. Talk in. Trade. B&B.
Catering with bar.
Disabled facilities. SIGs. Raffle. Lectures. Family
attractions.

Contact David M0GUM, 01954-203080 or
rally2010@cdarc.co.uk
www.cdarc.co.uk

17 April 2011

West London Radio & Electronics Show

Kempton Park Racecourse.
Open 10:00. Parking, trade stands, catering, disabled
facilities. Contact info@radiofairs.co.uk
NOTE: CATS involvement in this event.

22 May 2011

28th Dunstable Downs RC National Amateur Radio Car Boot Sale

Stockwood Park, Luton, M1 J10
Open 09:00. Talk in on S22
www.ddrcbootsale.org

12 Jun 2011

East Suffolk Wireless Revival

Orwell Crossing Lorry Park
A14 Eastbound, Nacton
Ipswich, Suffolk IP10 0DD
Car Boot Sale, Bring & Buy Sale, Special Interest Radio
Groups, Local Radio Clubs, RSGB Bookstall, Excellent Food
and Facilities, Easy Parking, GB4SWR - HF Radio Station
GB4SWR - Talk-in on 145.550MHz
Contact John G3XDY, 07710-044858 or Steve, M1ACB
07711-329624
www.eswr.org.uk

19 June 2011

Newbury Radio Rally & Boot Sale

Newbury Showground, M4 J13.
Open 09:00. Free parking, trade stands, catering,
disabled facilities. Contact rally@nadars.org.uk
<http://www.nadars.org.uk/>

24 – 26 June 2011

Hamtronic Show, Friedrichshafen

Messe Friedrichshafen, Germany
www.hamradio-friedrichshafen.de/ham-en/index.php

3 July 2011

Norfolk ARC Barford Radio Rally

Barford 9 miles SW of Norwich close to A11 and A47
Open 09:00 (traders from 8am), CP, TI, CBS, B&B, C,
TS, RSGB Bookstall, Demos.
Contact: David G7URP 01953 457322 or
radio@dcpmicro.com
www.norfolkamateurradio.org

17 July 2011

McMichael Rally & Boot Sale

Reading Rugby Club off A4 east of Reading
Open 09:30. Parking, trade stands, catering.
Contact g0jms@radarc.org
www.mcmichaelrally.org.uk

31 July 2011

Colchester Annual Rally

St Helena School, Sheepen Road, Colchester.CO3 3LE.
Open 10:00. Parking, Trade Stands, Bring and Buy.
Contact: Brian 01206 822547 or brianfitz@aspects.net
www.g3co.ccom.co.uk/rally.html

14 August 2011

Flight Refuelling Hamfest

Cobham Sports and Social Club Ground, Merley, Nr.
Wimborne, Dorset BH21 3AA
Further information: www.frars.org.uk

10-11 September 2011

Gatwick Weekend

Vintage operating group
Contact: Mike, M1CCF: 0208 654 2582 or
m1cct@talk.talk.net
www.radioclubs.net/m0vog/

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

7-9 October 2011

RSGB 2011 Convention

Horwood House near Milton Keynes
Lecture streams
www.rsgb.org/rsgbconvention

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

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
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 or
www.catsradio.org

Other Club News & Contact Information

BROMLEY & DISTRICT ARS

Website: www.bdars.org

Email: info@bdars.co.uk

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

15 Mar: Low earth orbit satellites

CPREC (CRYSTAL PALACE)

Website: www.gsl.net/g30ou/ or <http://www.g30ou.co.uk/>

Club Net: Wednesdays 20:00 on 145.525 MHz

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

1 Apr - TBA

CRAWLEY ARC

Website: 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

Contact: Richard Perzyna, G8ITB (see website)

Club Nets: Wednesdays 21:00 on 145.500/QSY and 22:00 on 3.720 ± QRM, and Sundays 11:00 on 3.720 ± QRM

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

17 Mar – Society Review

7 Apr – Ham Radio in France

21 Apr – AGM

5 May – The ICOM 756

19 May – Simple data communications

16 Jun- DF hunt

21 Jul – Social and BBQ

DORKING & DISTRICT

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

Email: 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.

Mar 22 - Home Construction Techniques - Bob Burns G300U

Apr 26 - PIC Chips - Paul Swarman, G0ODP

May 24 - Personal Challenge evening.

Jun 28 - Electrical Safety - Robin Page-Jones G3JWI

Jul 26 - South Downs evening.

Aug 23 - Social evening.

HORSHAM ARC

Website: www.harc.org.uk

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

Meetings: 1st Thursday at The Guide Hall, Denne Road, Horsham, Sussex

7 Apr - Minimum Antenna Height - Mike Underhill - G3LHZ

5 May - Software Defined Radio - Chris Smith - G4NUX

2 Jun - David Smith (M0SXD) - Repairing Vintage Radios

7 Jul – TBA

4 Aug – TBA

MID SUSSEX ARS

Website: 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

11 Mar - Talk on Earthing Radials and PME by Peter G4AKG

29 Apr – Surplus equipment sale

REIGATE ATS

Website: www.gsl.net/rats

Email: rats@gsl.net

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

Meetings: 3rd Thursday at RNIB, Redhill College, Philanthropic Road, Redhill for 19:30

SRCC

Website: 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: 1st & 3rd Mondays at Trinity School, Shirley Park, Croydon CR9 7AT 19:45 for 20:00

4 Apr - AGM

9 May – Construction Evening

6 Jun - Construction Contest

4 Jul – BBQ

1 Aug – Talk (TBA)

5 Sep – Talk (TBA)

3 Oct – Autumn Surplus Equipment Sale

7 Nov - Talk (TBA)

5 Dec - Talk (TBA)

SUTTON & CHEAM RS

Website: 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: 3rd Thursday at Sutton United Football Club, The Borough Sports Ground, Gander Green Lane, Sutton. 19:30 for 20:00

17 Mar – Behind the Scenes at Bletchley Park in WWII - Brain Oakley

21 Apr - Simple Junk Box Antennas - Martin Butler M1MRB & Denis Noe M0NDJ

19 May – AGM

23 Jun – (note new date) Susy Radio – John, G8MNY

WIMBLEDON & DISTRICT ARS

Website: www.gx3wim.org.uk (currently unavailable)

Contact: Jim Bell M0CON 020 8874 7456

Club Net: Mondays 20:45 on 145.500 MHz

Meetings: 2nd & last Friday of each month at Martin Way Methodist Church, Buckleigh Avenue, Merton Park SW20. 19:30 for 20:00

25 Mar - Radio Topics by Andrew Maish G4ADM

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