

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



Affiliated to the RSGB

**August 2009**

**SYCOM** - Official CATS Sponsor  
Visit [www.sycomcomp.co.uk](http://www.sycomcomp.co.uk)

**CATS Committee**

Chairman: Steve Conway, G7SYO  
Secretary: Andy Jackson, G8JAC  
Treasurer: Derek Hands, G1PGS  
Members: Steve Beal, G3WZK  
Stuart Barber, G6CJR  
Dennis Noe, M0NDJ  
Frank Emery, G3ZMF

**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  
Normally via MB7IPL node on 145.2875 MHz  
Sunday mornings - 11:00 - Call on 145.2875MHz.  
Sunday evenings - 17:00 - Call on 3.700 MHz ± 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 10th August Barbecue at G4RWW QTH  
Monday 14<sup>th</sup> Sept Classic Radios Show & Tell Evening (1980 or earlier)  
Monday 12th Oct Lecture – to be confirmed



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

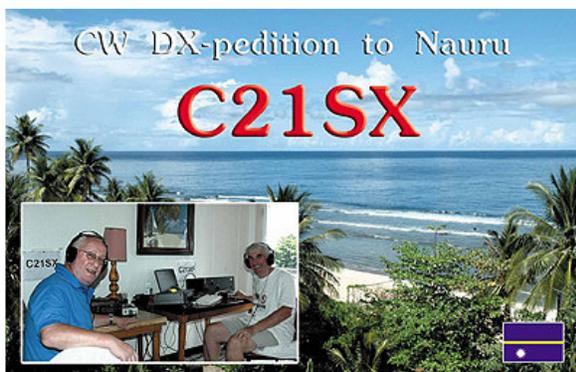
## July Meeting Report

It's amazing the lengths to which some amateurs go to get their QSOs: in the June issue of CW, we heard of G3ZMF's innovative efforts to participate in the 144 MHz back packer contests using a shopping trolley - while at the CATS meeting on 13<sup>th</sup> July we heard from Nigel, G3TXF, who talked most informatively about the Dxpeditions he has participated in around the world, clocking up over 347,000 QSOs in the process.



Nigel, G3TXF, prepares to give his talk to CATS

A key Dxpedition was in September 2005 to Nauru, an island once exploited by the phosphate industry. With all mineral resources worked out, the population has now dwindled to 5,000 and poverty is rife. There are no international 'phones and the 220V mains electricity is unreliable. Nevertheless Nigel, with his companion on this trip (and many others) Roger, G3SXW, between them amassed 12,524 CW QSOs over 9 days. Their QSL card (see below) shows the idyllic view from their hotel.

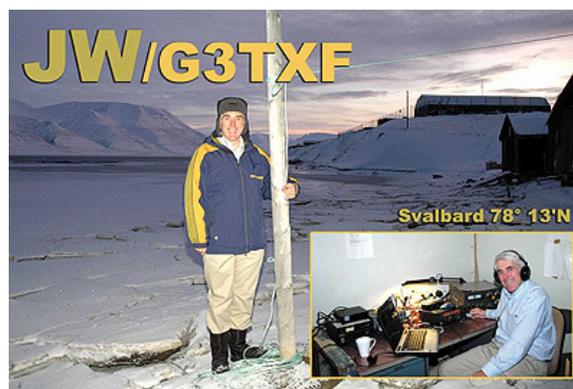


QSL card from Nauru

As usual on these trips, the rigs were transported within metal cases and the antennas, normally multiband verticals, were

packed into ski bags. Later, this caused a problem on their trip to Vanuatu, where the ski bag was too large to fit into the (admittedly small) aircraft's hold and had to travel in the cabin - where it had a seat of its own next to the emergency exit.

Contrasting with Nauru temperature-wise, was the Dxpedition to Svalbard in November 2007. The station was set up next to the fjord and, even at midday, in November there wasn't much daylight (see below.) Near the North Pole, the Dxpedition suffered from a complete radio blackout for several days after which conditions mercifully improved. Apparently, blackouts are not uncommon at such high latitudes. Another problem that can occur is if an aurora develops overhead, the atmospheric noise (QRN) severely affects radio reception. Nevertheless, the group managed to make 2,100 QSOs from this location.



The QSL card from the Svalbard operation

Another unusual trip was to the Sovereign Military Order of Malta (SMOM) where Nigel and Roger were guest operators using the callsign 1A0KM. SMOM is a small sovereign state that somewhat confusingly is in Rome, Italy and not in Malta, where it occupies a mere 5 acres of the city. It is a legitimate DXCC entity. Nigel and Roger made over 6,000 CW QSOs during their 2 day visit in July 2007.



Entrance To The Sovereign Military Order of Malta (SMOM) Villa

On a different scale altogether was the trip to Syria in April 2008. This time Nigel was accompanied by 4 other operators: Roger G3SXW, Lionel G5LP, Fred G4BWP and Rob GM3YTS.

Their shack was a room in a PTT building in Damascus. Also in the shack at all times was a PTT employee to physically monitor the group's activities. He would frequently confer by 'phone with a Syrian monitoring station about the stations being worked and frequencies used. All very strange until you imagine what the reaction of UK authorities would have been if a group of Syrian amateurs had wanted to transmit in the UK from the roof of one of BT's telephone exchanges!

In total, the group managed to make 28,100 CW QSOs from Syria.



QSL card from the Dxpedition to Syria

Most of Nigel's Dxpeditions used vertical antennas, such as the Butternut HF6 and Steppir products, although some antennas were home made. One clear pattern to emerge is that for best results, you should use a vertical as near to a beach as possible – ideally with radials under the sand. It also helps considerably if the main direction of interest is on the seaward side of the station: some of Nigel's sites were deliberately chosen with this in mind.



Steppir antenna on the beach in Mayotte (FH)

Nigel also noted that paths that pass directly over the North Pole (eg Vanuatu to the UK) are often very poor due to polar ionospheric conditions – while paths of similar length that avoid the pole (eg Vanuatu to Spain) are fully workable.

Rigs varied from Kenwood TS570 in earlier trips to the Elecraft K2 and now the K3. Fairly ubiquitous was a keyer and logging laptop: linear amplifiers were also used occasionally.



Nigel's QSL card

After a break for refreshments, Nigel told us about his collection of QSL cards. Believe it or not, he has over 300,000 in his collection – see photo below.



Nigel, G3TXF, with his very well organised QSL collection

Nigel also told us about trips to St Barthelemy (8000 QSOs in February 2008), a three way trip to New Caledonia, Vanuatu and Norfolk Islands (15,027 QSOs in March 2009), St Pierre et Micquelon (8000 QSOs in September 2006) and many more. In total, Nigel has made around 347,000 QSOs while on Dxpeditions.

The final trip, and most interesting from the Editor's view, was to Greenland in November 2008 where he operated as OX5AA with Ian G3WVG, in the 2008 CQWW CW Contest from the club-station in Kangerlussuaq on the west coast. Substantial numbers of contacts were

made on 80m, 40m, and 20m, but it was the group's efforts to activate 160m that were particularly admirable – courageous even. The photo below shows Ian, G3WVG, drilling fixing holes for a vertical pole for the 160m inverted-L antenna at the top of the 55 foot mast in a chilly minus 20° C. The CATS efforts on Nore Hill seem very tame by comparison !



G3WVG on antenna construction duties in West Greenland

There is also a youtube video of this trip see:  
<http://www.youtube.com/watch?v=brqr5XwZlPI>

Overall, we had a most interesting evening and we look forward to hearing and working Nigel on future trips. For more information, see Nigel's website at:

<http://www.g3txf.com>

## **Membership Matters**

**Rubbing House:** In January this year, the CATS annual dinner was held at the Woolpack in Banstead. For the 2010 event, the committee have been recommended the Rubbing House which is on Epsom Downs racecourse. Before we go ahead and make a block reservation, the committee would welcome hearing from anyone who has experience of the Rubbing House - or indeed any alternative suggestions. Contact any committee member if you have a view to air.

<http://www.rubbinghouse.com/home.html>

**Treasurer needed:** Derek Hands, G1PGS, has announced his intention to resign as treasurer with effect from the next CATS AGM (December 2009.) We are indebted to Derek for all his work over the years. However, the Treasurer role is one that must be filled, so if you think you would like to take on this job, now is the time to start thinking about it and

maybe have a quick word with Derek to find out what would be involved.

**St Swithuns Church:** The hall that CATS uses for its meetings was built exactly 80 years ago and the church is holding a celebration lunch to commemorate both its birthday and its recent refurbishment. CATS has been invited to send a representative to the lunch which is planned for Sunday September 13<sup>th</sup> at 12 noon. Please contact the newsletter editor if you are interested in attending.

## **CATS August Meeting**

A reminder that the 10<sup>th</sup> August meeting is a barbecue at G4RWW's QTH. If you have not replied to the email that Andy, G8JAC, sent out a few weeks ago to ascertain who is coming, please do so now. Don't forget that you need to bring your own drink to this event.

## **CATS September Meeting**

The idea for this evening was conceived by Adam G7CRQ and Frank G3ZMF in December 2008. Part of their idea was to get people to dig out their old gear and put it back on the air, but this evening we simply ask you bring along an old (1980 or earlier) piece of radio equipment and be prepared to demonstrate it to other members. If you can also bring along relevant documents such as handbooks, invoices, advertisements and sales literature, so much the better. Transmitters are particularly welcome and they may be manufactured or homebrew.

So now is the time to dig out that old piece of equipment, dust it off, and see if it still works in time for 14<sup>th</sup> September.

## **CATS October Meeting**

We are still awaiting confirmation on the subject matter for the lecture planned for this meeting.

## **Letter from W6 land**

Mark, W6MW, writes, "A small but stalwart group met for the July edition of the Transponder Net on American Independence

Day. There were some playful comments between the Brits and the Yanks but I think most of us don't hold a grudge against either side. Muskets are at the ready, however.

Participants included:

US	UK
KE6ZRP (Mark)	G8JAC (Andy)
AD6IZ (Larry)	G0KZT (Andy, with a guest appearance by Jessica)
W6MW/8 (Mark)	G4CDY (Terry)

“Results of the ARRL Field Day were discussed (it was the previous weekend) and Andy (G0KZT) was planning to visit the CATS NFD VHF Contest site later that day.

“Mark (W6MW) will be having his left knee replaced on July 27 and will be in the hospital for a minimum of 3 days, followed by either rehabilitation at home or in a care center, depending on circumstances. He is not certain he will be available for the next net so he hopes that it can be organized by Terry (G4CDY) and Mark (KE6ZRP).

“As always, it was great to hear our friends and it would be great to hear from you too! We always like to hear from new friends so consider joining in on the first Saturday of each month at the usual time (09:15 Los Angeles Time and 17:15 UK Time).“

73 de Mark  
W6MW

## Contests Coming Soon

Aug 13: 80m Club Sprint (CW)  
Aug 16: 70 MHz Trophy Contest  
Aug 26: 80m Club Sprint (SSB)  
Sep 5/6: SSB Field Day 3.5-28 MHz  
Sep 5/6: 144 MHz Trophy Contest  
Sep 6: 5<sup>th</sup> 144 MHz Backpackers  
Sep 10: 80m Club Sprint (SSB)  
Sep 13: Second 70 MHz Contest  
Sep 23: 80m Club Sprint (CW)  
Oct 3: 1.2 GHz Trophy/ 2.3 GHz Trophy  
Oct 3-4: 432 MHz – 248 GHz IARU  
Oct 4: 21/28 MHz Contest  
Oct 8: 80m Club Sprint (CW)  
Oct 11: Second 50 MHz Contest  
Oct 21: 80m Club Sprint (SSB)  
Nov 7/8: 144 MHz CW Marconi

Nov 12: 80m Club Sprint (SSB)  
Nov 14: Club Calls Contest (1.8 MHz)  
Nov 21/22: 2nd 1.8 MHz contest  
Nov 25: 80m Club Sprint (CW)  
Dec 6: 144 MHz AFS  
Dec 26-29: 50/70/144/432 Christmas Cumulatives Contest

## Local Rallies & Events

**30 August 2009**

**Milton Keynes 51<sup>st</sup> Amateur Radio Society Rally**  
Holne Chase School, Buckingham Road, Bletchley MK3 5HP

Open 09:00 trade stands, catering.  
Contact: Mike G3LFR: 07866 673192 or [www.mkars.org.uk](http://www.mkars.org.uk)

**12/ 13 September 2009**

**38th Leicester Amateur Radio Show**

Loughborough University - 1 mile from junction 23 M1 motorway

Open 09:30 to 17:00 (Saturday) or 16:00 (Sunday.) Bring and buy, club stands, convention, flea market, demonstration amateur radio stations; electronic, radio and computer stands.

Contact: Geoff, G4AFJ: 01455 823344 or [geoffg4afj@aol.com](mailto:geoffg4afj@aol.com)

**27 September 2009**

**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.*

**15 November 2009**

**CATS Bazaar**

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)

## Shak Nowtz

Over the page you will find the fifth in a series of articles written by “mad” Frank, G3ZMF. This one is entitled Wire Aerials and Earths.



# SHAK NOWTZ BY "MAD" FRANK - G3ZNF

## SHAK NOWTZ No 5 - Wire Aerials and Earths

### Introduction

'ere we go again! Now it's time to get that RF into the air, or using the analogy that I taught to the Scouts and Guides with little or no knowledge of radio, "time to get the motor car to move!" To explain the need for an efficient earth, imagine trying to push a car on a sheet of ice ... no grip for your feet! In the same way, a wire antenna needs an earth system to push the RF into the air.

In my SWL days I was taught by Ted, G3GKF (SK), and Bob, G3DPW, that a good earth system was 80% of the efficiency of the radiating system. It's all well and good to have a 132 foot long wire up at 30 feet or more, but without a reasonably good earth to work against, it will perform very poorly.

Most of us install some form of earth rod, connect a piece of wire to it, and hook it up to the shack earth and go for it. Wrong - although on the good side, you have kept the RF earth separate from the house earth. The biggest mistake made by many is to get that word "earth" stuck in your mind and think that the mains earth system would do. It won't! Think RF wavelengths and the typical transmitter powers, not forgetting that equal power goes into the aerial as goes into the earth. Simply put: mains earth +RF = TVI/ BCI/ computers going bonkers!

*Editor's note: Safe earthing is a complex issue, but the RSGB has a downloadable leaflet available. See: [http://www.rsgb.org/emc/pdfs/leaflets/emc\\_leaflet07.pdf](http://www.rsgb.org/emc/pdfs/leaflets/emc_leaflet07.pdf)*

Ideally, we could have a sheet of copper to cover the whole of the garden, but there are a few problems with this such as (a) the cost, (b) where to plant your veggies and (c) the XYL will kill you! The next best thing is an "earth frame." This is simply a ring of wire, ideally 2.5 sq mm, brown 6491x conduit cable going round the perimeter of the garden, with an earth stake (if possible) at the far end of the garden, plus another earth stake at the centre of the "frame

ring" nearest the house. The connection to the shack earth should be as short as possible, ideally less than 1/8 wave at the highest frequency. A somewhat impractical alternative would be to use wire that is a multiple of half waves in length.

A better solution is to use a reactive cancellation system. Basically, this is just a wide spaced variable capacitor in series with the main RF earth, so that the inductive reactance of the earth lead is cancelled out capacitively. The 10 kΩ to 100 kΩ high wattage carbon resistor across this earth capacitor provides a DC path and reduces/ avoids flashover of this capacitor. (See Fig 1 below.)

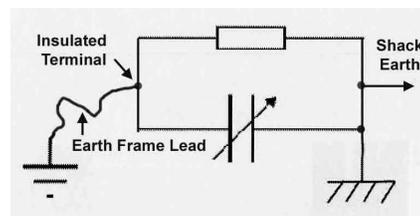


Fig 1: Tuning the earth lead

In this arrangement, the frame, tuning shaft and case of the capacitor form the shack earth; the fixed or live vanes of the capacitor go via an insulated terminal to the outside earth. To tune the system, first switch out the ATU and tune the earth capacitor for best signal on receive (or band noise). Then switch the ATU back in and using minimal RF, bring the ATU to best SWR. Next adjust the earth capacitor for best SWR before finally re-tweaking the ATU again for best SWR.

If you are unsure whether you need this earth wire capacitor, then try putting your hand near (or touch) the ATU and see if the SWR changes or if you get an RF burn! If so, then yes - you do need the series capacitor. Be safe, not sorry!

In practice you may not be able to obtain a suitably high enough value of wide spaced variable capacitor for this unit so an alternative would be to use a good quality ceramic rotary wafer switch, plus fixed capacitors of at least

## SHAK NOWTZ No 5 - Wire Aerials and Earths

1kV working voltage. Likewise, on the lower frequency bands, the capacitor may not be required, so another single pole, 2-way ceramic rotary switch could be used to short it out altogether.

Okay, now we are safely earthed, and the antenna has something to “push” the RF into the sky, time to fill the air with copper.

Wot ! No garden! Then go vertical! An excellent and quite cheap way is to get the old CB favourite the 7 foot “firestik” plus a mounting boss that allows three or four extra firestiks to be used as a groundplane, usually angled down at 30 to 60 degrees from the horizontal. These could be of the 4 foot variety if space is a problem. In essence a 27.5 MHz firestik is a  $\frac{3}{4}$  wavelength of wire, helically wound, with the turns getting closer together as they reach the top. In theory and practice, this assembly can be tuned up from 10MHz to 54 MHz. Good start!

<http://www.firestik.com/>

But if you have a garden, by all means put some wire up, over the lovely “frame earth” you should already have installed. At this point, I should mention a typical downfall, made by many, including me in the old days, of feeding a dipole direct with coaxial cable (coax.) Think about it! Look at a piece of coax – the braid is much bigger than the centre conductor. It is unbalanced and the dipole is balanced – that’s why we use a balun (BALanced to UNbalance transformer.) Baluns can take many forms, but many a slip has occurred when the antenna is not at resonance and therefore exhibits a different RESISTIVE component plus a reactive component which the balun translates to the coax feed, resulting in RF on the outer of the coax and possible TVI/BCI. Personally, I like to use balanced feed systems, to a truly balanced ATU (see Shak Nowtz no 4.)

### Wires in the sky:

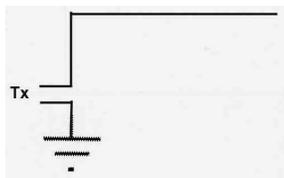


Fig 2: “Up and along” inverted L



Fig 3: Grounded loop top fed vertical

In the antenna shown in Fig 3, the RF is forced to start radiating from the far end, making it a top fed vertical. The vertical, if  $\frac{1}{4}$  wave or more high, will have a fairly low angle of radiation, whereas the top section will exhibit a fairly high angle of radiation. The feed point impedance will of course, vary dramatically depending on the frequency/ wavelength in use.

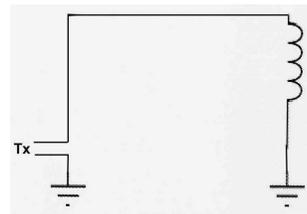


Fig 4: The famous UFY antenna, designed and used by Steve, G3UFY, in a restricted garden.

The antenna in Fig 4 was primarily designed for 160 m. The “L” is lots of turns of insulated wire wound onto a discarded washing-up liquid bottle, with the halyard/ cord running through the bottle (a) to support it and (b) to support the top wire. The Tx feed goes into a parallel tuned ATU (see Shak Nowtz No 4.) This antenna has improved low angle radiation for the LF bands compared with Fig 3.

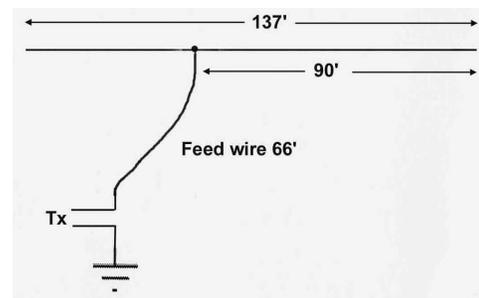


Fig 5: VS1AA. This is a modified Marconi Tee with an offset feed point, ideally tuned using a parallel mode ATU.

## SHAK NOWTZ No 5 - Wire Aerials and Earths

### The Apex antenna

I developed this antenna back in the 1970s, to begin with in the loft and then a larger version in the garden. It is made of 300  $\Omega$  ribbon and fed with the same 300  $\Omega$  ribbon to a balanced ATU. Saying that, I have also grounded one leg and fed the other into a parallel tuned ATU with success.

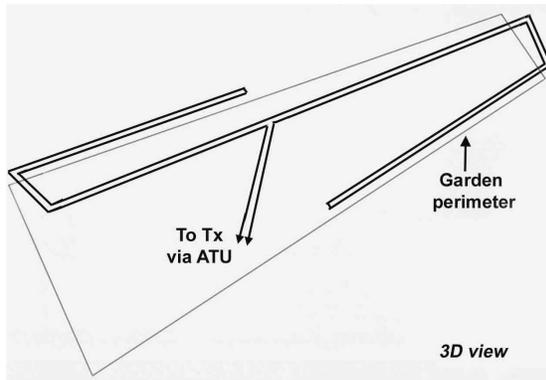


Fig 6: The Apex antenna – 3D view

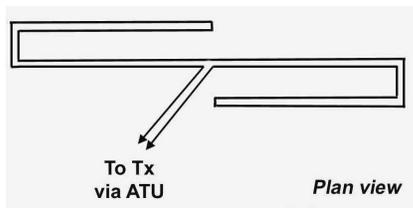


Fig 7: The Apex antenna – plan view

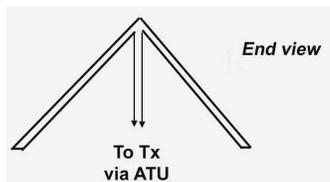


Fig 8: The Apex antenna – end view

The top section is as high as possible and the ends come down the supports 8 feet or more above the edge of the garden and out of harm's way. One leg goes left (as you look down the garden) and the other at the far end goes to the right and then folds back up the garden. Both ends of the ribbon are shorted out to complete the loop. The overall length depends on how much garden and height you have.

### The Multiband Horizontal Quad Square

In recent publications, this has been described as the Cobweb because of how it is made up. They work well for those who have no garden but may have roofspace or an area on the roof of a block of flats. In any case, they work much better than the "magnetic loop" efficiency-wise and do not produce such high voltages as found in the mag-loop tuning system.

Basically, each band has a one wavelength wire around a 4-sided (ie  $\frac{1}{4}$  wavelength per side) square, within a square. For simplicity, try feeding with 300 $\Omega$  ribbon to a balanced ATU.

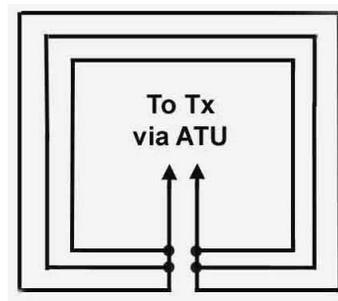


Fig 9: The Multiband Horizontal Quad Square

Bamboo canes make ideal supports across the corner points with, say, a 9 inch by 9 inch piece of  $\frac{3}{4}$  inch ply at the centre and a suitable mounting system onto your mast/ support system.

You could for instance have 70 MHz, 50 MHz, 28 MHz, 24 MHz, 21 MHz, 18 MHz, 14 MHz, making each side no more than a maximum of 8½ feet per side. Using Pythagoras that means the canes have to be 12 feet long – each ! If this is a problem, try using thick-walled PVC tube, then extend the mast through the centre plate by 3 or 4 feet, and fit support guys to each boom  $\frac{1}{2}$  to  $\frac{2}{3}$  out from the centre.

Have fun, see you at the club or on GB3NS (70 cm) or next time in Shak Nowtz No 6 – "Beams and Yagis Made Easy."

**See Yer !**  
**Mad Frank G3ZMF**

## Other Club News & Contact Information

### **BROMLEY & DISTRICT ARS**

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

**Email** [bdars-news@talk21.com](mailto:bdars-news@talk21.com)

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

### **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

**7th Aug 09** - Burgers on the Air

**4th Sep 09** - Quiz

**2nd Oct 09** – Mobiles, portables and test equipment

### **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](http://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:** 1<sup>st</sup> and 3<sup>rd</sup> Thursdays at Progress Hall, Admiral Seymour Road, Eltham, SE9 1SL.

**Aug 6th** - BBQ

### **DORKING & District RS**

**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 & 20:30 on 144.775 MHz

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

**25<sup>th</sup> Aug** – Social evening

**22nd Sep** - The architecture of mobile phone systems - David Smith M0SXD.

**27th Oct** - The assessment of receiving system performance - Ranulph Poole & John Slater.

### **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

**6th Aug** - The Origins of Solar activity & its effects on the near earth environment - Len Culhane

**26th-27th Sep** - HARC Trip to Swanage

**1st Oct** - Junk Sale

### **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**

**Aug 28th** - Quiz

**Sep 25th** - Talk by Gavin G6DGK

### **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:** Ray Howells G4FFY 020 8644 7589

**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

**3th Aug** – Meccano with Alan Burman

**7th Sep** - TBA

**26<sup>th</sup> Sep** – Club dinner

**5th Oct** - Autumn Surplus Equipment Sale

### **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

**20<sup>th</sup> Aug** – ‘Military Man-Machine Interfaces’ by Peter Skinner G7MLJ

**17<sup>th</sup> Sep** – tbc

**15<sup>th</sup> Oct** – tbc

### **WIMBLEDON & DISTRICT ARS**

**Website:** [www.gx3wim.org.uk](http://www.gx3wim.org.uk)

**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 Park SW20. 19:30 for 20:00

**28th Aug** - Fox Hunt

**11th Sep** - On Air Evening

**25th Sep** - Guest Speaker TBA

**9th Oct** - Construction Evening

**30th Oct** - Annual General Meeting

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