



## Chelmsford Amateur Radio Society

Established 1936

Affiliated to the RSGB  
President: Harry Heap G5HF  
Secretary: Martyn M3VAM

Club Call Sign: G0MWT  
Chairman: Chris Chapman G0IPU  
Treasurer: Brian Thwaites G3CVI

Newsletter No 476

Web Address: [www.g0mwt.org.uk](http://www.g0mwt.org.uk)

October 2005

### **This Month's Meeting The Annual General Meeting Tuesday October 4th. 7-30pm at the MASC**

The nights are pulling in and we are back from our holidays and that can only mean one thing! Autumn is upon us and as far as CARS is concerned that means the Annual General Meeting. We look back over the last year and look forward to the year ahead! Our Chairman Chris IPU will review last year's activities and Brian CVI will probably tell us that we are still in the black and, maybe, tell us one of his little stories. We have also persuaded our President Harry G5HF to say a few words. He always says that there's nothing left for him to say but he always finds an interesting topic to discuss! Harry will also present the annual Awards; the Amateur of the Year Award, the Roy Martyr Trophy and the Constructors Certificates.

Now, you Members have a very important job to do, so wake up at the back there! You have to elect a Committee to run the Club's affairs for the next year! To help you, all the present Committee Members, with one exception, are offering themselves for re-election with the Chairman and Vice Chairman swapping roles. The Committee would welcome new Members, particularly from the younger ones amongst you! They would also welcome your comments, good or bad, on their efforts over the last year and to receive suggestions for the coming year's programme! So, let's have some positive feedback please.

After the evening's formal business, which we always get through as quickly as possible, there will probably be a demonstration of Echolink, subject to establishment of a suitable link, by Anthony M1FDE and hopefully we shall be told exactly what it actually does!

If you are not "into" computers there is always the chance to socialise!

The AGM is also renewal of subscription time so please bring your cheque book and be prepared to fill out the Subs Form which will ensure that we have your latest up-to-date details etc. Incidentally the Subs Form gives you the chance to state your preference for receipt of the Newsletter. In order to keep costs down and, incidentally, reduce the labour involved you are requested to receive it by email if at all possible.

As usual there will be a raffle, organised this month by Trevor M5AKA and Geoff G7KLV.

### ***Dates for Your Diary***

Sep 30/Oct 1	The Leicester Rally Donnington Park Nr Coventry
Oct 4	CARS Annual General Mtg. MASC 7-30pm
Oct 12	CARS Committee Meeting Members welcome DVH 7-30pm
Oct 30	Rusty Radios Contest Grp. Rally, Cottered Herts. Nr Baldock

### **The Club Net Controller for October is Harry G5HF**

### **CARS Member to receive RSGB Shield**

**'Big' Jim Beatwell M3GUA has always been a very keen and dedicated contester and in recognition he will be presented with the Intermediate Shield for the RSGB VHF/UHF Contest at RSGB HFC2005 to be held at Gatwick on Saturday 8th. October.  
Our congratulations and well done Jim.**

**CARS meets at 7-30 pm on the first Tuesday of the month at the MASC, Beehive Lane, Chelmsford.**

For details contact our Secretary: Martyn M3VAM on 01245-469008

Club Nets: Tuesdays 8-30pm: (2nd) 145.375 : (3rd) 1.947 : (4th) 1.947 : (5th) 145.375. All +/- QRM.

### **Newsletter Editor Position vacant**

Assistant Editor: Colin G0TRM 01245-223835 or email: [colinpage@ukgateway.net](mailto:colinpage@ukgateway.net)

**Please keep our Membership Secretary, Brian G3CVI, informed of any changes to your call sign or various addresses etc.**

## Last Month's Meeting Antennas Live!!! by Murray G6JYB

The large audience gathered in the Marconi Clubroom with the seating laid out facing the windows as a change. Murray produced a laptop computer & digital projector that started with a nice picture of the new Nimrod MRA4 aeroplane sprouting many antennas. Murray said this was the stimulus for much of the software he was using - his firm had to be able to demonstrate that the ~80 antennas did not interfere with one another.

He then showed a crowded amateur radio mast with antenna covering HF to UHF also all in close proximity with the comment "if only the owner knew how each antenna affected the other and reduced the possible gain". One sees this when one looks up on a chimney in Chelmsford with one TV antenna pointing to London close to one pointing the opposite direction towards Sudbury, net gain being rather random.

As Murray explained James Clerk Maxwell's Theory of Electromagnetic Waves has been around 150 years. Whilst the basic Laws of Physics haven't changed, the ability to understand and visualise them with computers has gone through a revolution. The advent of cheap PCs, powerful graphics and friendly user interfaces which take care of the maths for you has made an enormous difference. Murray then proceeded to demonstrate just that in a sequence that followed Foundation Feeders & Antenna training.

A 3D model of a small length of 50 Ohm Coaxial Cable was first projected and the screen showed the electric fields flowing smoothly down it when terminated correctly. When deliberately mismatched by being joined to 90Ohm Coax the standing wave was colourfully displayed on the 50Ohm source side. Zooming up at the junction the audience could see the Electric-Field flux peaking on the corner of the discontinuity.

Murray then showed a coaxial quarter wave probe (without radials) and showed the E-Field distribution up the coaxial cable to the tip of the antenna. When the plots of electric field and current were displayed a remarkable amount of energy was evident running back down the outside of the coaxial cable due the lack of a balun or ground-plane. To improve this Murray then added four radials to create a classic quarter wave antenna and repeated the energy plots. Little energy then leaked back down the coaxial cable, and the radiation pattern was far cleaner.

A domestic TV 12-element Yagi antenna was next examined. A 3D diagram of its gain was projected showing the X Axis with small lobes each side of the main lobe. Murray ran an animated sequence starting at Channel 21, 450MHz all the way up to 800MHz. As Murray increased the frequency so the gain changed and displayed the best front to back ratio at Ch5's frequency of about 600MHz. As the frequency approached Sudbury's so the display reverted to the poorer front to back situation. and far more prominent sidelobes. It was very enlightening to see in 3D a realistic plot of what is normally given as an ideal receiving antenna.

The next set of models included a two-storey house and garden. A typical Amateur's shack in the upstairs room was next chosen for attention with a long wire slung between the house and a pole down the garden. The animated plot of this highlighted the main energy going off the end (end fire), but with a significant backfire lobe resulted in rf power going into the house, demonstrating how poor such arrangements are for domestic EMC. In response to a comment from the floor Murray said that the most interesting aspect of this situation is to add the effect of power cabling and hot water pipes, or the girders of office buildings which is something that could be done even in the freeware antenna programs.

Next a 6m antenna in the 1<sup>st</sup> floor shack window was tried which showed the main wave going skyward, but the lobe that hit good conducting ground hugging it for many metres.

A half wave 10m dipole was substituted halfway down the garden and the energy fields examined in detail. Now the antenna was fed with twin wire feeder and was therefore "balanced". This improved the energy patterns considerably. The higher and the further from the house & any possible trees, the better. The trade off being that this is not so good for local QSOs - better for long distance contacts.

Finally a flared waveguide horn was shown which demonstrated the wide aperture in the x-plane directing the energy well whilst the narrower vertical flare resulted in a large diffracted pattern which even crept back along the outside of the horn surface.

After a break and the excellent raffle with sixteen prizes, Murray projected a display of the free Software Controlled Radio decoder used on the SDR1000. The software is compatible with a new £17 kit that is tuned to 7.056MHz but could with skill (or a DDS) be changed. The software uses Microsoft .NET, so it needs to be used on a Windows 2000/XP computer with a reasonable sound card. It could resolve all current amateur modes except PSK31. "Spectrum, Waterfall & panoramic displays" were all shown.

Murray then went on to explain that many of the software packages used tonight were available as "Freeware". Other professional ones were also available, albeit with limited facilities, aimed at the education market with the hope that the student will become familiar with the product and then require his new employer to buy it for up to £30,000. As the maths is well known and graphics libraries are free he expects over time that ever more impressive facilities will appear in the freeware ones.

Some of the free software used included MMANA, MiniNec/Nec4Win, RFSim99, Agilent AppCAD, Sonnet-Lite. Many of these were already on Trevor' M5AKAs CD. More professional software with excellent colour graphics included FEKO and Ansoft HFSS. Animation Shop (part of Paintshop-Pro) can also produce nicely animated plots from several separate frames or screen snapshots.

A fascinating presentation on what every amateur had heard about, but had never seen before! Thank you Murray.

**Report by John G8DET**

## October contests from Steve G4ZUL

### RSGB 21/28Mhz Contests

SSB: 02 October, Start 07:00, Finish 19:00 UTC  
CW: 16 October, Start 07:00, Finish 19:00 UTC  
Exchange: RS(T) + Serial number + District code.  
Sections: Open, Restricted, QRP.  
further information & rules from [www.rsgbhfcc.org](http://www.rsgbhfcc.org)

### Oceana DX Contests

SSB: 01/02 October, Start 08:00, Finish 08:00 UTC.  
24Hrs  
CW: 08/09 October, Start 08:00, Finish 08:00 UTC.  
24Hrs  
Bands: 1.8, 3.5, 7, 14, 21, 28Mhz.  
Exchange: RS(T) + Serial number.  
full details from [www.wia.org.au](http://www.wia.org.au)

### CQ WW DX - SSB

29/30 October, 48Hrs  
Bands: 3.5, 7, 14, 21, 28Mhz.  
Exchange: RS + CQ Zone.  
Categories: Single operator (single band & all band)  
Multi operator (single TX, Two TX, multi TX)  
QSO Points: own country 1 point, own continent 2 points, different continent 3 points.  
Multipliers: US States & VE areas 1 point, CQ Zones 1 Point. Final score: QSO points x Multipliers.  
full details from [www.cq-amateur-radio.com](http://www.cq-amateur-radio.com)

### 1.3Ghz & 2.3Ghz Trophy

01 October.  
Start: 14:00, Finishes: 22:00 UTC  
Sections: SF, O. (Special rules S6)  
full rules from [www.blacksheep.org/vhfcc](http://www.blacksheep.org/vhfcc)  
for any further information please email Steve G4ZUL  
contests2005@g0mwt.org.uk or phone 07931-874464.

## The G5RV Log Book

Members will recall that some time ago Louis Varney's last Log Book appeared for sale on the Web. John G8DET requested someone with the knowledge and facilities would make a bid to try and obtain it. Duncan Munro M0KGK responded at once and was a successful bidder. The Log Book, which shows our President, Harry G5HF as Louis last contact, is now the Club's property and it is proposed that it will form part of a Louis Varney, temporary display at the Sandford Mill Museum. However, when asked about the cost, Duncan declined to say and said he was happy to bear all the costs himself. From a recent email to John DET. Duncan wrote" Re: G5RV logbook, no money requested or required - it's a minor contribution from me to the Club, and I am absolutely delighted that it is now in 'good hands!'" Our grateful thanks to Duncan for this fine gesture.

*It will be on show at Sandford Mill on Sunday 25th. Sept., Science Discovery Day.*

## New CARS Foundation Course

Following the success of the summer Foundation course the Chelmsford Amateur Radio Society are planning another evening course to start Thursday 12th January. It will be the 12th Foundation course the Club

has run since the Foundation licence was introduced in 2002. To date over 100 people have got their foundation licence as a result of CARS courses.

The course is six weeks of practical and theory, but the view from previous course attendees, is that it's not just boring theory but a whole load of fun as well. Learning about radio communications and then complimenting what you have been taught by using the radio works well for most people and it's easier to absorb the information.

Places on the course are limited so advanced booking is essential. If you have any friends or family members who might be interested in getting started in Amateur Radio tell them to contact the CARS Training Manager Clive Ward M0SIX ASAP. Tel: 01245-224577 Mob: 07860-418835

Email: [training2005@g0mwt.org.uk](mailto:training2005@g0mwt.org.uk)

## Radio Course Runs Despite Power Cut

The Foundation Radio Communications course run at Danbury Village Hall by CARS was threatened by the major power cut at Danbury in June.

When the tutors and 16 students turned up for the course they found they had no electricity to power their equipment. Phone calls were made around Club Members and John G8DET and Clive M0SIX were able to provide portable power units to keep the course running. Both had kept their emergency power systems fully charged and available for immediate use, highly commendable.

Murray G6JYB gave his presentation without the use of the usual PC projector system, the students had to refer to paper handouts instead. There was no tea or coffee available during the break but cold drinks were provided - good job it was summer!

The power unit for the 100 watt HF rig which the students use to carry out their On-Air contacts managed to keep going right up until the last "73" of the last QSO before it ran out.

## SoftRock-40 Software Defined Radio

If you were looking for a construction project for the Autumn months then this may have been it - but unfortunately this batch is now "Sold out". SoftRock-40 is a small, low-cost, good performing 40-metre "software defined radio" multi-mode receiver that plugs into a computer USB port and delivers I-Q audio signals to the computer's sound card. It can decode just about any mode (DRM requires additional software) and the kit requires very few components. The total cost was less than £16, which is remarkably good value for a receiver of this performance.

Already there are several CARS Members who are assembling these kits, as they really do form a superb introduction to software defined radios. For full details on these exciting kits go to:

<http://www.amqrp.org/kits/softrock40/index.html>

The PC executable and source code are also available from the website. Unfortunately the software is only suitable for MS Windows 2000 and XP computers which also have a good stereo sound card.

## **CARS Member with 50 Years Membership of the RSGB**

John Greenwood G3KRZ will be remembered as a very active Club Member during the seventies and eighties serving on the Committee, doing the Newsletter and as Chairman in 1978 & '79. Following that he was a Vice President from 1984 to 1989. He was employed by BT and eventually retired and moved away up to Lincolnshire. He is still a Club Member.

Like many amateurs of that generation he was a very keen and skilled constructor. The story has it that he actually found a fault with one of Roy Martyr G3PMX's competition entries and, knowing Roy's standard of workmanship, it would be almost beyond belief! However, Roy being a perfectionist himself took it in the spirit intended and readily agreed!

Congratulations, John.

## **The Annual Dengie Quiz**

This popular event is on Monday 28th. November. See the November Newsletter for details

## **GB5EJ, EuroJam, Hylands Park, 29 July - 10 Aug. 2005 by Paul PA5UL**

Although it could be seen as a dress rehearsal for the upcoming Centennial for Scouting, the World Jamboree of 2007 at the same location with over 40,000 participants expected, the EuroJam 2005 (EJ2005) was a magnificent event in itself with over 10,000 Young People (YP) and thousands of Adult Leaders from some 67 different countries.

A lot of information can be found online at [www.eurojam.org](http://www.eurojam.org). but let us restrict ourselves to the amateur radio operation.

Up to only a few months before the start of EJ2005 it remained unclear whether there would be any amateur radio activity from the site. Due to relentless efforts of initially only a few dedicated Hams it all came together. It required a lot of improvising and finding ways to deal with "the system" but the results certainly made it worthwhile.

During the operation, GB5EJ was aired by 12 crew members. Ant M1FDE provided us with Echolink access via his node at his home QTH in nearby Chelmsford. The radio station was located in two flimsy white tents with the generator located just outside it, not an ideal setup.

More impressive was the antenna farm, consisting of TH7 Triband Yagi for 20m, 15m and 10m @ 64 feet, 1/2 wave dipole for 80m @ 50 feet, 1/2 wave dipole for 40m @ 50 feet, 1.5 wave dipole for 17m @ 50 feet, Colinear for 6m, 2m and 70cm @ 66 feet, 9 ele Yagi for 2m @ 25 feet, Colinear for 2m, and a Receive antenna for WEFAX.

Radio equipment (kindly loaned to the event by industry) included an FT 1000MP Mark 5 Field for HF, TS 570DG for HF, TS 2000E for HF/VHF/UHF, FT 874 for HF/VHF/UHF and a number of personal handhelds for local use. With these, several thousands of QSO's were made into some 105 DXCC countries but this

number could still go up a little as the log is still being computerised. Best QSO was when just before K2BSA went QRT, we were able to work them, tnx Jill KC8PVQ. All QSL were written out on the spot and have been delivered to the RSGB bureau. We were QRV on almost all bands between 80m and 70cm and via Echolink. The shack hosted a weather satellite receiver which drew some interest from visitors as the weather throughout the event was quite "British". Hidden around the site were some RDF transmitters for Fox Hunting. A number of very neat flashing Eurojam badges were made at the kit-building desk.

On the Eurojam campsite many more licensed participants were active in the IST team or as Troop Leaders and even a few YP had a license. Over 30 hams signed our guest-book and we even hosted an animated Eyeball Sked. A prominent visitor to the shack was Richard PA3BAR, JOTA organiser for the World Organization of the Scout Movement (WOSM) who was quite impressed with what had been achieved. Richard introduced Dr. Eduardo Missoni, Secretary General of WOSM, who stayed much longer than his schedule allowed. He was very interested indeed as to what amateur radio could do for Scouting, especially in Third World areas like Africa.

Although GB5EJ can be considered a success we intend to improve in many respects two years from now for the 21st World Jamboree. We hope to have 24/7 operation with at least 30 operators and a much larger shack. Hopefully we'll be a ticketed activity so we'll draw many more YP into the shack

*This is an edited version of an email sent to Trevor M5AKA from Paul PA5UL, "Chikai" Cub Scout Master, Sionee Pack, Scouting Ashanti, Zoetermeer, The Netherlands. email: [pa5ul@amsat.org](mailto:pa5ul@amsat.org) and [www.eurojam.org](http://www.eurojam.org)*

## **Resignation of Newsletter Editor**

I announced my decision to shed the NL on reaching eighty. Way back in early 1998 Roy G3PMX's health began to fail and he reluctantly decided that he couldn't carry on with all his Club commitments. Roy was the Club, or so it seemed to me! Any way, I took on the Newsletter which he did jointly with Ela G6HKM. A hard act to follow!

My first NL was No. 387 and I was always lucky to have the steadfast support of Colin TRM. We carried on much as before but by March 2002 we were up from one sheet to two. A major step in it's development was the 'electronic' version saving time, effort and money.

I have enjoyed doing it, but the time has come to pass it on to someone else, as yet unknown!

So, No 476 is my last one! Finally my last words are to thank all our contributors to the NL, they are the ones that make it. The Editor just cobbles the bits together! Cheerio!

Post script added by John, G8DET.

Thank you Geoff for your excellent Newsletters over the past years & your contribution to the Committee.

We wish you well in your "Retirement".