

Chelmsford Amateur Radio Society

Affiliated to the RSGB

President: Dick Brocks G3WHR

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Club Call Sign: G0MWT

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October 1999

The October Meeting

Are you fed-up with the way the Club is run? Could you do better? Well now is a golden opportunity to air your views and really make your presence felt! Yes folks, it's time once more for the Annual General Meeting. The Club's senior officers, will as usual, be delivering their reports - concise we hope!. Our Chairman and Secretary will recall highlights of the Club activities throughout the past year. Our Treasurer will provide an account of where all your money went, having spent the last few days frantically cooking the books! To lighten up the proceedings, he will probably round off his slot with one of his *risque* stories. Our Hon. President and Vice President might be prevailed upon to address us with their thoughts on any matters of their choice!

A new Committee will be elected - see note below. Whether it's the same as last year is up to you! The whole proceedings will be masterminded by our Chairman. Will it be the same one for the second half of the meeting as it was for the first half? Who knows!.

With a little bit of luck the formal proceedings will be completed by tea time. After that we usually sit back and relax and enjoy the Chairman's Forum, a long established tradition, which is a free for all technical question and answer session to round off the evening. However, on this occasion Carl G3PEM will be detailing the results of the membership survey he conducted recently with your help. This is bound to generate a lively discussion!

Our Chairman John G8DET will get us off to a flying start at 7-30pm, sharp, at the MASC, Beehive Lane next Tuesday 6th. October. Don't forget Ela's raffle. It goes a long way to keeping the bailiff away!

Dates For Your Diary

- Oct 5 CARS AGM MASC 7-30pm.
- Oct 6 IEE E-Commerce, Business of the Future?
- Oct 8/9/10 RSGB HF & IOTA Old Windsor, Berks.
- Oct 10 ERG Jumbo Sale 2. 10am - 2pm. South Hanningf'd.
- Oct 12 CARS Committee Mtg. 7-30pm. Ela's QTH.
- Oct 13 IEE Slide Rules - Got one, bring it along.
- Oct 20 IEE Design of Bagless Vacs. (Dyson) - Wanstead
- Oct 27 IEE Cryptography and Electronic Commerce.

Geoff Cockerill G2AMQ

It is with pride that we note that Geoff has been elected Chairman of the IEE Essex Centre for year 1999/2000. He also continues to be the Essex Rep. for the IEE Benevolent Fund which requires many of his skills. It is therefore understandable that he wishes to leave the CARS Committee for the following year so as to concentrate on the IEE. We wish him well with his new honour and have noted the varied program of lectures he has organised for the coming session. CARS Members are always welcome (see above) at Marconi's Baddow at 6pm for 6-30pm.

Congratulations Geoff, and good luck!

Last Month's Meeting - Part One. Essex Rpt.Grp. - Mike G4ZPE and Clive G1EUC

Clive said the presentation would be divided into four parts; who we are, what they are, what they cost and what they look like. He did parts 1 & 3 and Mike the ERG Chairman, for the past 15 years, did parts 2 & 4.

Like all good businesses the ERG has a constitution and an objective i.e., to provide and maintain repeaters and beacon stations in Essex for the use of amateurs. The ERG is the nominated group to look after that service and maintain them in the best state. He outlined the functions of the Committee members, all of which are voluntary. All aspects of radio enthusiasts' are catered for from license holders to SWL's. Member's duties include licensing, applications for new repeaters, funding and siting together with providing publicity on the group's activities. They have an internet site;

"<http://swsystem.demon.co.uk/erg>".

The repeaters are GB3DA - 2m and GB3DER - 70cms. The 10GHz beacon is GB3CMS.

What are they? There is more to a repeater than meets the eye! Basically, there is a transmitter, a receiver which is offset from transmitter frequency, logic control to manage the repeater and a diplexer to feed a single aerial with the TX and RX signals simultaneously. All the units are fed from an uninterruptable PSU or generator. Battery backup has been discarded as it caused problems with the logic unit. This happened one Christmas and was not the best time of year for maintenance!

The diplexers used on both repeaters are of the cavity type made by Teleware and consist of three cavities for TX and three for the RX. They have an insertion loss of 1dB and provide over 90dB rejection at the offset frequency.

Each repeater requires a control unit and these were designed by G8CUL. Two methods of opening the repeaters are in use; the older 1750Hz toneburst and the newer CTCSS system with it's continuous tone of 110.9Hz. which can be heard at low level on the output signal. The two methods of access is a licence requirement. Other functions include PTT and timers to prevent over enthusiastic use (2 mins. on DA and 3mins. on ER), phone-patch, voice ident (CW is mandatory) and remote control. This is done with DTMF tone codes over a radio link for resetting the control logic, if necessary, and also to re-program the logic from a remote location.

The aerials were manufactured specifically for the repeaters by Procom and are of the co-linear type with gains of 3dB for DA and 5dB for ER, both fed with Andrews co-ax. They were cleaned up on transfer to the new site. Experiments have been made with dual band aerials.

The purpose of the 10GHz beacon is to provide a propagation aid and gives its location continuously on CW. It is located at Clive's QTH and the transmitter is mounted in a matching box on his chimney to avoid cable losses. The keyer and PSU are in his shack and connected to the TX via a multicore cable. The aerial is a horizontally polarised omnidirectional slotted waveguide and is almost obscured by TV aerials. Before it was moved from the old site, the beacon had been heard in Scandinavia!

Key Facts	GB3DA	GB3ER	GB3CMS
Freq. IN	145.125MHz	434.675MHz	10.36896GHz
Freq. OUT	145.725MHz	433.075MHz	-
Rpt.Shift	-600kHz	+1600kHz	-
Channel	R5 / RV58	RB3 / RU246	-
Mode	FM	As DA	F1A
Keyer Out.	-	-	GB3CMSJ001HR -(mark)-S
Access	1750kHz T/B or 110.9Hz CTCSS	As DA	-
TX/RX	Tait T198 10 Watts	Tait T196	TX-G3WDG001/G4DDK004. Keyer/PSU-G4FUF
Diplexer	Telewave 6 Cavity Set	As DA	-
Aerial	Procom 3dB Colinear @ 110 above MSL	As DA but 5dB	Hor.Pol.Omni.Slotted Waveguide-16. (K5SXX/WA5VJB0) @120maboveMSL
Logic	G8CUL	G8CUL	-
Location	J001GR,NGR:TL-779-050	As DA	J001HR,NGR TL-787-054
Keeper	Dick Merrell G4GUJ	As DA	Clive Ward G1EUC

What do they cost? With the aid of pie charts Clive indicated the various costs of the repeaters and beacon, which was approximately £5400. The most significant costs being for the recently renewed cavity filters at £1000 each. Recurring costs includes equipment insurance, liability insurance, licences, RSGB affiliation, rally attendance and the annual fee for the hire of the village hall for the AGM. One of the main items of expense is postage, not only for their newsletter but meeting notification and general correspondence.

It is not surprising that fund raising is a major activity and sales of ex-works equipment have been successful raising sufficient funds to start planning new repeaters at Bob M1DAT's QTH for 6m and at Mike's QTH for 23cms. The group is very active and meets monthly to co-ordinate activities.

There was only six weeks notice regarding the enforced site change and Clive eventually got permission to use the EE tower at Danbury but with less favourable aerial positions. Nevertheless reasonably good coverage of Essex has been achieved with only minor black-spots. ER is better on the north side of Essex, whilst DA favours the south. A coverage map will be available eventually.

Repeater abuse does occasionally occur. It is always a cause of grave concern to the Group. They are responsible in this respect to the RA and RSGB and if not managed satisfactorily could suffer licence revocation.

What do they look like? Unfortunately we can't reproduce the series of slides depicting all the hardware. Suffice to say that it was immediately obvious that all the equipment has been constructed and installed to the very highest standards. Great care has been taken to prevent RF entering the control logic circuitry. All control leads are screened and decoupled to prevent RF interference. A complete set of spare units is held. Both transmitters are under-run at 10W output. A mic. socket and loudspeaker are available, so it is possible to QSO from site. Mike and Clive then took questions. The answers have been given in the text above. In answer to a question regarding false operation of car equipment by the 70cms repeater they believed this not to be the case but was more likely to be another commercial system, together with the general RF cacophony in Danbury. It was felt that the choice of 433.92 MHz for car locks was a recipe for disaster!

Before closing their talk Mike and Clive said they would be grateful for any assistance from Members.

Our thanks to them both for an interesting, informative and excellent presentation. *Report by ; G0IPU et al.*

Jumbo Event No.2. ERG Test Equipt.

A further sale of good quality test equipment has been arranged for Sunday the 10th. October commencing at 10am., until 2pm. The venue is, as before, at Marks Farm Lane, Sth.Hanningf'd Rd. South Hanningfield. Contact Murray on 01245-474969 or Mike on 01268-768467 for details.

Computers and the Millennium - Why a Rollover can Cost You! - Murray G6JYB

The dawn of the year 2000 may be the opportunity for a celebration and a great binge but equally it has the potential to bring significant disruption (if not worse) to the people in the so-called developed world which relies so much on the operations of computers. At the last meeting the CARS computer guru Murray gave us an excellent short lecture on the year 2000 (Y2K) problem.

Murray explained that the problem mainly results from computers where the years are generated or stored, etc. with limited 2 digit precision e.g. 99 and not 1999 so that the computer does not know whether the next year 00 refers to 1900 or 2000. As a consequence the computer may or may not perform the operations which are intended to be carried out on 1st January 2000 and so on. A related problem can occur when binary or BCD time counters overflow: that is not necessarily limited to 1st January 2000! So Murray indicated essential test dates for which a system should be tested for correct operation, but pointed out that there are 100's of other potentially vulnerable dates as well!

It is important to realise that these problems do not originate solely in, say, the system BIOS or hardware clock but may be introduced by the operating system or application software, by networks, communication systems or embedded systems, etc., etc.

Of course mention of the vulnerability of embedded systems immediately makes us realise that it's not just the common PC and computer networks, as we know them, which are prone to the Y2K problem but perhaps washing machines, supermarket check-outs, video machines, etc. as well. In fact any system which has a clock and inputs, displays, or outputs a date or stores date information or uses it in any calculation may be vulnerable and needs to be tested.

The year 2000 is only about 100 days away so Murray gave us a general appreciation of the readiness of various sectors of computer users and users to meet the Y2K challenge. Financial Systems, retailers and major PLC's are generally pretty good; the systems of small companies may well be vulnerable; individual old PC's and their software are probably very dodgy and we must remember that not all 'fixes' will work! Above all Microsoft has had to cancel Christmas!

This was a very interesting and topical lecture presented enthusiastically by a professional in the field. Many thanks Murray

Report by Geoff G2AMQ

The Club Net.

Details of the Club nets were given in the August N/L.

Harry G5HF is the net controller for October.

Joint Editors

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Deadline for the next N/L is Wednesday 13th. October.