



Chelmsford Amateur Radio Society

Established 1936

Affiliated to the RSGB Club Call Sign: G0MWT
President: Carl Thomson, G3PEM Chairman: John Bowen G8DET
Treasurer: Brian Thwaites G3CVI Vice Chairman Martyn Medcalf G1EFL



Newsletter No 553

Web Address: www.g0mwt.org.uk

April 2012

This Month's Meeting – Tuesday, 3rd April, 7.30pm at the Marconi Club

“Titanic Evening”

By John Bowen G8DET, Peter Watkins M0BHY and CARS Members

This evening CARS will commemorate the event 100 years ago whereby Marconi designed and built Wireless equipment in Chelmsford, together with Marconi trained Operators, saved 705 lives in mid Atlantic. It must be remembered that some 10,000 souls from 1,000 ships were lost at sea between 1800 and 1900 - some of those ships are only just being found. Marconi Wireless helped end the mystery and saved lives.

Do you have RMS Titanic story to tell? If so come and share it with us.

The new book written by Tim Wander, G6GUX "*Marconi's New Street Works, 1912 - 2012*" will be featured and will be on sale at a special price for CARS Members. A number of CARS Members and Marconi Veterans feature in it. A very good read.

CARS will have the famous Raffle run by Peter Graves, G0KSJ. Please purchase a ticket or two - helps pay for the room and you may even win a lovely prize.

Dates for your Diary

Wed 4 th and 18 th April	Crystal Palace TV Switchover retunes – end of Analogue and Ceefax.
Tues 10, 17 & 24 April	CARS - Net Nights starting at 8.30pm local.
Wed 11 th April	CARS - Committee Meeting, Danbury Village Hall, 7.30pm. All welcome.
Fri 13 and Sun 15 April	CARS - Operating from BAE Systems, Great Baddow using GB100MWT for RMS Titanic
Saturday 14 th April	CARS - Operating from Oaklands Museum for the RMS Titanic Centenary Event
Saturday 21 st April	CARS - Operating from Sandford Mill for International Marconi Day (IMD)-GB100MWT
Tuesday 1 st May	CARS - Meeting – “The Future of the RSGB” by Bob Whelan, G3PJT, RSGB Chairman. Local Clubs are invited to attend.
Sat 12 th & Sun 13 th May	CARS - Operating GB5SM from Stock Windmill – Mills On The Air weekend.
Sunday June 3 rd	W&S Open Day - See ERG+CARS Training
Saturday 23 rd June	CARS Operating from Sandford Mill using GB100MWT to commemorate the opening of New Street and the International Wireless Conference visit 100 years ago.

To be/remain a Member of CARS, send a Cheque for £12 – Adult Membership (16s and under are FREE) to:- Mr Brian Thwaites, 118 Baddow Hall Crescent, Great Baddow, CHELMSFORD, CM2 7BU.

If you would like a receipt, please enclose a stamped addressed envelope with a 2nd class stamp.

May we remind you that if you have NOT paid your Subscription for this year you may be deemed to NOT be a Member of CARS and NOT entitled to a Newsletter etc.

Thanks to Geoff, G7KLV for sending the postal Newsletters – could it go by E-Mail?

Please inform Geoff, G7KLV by E-Mail of any changes to your callsign, postal or E-Mail address, etc. E-Mail him on g7klv@g0mwt.org.uk Only by YOU sending Geoff your E-Mail address, can we ensure WE get it right!

Club Nets: Tuesdays 8.30pm: (2nd) GB3DA: (3rd) GB3ER: (4th) 1.947/50: (5th) 28.375. All MHz +/- QRM.

Net Controller for April – Keith Haynes, G3WRO, Harlow.

Thanks to Mark, M0IEO for March.

Last Month's Meeting:- "Professional Antenna Measurements" by Andrew Tyler, G1GKN.

Andy began his talk by explaining how his career in antenna measurements started some 25 years ago when he joined the staff of the test department at Marconi Radar Systems, Chelmsford. This was about the same time it seems as fellow Club member Sean Jones, who was in the audience. After some few weeks Andy was asked to work at Rivenhall Aerodrome at that time a very active Marconi site testing all manner of radar scanners of all shapes and sizes. Testing is done to ensure conformity to a specification or to gain type approval. In critical life safety situations, every antenna is measured and optimised; others may just be done on a batch basis.

As antennas come in all shapes and sizes, so do the methods of testing them, as well as the types of associated test equipment. Andy went on to describe in detail the various approaches covering both indoor and outdoor specialist facilities, which he illustrated and explained.

Measurements as we know, can be made either close to an antenna (near field) and at a distance (far field) – also known as NF and FF for short.

Andy kept the mathematics to the minimum but the basic distance for the far-field is $R > 2D^2/\lambda$ where:-

D is the Antenna's largest dimension and is in the same units as the wavelength.

R is the 'Rayleigh Distance' (after Lord Rayleigh of Terling) – which is the point where simplistically the NF changes to FF. and is the minimum FF distance.

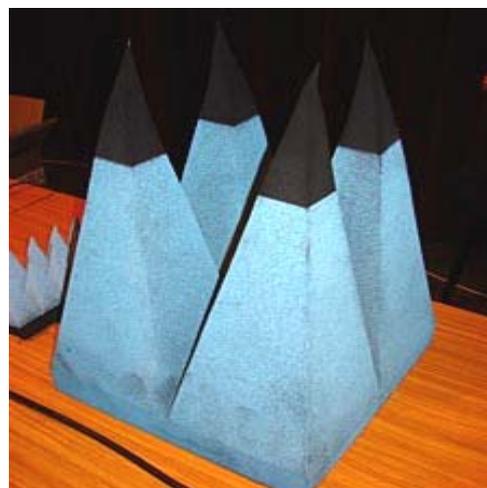
With large HF antennas, the field is checked with Field Strength Meters fitted with active loops and calibrated to read dBuV. The instruments are moved in a specific pattern of points around the antenna and readings taken. Knowing the power fed to the 'Antenna Under Test' (AUT), the gain for each point can be calculated and the radiation pattern plotted. The Sky Wave pattern can be plotted similarly but with more difficulty, and might require an aircraft, a helicopter, or balloon perhaps. The results obtained can be compared with the many established theoretical graphs of power with distance.

For antennas at VHF and above, FF test ranges can be used. A stable signal source is used to feed a remote source antenna. The AUT is located at a distance greater than the Rayleigh distance from the source antenna and is rotated about its axis. A dedicated receiver or network analyser is used to measure the received field. Patterns are plotted in real time using a specialist pen recorder and saved to a computer. In all cases Ground reflectivity must be considered and on occasions it is necessary to mount the remote source and AUT high up to reduce ground reflections. Two hills with valley between them can sometimes be utilised, as can diffraction fences mounted between AUT and source antennas.

Far-field testing needs a lot of space and Andy stated that Rivenhall although now sadly closed, was one of the better antenna test ranges in Europe.

Indoor testing is usually done in an Anechoic Chamber (Greek for no reflections) where well defined conditions can exist and disturbance-free RF measurements can be made. Square, rectangular and tapered chambers are employed and we saw a few examples of these.

All chambers lined with RF absorber, usually in the form of cones. Each cone is made from open-cell foam impregnated with graphite. The shape is intended to give a smooth transition from free space into the lossy cone. One of the most important parts of the cone is the tip; they are not painted because the paint makes the tip brittle/fragile. As well RF being absorbed, so are all the audio frequencies, which make Anechoic Chambers, seem very dead and can disorientate some people. Small FF chambers can only be used for small antennas in 1 to 100 GHz range. Many variations of the above techniques were covered and a lot of ground was covered including methods such as using standard horns to measure gain at microwave frequencies, using a cylindrical near-field test range, spherical ranges with roll-axis and arches and Planar scanners.



RF Absorber - Photo by Trevor, M5AKA

Andy showed that from the measured data a powerful technique analogous to Holography enables displaying the phase and amplitude distribution over the antennas surface. This is invaluable for diagnostics and aligning assemblies. The receivers used are high tech and very expensive Vector Network Analyser at £50K for measuring Insertion Loss and VSWR, at frequencies up to 1.05THz !!

Measuring your own Antenna. Why not build or buy a field strength meter. If you make it and calibrate the meter scale in dB or alternatively fit a stepped attenuator in the RF line. It can be used to make relative measurements of the groundwave around your antenna, and you should be able to see what direction your antenna works best. Contact Andy for a circuit and advice: - andy.g1gkn@btinternet.com

All this and more! Much more!! Thanks Andy for most illuminating talk! **Colin Page, G0TRM.**

This Month's Radio Sport (Contests) - All in Local times.

1 April – First 70MHz contest – 09:00 to 12:00 UTC **1 April** – RSGB- RoPoCo – CW – 07:00 to 08:30 UTC
2 April – RSGB Club – CW – 20:00 to 21:30 Local **11 April** – RSGB Club – SSB – 20:00 to 21:30 Local
14/15 April – Japan International DX–CW– 30 hrs **15 April** – First 50MHz Contest – 09:00 to 12:00 UTC
19 April – RSGB Club – DATA – 20:00 to 21:30 Local

For further information please email Steve G4ZUL contests2012@q0mwt.org.uk

Steve, G4ZUL

CARS Propagation Forecast for this Month.

Asia: Dhahran around 18:00 on 24.9 MHz for 84 per cent of days, with poor signals.
Oceania: Sydney around 18:00 on 10.1 MHz for 76 per cent of days, with poor signals.
Africa: Johannesburg around 20:00 on 10.1 MHz for 96 per cent of days, with fair signals.
S. America: Rio de Janeiro around 22:00 on 10.1 MHz for 83 per cent of days, with poor signals.
N. America: Saskatoon around 06:00 on 10.1 MHz for 79 per cent of days, with poor signals.
Reports are reaching CARS that some Bands are picking up after the Sun Spot event.

Gwyn, G4FKH

CARS 2 Metre Net on Tuesday, 13th March.

The Net got under way at 20:30hrs sharp, those taking part were; 2E0KIL, Terry in Chelmsford; G1EFL, Martyn in Springfield; G3WRO, Keith in Harlow; G1FOA, Peter in Chelmsford; H5HF, Harry in Writtle; G3EDM, Geoff in Danbury; G0TRM, Colin in Danbury; G8DET, John in Danbury; M0GHH, Clive in Chelmsford; M0BQC, David in Chelmsford; 2E0RMI, Jim in Springfield; M3PWW, Paul in Milton Keynes; M0FZW, Norman in Canvey Island; M3RVA, Richard in Birmingham; G4MDB, Bob in Springfield; M6BCK, Tom who came in as we were wrapping up and M0IEO, Mark from Canvey Island who was in the Chair for the evening.

All signals were excellent into the Repeater. Even Harry, G5HF was a strong signal using 5W from a handheld radio using the supplied rubber antenna. The two surprises of the evening were from Foundation License holders, M3PWW Paul, was calling in from Milton Keynes and gave a 5/9+30db from GB3DA, claiming that we were the strongest Repeater in the band and stronger even then his local Repeater. The other surprise of the evening was from M3RVA Richard from Birmingham, he gave a 5/6 report from GB3DA and reported that he had good audio from the Repeater. Norman M0FZW reported that there had been a lift on 2m for most of the day and it was noted that we were on the tail end of that.

Subjects covered included Terry, 2EKIL and Keith, G3WRO who have both just purchased HF radios and are now trying HF contacts for the first time; Clive M0GHH who was asking about removing moss from his lawn; Peter who told us about his recent visit to Wales where he was working some summits on the air in between rain and high winds; Jim, 2E0RMI who reported that his wife Ann has had an accident and broken her pelvis (we wish Ann a speedy recovery); and Martyn G1EFL who is visiting the Olympics site on Wednesday 14th March for a look at what has been completed. All in all it was a good net with 17 stations including myself on air. My thanks to all stations who called in and worked the net, and those able to access the repeater but were unable to provide enough signal to be heard. An excellent evening's entertainment on the radio, it made a change to be able to spend the evening on air instead of answering emails for the RSGB! My thanks to all who took part.

Mark Sanderson, M0IEO. VHF/UHF Net Controller for March.

President Jottings – April.

Our last meeting gave an insight to the methods that large company organisations take to verify the performance of the aerials that they sell to various bodies around the world. The illustrated talk by Andy Tyler showed the test gear used and the advancements made in measurement technology. Thank you Andy for producing and delivering such an informative talk on the subject. Next month our attention turns to the anniversary of the sinking of the Titanic and the loss of life this disaster caused. Your committee has arranged several events during the month and I urge all members to support the operating days and show the flag for CARS. **Carl, G3PEM. President**

Practical Wireless – April Issue

Martyn , G1EFL and Val popped into the QTH of G8DET and delivered an April copy of PW which proved to be a very good Radio Amateur read besides a nice piece on Martyn as CARS Amateur of the Year.

John G8DET

Worked All Britain Award

The Worked All Britain Awards Group has invited CARS to provide a station in Chelmsford on Saturday, 7th July. Chelmsford Borough Council have invited CARS to operate from Oaklands Museum EARLY as the Olympic Torch is carried through Chelmsford. Please put this in your diary – more details next month.

John G8DET

Falklands Conflict - 1982

About this time 30 years ago a Task Force set sail for the Falkland Islands – Vice President Geoff Mills, G3EDM was in contact with Radio Amateurs “down that way” and his account will be published next month.

John G8DET

CARS Operating Commitments during April, 2012.

Friday, 13th April and Sunday 15th from 10 to 5pm at BAE Systems, Great Baddow, Chelmsford. Titanic Event This will be a SSB station using the CARS Special Call-Sign, GB100MWT in conjunction with the RNLI. Details will be E-Mailed nearer the date as to access to this secure site.

Saturday, 14th April from 10 to 5pm at Oaklands Museum, Moulsham Street, Chelmsford, Titanic Event.

This will be a SSB station using the CARS Special Call-Sign, GB100MWT. Public FREE.

There is a superb exhibition at the Museum; RMS Titanic and Marconi, New Street 14th April – 8th July.

Saturday, 21st April from 10 to 5pm at Sandford Mill, Chelmsford, International Marconi Day –

CARS is an IMD Award Station. This is a CBC Public Open Day, FREE Parking and FREE Entrance.

There will be a CW Station organised by Gwyn, G4FKH with assistance from Members of the CW Group, “Up Stairs” using an aerial provided by Tony, G4YTG and using the CARS Special Call-Sign, GB100MWT.

Additionally, Brian will co-ordinate the SSB Station operating from the Marconi Hut and using CARS now famous 80Metre Doublet hung over the weir. This station will also be GB100MWT.

Your Committee requests your attendance as an Operator, Logger, Host or simply your support.

John G8DET

Congratulations

Congratulations to the following for being Members of the RSGB for many years:-

Brian Thwaites, G3CVI-65 years; Geoff Mills, G3EDM-64 years; Arthur Wreford, G3EHZ-63 years;

Ken Dews, G3PMW-61 years; David Penny, G3PEN-55 years; Willy McClintock-51 years and CARS President, Carl Thomson, G3PEM- 50 years.

And so say all of CARS!

And Finally:-

John G8DET edited this edition. Material by Trevor M5AKA; Steve G4ZUL; Gwyn G4FKH; Murray G6JYB; Andy, G1GKN; Mark, M0IEO and Carl G3PEM.

Closing date for the next Newsletter – Friday 20th April 2012.