Chelmsford Amateur Radio Society

Newsletter

June Meeting

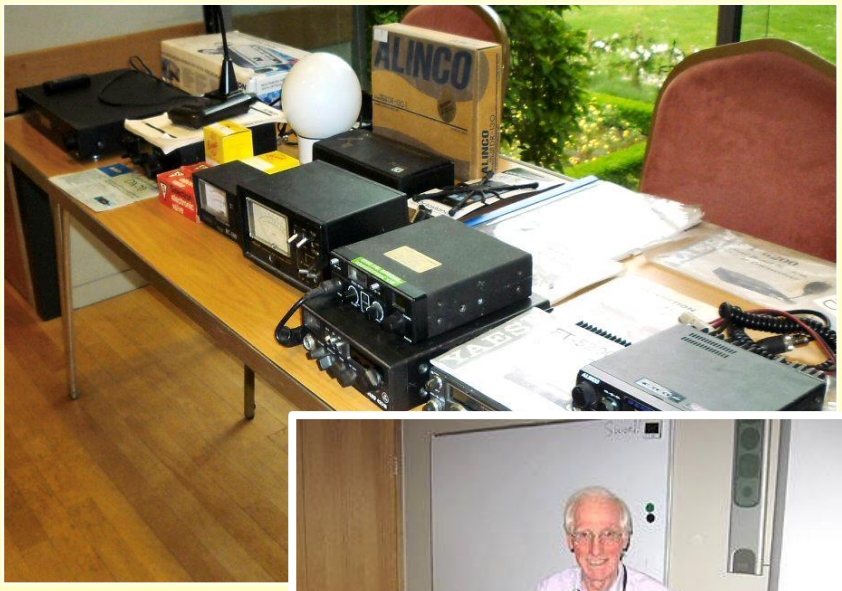
Tue 6-Jun-2017, 7.30-10pm

Oaklands Museum, Moulsham Street

"Table Top Sale"

By CARS Members

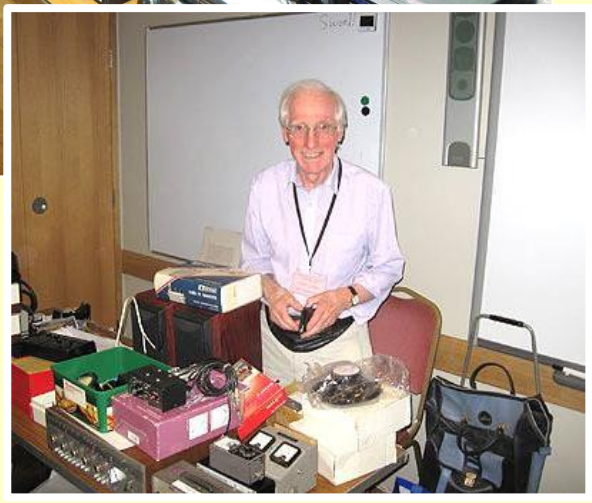
In order to assist with construction and recycling, our June meeting will be the Radio and Electronics Tabletop Sale, coordinated by CARS Secretary Colin G0TRM.



All radio amateurs, swls and other electronic enthusiasts are invited to attend as sellers, buyers or just viewers.

All good condition amateur, audio, electronic, electrical, photographic, computer and associated equipment may be offered for sale.

- Tables £3
- Free entry to buyers and viewers
- Sellers – entry from 6:30pm
- Buyer - no entry until 7:30pm
- REFRESHMENTS AVAILABLE
- FREE CAR PARKING



FOR FURTHER DETAILS CONTACT: Colin Page G0TRM:-

- T: 01245 223835
- E: colinpage@ukgateway.net

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Club Diary

Tue 06-Jun-2017	Meeting: Table Top Sale	Chelmsford – Oaklands Museum, 7:30pm
Mon 19-Jun-2017	Skills Night - June 2017	Danbury Village Hall, 7pm
Tue 04-Jul-2017	Meeting: Three Short Talks	Chelmsford – Oaklands Museum, 7:30pm
Sun 09-Jul-2017	Science Discovery Day: The Great Outdoors	Sandford Mill, 10am-4pm
Tue 01-Aug-2017	Meeting: Constructors Competition	Chelmsford – Oaklands Museum, 7:30pm

Club Nets

CARS meets for talks/events on the first Tuesday of the month. The subsequent Tuesdays have club radio nets as follows:-

- **2nd Tuesday in the Month - VHF**
  The CARS VHF FM Net uses GB3DA from Danbury starting at 8pm (local).
  GB3DA is 145.125MHz Input and 145.725MHz Output - and CTCSS-only (110.9Hz), 2min timeout
  If for any reason GB3DA is not available then 145.375 Simplex will be used. Vertical aerials are best for this
- **3rd Tuesday in the Month - UHF**
  The CARS UHF FM Net uses GB3ER from Danbury and starting at 8pm (local).
  GB3ER is 434.675MHz Input and 433.075MHz Output - and is CTCSS-only
  Vertical aerials are best.
- **4th Tuesday in the Month - HF**
  The CARS 80m Net on "3756kHz" Night, SSB and starting at 8pm (local).
  Horizontal aerials are best. The idea is to enable distant CARS Members to join the Net.
- **5th Tuesday in the Month (when there is one!) - MF**
  This is the CARS Top Band Net on 1947/1950 kHz +/-QRM, LSB and starting at 8pm (local).
  Horizontal aerials are usually used for this Net. A reminder - limit your power to a max of 30 Watts, please.

Training Dates

CARS Intermediate Course-16 is close to conclusion with its exam scheduled for Thursday June 8th

Please note the following if either you are interested, or know some who may be…

Course	Dates	Comment
Advance Exam-19	Thu 6th July	Registration for Advance must be 4wks beforehand. The session can also accept Foundation/Intermediate exam-only
Foundation-36	Sep-7 to Oct-12	Register your interest now!
Advance Exam-20	Thu 7th Dec	Registration for Advance must be 4wks beforehand. The session can also accept Foundation/Intermediate exam-only

Contact: Chris Chapman G0IPU, training2017@g0mwt.org.uk Web: www.g0mwt.org.uk/training

Morse Classes: These are run by Andy Kersey G0IBN at Danbury in parallel to the main training courses. The last class of the current session is on Thursday June 8. They will re-start after the summer break on Thursday 7th September.

Follow @TrainWithCARS

May Meeting Report

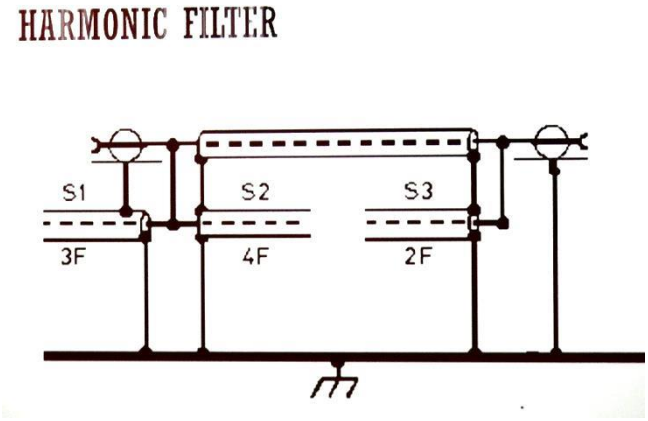
The meeting opened with a presentation to our retiring Newsletter Editor Steve Webb G4GHO with a certificate and Honorary Membership to CARS.

Our speaker John Regnault G4SWX for the evening was introduced as a previous presenter of topics at our meetings, on Moon Bounce and Remote Control stations. His subject this time was “Coax a Flexible RF Component.

John first of all introduced us to the many and varied types and constructions of existing types of coax from tiny “string “ to large, almost rigid Heliax, showing samples and giving us the characteristics and conventional uses in practice today.

He then told us the coax could be used as a component to act as Transformer, Capacitor, Inductor, Attenuator and showed a few examples in VHF and UHF units. Using lengths of coax lines of different impedances matching conditions can be arranged by both series and or parallel connections.

John then went on to remind us of our transmission line and aerial theory whereby sections of transmission line (esp.coax) .cut in lengths of ¼ wave multiples can be made to perform as impedance changers.



A ¼ wave section open at the ends looks like a short circuit at the entry, and a short at the end looks like an open circuit at the entry, or parallel tuned circuit when shorted and a series tuned circuit when open.

Using these facts John introduced lengths which were ”¼ wave Stubs” which were components able to provide frequency selective short or opens at points along a feeder.

A short circuit stub at the transmitted frequency would look like a short to the second harmonic and an open to the transmission frequency.

Placing tuned stubs at tuned lengths along a feeder can be used to reject or accept frequencies from the feeder to the next unit or aerial

John showed us some coax units cut to act as stable and cheap effective substitute for cavities for repeater use, made from lengths of large diameter heliax (Mobile phone offcuts) with trim caps at the ends.

Using frequency filters stubs placed at stub length points on the feeder and back to back similar for another freq. will produce a diplexer, where each source does not see the other, as a block filter is in the path.

Band pass filters can be arranged by using tuned stubs cut to

close adjacent frequency where the skirts of the filter response overlap.

John told us the although most of his illustrations were at VHF they could easily be used at HF where a stub made of a coil of cheap cable on the floor or hung in the shack would provide effective isolation (special event stations using multiple gear on different bands.) or break in, from nearby commercial services.

John said that as VHF and UHF small cable can have a high loss, a coil could be used to reduce the level to a linear aerial or other device.

The talk was very well presented and we all enjoyed the light hearted way John illustrated the items and answered the few questions and points raised. Thanks John!

Tony G4YTG

CW Boot Camp 2017

The Essex CW Club (ECWARC) is pleased to announce that the results of our Boot Camp survey make it clear such an event will be very welcome. It has been decided therefore to go ahead. The date will be **Saturday 21st October 2017.**

Some of the areas of strongest interest recorded were Morse progression, contest techniques, twin paddle operation, and RSGB testing. Many respondents also listed supervised on-air operating for the novice. We will cover all these areas and others as well.

The response indicates that we will have to limit the number of places. If you wish to be included, please register as early as possible your intention to attend and list your areas of interest in order of importance. We are requesting a minimum donation of £7.50 on the day to cover the cost of hall hire, refreshments, etc. Places will be allocated on a first-come-first-served basis. Our email is info@essexcw.org.uk.

This promises to be an exciting and informative event. We have some excellent speakers and operators who will answer all your questions, give demonstrations and tuition, and help you to achieve your goals in CW operating. You will also have the opportunity to meet many other like-minded enthusiasts in what promises to be a first-class seminar. We look forward to seeing you!

***Venue*:**
3rd Witham Scout & Guide HQ
Powers Hall End
Witham
Essex
CM8 2HE

May Skills Night Report

Monday evening, 7pm May 15th 2017, was another well-attended Essex Skills Night. Skills Coordinator Pete M0PSX had added a variety of new activities for this popular event (now in its fourth year).

Sarah Sipple M6PSK – in her fourth year of Skills!

Kristian M0SSK with Zena M6KZP & Dorothy M0LMR

Dean G4WQI showing N1MM Logging to Paul G4PVM

Jim 2E0RMI with an Echolink demo via ERG's MB7IDA

Essex Ham demos/guides – inc high altitude ballooning

The above are just a sample from the evening – more are on the CARS Website report at:-

http://www.g0mwt.org.uk/skills/cars-skills-may2017.htm

The next Skills evening is on Monday 19th June at Danbury Village Hall.

Our thanks to all who make the event possible!

- And do get in touch, if you have something to offer….

More on Skills: www.g0mwt.org.uk/skills/

TV Digital Switchover-2

Remember the end of analogue with TV DSO-1 in 2012? That cleared 800MHz (UHF Channels 61-69 at 790-862 MHz) for 4G phones. Well Europe including Ofcom are starting to clear further TV frequencies at 700 MHz for 5G. You may remember a popular talk I gave in March-2014 here…

http://www.g0mwt.org.uk/meetings/past14-jan-march/index.htm (doesn't time fly!)

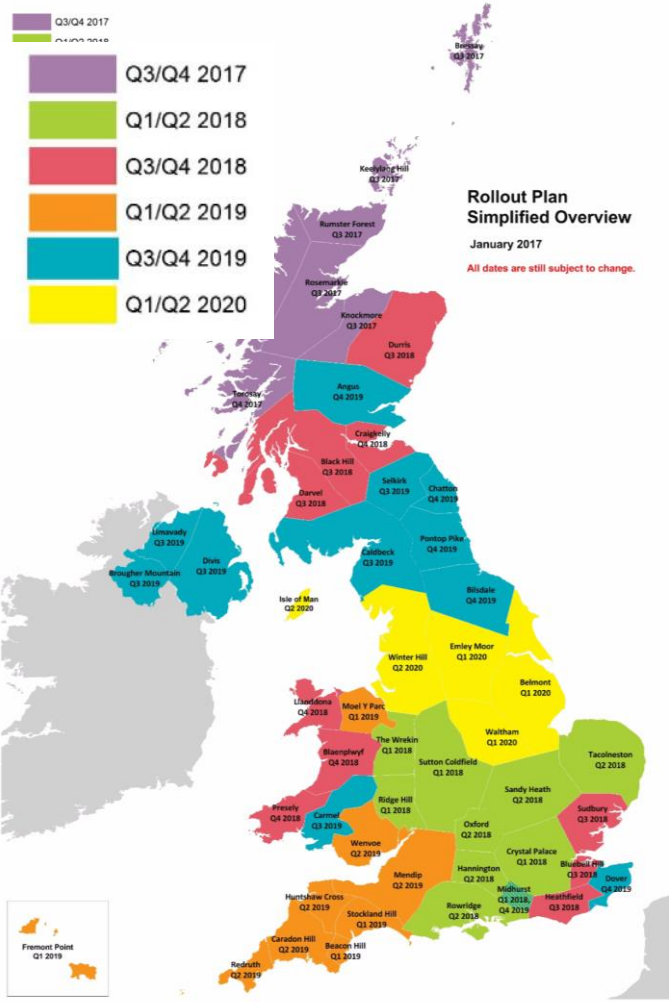
In November 2014 Ofcom confirmed its decision to clear and sell more at 700 MHz (UHF Channels 49-60 at 694-790 MHz). Ofcom already have a plan for this next stage and have been considering interference issues and how many new aerials and filters will be needed for the new 700MHz exercise.

Pictured right is the map of the provisional timetable. In fact the first area to undergo TV Switchover-2 was the Selkirk area near the Scottish Borders in March 2017 (rather than waiting until 2019).

Latest Info from DigitalUK suggests they are going quicker than the timetable on the map. See here:-

http://www.digitaluk.co.uk/operations/700mhz_clearance

In 2018 it will reach us and has particular implications for Sudbury watchers which currently is on frequencies that will be sold off



Murray G6JYB

Digital TV Aerials in Springfield

Following up Murray, G6JYB's comments on TV stations and Ofcom's idea of rearranging the existing allocated channels so that they can flog off frequencies to mobile phones, I thought I would have a go and see what I could achieve with the TV aerials I brought with me from Danbury – they were simply lying in the roof unused. Murray says that Sudbury's frequencies are really on the move in 2018.

The first thing I found was an existing "E Band "Wide" Aerial" mounted inside the roof aimed at Sudbury and receiving pretty well signals from Mux 41 to 58.

I really want to keep BBC East and ITV Anglia as I do not want the so called "News from London" – dreadful – however I do like looking at SOME programmes from London Live, Channel 8 on Mux 29 at 538MHz - but this not really watchable off the back of the existing K Aerial.

The first aerial I found was a 18 element C/D Aerial. I thought ideal for Sudbury – and indeed it was. It had slightly more gain than the K Aerial with less occasional drop-outs. However, I found there were a few stations which were poorer. These belonged to multiplexes on Channel-41 on 634 MHz; Ch-58 on 770Mhz and Ch-60 on 786 MHz. Mux 44 and 47 being the strongest.

Hunting around I found an 18-element Group-B aerial, I used to use for Sudbury. This proved better than the Group-C/D aerial and used a different range of channels – no longer was Mux 56, 58 and 60 in use. Good quality (100%) signals seemed to be obtained on most channels.

The third aerial I found was a 10-element Group-A aerial for London. I attached this to the roof rafters with string and pointed it to Crystal Palace. Did a Retune and indeed got a reasonable signal on most channels except London Live - Quality 20%, Strength 3% - just watchable.


Some of Johns TV aerials

Next challenge was to provide these two with a Band "A" and "E" Diplexer – when fitted this had basically no visible detriment on Sudbury or London signal levels.

I then found an 18-element Group-A aerial and swapped it for the shorter one – success – generally very strong London signals – so strong the TV did not want to bother with Sudbury! I had to force the tuner to reorganise the stations so that I did have BBC East & ITV Anglia instead of all London stations.

London Live came up to 80% Quality and 20% Strength with zero Bit Error Rate. BBC and ITV London were available on my channels 800 to 806.

I have a 42" Panasonic television. Most TVs will have a Menu system somewhat similar.

- Click on "Menu" – "Setup – click - DVB Tuning Menu" – click - "Auto-Tune" – click for a full retune.

If the stations are not to your liking you can rearrange them so:-

- Click on "Menu" – "Set-up – click - DVB Tuning Menu" – "Channel Sorting by Region" - click.

I had 3 Options: -

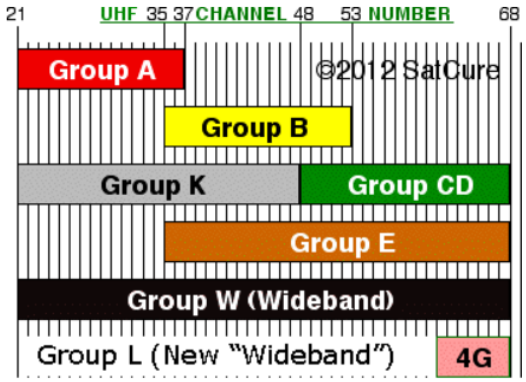
(i) Best Signal Quality (All Regions) – I my case this gives all London Channels.
(ii) GBR – nothing seems to happen with this option.
(iii) England Regions. Click – I my case it then says something like "Not available" but click anyhow and it does provide the Options of "London" or "Anglia". Select "Anglia" and I get what I want.

TV Channels 100 to 113 on London UHF-Ch30 are for HD only, but only 40% Quality and Strength.
My Mux 29 is somewhat weak but UHF Ch-33 on 570 MHz has Channel 124 on it for CBeebies HD and is stronger – I wonder why?

Quite frequently the TV displays an announcement that a "Retune is required" – mainly to add more dreadful channels I am not interested in – what a bore!

Don't forget to drop two coaxial cables from two aerials into the roof area if you are involved with outside aerials so that you can play without using ladders etc. All my coax I now use is Satellite "copper foil and copper braid screen" with F Connectors.

Aerial Groups (#chart)



For convenience, the UHF (Ultra High Frequency) spectrum in the UK is divided into "groups" of channels from 21 to 68.

UHF aerials are manufactured to provide good reception in a specific group so it is a good idea to determine the "group" used by your chosen local transmitter and buy a suitable aerial.

More modern aerials are designed to try to ignore channels above number 60, which are now used by 4G phones.

The colours in this chart represent the colour of the plastic end cap fitted to an aerial of that "group".

A so-called "wideband Yagi" aerial usually works best in the channel range 35 to 68 (see graph above) so it will not provide a strong signal from a "Group A" transmitter, such as Crystal Palace or Rowridge. Indeed, because it works best for channels higher than those in "Group A" it may collect a lot of interference from other transmitters. The peak gain (signal collection) of a "wideband" aerial is not as high as the peak gain of a "Group" aerial of a similar size.

Useful Link: DigitalUK Coverage Checker - http://www.digitaluk.co.uk/coveragechecker/

(and tick the box for more detailed results)

John Bowen G8DET

Help Wanted !!

- **Chairman**
- **Newsletter Editor**
- **Newsletter Items**
- **PR Officer**

Editor: editor@g0mwt.org.uk **Newsletter and Archive:** http://www.g0mwt.org.uk/newsletter