

G3WSC
G6RC
GX3WSC

CARC News Bulletin

December - January 2017/18

Editor: John G4PEO

qslmanager@carc.org.uk

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Crawley Amateur Radio Club

Other Clubs

Horsham ARC (HARC)

www.harc.org.uk

7th Dec: AGM

Jan 2018: TBA

Crystal Palace REC

www.g3000.co.uk/cprec

1st Dec: Xmas Social

5th Jan: Video Evening

Sutton & Cheam

<http://scrs.org.uk>

14th Dec: Xmas Junk Sale

18th Jan: An Introduction to Morse Code - Dan, KB6NU

Mid Sussex ARC

www.msars.org.uk

1st Dec: Xmas Dinner

15th Dec: Xmas Quiz

Jan 2018: TBA

CATS (Coulston)

www.catsradio.org

11th Dec: AGM

Jan 2018: TBA

Dorking & District Radio Club

<http://www.ddrs.org.uk/>

7th Dec: Xmas Dinner

Jan 2018: TBA

Bromley & District ARS

<https://bdars.wordpress.com/>

19th Dec: Xmas Quiz

16th Jan: AGM

Other Meetings/Events

2nd Dec: ML&S Hog Roast

<https://www.hamradio.co.uk/>

CARC DATES

December 8th (Friday)

Club Annual Fish & Chip Supper

January 24th (Wednesday)

AGM

February 28th (Wednesday)

The History of the Magnetron

From WWII to the Kitchen, Mike, G3LHZ



CRAWLEY AMATEUR RADIO CLUB

www.carc.org.uk

CARC meetings are held in our clubroom at Tilgate Park, Crawley, West Sussex.

Every Wednesday: 8pm

Every Sunday: 11am - 1pm

Formal events are normally held on the last Wednesday of the month, 7-30pm for 8pm.

Updates to the CARC Programme:

<http://carc.org.uk/events>

or contact **Richard, G3ZIY:**

Richardg3ziy@gmail.com

For further information about CARC, please

Contact the Hon Secretary, **Phil, M0TZZ:**

secretary@carc.org.uk



From the G3VJM Photo Archives, the 23cm Dish Built by Derek, G3GRO, for VHF Field Day, sometime during the 1980's

Local Repeaters

GB3MH: 145.625/88.5(FM) **GB7MH:** 439.6375(D-Star/DMR)

GB7EG: 439.7625(DMR) **GB3WS:** 145.750/88.5(FM) **GB3NX:** 430.850/88.5 (438.450)(FM)

GB3NS: 439.675/82.5(FM) **GB7NS:** 439.1625(DMR) **GB7ID:** 430.975 (438.575)(FM/Fusion)

GB3HO: 430.8875/88.5 (438.4875)(FM) **GB3HY:** 430.900/88.5 (438.500)(FM)

Local DX Cluster

GB7DXS : Telnet 81.149.0.149 Port 7300

Chairman: Keith Evans (G3VKW)
Vice Chairman: John Pitty (G4PEO)
Training Lead Instructor: Malcolm Harman (G3NZP)
QSL Manager/News Editor: John Pitty (G4PEO)
Committee Member: John Longhurst (G3VLH)
Shack Manager: Mike Davies (GOKAD)

Hon Secretary: Phil Moore (M0TZZ)
Hon Treasurer: Howard Palmer (G4PFW)
Exam Secretary: Phil Moore (M0TZZ)
Committee Member: Richard Hadfield (G4ANN)
Committee Member: Alex Sheppard (M1YAP)
Programme: Richard Drinkwater (G3ZIY)

Calendar Items - December and January 2018

Friday December 8th: Fish & Chip Supper

Time again for the popular CARC fish & chip supper, organised by Jane, (XYL G3VKW), and Lorna, (XYL M0TZZ), with G3VKW and M0TZZ as their 'little' helpers... By the time you read this bookings will have been closed, so if you forgot to put your name on the list this time round, make a note in your diary for December next year!

Wednesday January 24th: CARC AGM

As always, please make every effort to attend *your* AGM which will commence at 2000hrs sharp!

Previous Meetings & Events

How the world Wide Web Works - Stuart, G3YSX

Or, as subtitled by Stuart, 'How the Internet plumbing functions.' Stuart's talk first gave us an insight as to the origins of what we take for granted today, and then went on to describe how, despite there being approximately 1 billion internet hosts, 3 billion users, and used by 50% of the worlds population, the Internet currently functions in an almost relatively seamless fashion.

So how did the name 'Internet' actually come about - well simply by combining the description given to the original concept - INTERnetworking NETworks, which was initially conceived in the early to mid 1960's with research into packet switching. Following on from that was a project to interconnect university campuses called ARPANET which was developed in the late 1960's, leading to the 1st network comprising 4 nodes in December 1969. The rest as they say, is history.



Stuart G3YSX (Photo G4PEO)

HARC - CARC Challenge

G4PEO, G3VKW, G4ANN, G3YSX, G3ZIY & G3VJM were the CARC representatives for the 2017 HARC - CARC Challenge, and this year it was the turn of Horsham to act as hosts.

The challenge turned out to be a variation of a previous fun, but tricky theme devised by Paul, G4TMC. We split into competing teams of three, which allowed two teams from CARC, and two from HARC. The teams were presented with a number of black plastic boxes that had terminals attached, and each box contained a 'component' or electronic/electrical item that had to be identified just by using a multimeter set to ohms



connecting to the terminals. The variation to the theme this time round was that each 'item' had to be precisely identified in order to fill in the missing letters relating to that item, that were partially listed on a separate sheet of paper. In the event, the G4PEO, G3YSX and G3ZIY CARC team identified and also correctly filled in the missing letters re all the mystery items, as did a team from Horsham. It then went to a tie break and again both HARC/CARC teams answered correctly. So at this stage it was decided a draw would be the best outcome! CARC will be hosting next years event, so if you have any (fiendish!) ideas please let Keith, G3VKW know..

Photos, courtesy Adrian, G4LRP



The 4 teams with Paul, G4TMC (standing) overseeing the proceedings



Previous Meetings & Events - cont:

CATS Bazaar - Coulsdon

Full marks to CATS for another well organised Bazaar, which also turned out to be another successful outing for the CARC team of **G4PEO**, **M0TZZ**, **G4PFW** and **G3VKW**, where a lot of our offerings were actually sold in a mad rush prior to opening, and before we had even taken them out of the boxes, which also happened last year.. Bees round a honey pot came to mind!

Howard booked two tables but we ended up with three thanks to the generosity of the organisers, so didn't really need the 2 additional (new) tables we had also taken with us.

Hopefully, the Oasis Academy, Coulsdon, will become the Bazaars permanent home, being that it is such a good venue, although a shame they didn't offer bacon rolls this year, although tea/coffee/cakes/pasties etc; were available..!



CATS Bazaar - In this shot there are 5 CARC members and 2 ex CARC members... Photo G4PEO

Transmission Lines - Richard, G3ZIY

'Simple in concept; easy to use correctly; behaves badly when misused.'

Were the opening statements in Richard's very interesting discussion on transmission lines, a topic that is often not fully understood but quite often taken for granted, whereas a little bit of thought and understanding can pay dividends.

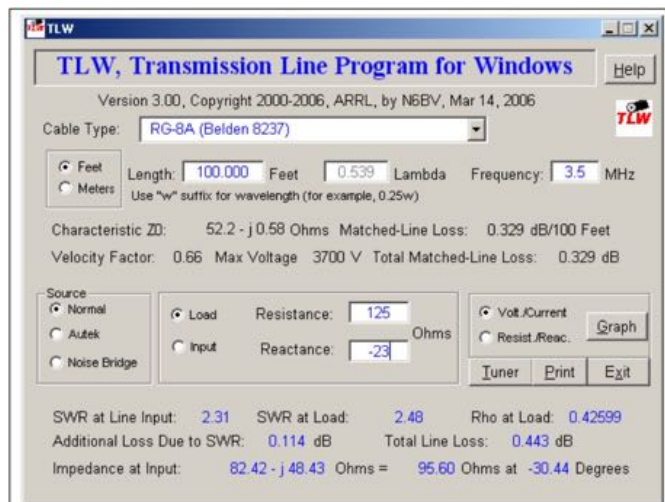
Richard expanded the theme by explaining the features and characteristics of balanced and coaxial feeders, which scenarios are best suited for each, and, just as importantly how to care for them, including not subjecting them to 'abuse' hence ensuring longevity and fault free operation.

For instance, coax when stored should have it's ends sealed to prevent it from 'breathing' and drawing in moisture. On a run to an antenna, coax should not be buried in the ground as the sheath could be damaged by stones or other foreign objects allowing ingress of water.

Richard also described a very useful software package written by N6BV, titled Transmission Line Program for Windows' (TLW), which allows a number of parameters to be entered, including cable type, in order to discover the various attributes associated with that cable over a given length and frequency.

The program, and associated comprehensive (19 pages) user manual is normally found on the CD that accompanies the ARRL Antenna Handbook publication.

Many thanks to Richard for taking the time to help us improve our knowledge and understanding of transmission lines via his very interesting presentation.



Club News

Next CARC Construction Project - Alan Jamieson, VK5ZFJ / M0IJP alanjam@senet.com.au

The results of the survey of project preferences were:

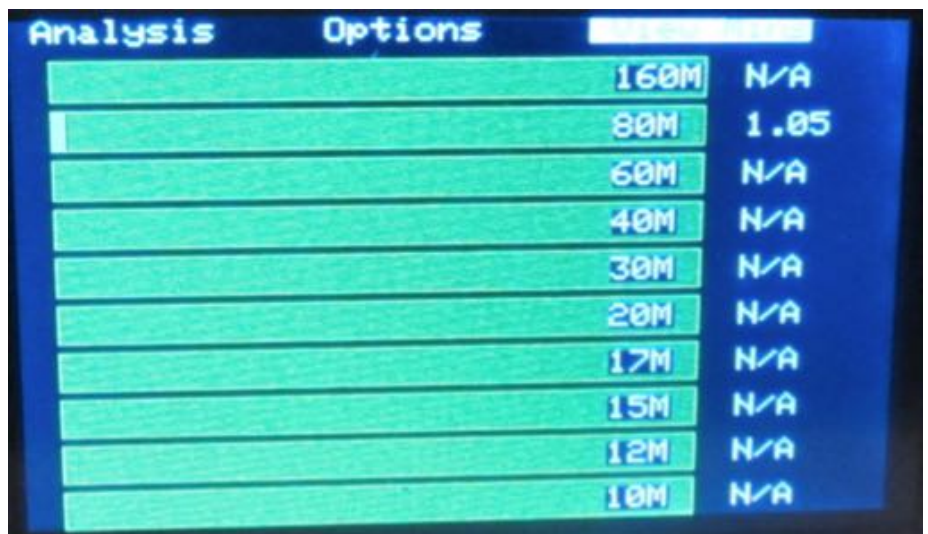
RF Power Meter	8	42%
Antenna Analyser	8	42%
QRP SSB Transceiver	6	32%
Modularised Receiver	5	26%
Arduino RF Probe	5	26%
Arduino CW Decoder	5	26%
Frequency Generator	4	21%
Arduino Lightning Detector	4	21%
Arduino QRP JT65 transceiver	3	16%
80m and 160m AM Transceiver	2	11%
QTP CW Transceiver	2	11%
Arduino Weather Station	2	11%
Arduino Talking GPS/ Time Indicator	2	11%
LC Meter	0	00%
Arduino Waveform Generator	0	00%

Total Respondents 19

Thank you to all of those who responded.

Clearly the power meter and antenna analyser should be our next projects. We will start with the antenna analyser as Stewart G3YSX has begun work on a suitable design. The more complex transceiver and modularised receiver projects probably did not receive enough support to justify proceeding with them at this time. The simpler RF probe and CW detector suggestions, although they received slightly fewer votes, may be worth tackling after the two preferred projects.

A new design for an antenna analyser by W8TEE and K2ZIA was published in the November issue of QST. This is not the simplest or cheapest possible design but it has a couple of very attractive advantages - a large screen, obviating the need to use it with a computer, and the ability to show SWR for all of the HF bands at the same time.



Analysis	Options	
	160M	N/A
	80M	1.05
	60M	N/A
	40M	N/A
	30M	N/A
	20M	N/A
	17M	N/A
	15M	N/A
	12M	N/A
	10M	N/A

The analyser will cost around £50 unboxed, in part because of recent increases in the price of Ebay AD9850 frequency generator modules. We are looking to see if the cheaper and more modern Hans Summers modules can be used in their place. If we go down that path it will involve changing the printed circuit board and the Arduino software.

Further information about the W8TEE/K2ZIA design can be found at:

<http://qrpguys.apps-1and1.com/w8tee-k2zia-antenna-analyzer>

If you think that this is not the best design or if you want to be involved in modifying it please let me know as soon as possible. Producing circuit boards and collecting components will take some time so I'm aiming to have unboxed kits available around March.

Club News cont:

Training Topics - Malcolm Harman, G3NZN, CARC Lead Instructor

Over the weekend 14th and 15th October we conducted a full blown Foundation course. It included various syllabus related tutorial sessions given by Keith (G3VKW) and myself, covering everything from Basic Techniques, Transmitters and Receivers to Licence Conditions. So as give the students a bit of a break from all the class work, topics were separated by undertaking the required practical assessments to complete their Record of Achievement forms. Thanks to Adrian (G3VJM) and Ewan (2E0EJJ) for helping out with the HF/VHF QSOs. Finally when all said and done, the examination took place on Sunday afternoon, expertly invigilated by Dick (M0RXZ).



It all may seem a bit ambitious, but with four successful candidates saying they had a “fun time” I think it went well. Thank you team.

Member News

From Stuart, G3YSX, a link to a fascinating account of a secret wireless built into a broom by PoW's in Changi Prison during WW2: <http://www.bobkelsey.net/wireless.html>

A Brain Teaser Courtesy Malcolm - G3NZN

TRY THIS GCHQ CODE-BREAKER

If Samuel transcribed what Louis wrote...

...and Louis wrote what Ludwik translated...

...and Ludwik translated what Tim said...

...then what did Tim say?

Here is Samuel's transcription:

IN AAAAIAN INAAANAIA IA IAINA AI AA IAIIA IAA AAIAAINN AA IAAANN IAINANI
NA ANNNNMA NAANIANMN NN ANNAN NN AM MNNNN ANI MAAINNIA AM NNAMIA NNAANIN
AM MMIAAMA MMIMAAMMA MM AMAAA MA AM AAAMA AAA MAMAAAAM AM AAIMMM MMMAMA

CLUE: The key to unlocking the puzzle is identifying Samuel, Louis and Ludwik. There are links between them!

Chairmans Report - Keith, G3VKW

Hi All,

I cannot believe we are approaching Christmas and the New Year so quickly.

Some club members went to the rally at Kempton Park, and the following week at the CATS Bazaar in Coulsdon. The comment I have heard and observed is that numbers were down at both events. These are where various local clubs sell surplus equipment, it does seem that newly licenced amateurs now tend to buy brand new equipment and not as we did in my early days in the hobby buy second hand equipment. The advantage is that you get a manufacturers warranty. However being new to the hobby it may be much more beneficial to buy a cheaper second hand transceiver, So when you have gained some experience and you go to the ham shop you know more of what you really want in your purchase rather than what the salesman is trying to offload on to you.

As elsewhere you will see that the Club requires two vacancies to be filled, that of Events Secretary, and also the News Sheet Editor. Both Richard G3ZIY, and John G4PEO have done a stirling job, So show your appreciation, and when you see them next at the club thank them for their efforts.

We are still suffering poor conditions on HF, However 17 metres and below are showing some tasty openings. Mike GOKAD and others are getting very good results on the new digital mode of FT8.

Also as November progressed there were some good openings on 15m upwards, and even some short openings on 10m.

Richard G4ANN has recently put up a Stepp ir rotatable dipole, he seems very happy with this, and is planning to extend it to a 2 element beam. So if you are looking for an effective antenna for HF, perhaps have a chat with Richard, as his neighbours seem to not be phased by what he has put up.

A reminder as elsewhere, please do make an effort to attend the clubs AGM in January, it's the place where we on the committee get told what you want from your radio club. This helps us to try to provide the answers.

Several club members are still looking at various ideas for a club project, So if you have an idea that might be of interest, let it be known to the committee.

The Club had a very high electric bill for the summer quarter, this was brought up by Howard G4PFW our Club Treasurer at the last committee meeting. We tried to address this issue last year, and time controllers were fitted to the heaters. What I would like to see, is that if it gets warm in the club house, do turn the heaters down on their thermostats, rather than overheating the clubhouse.

Well that's all for this year from me. I would just like to thank all our members for their support during the year.

I hope you all have a very Merry Christmas and a safe and peaceful 2018.

73 BCNU Keith, G3VKW, Chairman.



For Sale

Cobweb 5 Band DX Antenna

10,12,15,17 and 20 meters, rated at 600w plus. Designed to withstand winds up to 120mph.

£75 ono

Richard, G4ANN
g4ann(at)cophthorne.org.uk



Amateur Radio Firmware For DMR Radios - Richard, G3ZIY

If you are the proud owner of one of the Chinese DMR radios, such as the Retevis RT3 or Tytera MD380/390, it is fairly trivial to change the firmware from the manufacturer's original, which is much more suited to commercial customers, to something that has been specifically written with the amateur operator in mind.

One of the popular versions around is by KG5RKL, Ty Weaver, who has written all you need to change the firmware. Please save your current codeplug before you start!

So here's how you do it:

- go to <https://kg5rki.com/new2/tymd380.html> in your browser

- download (bottom of page) Tytera Flash Tool v1.05 (MD380/MD390)(Figure 1)



Fig 1

- double click the downloaded file and install the MD380tools software

- run the MD380tools software (see figure 2)



Fig 2

- press the appropriate button to download the GPS or NON-GPS version of the firmware (Figure 3)



Fig 3

- plug in your radio via the usb lead to your Windows computer

- hold in the top side button and PTT button together and switch on the radio (the LED on top of the radio should now flash alternate green and orange - the screen will be showing nothing but DON'T PANIC!

- press the FLASH button indicated in Figure 4



Fig 4

- wait for the yellow bar to proceed across the bottom of the Flash Tool application screen, and the radio should re-boot when complete.

Depending on what settings you have in the /green button/utilities/md380tools menu on the rig you will see a different sign-on screen when you power up the radio. All your code plug data should still be fine, although the zone may have changed during the firmware upgrade.

An especially useful part of this upgrade is that you can set the radio to display the Last Heard (LH) station that was received, but first you must download and fill the radio with the complete worldwide DMR User DB (database).

So restart the application (it seems to be necessary after a firmware upgrade) and press the USERDB Download Update button (Figure 5).



Fig 5

It should show a number telling you how many amateurs are registered on the DMR database (75514 at this time). This number increases on a daily basis, so is worth updating the USERDB regularly.

Connect and switch on the radio in the normal way, and press the bottom Flash button (Figure 6). The yellow bar will do two passes (rather slowly - see Figure 7) and eventually announce that it is 'Done' (Figure 8).



Fig 6



Fig 7



Fig 8

Whilst this is happening, the rig's screen will look like Figure 9 initially.

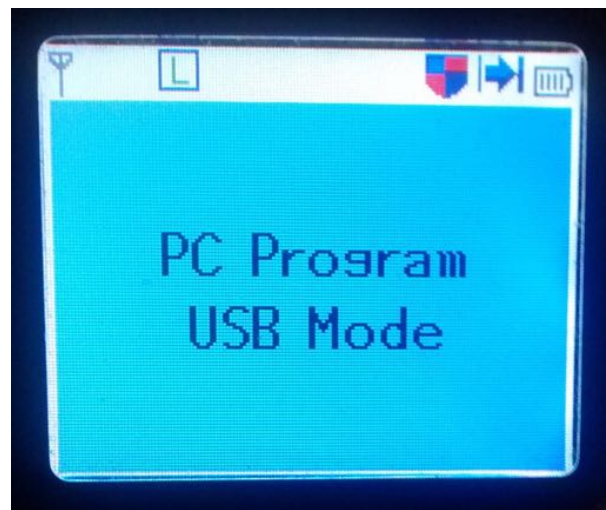


Fig 9

Finally, to set everything up, see the video on the website, and read the TyMD380Toolz pdf underneath it.