

# CARC

**CRAWLEY AMATEUR RADIO CLUB**

**NEWS BULLETIN JUNE/JULY 2018**

*All content © CARC & respective authors*

## **IN THIS ISSUE:**

**CHAIRMAN'S CHATTER**

**ME AND MY SHACK**

**GRIMETON VLF**

**MOTORING MATTERS**

**DMR HOTSPOTS**

**AND MORE...**



# Note from the Editor

Hi all, apologies for the delay on this one caused by a poorly timed holiday in Barbados. A quick precis: lovely people, great hotel, atrocious roads! Never again will I complain about our potholes.



The cover picture was taken at Ifield Mill during the Mills On The Air event on 13<sup>th</sup> May, more news about this on Page 7.

The deadline for articles to be included in the next issue (due for publication 1<sup>st</sup> August) is 23<sup>rd</sup> July, all contributions gratefully received and many thanks to those who contributed to this edition:

G3VKW

M0TZZ

G4PEO

G3ZIY

G3VLH

M0WID

M0TZZ

# Chairman's Chatter



Hi All,

The year seems to be flashing by, we are already into June.

Conditions on the Bands are still dire. However some CARC members braved the fine weather and operated from Ifield Mill for the "Mills on the Air" weekend.

The CARCRATS Contest Team are readying themselves for the Annual VHF Field Day Contest. They are always looking for helpers, so if you want to get involved in VHF Contesting contact Mike G0KAD or Alex M1YAP.

Stewart G3YSX has been over to Dayton, and now onwards to Friedrichshafen, together with Richard G4ANN. This is the biggest Hamvention in Europe, with many UK Amateurs attending, although as I write this, quite a few thunderstorms are being reported around the area this year.

Lacking any real DX. to work, I have been chasing all the various callsigns celebrating 70 years of the UBA the Belgian equivalent to RSGB. They have 58 clubs and I managed 39 of them, mainly on 80 and 40mtrs but I fell short of the Diamond Award by one, I did manage the Gold Award though.

CARC are hosting the annual HARC / CARC challenge this year, so if any members can devise a cunning plan to defeat Horsham this year, with a Radio or Electronics based Challenge, then I would like to hear about it. They always put a strong team forward so I look forward to any ideas you may have.

Sadly the efforts of Malcolm G3NZP to get the Novice wire antenna erected has been thwarted by the Council as they are felling and coppicing trees in the park, some of you may have seen the red markings on various trees, the work however seems to have come to a halt for the time being, so this has stopped the erection of the antenna.

You should all have had an Email regarding the Surplus Equipment that has been visible in the club house for a month or two, which has now been priced up for sale. If not please let John G4PEO, Phil M0TZZ or myself know.

The Club House seems to be getting overrun again with items that will never be used so I am wondering about a Midweek or Saturday Hut clear out day now the better weather seems to be arriving. We have remnants of tables etc to go to the Tip. So volunteers please. If anything belongs to you and has not been used for some time, can it please get removed.

73 Keith G3VKW

**UBA 70 HITS THE AIRWAVES**

The Belgian IARU society UBA takes pleasure in certifying that amateur radio station

**G3VKW**

has worked twenty different UBA special event stations using the special OT70 prefix celebrating the UBA's 70th anniversary. To honor this excellent achievement the operator has been granted the UBA 70 Hits The Airwaves Award in silver.

May 2018  
ON4CAS - UBA Award Manager

# Me and My Shack – Phil M0TZZ



My first foray into radio was when I brought home a valve Ecco radio from a jumble sale in about 1966. I connected the house plumbing to the aerial socket (didn't tell the parents) and could hear many and various stations (as well as the World Cup). We didn't have central heating so the water tank in the loft was probably doing the work. This wouldn't work nowadays with the necessity to earth house plumbing!

Fast forward to around 1977, I was a staff member of 14F Northolt Squadron Air Training Corps and we had an amateur, Roger Abel G4FKX who looked after our radio shack, consisting of an 1154/1155, a Racal RA17 and a Creed teleprinter. I used to enjoy seeing what RTTY we could eavesdrop on. The antenna was an inverted V with the apex at around 65 feet on a floodlight tower. Also around that time we were re-purposing ex taxi radios to use on the VHF frequencies we had allocated, one not far from 4m and another not far above 2m. I had a PYE Reporter in my car (which was a bit modern) and we had several PYE Cambridges, Westminsters, Vanguard's and Pocketfones. We had whips with groundplanes on the tower for VHF and could work considerably further than most other Squadron's due to their height.

Roger left on moving away so I recruited another amateur, Mike Hawkins G8WOY who was also the repeater keeper for GB3WL (who I kept in touch with, but sadly became SK last year after a short illness). I bought a scanner and listened to the local repeaters and my appetite being whetted enrolled on a RAE course at Southall Technical College. After a few weeks of listening to the mayhem on 2m (especially GB3SL which was closed down for that very reason) and realising I'd need to learn morse to use HF I gave it up, and although I'd listen on the scanner and also a borrowed AR88 I had at home I decided I'd never be able to learn morse. Anyway I learnt a fair bit about VHF antennas, VSWR, crystals (all of the VHF kit was crystal controlled), alignment and so on at this time.

Fast forward again to 2013 I stumbled across the Ofcom website which told me that for two years I could have got a licence with no need for morse. Within three weeks I had got the Foundation Now book, contacted Malcolm and took the exam, getting one question wrong because I didn't read it properly and became M6TZZ with a whole 10 watts at my disposal. Naturally I joined the Club!

In 2014 I took the Intermediate and passed (2E0TZZ and 50 watts), and in 2015 I did the Bath Based Distance Learning course and passed the advanced (M0TZZ and 400 watts). At some point during this, someone talked me into becoming the Club Secretary and here I still am, as you lot keep voting me back in at the AGM's 😊.

Enough about me, what about the shack? I have a brick built outhouse in the garden which many years ago was half loo and half coal cellar. It is now half shack and half "bar"... I put electricity in, some heating and sealed up all of the draughty gaps. A lick of paint and I was in business.

It's very small but suits my purpose and is out of the way of the Station Manager (Lorna). It also means that I shouldn't accumulate loads of kit but I still do. Before even passing my Foundation, I bought a 2/70 handie and put that in the car (to listen only of course), and a Kenwood TS440SAT from Brian 2E0MZB, again for listening until the licence. That was a great rig to learn with, I added a kit to give it RS232 and then could connect it to my PC and discover data modes such as BPSK and RTTY. On 29<sup>th</sup> March 2013 (ink not dry on the licence) I had my first QSO with Richard G4ANN and Peter G4FYY on GB3MH. I had almost arrived! A couple of days later after rigging an antenna for HF my first HF (SSB) contact was Lawrence GJ3RAX in Jersey. I've had trouble working Jersey ever since!



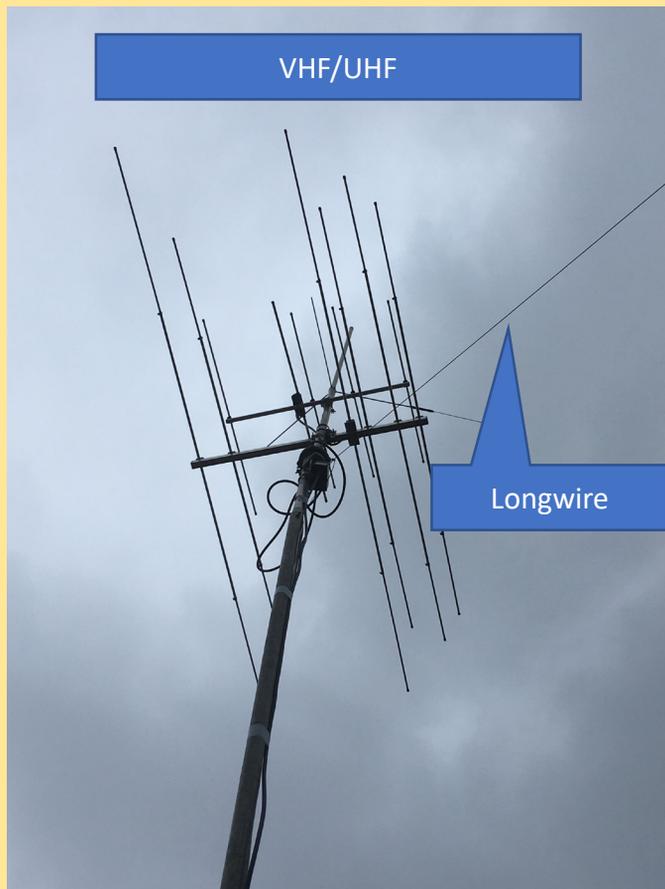
Since then various rigs and antennas have come and gone but what I have now is an Elecraft K3 (fully loaded with extras) for HF/6m, an Icom 7100 for 4m/2m/70cm (which I used as the main HF rig before the K3 came along) an Expert 1K-FA linear amp, various handies and a Yaesu FT7800 in the car. Antennas wise I have a Hustler 6-BTV which is a trapped vertical working on 80/40/30/20/15 and 10, and also a longwire (65ft) which I mainly use for the WARC bands not covered by the 6-BTV and 60m. I also have a 20 foot scaffold pole which has a 4/6m 3 element yagi, a 2m 5 element yagi (both on a rotator) and a 2m/70cms colinear. I would love to put up a SteppIR but I know the neighbours (and the wife) would not like me if I did, and I would rapidly be speaking to someone from the Council... My whole setup is heavily computerised, using mainly Ham Radio Deluxe but also quite a bit of other software depending on the task at hand (WSJT-X and JTAlert to name a couple).

I like to work DX and love crossing countries off the list, either all time new ones, new ones on a particular band, or new ones for this year. I have a lot of data QSO's, particularly FT8 at present which gives the opportunity to work DX even during sunspot minima as we are now. My log shows that on 13<sup>th</sup> May 2013 (still an M6) I worked Australia PSK 31 with 10 watts... How things have changed now. I've worked Oz several times since, but in January this year it took almost the legal limit (400w) to cover the same distance on FT8. At the time of writing I'd worked 175 entities out of the 340 odd in the world so over half way, and have had 3,300 QSO's. I don't think that's bad for 5 years on air 😊

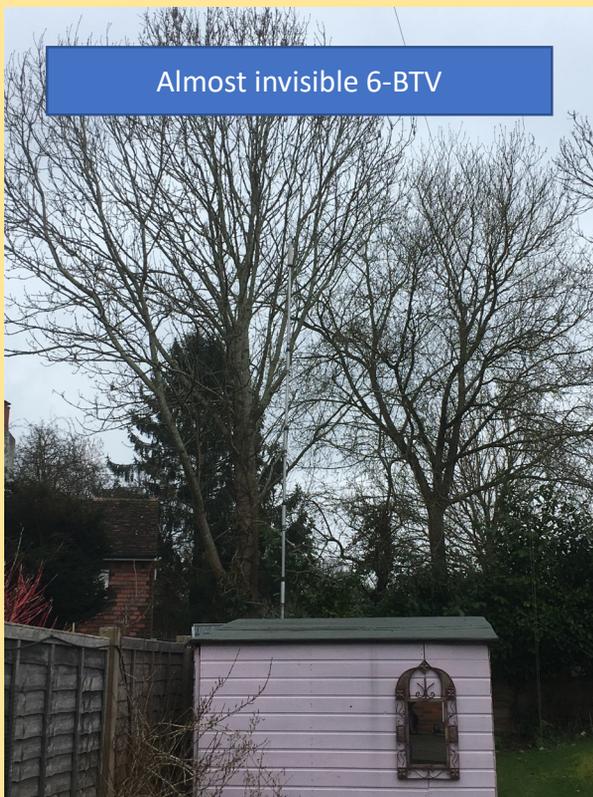
A couple of years ago with G7FEK



VHF/UHF



Almost invisible 6-BTV





# Ifield Mills On The Air

Many thanks to everyone for an enjoyable day, despite 40m being fairly dire with lots of static-like noise and almost no inter-g.

Richard displayed his talent for grabbing the public and giving out leaflets, Brian and Howard persevered on the air despite less than ideal conditions with quite severe QSB.

The IC718 showed much greater resilience to the transmissions from the nearby FT897 than my old TS530, so thanks for the use of that.

I think footfall at the mill suffered from poor access due to the Gatwick run, and perhaps also the grand-prix taking place in the afternoon.

Next year, if the band conditions are still dire, we will need to sort out a good antenna for 80m. We have the space, now we seem to be able to use the area between the mill and the mill pond. I guess most activity took place on that band.

Many thanks also to the other club members who turned up to provide support. Next year perhaps we need to bring along a key to encourage some more participation from those who never use a mike!

Putting the station together and dismantling does not take long, about 30-45 mins each end, so the club should not be afraid of setting of for other events if there is interest.

73 Dave MOWID



# The Grimeton (SAQ) VLF Transmission – 17.2kHz - 1<sup>st</sup> May 2018, by John G4PEO



As part of an industrial culture event, the Alexanderson VLF transmitter at the Grimeton radio station, Varberg, Sweden, call sign SAQ, successfully made a VLF test transmission at 1000hrs UTC on the 1<sup>st</sup> May 2018, on a frequency of 17.2kHz CW. This was SAQ's first transmission since December 2016.

As the equipment is quite fragile (old!), a transmission is never guaranteed, so it is with some trepidation that listeners around the world tune in at the appointed time. Subject to issues with the transmitter or maintenance, scheduled transmissions are normally made twice a year on Alexanderson Day, (end of June), and Christmas Eve. Additional transmissions are made as and when, and are usually associated with special events. Occasionally there may also be unofficial transmissions, on account of training, local events or maintenance.

Originally, the location of the radio station was chosen as it offers an unobstructed line of sight to New York and most of North America. Today, the station is designated a world heritage site and is looked after by the Alexander association.

So what is so special about the Alexanderson transmitter? Built in 1923, and weighing a not inconsiderable 50 tons, it is very unique in that it is the only transmitter in the world that uses a rotating machine (Alexanderson Alternator), rather than valves (or transistors). The transmitter consists of three elements, a 500 HP, 2200v motor rotating at 711.3rpm, which is connected to a gear drive raising the rpm to 2115 rpm. The gear drive in turn drives the high frequency generator (alternator). When first commissioned, the high frequency generator nominally produced a frequency of 16.1kHz, but this was soon changed to 17.2kHz. The derived 'high' frequency is very unusual for an alternator/rotating machine; hence its design is something quite special.

The antenna system consists of six towers 380 metres apart, each 127m high with a 46m cross arm at the top of each tower, with eight wires attached to all six towers. However, even with these dimensions, the antenna is very inefficient in relation to the transmitted wavelength.

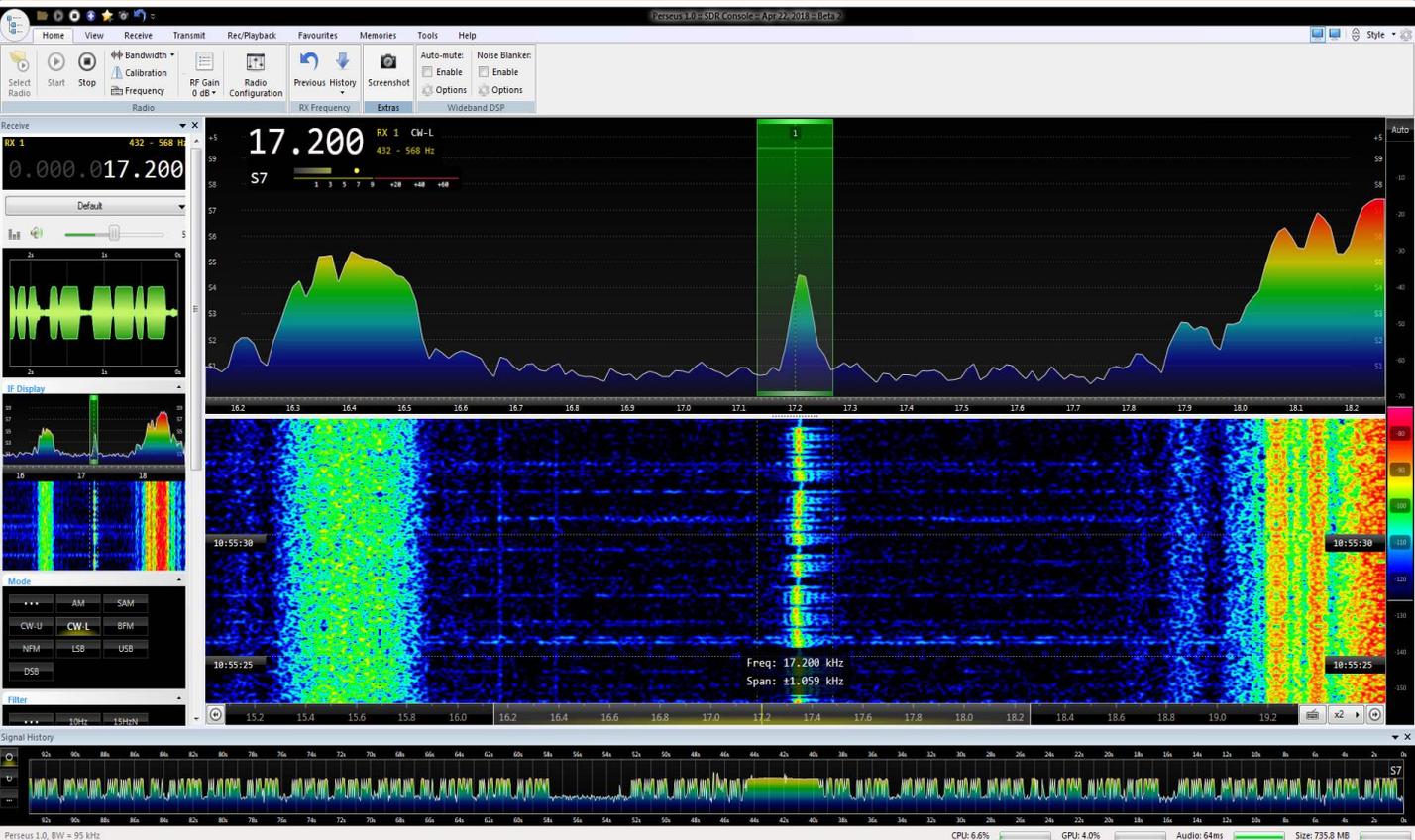
Designed output power is 200kW, although in its day, for reliable telegram transmission to the USA, normally less power was required. Up until the mid 1950's, it was used by the Swedish Navy for transatlantic transmissions to their submarines. For the May 1<sup>st</sup> transmission, 80kW was employed, and reception reports were received from across Europe plus a few from Alaska and New Hampshire.

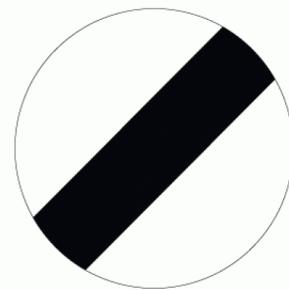
At the G4PEO QTH, (Horsham), as can be seen from the illustration, excellent reception of the transmission was achieved via a PA0RDT active antenna 20ft up a tree at the bottom of the garden, feeding a Perseus SDR RX, utilising SDR Console V3 software (free). A 65ft end fed long wire was also tried but no signal was received via this aerial.

There is also a permanent amateur radio station on the site, SK6SAQ, and visitors to the shack are very welcome.

For more information about the Alexander association and the Grimeton radio station:

<http://alexander.n.se/?lang=en>





# Motoring Matters

Having been unfortunate enough to have my picture taken on the M23 near Pease Pottage (on the way to the Club) I was “invited” to attend a Driver’s Awareness Course rather than have 3 points put on my licence – points don’t mean prizes in this case. This costs £90 (as opposed to the fine of £100 and the points) and is only offered if you were not too far over the limit, and haven’t been to one before.

It was much less painful than I expected, and during the course I asked a few questions and got a few myths dispelled which may be of interest to you. Also some rules have changed since I last looked...

1. Amateurs are **not** allowed to use hand microphones whilst driving. Rule 149 of the Highway Code says “Never use a handheld microphone whilst driving”. There are no exceptions and it could result in either a Careless or Dangerous driving fine (or even imprisonment!). So maybe look at a hands free system if you don’t have one.
2. There is **no** 10% allowance over the speed limit whilst overtaking. If your picture is taken doing 71mph, the penalty system is automated, makes no allowances and you will likely get a ticket. After all if the car in front is doing 70mph, you shouldn’t be overtaking it anyway.
3. Cyclists are a bane of members, especially on a sunny Sunday morning. The code says that they **can** ride two abreast but only in the right circumstances – “Never ride more than two abreast, and ride in single file on narrow or busy roads and when riding around bends” so now you know when it’s OK to shout, and when not! The same rules apply to horse riders.

I hope this helps!

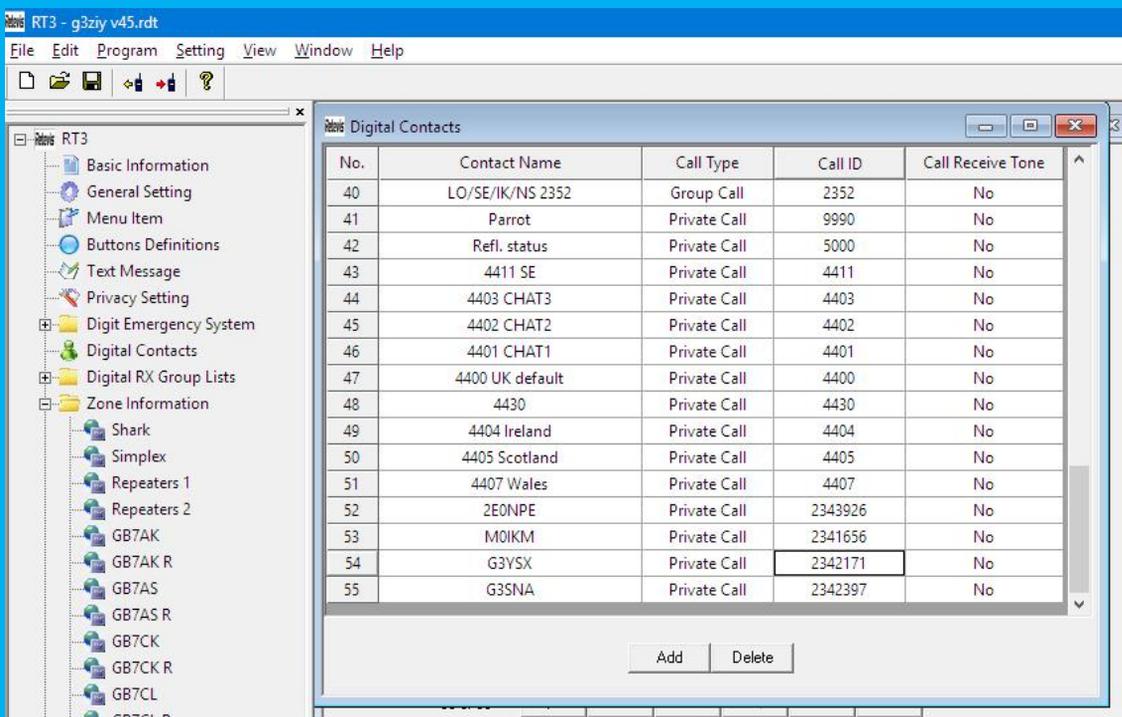
# DMR setup for hotspot users' private QSOs



It is possible for any two amateurs using DMR hotspots to contact and chatter privately, without using any reflector or talk group resources at all. Setting it up is pretty straight-forward, and so is using it.

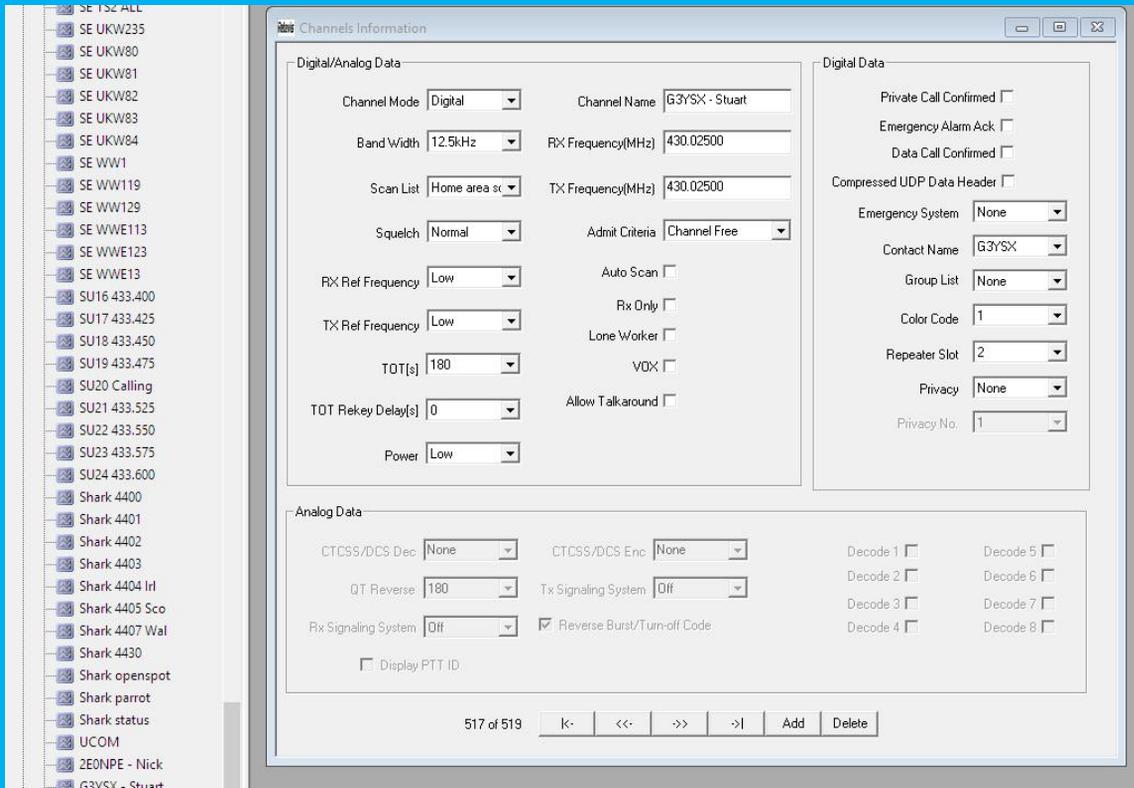
Connect up your DMR rig to the computer. Read the code-plugin. Save the file under file/save as... I use g3ziy\_vxx where xx is the next largest number in my sequence of old code-plugs. This way I never over-write an old code-plugin that I may wish to come back to if I trash the current one whilst re-programming!

Add the calls of the people you want to set up for this private system. See figure 1.



Always add them to the end of the digital contacts list; never try to re-order or delete them once added, if they have been used in 'Channels Information' etc. In my example they are shown as digital contacts 52-55; your list will have different numbers and call-signs. Get their call ID from <https://www.dmr-marc.net/cgi-bin/trbo-database/> then click 'User Database', then fill in their call-sign and click 'Search'. Their DMR-ID will appear at the bottom of the display. Set these entries as 'private'.

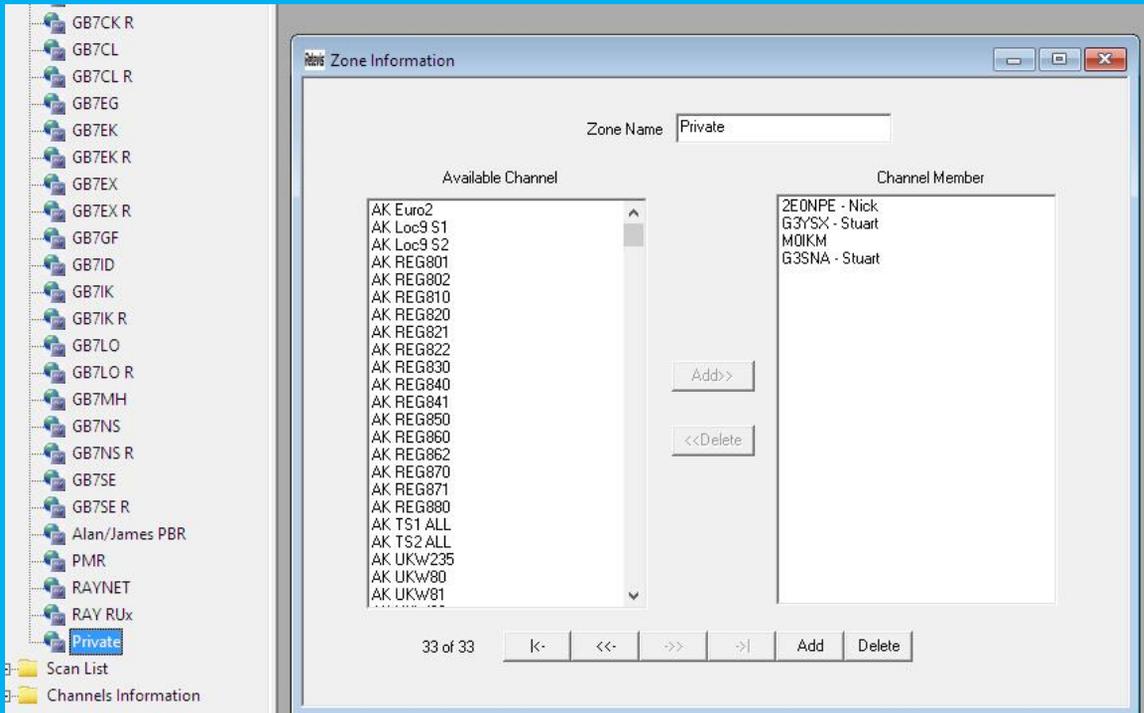
Now it's time to fill in the 'Channels Information' data. See figure 2 for an example.



Do this by clicking 'Add' and filling in the data for your hotspot frequencies etc., and the call-sign of the station you want to have in your 'private' collection. Do the same for the next station, but this time after pressing 'add' right click on the previous entry and click copy. Then right click on the current entry and click paste. Hey presto all details except the new 'Channel Name' will be entered. All you need to do is change the 'Channel Name' and the 'Contact Name' for each new channel.

I recommend saving as a new filename with an incremented version number at this stage - just in case!

Now to set up the private zone. See figure 3.



Add a new zone and name it, for example, 'Private' Then add all the private channels you created into the zone. Save again; the new code-plug is now created.

Write the code-plug into your radio. Now whenever you want a chat with someone in that 'Private' zone, as long as they are connected to their hotspot (on any or no reflector) if you select the 'Private' zone on your radio and rotate the channel control to their call-sign, you will be making a private call to them. All they have to do when they hear you call is change to their 'Private' zone and select your call-sign, and the private link is set up. I recommend both stations disconnect from the network first (reflector 4000) to avoid interruptions from the network, but it is not entirely necessary; the network won't hear your conversation. However, incoming network traffic will prevent you transmitting, if your hotspot is a simplex device.

So who else has a DMR hotspot? Let me know at [richardg3ziy@gmail.com](mailto:richardg3ziy@gmail.com) - I'd like to add you to my private zone.

73 Richard G3ZIY



# Recent Talks

## **POLICE COMMUNICATIONS** by Steve Shorey G3ZPS

For the CARC April meeting we were treated to a slide presentation by Steve G3ZPS on Police Communications. Steve had worked on the design and engineering of very large VHF and UHF radio systems for the Metropolitan Police Service, and was amongst the first to bring detailed traffic flow modelling and propagation prediction to the design of radio systems for Police communications

Steve's experience with the UK Police Service goes back 35 years so his detailed knowledge provided a historic perspective of the development of communications over a long period. This included working on the Met Police technology requirements for the London 2012 Olympic Games.

Starting with the historic aspect took us back to Ancient Greek times. Distress *signals* were principally visual *signals*, included building a fire and making smoke *signals*, and later the semaphore flag system. The introduction of police forces (Bow Street Runners in the early 19<sup>th</sup> Century) called for a more sophisticated form of signalling to meet efficient emergency requirements of the day. The police whistle became the first portable comms device and was carried by all members of the police force.

The introduction of radio, particularly body-worn or portable transceivers, interconnected by a network of base stations, enabled the police to report emergencies, call for additional support and provide immediate reaction against criminal activities. And the past 25 years have seen major reduction in both size and weight of radios with the changeover from valve to solid state technology, digital and other technological developments, leading to today's sophisticated emergency services networks, including 4G.

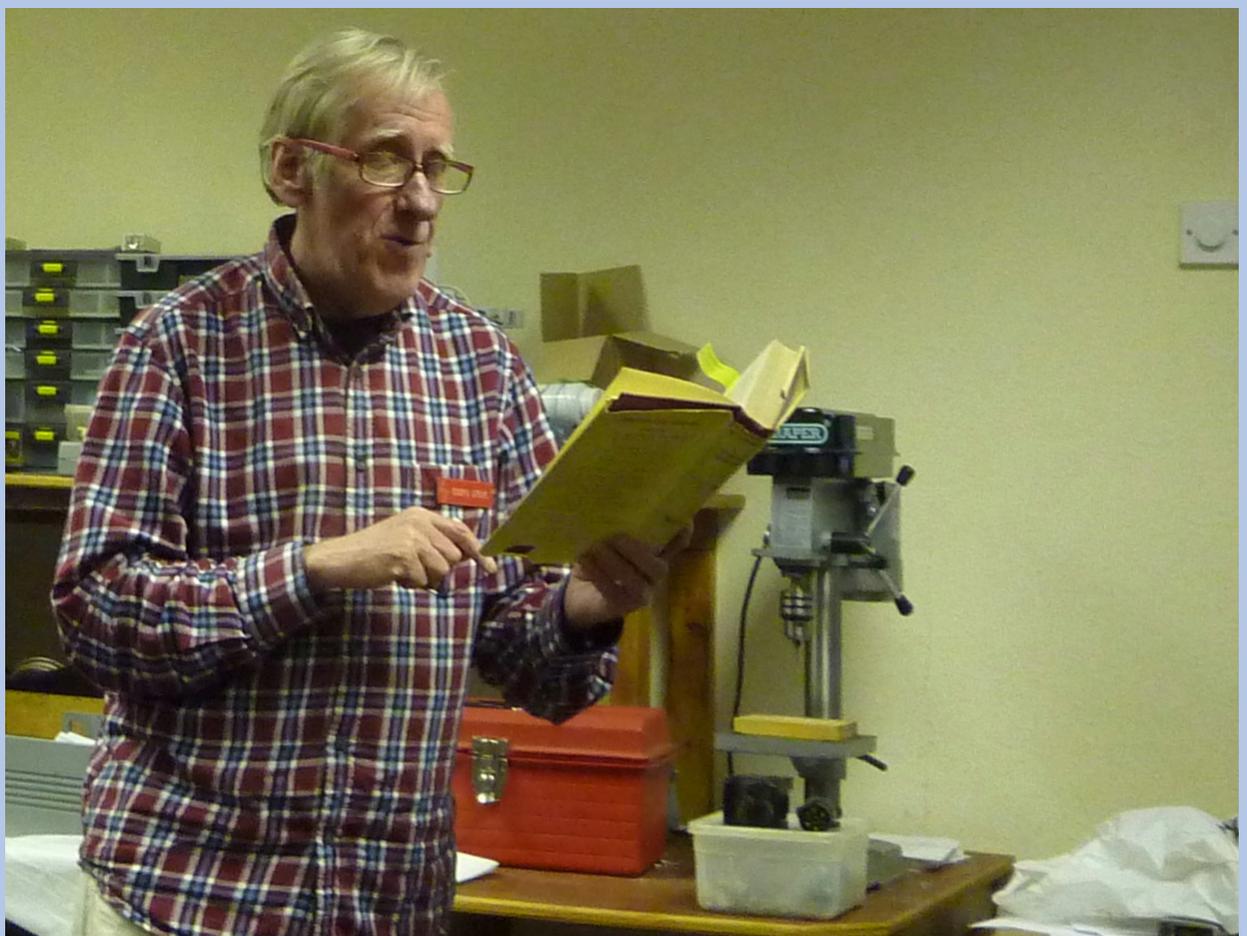
In retirement Steve set his own company - Steve Shorey Associates Ltd - for technology consulting and project management.

In addition, his retirement passion for restoring valve ham radio equipment means Steve has devoted many ham-hours to renovating and rebuilding classic radios, including Drake, KW, Codar, Eddystone and Heathkit, among many others. His interests look forward as well, to future developments of SDR technology. He is also a guitarist who, in addition to gigs, has quite a following on YouTube. Never a dull moment when you're retired.....

For more info on Steve - google G3ZPS Web Pages.

Pictures overleaf

John Longhurst G3VLH



May's talk was on "Antennas I have used" by our own Keith G3VKW and was well received (no pun intended) by all.



### **Future Talks:**

Wednesday June 27<sup>th</sup> – Meteor Scatter by Mike G0KAD

Wednesday July 25<sup>th</sup> – QE2 Communications by Duncan Brooker

### **Other Dates:**

Sunday September 9<sup>th</sup> – Microwave Round Table

Wednesday September 26<sup>th</sup> – Surplus Equipment Sale

Wednesday November 28<sup>th</sup> – HARC/CARC Challenge

Friday December 7<sup>th</sup> – Annual Fish and Chip Supper



# For Sale or Wanted

- Yaesu SP2000 speaker – fully working, boxed and average to good cosmetically, surplus since I've acquired a matching pair of Kenwood speakers - £55  
Phil M0TZZ [phil.m0tzz@gmail.com](mailto:phil.m0tzz@gmail.com)



- Monochrome Laser Printer Brother HL-1212W  
<https://www.brother.co.uk/printers/mono-laser-printers/hl-1212w> ,  
and a Canon K10395 photo quality 5 ink inkjet printer with some spare cartridges  
[https://www.canon.co.uk/printers/inkjet/pixma/pixma\\_mg6450/](https://www.canon.co.uk/printers/inkjet/pixma/pixma_mg6450/)  
Both these printers are in excellent working order, but are now surplus to my requirements as I have upgraded my printing arrangements.  
Sensible offers please to Richard at  
[richardg3ziy@gmail.com](mailto:richardg3ziy@gmail.com)



# For Sale or Wanted

- Icom IC7100 with dedicated LDG IT100 antenna tuner, both in perfect condition with manual and box £700 also
- Yaesu FT857 with DSP, Collins SSB filter, extended coverage (60m), remote microphone MH-59A8J with manual and box £450

Dick Lupton M0RXZ (often behind tea bar on a Sunday!)  
[dicklupton2@gmail.com](mailto:dicklupton2@gmail.com)

# Interesting Reads or Watches

What went wrong with Maplins (article)

<https://www.retailgazette.co.uk/blog/2018/03/mapl-in-what-went-wrong/>

The ICOM 7610 In Depth(video)

<https://www.youtube.com/watch?v=IW-I-5Hlro&feature=youtu.be>

TX Factor (video series)

<http://www.txfilms.co.uk/txfactor/>

This week's GB2RS news on the web (audio)

<http://www.txfilms.co.uk/txfactor/podcasts.html>

Propagation and Solar Data (website)

<http://www.hamqsl.com/solar.html>

National Grid Dashboard – see how the country's energy is being created and used in real time

<http://www.gridwatch.templar.co.uk/>

CW shoes? (BBC News Item)

<http://www.bbc.co.uk/news/av/technology-43205947/morse-code-shoes-send-toe-tapping-texts-at-mwc-2018>



# Info Page

## Local Repeaters

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

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

## Committee Members:

Keith Evans G3VKW - Chairman

John Pitty G4PEO – Vice Chairman, QSL Manager

Phil Moore M0TZZ - Hon. Secretary, Newsletter Editor, Exam Secretary

Howard Palmer G4PFW – Hon. Treasurer

John Longhurst G3VLH - Programme Secretary

Richard Hadfield G4ANN

Alex Sheppard M1YAP

Lead Training Instructor – Vacancy