



North Bristol Amateur Radio Club

S.H.E.7, Braemar Crescent, Northville, Bristol BS7 0TD
G4GCT, M0NBC, G6PNB



February 2022

The first Q5 of 2022 and Covid-19 is still here. A reminder, if you feel a bit under the weather, please stay at home and protect your fellow members. We'd love to see you at the club but, the health of your fellows is a priority.

Silent Key. As you may have heard, we lost Dave G3XOB on the 3rd of December 2021. Dave was supporting the committee for many years and only gave it up due to ill health. There is more on Dave's life by Paul, G8YMM latter in this issue.

Special Events. Mat, G7FBD is working hard on the special event list for 2022. You may find that there are a few changes to the calendar with an addition of Museums On The Air. Some of you may remember that the Blackberry Hill Hospital Museum was used for this event a few years ago. I believe that it is still open and operating as a museum, even though it is now the part of the Glenside campus. This is a possible choice.



It is not long now before the first event of the year. Mills On The Air. Only eight weeks or there about. It is two years ago that we worked for the first time, Ashton Mill.



Mat Is checking the list of events that hopefully will be still going ahead. On the bright side, we mainly operate our stations outside or in a tented situation. I think the only exception is Lighthouses and Lightships on the air where we are indoors. Although we may be prepared to play radio, our host may not wish us to. They may have there own rules with regard to Covid-19. Our host will always have the final word.

Special Events cont'd Special events are a great way to play radio for a reason. Well we don't need a reason do we but, it is great to set up a radio station and link with other like minded hams celebrating the same event at the same time. Mills on the Air for instance, mills of all kinds from potentially around the world are linked by radio to talk on the same subject matter.

Although we enjoy the event and we think it is for us, this is far from the truth. The event is just as much for the public to watch, enjoy and potentially have a go at working another radio station. For that reason we should all be on our best behaviour and not crowd out the public by surrounding the operating area, loading the table with coffee cups, food and other paraphernalia. After all, it is a display, a window on our hobby so let us all be professional.

There are new club rules that was discussed at the AGM. That is to complete risk assessment and RF separation reports. These are submitted to the committee before an event can be called a club event. More information can be obtained from Mat or the committee.

Mat's proposed list of special events this year is a bit longer than ever. Starting with :-

May 7th & 8th Mills On The Air

June 18th-19th and 25th- 26th Museums On The Air (Museum not chosen yet).

August 21st - 22nd Lighthouses / Lightships On The Air

September 10th Churches / Chapels On The Air

September 24th - 25th Railways On The Air (Including the AVR 40's event)

These events will only go ahead if there are sufficient members willing to operate the stations and the relevant paperwork submitted to the committee.

Training Programme

Ian, G7TAH your training manager, is opening the training programme on the 2nd week of February with a request that any members or prospective members wishing to join the foundation course, contact him at the club.

Training for the Advance licence is also to start the 2nd week of February. The tutor is Dennis, M0IYQ and he also is inviting those that have held a full licence for some time to join him to take in a bit more knowledge.

Your New Committee

The AGM has been and gone and we now have an elected Committee to take us to the end of the year. A full year this time as you may remember, the EGM took us through to January. It is to be noted that we are back to normal, the AGM with new elections as per the constitution will take place in January 2023.

Chair person Paul Stevenson, G8YMM

Deputy Chair person Alan Tink, G7DRU

Hon Secretary Dave Bendrey, G7BYN

Hon Treasurer Shaun O'sullivan, G8VPG

Membership Sec Geoffrey Cummins, M6GFM

Training Manager Ian Conibear G4TAH

Shack Manager Luke Kelly, 2E0VKV

Special event co-ordinator Matt Adlard G7FBD

Membership Secretary

Please help Geoff, M6GFM in his position of Membership Secretary. This is the busiest time of the year for Geoff, with Membership fees now due for the 2022 to January 2023.

There are a number of members out there that appear uncontactable. One particular member I tried to contact had a mobile number that was not in use. A home number that was not working and an email address that was dead. In order to make the club function Geoff needs your help. He is hard at work making a database of Members and ex members. If there are any changes to your Email or phone numbers please let him know.

He will however be trying to contact you all at some time to update the data base and obtain your permissions so that we comply with the GDPR regulations.

Hon Treasurer

Shaun, G8VPG has also been working hard in his new position as Treasurer. If you were at the AGM you would know by now that we have changed Banks so that we can operate the club accounts more efficiently. We are now with NatWest.

One of our efficiencies is a connected a card reader. Cash will no longer be required (But can still be used) for Membership fees, door fees and the Tea Bar. Wow, the NBARC has now moved to the 21st century. This money goes directly into the Nat West Bank.

Club Fees Now Due

Sorry to be the bearer of bad news but Fees for the year January 2022 to January 2023 are now Due. The fee is as voted for at the EGM back in October of 2021 is £30 for the year with a door fee of £2. If you wish to pay upfront for the year with no door fee it is a one off fee of £120. This I have called the Gold membership.

These fees go to the expenditure of running the club, as Shaun, G8VPG informed us at the AGM. Insurance, Room rent and RSGB membership to name a few.

Meetings and Events Of Last Year.

We made a good start with talks last year. The outstanding one for me was the talk and demonstration on 3D printing by John, G4WOD. With his little Prusha he printed out several whistles. They only took about 20min to print so it made a good demonstration. By the way the noise they made was painful to the ears.

Yours truly also gave a short demonstration on how to use the RSGB's spread sheet for calculating RF separation. The general view was, "why do we have to do it" and "Too complicated" Some members, well, one or two said "I ain't bothering" Well the following meeting, three members came up to me and said they had done it for their station and it was easy.

The Bun Fight tuned out to be a winner. The worry was Covid-19 rearing it's ugly head again and restrictions starting to take effect. With Ben 2E0RBK preparing the food and Alan G7DRU with his wife June running the Raffle. This was an amazing feat considering the short time they had to organise it. Well done, and Thank you to all the organisers and helpers.

There are a number of talks and demonstrations for the forthcoming year and I sincerely hope you will give your support. Remember, if we can get good support for talks and demonstrations, it is more worth while for us to invite radio celebrities.

The events arranged so far can be found near the end of this Q5.

A BBC Special Take a look at the BBC's special 100years of the BBC web site. Lots to see from the beginnings when it's call sign was 2LO. Note, no "G" as a prefix. All radio hams of that era were missing the prefix. The "G" prefix came latter.

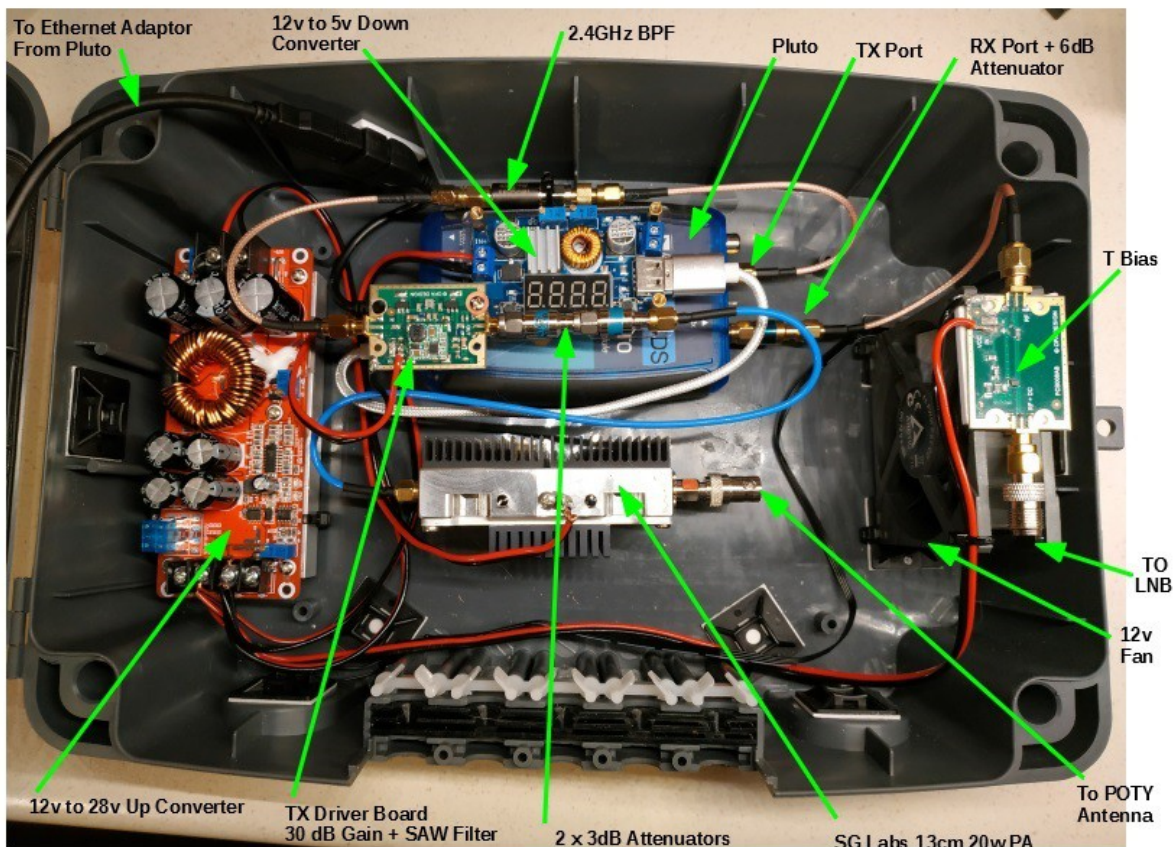
www.bbc.co.uk/100

Mat's Satellite System Continued from November Q5

For additional information QO-100 is short for Qatar-OSCAR-100, Qatar is the country that own the satellite and OSCAR stands for Orbiting Satellite Carrying Amateur Radio and this is the 100th project launched. Es'Hail-2 is the second satellite launched by Qatar company Es'HailSAT.

During the near two hour telephone call (Stop laughing G7BYN!) I helped Dave get his 'Pluto' back on line. I actually learned that the Pluto, or to give it its full name ADALM Pluto was a low cost educational platform that students learn about programming, radio and Linux. It is made by Analogue Devices (Analogue Devices Active Learning Module). The name PLUTO was selected as just like the dwarf planet which lacks certain technical components that makes it a real scientific planet, The ADALM Pluto resembles and SDR but without the technical performance and criteria of a commercially available SDR Radio.

Dave, after we got his Pluto on line, went on to explain about the radio station he had built around this unit and how he was able to use some free software running on a PC to control the Pluto and make QSO's via this satellite called QO-100. He also gave me a quick breakdown on the over all cost of the project. That bit was the thing that shocked me in a good way and really wetted my appetite. Dave then set me a picture of the Mark 2 transceiver he built.



Inspired and curious I set about converting the above picture of parts into a spreadsheet, I also added parts not shown such as the antenna, the LNB and a transmitting antenna and of course cables for connecting things up.

Once the spreadsheet was complete (go on who does not like a spreadsheet?) it was time to hit the internet and find suppliers and costs of components.

* On a side note when doing a project of any type using a list, or spreadsheet is vital to ensure you list all parts you need, and a good way of getting over the “darn I forgot to get x”.

Onto my spreadsheet I also added columns to show me if I had actually order the parts and if they had arrived. I did this as I was going to have to order parts over a few months to help keep the station manager happy. And I needed to priorities parts in a way I could build the receiver and test it fully before moving onto the transmitter. And of course at the top of the list was a dish and LNB. up over 3 months.

QO100 Satellite project + SAT TV					
QTY	ITEM	SUPPLIER	COST	ORDERED	ARRIVED
1	Pre P.A. TX Driver module	Passion Radio	£45.45	Y	Y
1	2.5GHz Band Pass Filter	Passion Radio	£28.48	Y	Y
1	Bullseye LNB	Passion Radio	£16.81	Y	Y

I left the most expensive part which was the PA right to as that was the most expensive part of the project.

I had been looking at large 1m dishes but the cost meant that NEW was out of the question. Ebay prices were also high due to shipping costs (Its not like you can fold a 1m dish and pop it into a small envelope!)

I looked at Gumtree, yes there were a number of dishes that were at good prices, but Liverpool and the Midlands is a long drive! A little bit disheartened I stepped back from the project for a couple of weeks. I am not sure what made me pick things up again but I went back to Gumtree with the resolve I was going to contact a seller up north and bite the bullet.

A few pages into the long list of home Satellite SKY dishes I spotted a 1m dish for £20. What’s more it was only 30miles away in Sunny Swindon. I emailed the seller expecting it had already been sold at that price. That weekend I drove to Swindon and met the seller outside the Costa Drive through. To the bemusement of the 5 or 6 coppers that were stood around drinking coffee, a 1m dish was taken out of the back of a BMW and put into the back of my car and £20 cash handed over.

With lockdown in force face masks and blue neoprene gloves were worn by both the seller and me. On the way back I did ponder if I was going to be stopped. Guess they were too busy enjoying the coffee.

I got a strange look from my next door neighbour who was washing his car when I turned up with the dish and went on to spray and wipe it over with IPA.

A few days later a 80cm dish arrived (new) along with wall mounting kit, 20m of shotgun coax (Figure of 8 twin coaxes) and two days after that two second hand satellite receiver arrived one of which was a Vu+ Zero receiver. This kit is nothing to do with my QO-100 project but as part of the conversation with the station manager right at the start of the project we spoke about ditching our cable TV service and moving over to FreeSAT as our household watch very little live television certainly not enough to warrant the ever increasing cost of cable TV.

On a personal note I am in debt to Mark G4SDR and Dave G7BYN who came over one weekend and between them put up the 80cm dish on the side of the house and then cabled it back into the house. I must admit even the station manager is impressed on how good a job they did not only installing the dish, but how well the cables are hidden.

All this activity kept both neighbours either side of me guessing what I was up to especially Alison who did pop out of her house to 'do the bins' but also have a good nose.

At the same time as I was arranging to collect the 1m dish from Swindon I ordered the ADLAM Pluto from Digikey which just happened to be both the cheapest supplier but also had a fantastic shipping price that also covered the import duty. I also ordered 4 switch mode power boards from ebay and a thing called a Bias T (this is basically a capacitor in a RF path to block a DC voltage from getting back to the receiver but also allowing you to put volts onto the RF path going out to the antenna, this method is sometimes called power injecting or phantom supplying).

I could see from G3ZXX's picture I needed 28v for the PA, 18v for the LNB and 5v for the Pluto. I also needed a 12v supply for a air circulating fan.

Before I go to far I better explain what an LNB is. Basically it's the part of a home satellite dish you see sticking out away from the dish on an Arm. It is actually a frequency down converter that convert the 10.xx GHz being received by the dish to a more manageable 9.75MHz for your home satellite receiver.

The 1m dish I purchased also came with an LNB and some coax. So the next thing I wanted to do was to set up the dish and point it at Astra 2G where the FreeSAT transmissions are broadcast. I wanted to do this to check the dish was not damaged and if the free LNB was serviceable. I intended to use my portable Clarke mask I used to use for 6m contesting, a perfect support for a dish as it had its own set of legs supports and totally free standing.

It was then things hit me in not such a nice way! I used to be able to carry the mast and its attached legs on my own without any issue; this was certainly the case in 2016 the last time the mast was used at a contest site. However while trying to move it from my Garage to the garden I realised how much my MS has progressed. It took a lot of effort to just move it outside the garage. There was no hope in hell I was going to be able to hold the mast, set the legs and keep myself vertically polarised all at the same time. Let alone lift a 1m dish 2m onto the mast head. Thankfully Nick M7NCK came to the rescue and with his brilliant help we set the mast and lift the dish up onto it (The mast in its down state is around 2m tall! Even for the two of us, mounting the disk was an effort.

Once the dish was set up and roughly pointing south-east, I dragged the Vu+ receiver and a small TV out into the garden and connected everything up, including a cheep satellite finder that came with the 80cm disk. The finder is nothing more than a meter and a tone generator, when you find a satellite the tone starts to get higher and the meter moves towards full scale deflection, you turn the built in gain down and then move the dish looking for the strong high tone again. With a little playing we managed to get things receiving a TV picture! Okay it was German TV as I had found Astra 1K which carries German TV. But it was enough to confirm the supplied LNB was working and that the dish was not damaged in any way.

The following week the next part of the project arrived. This was the LNB recommended for use on QO-100 with the interesting name of Bullseye. This LNB was modified and produced for use with QO-100 and was fitted with a very high stability local oscillator in a bit to reduce frequency drift a major problem in satellite communications.

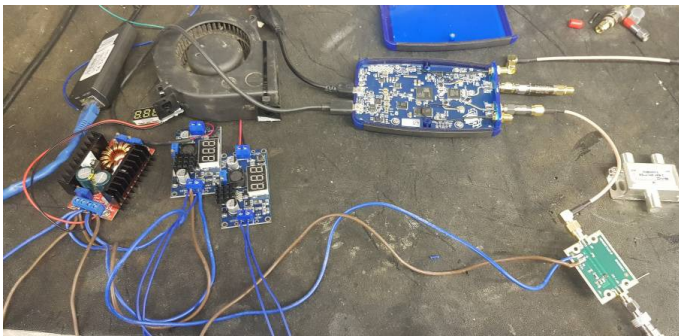
Saturday arrived and I replaced the cheep (free) LNB with the new bullseye LNB and checked that I was still getting German TV. That evening I was in the garden with a phone, earphones and holding onto a zimmer frame and a wrench in the pocket whilst talking to M1GRY Gary in Cambridge on said phone. He was watching my TV back in the house via my webcam which was balance on top of a up turned mug. To my surprise this remote setup actually worked

Why I hear you tut.

Well during the week programmed up the VU+ box with the channel information for a satellite called Badr4. This satellite is in the same part of space as QO-100 and supplies home TV to the middle east, thankfully there is enough coverage to the west to allow dishes of 80cm and above to pick up the TV service. So as Gary is watching the tuning bar graphs and picture in picture telling me almost real-time if I was on the target or not. I also had attached the satellite meter that was giving me a basic tuning tone to indication if I was pointing at a satellite or not. After about 40 minutes and multiple visits to Astra 2G (The brightest RF source in the sky) we eventually found Badra 4 and from the office boomed a ladies voice in Arabic confirming the fact. To be honest I am not sure who was more relived Gary or I. I tightened the bolts that hold the dish in place. However overnight there was quite a strong wind and the dish makes a good sale. You guest it the dish moved. Thankfully that was just a slight change in its Azimuth and I was back on target. Its oddly interesting watching Arabic news broadcasts, it kind of makes you realise how much production quality is used in the UK for television.

I then rigged up the length of cheap satellite coax cable to the Bias-T to supply the LNB with power and the other side of the Bias-T was connected up the Pluto (I had already made the software adjustments to make it work on the bands for QO-100). I also fitted -6dB attenuator to ensure I did not overload the Pluto's front end.

It was very Heath-Robinson but it would allow me to test another part of the project. and SDR Console as I had not used any of the parts or the console.



To the left is the parts of the receiver, just bench mounted to test things were working. Going around the picture left to right we have a USB to Ethernet adaptor connected to my home network. Next is the buck supply boosting the supplied 13.8V to 18V to power the LNB.

To the left of that are two buck supplies one delivering 12v to the snail fan above it. Left of that is the 5v supply that is looped around and connected to a mini USB and plugged into the Pluto which is the blue PCB. The covers are off as G3ZXX had raised a concern that the large chip in the middle of the PCB was getting hot, this is the main CPU for the unit, and although it did get warm its well within the temperature range specified by the chip manufacture. Finally the small PCB with the SMA connector ether end is the Bias T. You may spot the chip blocking capacitor towards the middle top connector.

SDR console is something else; I am still finding new things and making small tweaks here and there even now as I write this article. Thankfully there are a lot of Videos on YouTube about setting up the console to work with the Pluto. Within about an hour I was listening to QO-100!! It was worth the donation made to the author!

Boy was I peed the following weekend when excitedly I powered my perfect bench layout of the receiver back on and there was nothing! I checked the supply, the programming of the Pluto that was fine to. Settings within the console were fine this meant only one thing. The dish had moved again! Sure enough it had moved. So I had not tightened this up as much as I thought. It may not look to wrong, but the elevation had moved. It was pointing way to high.

I fiddled with the dish and managed to get the elevation back down to roughly where it should be, but in the process I managed to knock the azimuth off. I was in a right sulk as I spent over an hour trying to get it back on target with zero success.



I went stomping back into the house and did the only obvious thing I could do. I sat in the kitchen in a mood drinking a coffee. A short while later I was joined by Leyan (M6LF) my daughter who was concerned I was in a bit of a mood and was already on my second coffee. She had a few harsh words and marched outside. She grabbed the spanners and VERY annoyingly spent no more than 5 minutes swinging the dish around and finding Badr 4 again, How!!?? She locked the bolts down and said calmly “is that it?”

Slightly (no VERY) embarrassed I thanked her and she went back to getting her breakfast (at 1pm mind you!)

I was back listening to QO-100. I also went on to ordering the box, and the pre-amp that would sit between the Pluto and the PA as the Pluto only produces 7dBm not enough to drive a power amp. I also re-visited Dave’s original picture as wanted to check the picture against the spreadsheet as I started questioning myself.

While I was looking at the picture I noticed everything was stuck to the box with self adhesive cable tie points and cable ties. The thought of how good these would survive in a warm summer. I also started wondering about how to get fresh air into a water proof box. I had ordered cable ties and sticky pads already so plan A was still a goer.

Part 3 and the final construction will be in the next Q5.

There is a talk and Demonstration on the use of QO-100 coming in the next month or so by Dave G3ZXX. We all look forward to welcoming Dave to the club.

Chairman's Chatter

A very Happy New Year to you and your family.

After a welcomed break the Club is open again and I must say its good to see the members returning.

The Christmas Party was held albeit concerns over the Covid did hamper a few members attending but in principle everyone enjoyed and stayed safe. A big thanks to Ben and his daughters who did the catering along with Allan and June who provided the drink and organised the Raffle.

Silent Key G3XOB

During December we saw the sad loss of David Ellacott, G3XOB to Covid. He was also isolating for the last 20 months due to another medical condition.



Dave Joined the NBARC circa 2013 after a break of over 25 years (although he stated he was never very active anyway). Most of his activity was QRP CW. David as you know, was a person full of joy and happiness and thus took up residence on the NBARC door welcoming members.



Over the years Dave took part in the majority of NBARC outdoor events plus helped many members pass the RAE as a Trainer and Examiner. Picture above was at Dick, G0XAY's summer BBQ 2013. You can see Peter 2E0PGS and me in my Singapore Dragon Style Shirt!! and Filton Festival 2014.

Myself, Dave G7BYN and Peter 2E0PGS represented NBARC at David's funeral. Matt G7FBD kindly wrote an Obituary which at the request of Dave's wife Anna I read during the service. I am pleased to say he had a lot of friends and relatives attended to say their goodbyes.

Dave will be sadly missed by all, as he gave us so much to be happy about. Anna said he really looked forward to Fridays at the club and we saw this by his humorous jokes and weekly purchases of home made Pickled Onions he bought from SHE7. Rumour has it, he spilt a whole jar in his car and it was very smelly for weeks. Joking a side, we hope that Anna, his wife will keep in contact and make a full recovery from her own ongoing medical conditions. 73 David.

Events Calendar 2022

- Feb 4th General Club Night
- Feb 11th Space Missions, By Dennis, M0IYQ
- Feb 18th Shack Night
- Feb 25th Bring & Buy
- March 4th Talk on Transponders By Dennis, M0IYQ
- March 11th General Club Night
- March 18th Show & Tell. Bring Your Latest Project or Purchase
- March 25th Talk on the Balun & UnUn By Dr. Tony Hawker, G4CJZ
- April 1st General Club Night
- April 8th Round Table. Your Questions answered.
- April 15th Good Friday **No Meeting**
- April 22nd Shack Night
- April 29th Film Mills by SPAB
- May 6th Prep Kit for Mills On The Air
- May 13th General Club Night (Collect Kit for Tomorrows event)
- May 14th & 15th Mills on the Air at Ashton Mill
- May 20th Mills event Debrief and return kit to store

Note During General Club Nights we may introduce antenna and radio shack maintenance. Also the membership will be helped with any problems they may have with their kit.

The above events could change due to unforeseen circumstances. To confirm, you can ring the Secretary on 07533933831.

Club and Members Nets

To spice up our nets, the Wed net will be a Technical net (If we can). If members have a problem, or just want to know how something works, ask your question here.

This came about because some participants of our nets didn't want to spend the night talking about the weather and general chit chat. They said it was boring, so wouldn't come on any net. The Chit Chat evenings will be the club night being Friday and the Sunday net. We hope this will cater for all.

Wednesday net (This is a regular Net) GB3BS 20:00 to 21:00 Local

Sunday Evening Net This is on GB3BS 20:00 to 21:00 clock time.

Saturday Mat's DMR Net GB7BS 19:00 to 20:00 South west cluster TS2 (950)

If you have anything for Q5, please email it to me before the closing date being 24th January 2022. The next Q5 will be the midwinter edition publication date 1st February 2022. This is the time of year we can make or mend our kit. Antennas is of course the favourite things to make, so if you have any ideas on this subject or if you want to make something but don't know how to go about it, there is sure to be some one in the club who can help you.

A Personal Thank you goes out to Dave, M0HDJ for his sanitising of the tables and chairs at the end of each club night. This has to be done as part of the SHE7 rules. Also to Dick, G0XAY for the hard work and attention to restoring the Santander bank account that they froze over the time of lock down. Thank you once again.

Club Contacts

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Next Q5

May 1st

Q5 Publication

Last date for articles 24th April

Publication Date 1st May

It is hoped that I will get articles sent to me from time to time. I thank all of you that have submitted items over the past couple of years. All back issues are available on the club's new web site.

www.nbarc.org.uk

Stop Press

Many of us use Hand Held radios or Hand Held Microphones when driving believing that we are protected by the protection of the earlier regulation The Road Vehicles (Construction and Use) (Amendment) (No. 4) Regulations 2003 that allowed hand held microphones. The new legislation that have been sneaked in via the new Highway Code. Rule 149. The MUST notation means that it is to be followed and not just advisory.

Note There are no exceptions for Police, Ambulance, Fire, Taxi or Radio Amateurs. So watch the police abuse this law.

Rule 149

You MUST exercise proper control of your vehicle at all times. You MUST NOT use a hand-held mobile phone, or similar device, when driving or when supervising a learner driver, except to call 999 or 112 in a genuine emergency when it is unsafe or impractical to stop. Never use a hand-held microphone when driving. Using hands-free equipment is also likely to distract your attention from the road. It is far safer not to use any telephone while you are driving or riding - find a safe place to stop first or use the voicemail facility and listen to messages later.

I'm not legally trained so make up your own up mind, but to me it looks cut and dried.

Remember Drive Safe.

Dave G7BYN