



Issue 176

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# NKRS Newsletter

Our next meeting is whenever the world is declared safe but when it happens it will be at  
**The Hurst Community Centre, Room 15, Hurst Place, Bexley, Kent, DA5 3LH**  
Doors open at 8PM

Date	Event
7 April 2020	Natter Night
21 April 2020	Andy from SDRPLAY more information to follow
5 May 2020	Natter Night
19 May 2020	John Knight Flying
2 June 2020	Natter Night
16 June 2020	East Anglia military airfields by Ian G7PHD
7 July 2020	Natter Night
21 July 2020	Testing Batteries by Marion Osbourne



## Club Net

The club net is now taking place every Tuesday  
8.30pm , call on 145.5 and then we move to a convenient clear channel

**PLEASE NOTE UNTIL MEETINGS RESUME I WILL ONLY PRODUCE THE NEWSLETTER MONTHLY**

**The last meeting of the NKRS took place on the 17<sup>th</sup> March 2020.**

Although a talk had been scheduled current circumstances led to its cancellation and the meeting became a natter night. We followed precautions (see newsletter 175) and as you can imagine the main topic of discussion was **THE** virus.

It was decided that we would continue to hold further meetings but we did not know then that the lock-down by governmental decree would put an end to them. Therefore our program of events is cancelled and there will be no more meetings until further notice.

Now we enter life in lock down. I think that the worst part about it is the not knowing how long it is going to last for. On a personal level it came at a bad time as I was due to fly to Australia on April 1<sup>st</sup>. Probably as well that I didn't get there given the way events have changed because it means that I am home with my wife not trying to get home on non existent flights. We do have a friend in India who is stuck there for an unknown period of time.

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Life in lock down has not (so far) been too bad. There are lots of things that I should have been doing and I have not had the incentive to do many of them. I have spent a lot of time cuddling up on the settee with my wife (and occasionally the cat) which is no bad thing but it has meant a major disruption to our normal way of life. Normally Monday to Friday we both go off in different directions and see each other in the evenings.



We have been going out to get our exercise by doing some walks and exploring some local areas that I have either never been to or not been to for a long time so that has been a good pastime. What we don't know is what future measures will be introduced and how long it is all going to last. As we hope the government are giving us the right advice it is only logical that we should stick to it.

One thing I discovered is that even Northumberland Heath

has some street art. Normally I am showing you East End art but now I am stuck locally on this page is some local stuff.

It has given me the opportunity to realise what I miss during the current restrictions and I may do another article in this or a future newsletter about this.

I was encouraged by this weeks "clap for carers". Last week when we went out to clap only a couple of people across the road took part but this week a large number of the residents of our road came out to join the tribute.

I have been speaking to friends in the USA, Ireland and Australia (by phone not radio) and hearing their reports which have been interesting.

This item may seem a bit disjointed but I have been adding to it as time goes on,

**The important thing is to stay healthy and keep safe.**

Dave Collings  
Chairman NKRS



## Self isolating on the radio By Frank Connor G3WMR

Amateur radio is currently enjoying an upsurge in interest with many more people being at home and with time on their hands.

Last Saturday I stumbled on the Thurrock Acorns 2 metre activity session. This is something that they have held before and each time I have managed to miss for one reason or another but I have always welcomed the idea.

I worked Eddie running the club callsign GX4HKO and had a very interesting QSO during the course of which I mentioned that I first got interested in 2 metres when I was a schoolboy in Jersey using an R1392D ex Air Ministry receiver. My father and another Air Traffic Controller who had a copy of the ARRL Handbook, which he lent me, sent off 79/6d each for the receivers. Ken, my father's colleague, converted ours to run on VFO instead of crystals and with some copper pipe in the loft as a dipole I was soon listening to the airport, the police (which were single channel simplex) and a French FM music station. Sadly, Ken died at 40 before getting his licence.

Later on I found amateurs, mainly French and also GC2TR in Jersey who talked mainly to F2NX in Granville. One September I heard loads of UK portables in a contest which I later found out was VHF NFD (before they moved it to July).

After I signed with Eddie I was called by Brian G8LYW (not to be confused with an infamous top band station) from Thorpe Bay in Essex who told me that he worked for EK Cole Ltd when the 1392 was being made and that he subsequently serviced them at aerodromes. I told Brian that mine still worked perfectly without any problem from electrolytics failing and he wasn't surprised as he didn't think they had any electrolytic capacitors in them. Even the PSU used paper capacitors.

Then, of course, Tuesday came along and we had one of the best club nets ever. Hopefully we will maintain that while we are unable to meet in person.

I have also called in on an 80 metre early morning net which I have listened to for years but not joined as the radio is downstairs and I am normally listening in be on 863MHz cordless headphones.

It would be interesting to hear of other members' increased activity.

Frank G3WMR



G3WMR's modified R1392d



### Three transmitters in three years – by Chris G0FDZ

Chris as we all know is a prolific builder of hi tech equipment and the following is based on an article written by him. Having made an assessment of his existing millimetre wave equipment and deciding that to increase the power output of his existing transverters was not the best way forward he came to a decision as to the best way forward and here is what he decided.

“I considered the situation and decided to build three transmitters, each dual band at a rate of one per year. As there are only five bands of interest, one band eventually used two different technologies to generate the RF.”



47-76 GHz transmitter  
76 GHz plate showing

He started his first transmitter at the beginning of 2017 and this was to be the unit for 47 & 76 GHz and would use a double deck (plate) for each band.

The 47 GHz section plate used an Elcom 11.75 GHz synthesiser modified to give direct access to the synthesiser. This enabled much smaller steps than the restrictive 3.3 or 5 MHz steps with the original units. The synthesiser code to generate the frequency was loaded when the unit was powered up (and additionally could be reloaded when the unit was active by a manual load button) by means of an Arduino Nano.

The output of the synthesiser was fed to a PIN switch that was to be used for keying at 11.75 GHz. After the switch the RF was doubled to 23.5 GHz using a mixer configured as a doubler, and amplified with a surplus 24 GHz amp to give 13dBm, and then fed to a DB6NT design varactor doubler to 47 GHz giving a very useful output of 15 mW.

A completely different design was used for the 76 GHz section plate. A different Elcom synthesiser was again modified and again loaded by an Arduino Nano at start up.

The RF is keyed by a PIN switch and then actively doubled using a ‘Franco’ waveguide filtered doubler to 25 GHz and then amplified by a

Toshiba 24 GHz amplifier before being fed at a third of the final frequency to an injection locked oscillator giving an extremely useful 100 mW output at 76 GHz. This first transmitter was approximately £450 in component costs.

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122-134 GHz transmitter

The next transmitter was started at the beginning of 2018 and was for the two bands of 122 & 134 GHz, but it used common architecture for RF generation and multiplication.

Very low phase noise was essential at the frequencies that it would ultimately be used at LO source covering 8 -13 GHz became available from DB6NT and this was ideal for the RF generator as it was very frequency agile and could easily be changed at will with a touch screen interface. The other great advantage is that keying was already built into the unit so I just needed to arrange for some sidetone. The touch screen also gives a visual display of PLL status, frequency and other essential info. The synthesiser required an external 10 MHz reference and a high quality source was obtained from a seller in Germany on e-bay.

Output from the frequency source is doubled using a modified Toshiba 24/26 GHz amplifier it is then fed to a diode x5 multiplier. The output from this arrangement gave several tens of uW at the required frequencies and was then connected to the antenna by a common waveguide output. The gain had to be increased by the use of a new 14" antenna dish and associated feed that I had to make.

This transmitter cost approximately £750

The final project was the construction of a new transmitter for the 241 GHz band and this was also combined with a new multiplier for 122 GHz. Construction started in early 2019.



241-122 GHz transmitter.jpg

The frequency generator for this transmitter uses a new low phase noise 8 - 13 GHz RF generator by Wayne ZL2BKC. An ideal device as it is more economical than the DN6NT and the performance is as good. It can easily be programmed from a PC. The unit also requires an external 10 MHz reference and a suitable type was also supplied by Wayne. The unit does not have any keying facility built in, so again a PIN switch at 12/13 GHz is used.

This was followed by an amplifier at 12/13 GHz (CT manufacture) and then fed via an SMA relay to either a DL2AM varactor multiplier block x10 to 122 GHz giving 1.1 mW output or else to a DB6NT multiplier design (x21) giving around 10 uW output. The multiplier units themselves have additional on-board multipliers fitted so the final multiplication is not as severe as first thought.

The cost of this transmitter was approximately £850.

For all the five bands, the keying also incorporates sidetone, for without having sidetone is always a problem for me sending CW, and the all the units also incorporate a low 12v battery supply alarm at 11V.

This completed the dual band transmitter's project after three years of building, and the transmitters can also be used with an auto-keyer as personal beacons for receiver and antenna testing and optimisation.

Thanks for reading this Chris G0FDZ

**You may think you are having a bad day but read on.**

## **Bunkier Anielewicza**

This bunker was a sanctuary which served as the headquarters of the Jewish Warrior Organization, a Jewish underground group operating in the Warsaw Ghetto in Poland during World War II.

On May 8, 1943, surrounded by the Nazis after three weeks of struggle, many perished or took their own lives, refusing to perish at the hands of their enemies.

It became the grave of the fighters of the Warsaw Ghetto Uprising built from the rubble of Miła Street, one of the liveliest streets of pre-war Jewish Warsaw.

These ruins of the bunker at 18 Miła Street are the place of rest of over one hundred fighters, the commanders and fighters of the Jewish Combat Organization, as well as some civilians. Only some of whom are known by name but among them lies Mordechaj Anielewicz, the Commander in Chief.

You may wonder about the stones on the picture on the right. It's customary in the Jewish faith to place stones on graves or tombstones instead of flowers. Some religious leaders of Judaism even outright oppose the idea of placing flowers on graves. Perhaps more importantly they are a marker of someone's visit. We left stones on our recent visit.



The inscription on the stone to the left reads.

Grave of the fighters of the Warsaw Ghetto Uprising built from the rubble of Miła Street, one of the liveliest streets of pre-war Jewish Warsaw. These ruins of the bunker at 18 Miła Street are the place of rest of the commanders and fighters of the Jewish Combat Organization, as well as some civilians. Among them lies Mordechaj Anielewicz, the Commander in Chief. On May 8, 1943, surrounded by the Nazis after three weeks of struggle, many perished or took their own lives, refusing to perish at the hands of their enemies.'

Here they rest, buried as they fell, to remind us that the whole earth is their grave.

Written in Polish and Yiddish “



## The Black Cone Monument to Civil Disobedience

I was travelling in a foreign land  
And found a large and shapeless lump of stone

Apologies to King Ozymandias and Mr Shelley

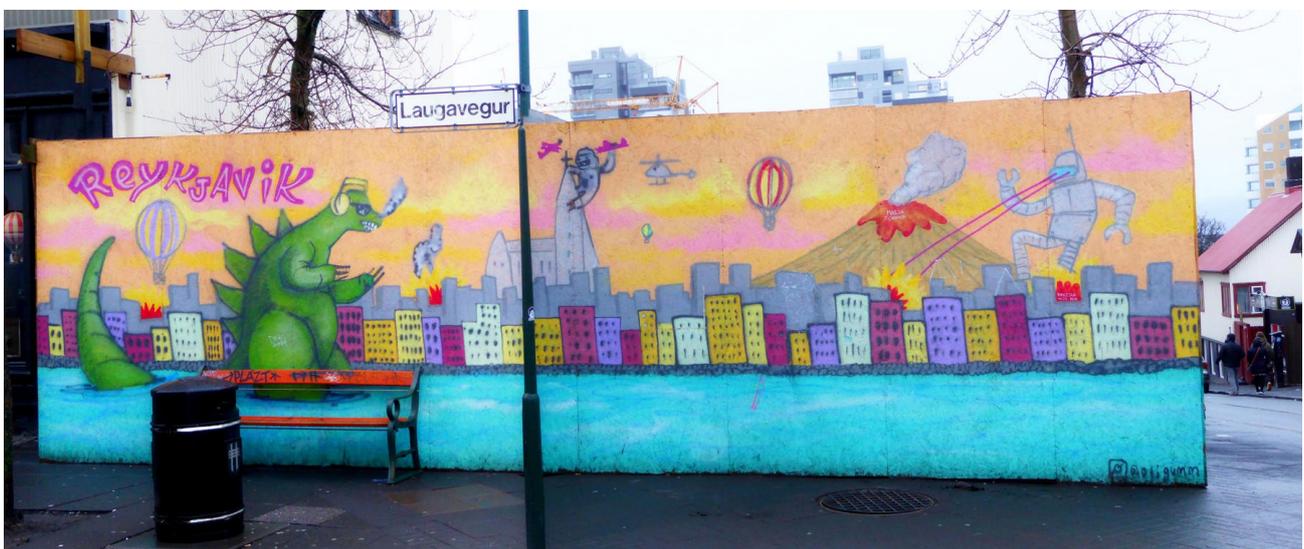
The stone is marked with a label bearing a quote from the French Revolution's Declaration Of The Rights Of Man And Of The Citizen:

“When the government violates the rights of the people, insurrection is for the people and for each portion of the people the most sacred of rights and the most indispensable of duties.”

The stone is **The Black Cone Monument to Civil Disobedience** and is a large piece of rock that sits right outside of the House of Parliament in Reykjavik.

Constructed by Spanish artist Santiago Sierra, the monument first appeared in front of the Parliament in January of 2012 where Sierra cracked the rock with a black cone. It commemorates the third anniversary of protests after the Icelandic (and world) economic crash in 2008.

In the recession that followed the 2009 Banking Crisis, when US banks failed because of greed and bad debt, the US bailed them out. In Iceland, when the same thing happened, they took another tack: they fought back against the corruption and put some high ranking businessmen in jail.





On the left is a poster that was prominently displayed on bus stops around Warsaw.

It translates to

caution evil sir

I may be able to guess what it is relating to but does anyone reading this have any ideas.



Was the above photograph taken in the 60's or in 2020 ?

I can tell you it was taken in the Whitechapel area, what do you think.

As we are all in the same position of self isolation for the foreseeable future would you like to write about your experience of the situation for the newsletter and share it with others?

Also if you would like to write any other articles or submit photographs for the newsletter it would be much appreciated, after all many of us do have a bit more spare time than usual.

Thanks to Chris **G0FDZ** and Frank **G3WMR** for their contributions

**More importantly listen to the government and stay safe so we can all be here when its over.**

That's all

Dave Collings G4YIB 4 April 2020