

North Bristol Amateur Radio Club

The Proactive Radio Club

Page Community Association

Page Road, Staple Hill

Bristol BS16 4NE

November 2024



**Yes folks another free Christmas Meal. Free Buffet and Free Bar.
(What other club does this).**

Yes, I know it is only November. This is the last Q5 before the big day so unfortunately, we have to talk about it now.

The meal (Sorry Members Only) takes place on Friday 13th of December. The time will be the normal club times so remember, to arrive in plenty of time for the beginning of the festivities. More details on how to book your meal, see page 4.

Newly Qualified & New Members

Congratulations to Dave, (Yes, another Dave) Now M7KWC and Paul, M7LZG on their new licences. If you hear them calling, please return their call. By the way, Paul's son Ethan is now studying for his Foundation. congratulations to all.

Welcome Mathew bell, M0ECM who re-joined the NBARC after a short break from the club. Also, we have Clive Tucker, SWL currently studying for his foundation.

GB3AC Is Now Live On Air

GB3AC is On Air

GB3AC is now on air from the club's QTH. Just in case you don't know the settings they are on the bottom of this page. The photograph on the right shows the repeater mounted in the boiler house. It's antenna mounded adjacent to the old disused boiler chimney stack is just outside. The club had the mains power installed to all the new regulations and it is to be noted that the boiler house is nice and dry, unlike the old location.



The Repeater in it's permanent position (Photo by Namal, M7NML)



There is another member involved with the repeater construction. That is Shaun G8VPG. He cut the slots for the front panel on his CNC machine. The overall project has been very professional from the beginning to the end. The projected coverage area is very much as expected, with tests still taking place. There are places that have proved difficult, Bradley stoke being one place but then again I can't get a phone coverage either. A change of antenna on my car would certainly improve matters. Remember, if you can't work AC, think of what you can do to your station to improve matters. As you can see from the Photograph on the left, the antenna is, at the moment not too high, so there is possible room for improvement here also. Remember, it is early days.

Thanks to the hard work of Namal, M7NML and Paul, G8YMM for installing the antenna with cables and Tony, G8TJZ for supplying and testing the Repeater. (The Box as it is known). I understand John M7LZG and his son Ethan also lent a hand. By The Way, this is the best way to improve your knowledge of radio, giving a hand with any projects the club may be involved with.

To set up your radio to use GB3AC, here are the details.

The Box Output 430.9750 and RX 438.5750 with a CTCSS of 94.8Hz

GB3AC Now Live

Once again, pictured on the right is Paul, G8YMM, your Chairman hard at work making off connections prior to the big switch on.

It is to be noted that it is early days yet, and things are in the pipeline to make some more improvements. This only adds to more exciting times at the North Bristol Amateur Radio Club.

Please test "The Box" as much as you want. As I drive around the area, I often call in to check not only access, but to read off signal strengths.

Any comments you may have will be gratefully received, but please be respectful.



On the left is Paul and Tony, G8TJZ taking readings prior to passing on to the membership to play with.

Of course the amateur repeater network is open to all amateurs to use, it is not just for our members. So please welcome any other stations to participate.

There is a small difference in the operation practices of this box. There is only 1 pip that will signify that the box's time out timer (TOT) has reset. It is recommended that you leave a couple of seconds after this pip to allow other stations to call in before you commence your over. If you leave it too long, you may hear another pip. This pip is notification that the box will close down in 2 seconds. Have a go at opening the box, it won't bite.

The photographs in this column courtesy of Namal, M7NML

Club News Past, Present and Future

Free Buffet and Free Bar. Yes folks another free Christmas Meal.

Yes, I know it is only November. As stated in the headlines, This is the last Q5 before the big day so unfortunately, we have to talk about it now.

The difference this year is a £5 Deposit, refundable when you arrive at the Christmas meal. **It is Not refundable if you change your mind.** The reason for this is last year we had some no shows. For what ever reason they had, there was an extra cost to the club.



The simple Rule

You will have to turn up to a meeting up to and including the 6th Dec to pay your **£5 deposit in cash. No Bank transfer will be accepted.** The cash will be sealed in an envelope with your call sign on it. This will be returned to you at the party. If for any reason you fail to turn up, the deposit will be forfeit and will go to club funds. .

if you have any **dietary needs**, please let us know at the time of paying your deposit.

The AGM has been called for 17th January.

This is a meeting you should never miss. It sets the club's agenda for the following year.

Wanted

A reasonably priced small Laptop or note book, (10 inch) must work, not worried what version of windows as this will be replaced with Linux. The battery doesn't have to work, I will buy a replacement but, it would be good if it does. A fast processor is not necessary as it is only going to be used for logging whilst working portable Contact me, Dave, G7BYN at the club or, g7byn@outlook.com

JOTA 2024

This took place Saturday 18th October. There were a number of club helpers on hand to assist the youngsters gain their communication badges. This was held at the club's QTH using the club's radios. Now we have a working shack and antenna system this was the easiest option.

There are no photographs of the event as this is a request from the scout leaders. A number of you out there will say there is no law against taking photographs, that may be true but, out of respect the scouting organisation, the children and their parents we complied with their wishes.

The event went without a hitch. And we welcome the scouts back next year for a bigger event and, who knows, they may join us for more events.

Club News Past, Present and Future

Railways On The Air

This event was only a couple of months ago. It was the last outdoor event of the year. It used to coincide with the 40's event organised by the AVR (Avon Valley Railway) hence the special event call sign GB0AVR.

Because of the impending change of management at the railway I spoke to the manager a week before the event. He said that we are very welcome to set up our station.

The radio station, this was the club's IC7300. The antenna was the 20 / 40metre trap dipole strung between two 25ft poles. Back stays were employed so that the wire could be pulled tight to eliminate sagging at the centre feed. This makes it RF separation compliant.

All aboard ! Rocky took this selfie. Mike is just behind with Bodger at the window. Two Dave's to the right This was the Saturday morning and it was starting to get warmer by mid day.

The club had a good turnout this year, with half a dozen in shifts throughout the weekend. For me the most impressive part of the weekend was newbie Paul, M7LZG working a few stations under the spotlight as it were. While I was working a pileup on the Sunday Paul's son Ethan took to the log and logged all my stations for me.



Here is Ethan with his proud dad, Paul behind. The young lady in the foreground is Rocky's daughter, Holly. She enjoys all things technical, possessing her own tool kit and can often be found helping, (or is it hindering) her dad with anything from antennas to car repairs.

A great day was had by all with, I'm glad to say, our newly licenced members were instrumental in the station hopefully learning a thing or two. They not only worked other stations but assisted hanging antennas.

I can remember in my early days in the hobby, helping with special events gave me a good foundation into setting up a radio station. Thanks to Tony, G8CKK for his teaching all those years ago.

Our Guest speaker on POTA

This was the first time for ages that we have had a guest speaker. April, M7APR She is the coordinator for Parks On The Air in the England. Wales Scotland having their own. Since our talk, she has added quite a few parks as suggested by Mat, G7FBD.

POTA is unlike any other events on the air. It can take place any time of day and any day.

The park has to be a registered park and can be operated as many times as you wish. To activate the park you have to work 10 stations in any 24 hour slot. Zero points for less than 10. It is possible to work 5 stations in the morning, go off to the pub for lunch then back to the park to operate another 5, you get the idea.

As we published in the last Q5, Parks On The Air has been taking the fore this year as the thing to participate in.

April, M7APR, the coordinator for POTA in the UK gave us a very interesting talk on how to, and what to do to have fun.



Photograph courtesy of QRZ.com

Since this talk, there are a number of club members that has taken up this section of this fantastic hobby of ours. I, along with Mat, G7FBD and John, G4WOD have so far taken up the challenge. Mat, picked up POTA from his love of portable working, mainly 6m contests with his mate, Gary, M1GRY. Apologies to Gary I wrongly signed Gary G1GRY in the last Q5 and was severely reprimanded by Mat.

John has been mixing POTA with his other hobby of Photography, visiting allocated parks with his wife, who is not a fan of POTA but, she is of photography.

So you see, in the summer, in particular, it can easily end up being a family event. Playing radio on a park bench and the rest of the family having a picnic.

It is not a contest, all you have to do is make 10 contacts to have been termed as an activation. Then stop and have a picnic with the wife and kids. Now who could complain at that. Happy wife and happy kids.

I say that it is not a contest, however, there are awards to win. These you print out yourself and look good in the shack.

Warning, POTA can be addictive so take it slowly.

Interested? Please read the documents on the POTA web site, have a word with Mat or John for more information. And as usual when you leave any site you operate from, please leave no trace.

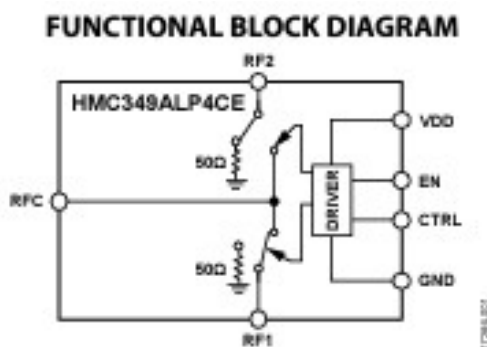
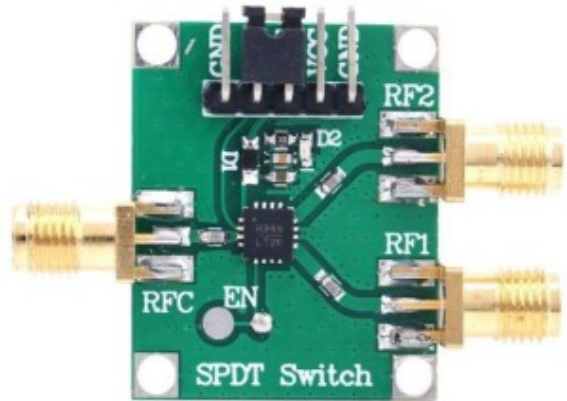
Solid State RF Relay By Dennis MOYQ

Editors Note

Dennis surprised me by sending me this article. He has been working on this project for some time and the fruits of his work is produced here. It shows what can be done with reasonably priced modules.

Description of device:

The HMC349ALP4CE is a gallium arsenide (GaAs), single-pole, double throw (SPDT) switch, specified from 100 MHz to 4 GHz. The HMC349ALP4CE is well suited for wireless infrastructure applications by yielding high isolation of 62 dB, low insertion loss of 1.0 dB, high input IP3 of 53 dBm, and high input P1dB of 34 dBm.



The solid-state relay is single pole, double throw (SPDT). The module operates between the supply voltages of 3 volts to 5 volts

A logic signal to VT1 controls the operation of the output.

This enables direct connection to microprocessor input/output.

Logic: High Port: RFC to RF1 Led: on

Logic: Low Port: RFC to RF2 Led: on

The relay is designed as a non-reflective device. This means the unused port will be terminated into

50. Ohms

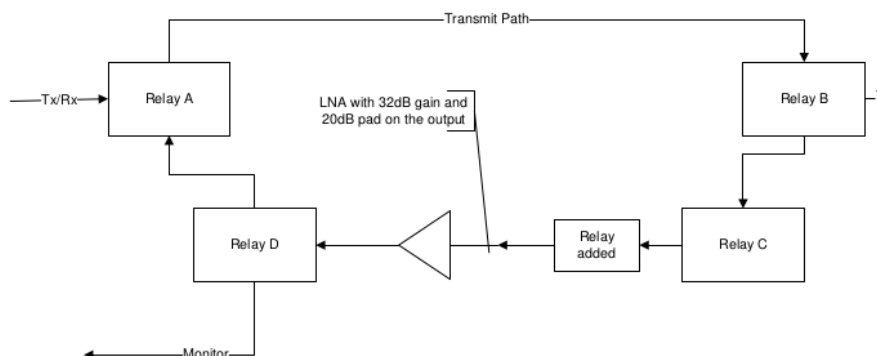
The maximum power, hot switching, is 30dBm and the terminated path is 26dBm. In reality it is best

to keep the power to > 20dBm (100 milli-watts).

The reason for my choice of this device is as follows:

Solid State RF Relay continued

At the moment I am revamping my Mast head LNA box. The box covers the three bands, 2meter, 70cm and 23cm. I wanted to be able to measure the output power and spectral clarity of the signals. To do this I needed some form of coupling to the signal path. As there was already relays to switch the LNAs' into receive mode.



With reference to the above diagram. In Transmit mode Relay A and Relay B would be in the Transmit path. So, relay B and relay C would be open on the LNA path. This would give an isolation of around 60dB. The Tx power at 23cms would be 50 watts (17dBw or 47dBm). This would give an input level to the LNA of 13dBm. This level will overload the LNA (Even at very low power levels) as the overload factor to the LNA is -27dBm. So, to prevent the overload of the LNA there is a need for an attenuator in front of the LNA but needs to be switched when normal operation is needed. So, using a relay (Relay added) gives us this using the isolation of the relay which is about 40dB. This would give an input level of -53dBm. Well below the overload threshold of the LNA. The added relay would add 1dB to the input noise figure. As the LNA has a noise figure of 0.7dB which would give an input noise figure of 1.7dB. Well within the requirements for the normal space link. The reason for the 20dB pad is to try and maintain the original dynamic range of the receiver

Test Equipment:

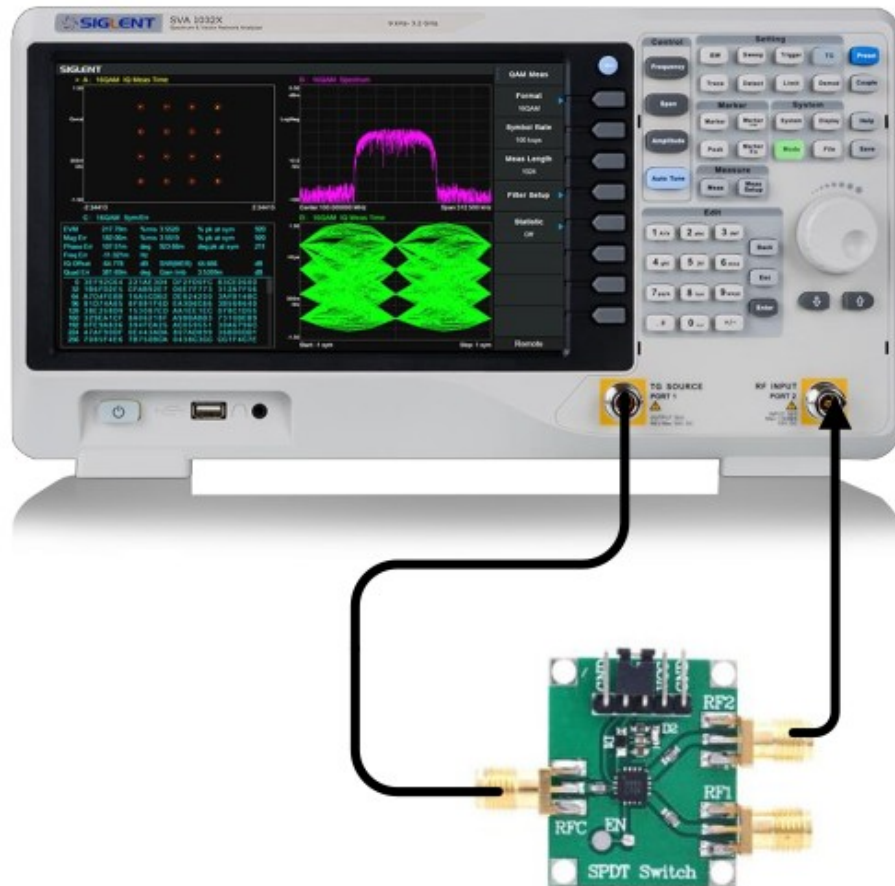
SVA1015X Vector network analyser and calibration kit.
SMA torque spanner.

Test Setup:

Start Frequency: 1240 MHz
Stop frequency: 1325 MHz
Output Power: -20 dBm

Solid State RF Relay continued

The VNA was calibrated to normalise the result. This means that any response displayed is the correct result.



Test Setup

The test was carried in the 23cm band to check the response of the device as this was where the device would be used.

Results:

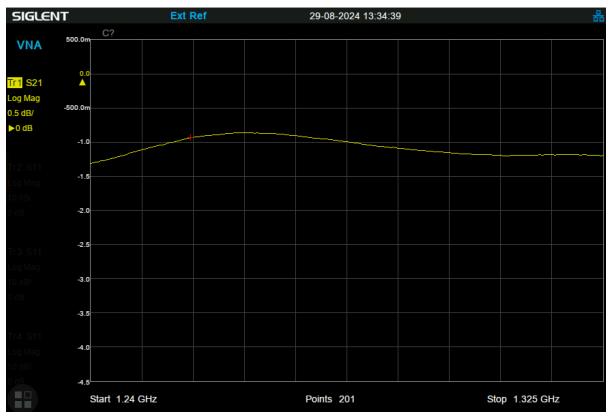
Relay isolation better than 40dB

Insertion loss: 10.8dB to 1.4dB: Centre of the band 1dB

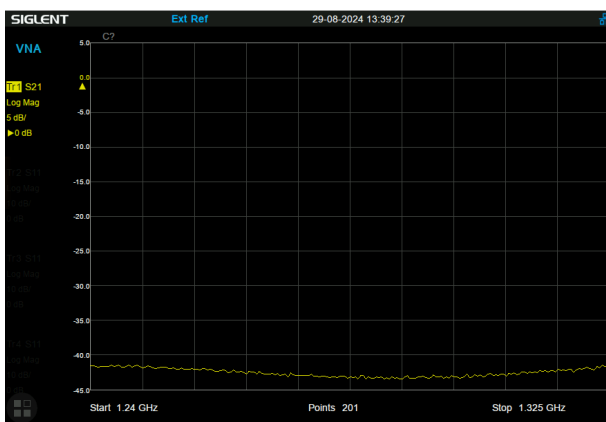
Return loss >20dB

VSWR: 1.06 to 1.28

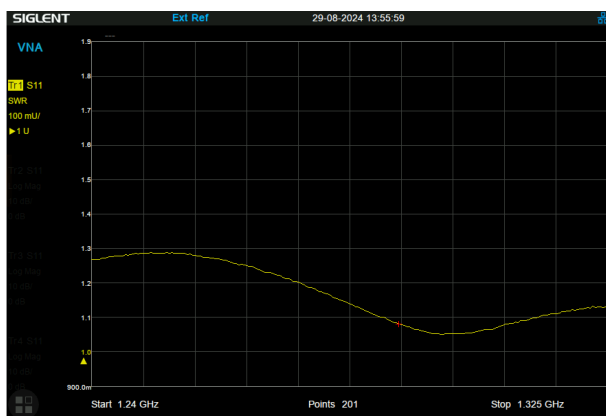
Solid State RF Relay continued



Insertion Loss (Port RFC to RFC1 or RFC2)



Isolation loss (Port RFC to RFC1 or RFC2)



Standing Wave Ratio (SWR) (Port RFC)

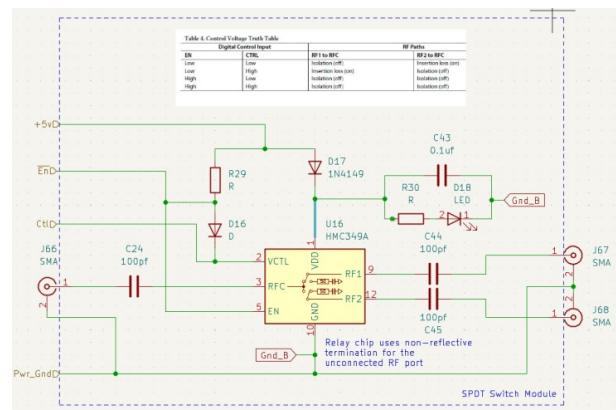
Technical References:

<https://www.analog.com/media/en/technical-documentation/data-sheets/HMC349ALP4CE.pdf>

Relay board -

https://www.amazon.co.uk/dp/B0C4LZ276N?ref=ppx_yo2ov_dt_b_fed_asin_title

IC on Board – HMC349ALP4CE – Analogue Devices



Schematic of the Board

I hope that you can make use of this project, and as usual you can always enlarge any of the data, schematics and other features if you are reading this on your computer.

If you would like more details I am sure Dennis will only too pleased to answer them.

If you have any projects for the membership, please send them in

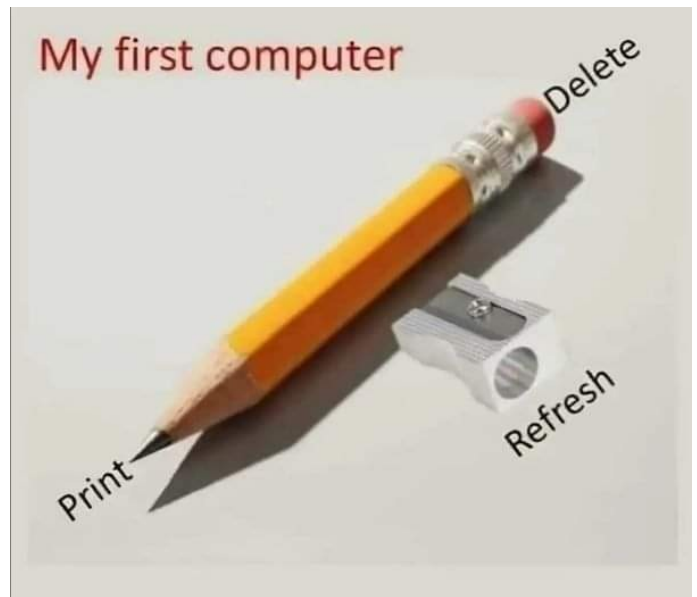
Fun Page

Many of you who join in with our nets will know that I write a lot of things down. As a joke, I often said that I use a *Graphite cored memory stick*. Mat sent this along, as an improvement.

It not only is a ROM (Read only memory)
But it acts like an EPROM (Erasable Programmable Read Only Memory)

To programme use the Core
To erase use the Rubber.

Unfortunately, you need an external devise to read. That being your Eyes.



Remember the competition I posed in August edition of Q5. The cartoon showed a car changing colour as it passed a bystander. Explain the colour change?

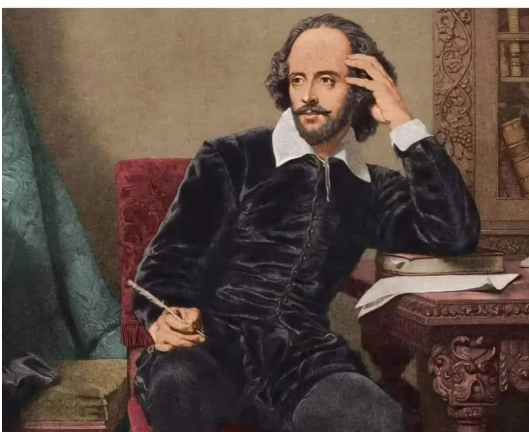
Well, the answer was, the car was so fast the colour changed because of **Doppler Shift**.

There were four members correctly identifying the answer. Names were duly entered into a hat, Paul, our Chairman pulled the winner.

The winner Mike, shown here with a four pack of Guinness was Mike. Notice:- the Guinness is alcohol free (but don't tell him)

Breaking News!

Rare worn down pencil belonging to William Shakespeare has been unearthed. Experts not sure if the pencil is 2B or not 2B



Warning, Warning

It was mentioned in the news recently, that a window cleaner escaped death because his cleaners pole came near to a 330,000volt overhead line. Jason Knight, from Westbury, Wiltshire, has spoken about the incident for the first time since he was electrocuted on 6 April.

The dad-of-three lost his left forearm and several toes after electricity jumped about 2m (6ft 6in) from a power cable to his cleaning pole.

We talked about this on one of our nets, a contributor missed the point. He said, "It is OK if it is a fibreglass pole not carbon fibre" The point he missed is it is an antenna pole with wire or coax running down it therefore, it doesn't matter what the pole is made of.....**Keep well away from power lines. Don't let this happen to you.**

A New Project for the Club

Ever heard of High Altitude Balloons? Well, you will notice in the club's new calendar of events we have a talk on HAB (High Altitude Balloons).

We know that it has been done many times before by different radio and non radio clubs. There has always been an anomaly with the communication side of it. Our licence would not allow transmission from an airborne vehicle, until the changes in regulations earlier this year. For that reason various groups used the ISM bands. These are licence free bands include the little PMR walkie talkies and various modules available from the likes of Ali Express.

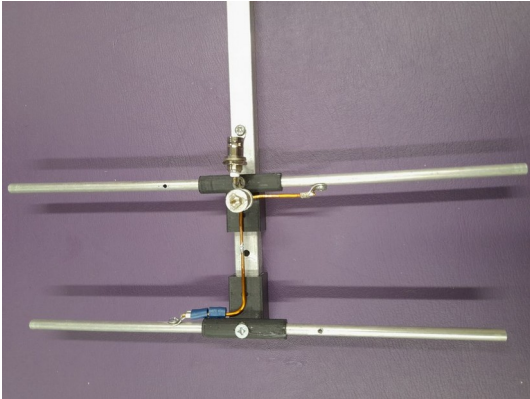
Mat,G7FBD and Mike, M1ARI has been working over the last 9 months or so on the PAA-load and software. It is envisaged that the first flight be just a simple one obtaining data with a transponder connected to a ground station.

Telemetry from the balloon can include Height, temperature, and position. Other experiments are also possible including photography. I, personally would like to see live TV pictures. We are aware that this will be some time off. There are some snags however. If successful, the height reached could be 10, 20 or 30 thousand feet. The temperature at that height can be as low as minus 35 degrees Celsius or less. At those temperatures batteries don't work and electronics can fail to work.

We will all learn more about this from Mike, M1ARI during his talk. Mike has been involved with many balloon launches in the past, so we are looking for his guidance.

Then it will be our turn, with launch date about May 2025. Up till now, this has been a project funded by just a few of us. If there is enough interest, it would be great to make it a club event, (with club funding) although that would require assistance with transportation, launch and the tracking with later recovery for it when it returns to earth.

Remembering Rocky's HB9CV



Rocky's Antenna

Going back to the end of the SHE7 era, our venue prior to us meeting at Page Community, Rocky made this version of the HB9CV. This is a lovely version with bits designed and printed by yours truly.

Before we left, back in May 2023 Rocky was busy building, and with Dennis's help and test gear tried to improve on the design. This project however, was never fully completed. Rocky actually built two of them. One used to Tweak, the other as a usable version. This is where new blood in the form of John, M7LZG and his son Ethan has sparked new enthusiasm.

Don't assume that it didn't work, it did, but Dennis, M0IYQ is a perfectionist and to him, things are not quite as it should. Now we are in the throws of winter weather, it is the ideal time to improve the basic antenna with some more modifications.

Enter an Updated Version

New brackets have been printed with a groove at the top. This groove was now included due to the black PLA printing filament possibly having a carbon content causing a reaction to the RF in the phasing line that is close to it.

I also found a calculator on line, enter in the required frequency and hay presto, all the dimensions we need are listed.

The boom length can be made to suit your needs. For Direction Finding, also known as Fox Hunting, a handle could be added to the end to make it comfortable to hold.

This project will be running throughout the winter with a final version being published in Q5 with all the relevant dimensions. 3d stl files for those that want to print the accessories for themselves will be published in Thingiverse.com.

Once again, Dennis will do all the RF measurements with his test equipment as soon as NASA gives it back. Joking aside, with Dennis's help we can learn a lot about antennas and how they are measured for gain and performance.



Other antenna project, or indeed any project can be ran at the club, just send in your suggestions. We will, I'm sure have some one In the club who have the knowledge that can answer most things.

Calendar of events

Nov 1 st	This Q5 Published Christmas Meal Planning
Nov 8 th	On Air night
Nov 15 th	General Meeting & Workshops
Nov 22 nd	Antenna workshops
Nov 29 th	Film Night
Dec 6 th	Last day for your £5 deposit for the Christmas meal
Dec 13 th	Free Christmas Meal and Free Bar
Dec 20 th	Club workshop:- Special events for next year
Dec 27 th	Christmas Break No Meeting
Jan 3 rd	Holiday Break No Meeting
Jan 10 th	Talk By Mike, M1AIR:- High Altitude Balloons
Jan 17 th	AGM As usual, it is important that you attend.
Jan 24 th	Balloon Workshop with the Balloon Team
Feb 1 st	Balloon Workshop with the Balloon Team. Q5 published

If an event is important to you, and are not at the previous Club Meeting to hear Announcements, Please make contact to check if the event is continuing or any changes to the details.

We do our very best to put on the events listed but, due to unforeseen circumstances, things can change. If the event is important to you, you can always phone the secretary just to check if it is still on or not.

Secretary's Phone Number 07533933831

Club Nets & Contact Details

Please remember, we are trying to keep the Wednesday net a Technical net (If we can). Members may have a problem, or just want to know how something works, ask your question here.

This decision 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 Sunday net. We hope this will cater for all.

Participants of nets can always change the conversation of a net. Therefore, if the conversation said to be boring, you only have yourself to blame.

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

Sunday Evening Net This is on GB3BS 20:00 to 21:00 However, GB3AC may be the repeater of choice in the forthcoming month or so. Stand by for an announcement at the club.

Additional nets By Dave G4FJH

Mondays 2m ssb (144.340Mhz) Vertically polarised @ 20:00

Thursdays 6m via the GB3ZY repeater @ 20:05

Club Contacts

Secretary and Q5 Editor

Dave G7BYN

Phone 07533933831

Email g7byn@outlook.com

Please Note a reply may be from another email address as I use this as an inbox .

Chairman

Paul Stevenson G8YMM

Phone 07921942922

Email g8ymm@nbarc.co.uk

Next Q5 May 1st

Q5 Publication

Last date for articles April 24th

Publication Date May 1st

I hope 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