



North Bristol Amateur Radio Club

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

November 20201

Welcome to this edition of Q5



"ANOTHER DAY WITHOUT ANY DEATH THREATS, FIRE BOMBS, OR ATTACKS FROM HEAVILY ARMED RELIGIOUS LUNATICS... I FEEL SO INSIGNIFICANT!"

I start off by apologising for the typos and spelling mistakes in October's Q5. There were many of you out there pointed this out, the good news is Q5 must be read by some of you so I am not totally wasting my time.

With Covid entering it's second wave, the club is not likely to be back for a few months yet. But, as you will read in our Chairman's report, there is good news on the horizon. Paul, G8YMM has been behind the scenes working hard with She7 on how and when our return to the building can take place.

In This Q5

Antenna Compass

Continued Shack equipment series by Dennis Buchan

QSL Cards

More cards that the club has earned

She 7 News

Paul. G8YMM has more news

Antenna pointing compass By Dennis Bachan



Figure 1: SPID rotator showing AZ and EL motors

I purchased an AZ and EL rotator (SPID) for my ground station and the specification was that elevation went from -20 deg to +210 deg and Azimuth from -360 deg to +360 deg. As you can see from Figure 1 the motors are mounted on the main body and the Azimuth spigot connected to the antenna mast shaft. This construction makes it very difficult to maintain the Zero degree for North pointing when errors creep in. Setting the Zero degree is very easy

with this controller and can be anywhere in the arc ± 360 degrees. So a solution was sought to overcome the problem. The solution was to use a compass module and there are plenty on the market such as Amazon and Ebay for a few pounds. That's when you discover the problems. The chips work but they do not operate correctly when the module is tilted (Z axis) from the horizontal plane (X-Y axis). The solution was masses of computation using matrices in cooperation with trig functions. After digging around the internet a solution was found in the form of CMPS12 compass module which had a built in computational engine which takes into account the Tilt computation. The information is then transmitted to the system microprocessor using the I2C bus. The module consists of the compass IC (Bosch BNO050) and processing engine microprocessor. The module runs on a bus voltage from 3v5 to 5v0. The I2C data rate is 100 Khz.

The module has a built in self calibration mode. The module was then mounted on a board to provide a 5 volt supply from the twelve volts input supply. The board was then mounted into a box which is IP65 complaint. One of the constraints is the module must be mounted as far as possible from units generating magnetic fields (Motors) and magnetic materials.



Non-ferrous materials such as aluminium and copper are okay. So it is essential that the unit has to be mounted as far away from the motors. The compass assembly was then mounted on an extended arm and aligned with the boom in East to West direction and the compass itself aligned north. This enabled the Azimuth to be set on the controller to "0" degrees. This then enabled the elevation to calibrate at zero degrees. Once this had been completed the antenna pointing can now be set at any time that warrants a recalibration when the antennas are aloft on top of the tower.

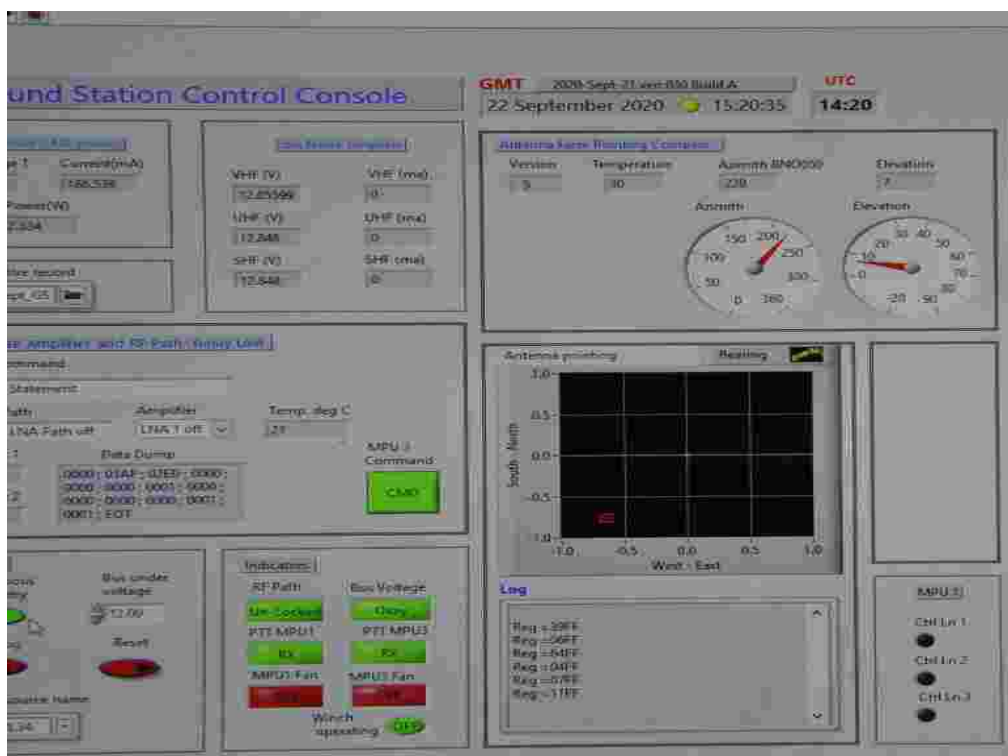


Figure 3: Module mounted on board

With this setup there is no need lower tower to recalibrate the north direction. The Lab view shows the compass in operation using the test format.



Figure 4: Compass testing Jig

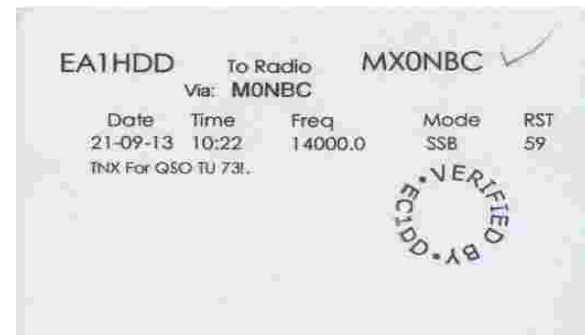
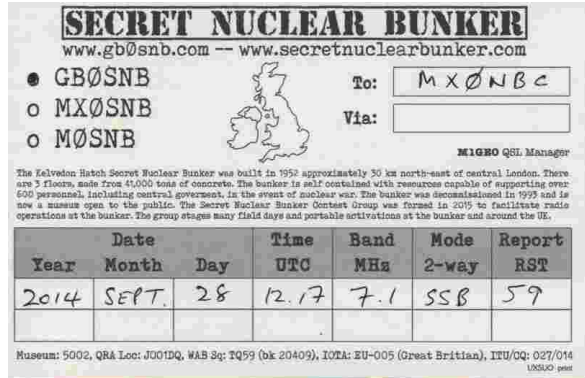
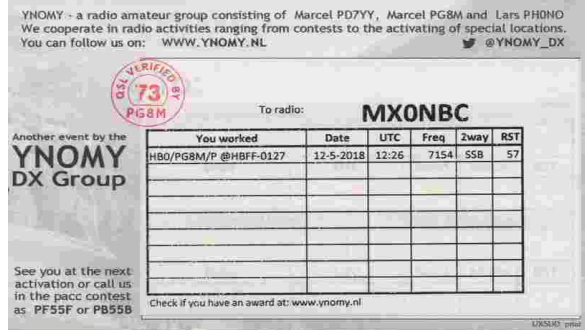
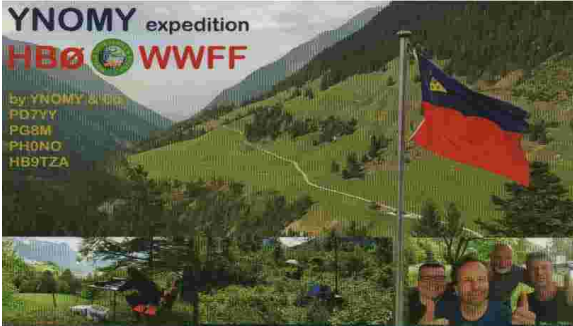


Useful Addresses


- : <https://www.robot-electronics.co.uk/cmpps12-tilt-compensated-magnetic-compass.html>
- https://www.wimo.com/media/manuals/SPID/25082_Satelliten-Rotor-Satellite-Rotator_Manual.pdf
- <http://www.alfaradio.ca/>
- <https://www.ni.com/en-gb/shop/labview.html>
- <https://store.digilentinc.com/ni-academic-products/>

QSL cards

Some more Club QSL cards have come my way. As you may notice, some were from mills on the air and Railways on the air way before I was a Member.



QSL Cards Continued




DG6SYL
DE6SYL
Anne

DK7OM
DE6SWR
Rudi

QTH: Bützow · DOK: V20 · LOC: JO53XU

Marianne / Rudolf Renkwitz
Bahnhofstraße 27 B
18246 Bützow
Germany



Via: **MX0NBC**

DG6SYL
 DE6SYL

DK7OM
 DE6SWR

QTH: Bützow JO53XU WCA DL-03382 / 03393 COTA-DL MVB-196 / 197 TRX:IG-7400 300W ANT:W030Z

via: **MX0NBC**

via: **QSO with / SWL Report**

To Radio: **MX0NBC**

Date: 27.09.2015 UTC: 15:46

MHz: 7,1 2-way: SSB

RST/DB: 59 wktd:

qso: 30168 Dave de DK7OM Rudi

QTH: Bützow JO53XU WCA DL-03382 / 03393 COTA-DL MVB-196 / 197 TRX:IG-7400 300W ANT:W030Z

PA06MILL



DE OUDE MOLEN
OUDEMOLLEN - THE NETHERLANDS

PA06MILL

PSE: QSL VIA DUTCH QSL BUREAU
OR DIRECT VIA QSL MANAGER:
C. VERDULT (PA2CVD)
KAM, ONNESSTRAAT 18
4631GT - HOGERHEIDE
THE NETHERLANDS

VIA: **MX0NBC**

TO RADIO: **MX0NBC**

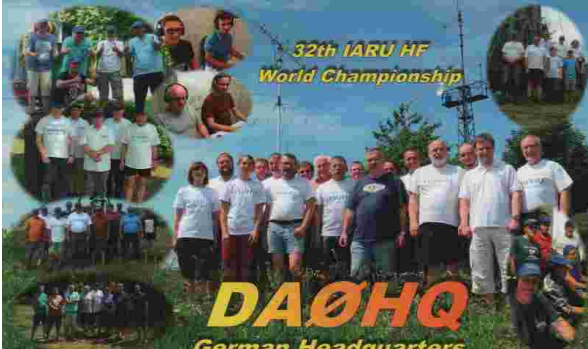
CONFIRMING OUR 2-WAY QSO SWL REPORT

DAY	MONTH	YEAR	UTC	MHZ	MODE	R	S	T
14	05	16	1152	7	SSB	5	9	

LOCATOR: JO21FP
CQ ZONE 14 - ITU ZONE 27
WINDMILL NO. 506207

PSE QSL
 TNX QSL

32th IARU HF World Championship



DA0HQ
German Headquarters

To Radio: **M0NBC** via:

DARC
German Headquarters Station

DD.MM.YY	Time	MHz	Mode	RST
09.07.2017	11:29	7	SSB	59
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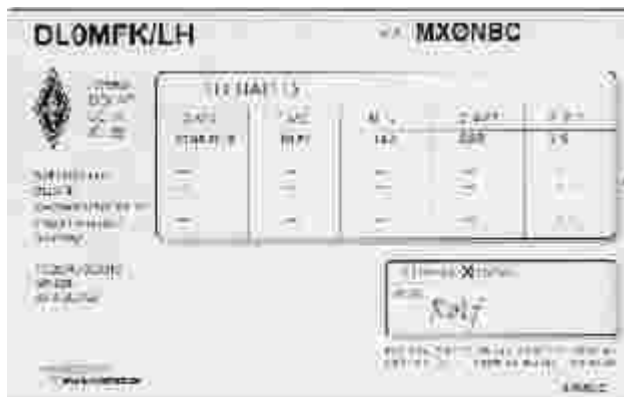
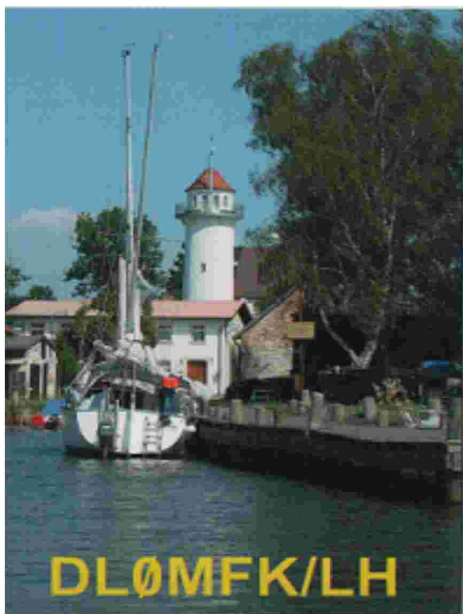
DA0HQ
S-DOK: HQ17

OPs 2017:
DC8SG,DD5DD,DF7BA,DF7TH,DG0OKW,DG1ATN,DG5AA,DH1NAX,DH1NFJ,DH2WQ,DH7KU,DH7WW,DJ1TH,DJ1YFK,DJ2QV,DJ3MY,DJ4MF,DJ6TF,DJ8AO,DJ9KM,DK1BT,DK2CX,DK3DM,DK3EE,DK4WA,DK5II,DK5KMA,DK6SP,DK6SP,DK7AH,DK7YY,DK8YY,DK8ZZ,DK9VZ,DK9YL,DL1ACB,DL1ALZ,DL1AWD,DL1AWI,DL1DTL,DL1DUJ,DL1RTL,DL2AGI,DL2ARD,DL2HYF,DL2JRM,DL2JRE,DL2SAX,DL2SAS,DL2SXX,DL3KJ,DL3YM,DL4MW,DL5ANT,DL5AQ,DL5AWI,DL5AXX,DL5CW,DL5GA,DL5LYM,DL5ML,DL5SE,DL5YYM,DL6FBL,DL6KA,DL6OZ,DL6SAK,DL6WT,DL6ZBN,DL7BC,DL7CH,DL7VOA,DL8AKI,DL8ALU,DL8AUA,DL8BH,DL8LAS,DL8OBD,DL8UAT,DL9AWI,DM7PQ,DM8HH,DO2FD,DO9EE,K2PO,KU1CW,DN4MAX

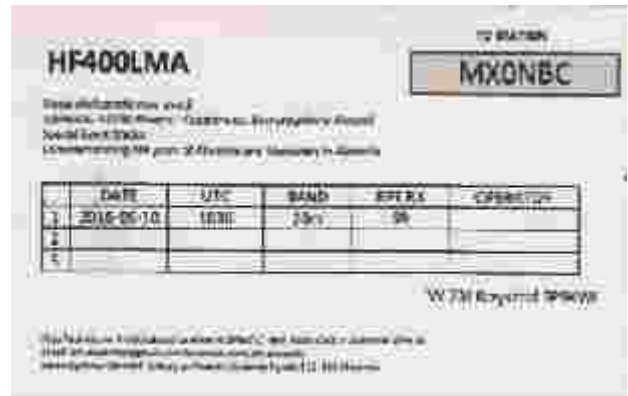
Annual special activity of the Ilmenau Contest Club (DF0HQ) and friends.
Txn for the QSOs and cuagn on July 14 2018 in IARU HF World Championship + WRTC

2801/7739

More QSL Cards



QSL Cards



I hope you have enjoyed the latest batch of QSL cards. I will bring you more soon. If you have any you wish to share with us just scan the card as a photograph (both sides) and I will try my best to publish.

Letters To the Editor

An email came to the editor's desk from Dave, G3XOB with a warning about working portable. It was a link to Gloucestershirelive.co.uk A Ham was attacked on Cleeve Common by some thugs who thought that he was recording them. Get the full story by searching on the above site.

Dave, G3XOB

Letters To the Editor Cont'd

Hi Dave,

Thanks for the latest edition of Q5. An entertaining read ! I fully sympathise with your FleaBay experience. It is genuinely a case of “Buyer Beware”

As for playing with baluns, un-uns etc. I have been doing this for the last 15 years or so, both hobby and professionally. Just recently I have completed a 10kW beastie for BBC engineering. It really does weigh a ton !... well not quite, but very close to it !!

If you have those all grey toroids, about an inch, or so diameter, they are more than likely to be salvaged from switch mode power supplies. They are absolutely no use what so ever for HF use ! They are very useful for the KHz bands though and of course can be wound as filters for dc power supplies to keep RF out of the innards. The best mix toroids for HF use are 43 and 61, If you can afford them, the new “K” mix devices will perform well right up to 2M as baluns or un-uns.

Regarding loop antennas. I have just completed construction of a triple loop 3M dia loop. It uses a vacuum variable motorized tuning capacitor 5-1500Pf. It will tune top band to 28mhz without problem. The next stage of the project is to motorize the turning of the loop. This should not be too difficult, hopefully (!) as it only needs to turn 90 degrees. The recent bad weather has, unfortunately, put paid to outdoor activity for the present

OK on Dave, M0HDJ's underground antenna projects I have long suspected that he was a “Deep thinker” LOL !!!

Just a quick update on GB3AA. It Has a very peculiar logic fault that, unfortunately seems to come and go at whim. I have changed receivers, transmitters and logic processors, all to no avail. After many frustrating hours I have decided to “Start from scratch” with the repeater and use all new kit all round. Unfortunately this is a costly decision and also very time consuming process. But it is “a work in progress” at present I have no idea just when all this might come together, so I am unable to give a date for the return of GB3AA at present. Hopefully, not too long, depending on how things go.

Tony, G4CJZ.

Thanks for the news Tony. Perhaps we can twist your arm into writing a column on toroids for Q5. (Ed).

Greetings from your Chairman G8YMM

Since the last Q5, I managed to meet the Trustees of SHE7 and get an update on the work in hand. There is still a lot to do but they are progressing well given the Covid and financial circumstances. I don't think they will be ready this side of Christmas and what with the government restrictions its highly unlikely we will return this year. Having said that, NBARC has provided SHE7 some welcomed income in terms of monthly payments for the building storage and long-term security for the club. As you will see below the new hall and the new kitchen is well underway being completed along with a new upstairs shack to the left.



However, as a club we are experiencing a loss of income not being open and lack of renewed subscriptions. To this end, I have negotiated a reduced monthly payment to SHE 7 but we will need your support going forward to help the club funds and ensure we are financially able to ride out the current crises. Therefore, I am asking members to help by renewing their subscriptions for this year if they have not already done so and any donations. I realise this is a big request, but I have no other choice in order that we see this thing through financially and hopefully return in the new year when safe to do so. Remember "Its Your club"

The best way is to send payments is via BACS transfer to the following :-

SORT code 09-01-52

Bank Account 45619704

Or send a cheque made out to "NBARC" to:-----

David Ellacott (Treasurer)
39 Canford Lane
Westbury-on-Trym
Bristol
BS9 3DQ

David our Treasurer will record any income and ensure we have enough funds to facilitate any out goings such as Insurance and of course the monthly fees to SHE 7. If you're not sure about membership please contact me on 07921942922.

73

Paul

Club Nets

NBARC NETS

Our nets are going from strength to strength very often 8 or 9 stations. Alas not all are members but, we welcome all stations be it members or not

Wednesday net

GB3BS 20:00 to 21:00 Local

Friday net

GB3AC 19:00 to 19:30 Then QSY to GB3BS 19:30 to 20:00

Sunday morning 80m Net 3.65mHz 08:30 to the start of the News. This net is run by Dave (M0HDJ)

Sunday Evening Net Dave, M0RKE ran this net on GB3AA for a while but, The Sunday Net now reverts to GB3AC 20:00 to 21:00 clock time.

Club Contacts

Chairman

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Editor

Dave Bendrey

Phone 07533933831

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Next Q5 Just Before Christmas