MCBARG NEWS

MARCH 2023, ISSUE 1

The Mid-Cornwall Beacon and Repeater Group is committed to providing services to the radio amateur community in Cornwall

GB3MCB gains 3 new Beacons

On Sunday 25th September the Mid Cornwall Beacon and Repeater Group brought into service 3 new CW/FT8 Beacons at 28.215MHz, 40.050MHz and 60.300MHz, each using the call sign GB3MCB.

Located at IO70OJ in mid-Cornwall on a 100ft tower at 1000ft above sea level, these beacons, constructed by Peter G8BCG, are ideally situated for trans-Atlantic Es/F2 and particularly for Trans Equatorial Propagation. The new beacons are co-located with existing beacons on 50MHz (as part of the Synchronous Beacon Project), 70MHz, 144MHz, 432MHz, 1296MHz and 10GHz.

GB3MCB is now, de-facto, the UKs premier beacon cluster.

The new low VHF cluster at 28/40/50/60/70Mhz will enable invaluable propagation monitoring and analysis as the MUF rises.

Beacon Frequencies:
28.215MHz, 40.050MHz, 50.005/50.443MHz(SBP), 60.300MHz 70.025MHz, 144.469MHz, 432.470MHz, 1296.860MHz and 10368.980MHz

The Mid Cornwall Beacon and Repeater group host nine beacons at our Hensbarrow Downs transmitter site. The VHF, UHF and SHF beacons are all on North East beam headings from our far SW location. Our 2m beacon is unique in that it has two antennas. One to the North East and the other to the South for French, Spanish and further afield propagation reports. For the HF and low VHF beacons more omnidirectional antenna systems are used to provide better global coverage.

The beacons operate around the clock all year round at a very significant cost to our small group. If you feel able to support us your contribution however small will be very much appreciated.

https://gb3nc.org.uk/contact-us

INSIDE THIS ISSUE

Three New Beacons

This project, driven by Peter G8BCG is to replace and re-establish the 28MHz, 40MHz and 60MHz propagation beacons formerly sited at the Rutherford Appleton Laboratory site at Harwell Oxfordshire.

On Sunday 25th September 2022 the Mid Cornwall Beacon and Repeater Group brought into service 3 new CW/FT8 Beacons at 28.215MHz, 40.050MHz and 60.300MHz, each using the call sign GB3MCB. With 9 co-located beacons GB3MCB is now, de-facto, the UKs premier beacon cluster.

The beacons are each based on the RFzero™ Arduino multi-purpose GPS controlled Si5351A RF unit developed by the RF Team and we are in debt in particular to Bo, OZ2M for his support and technical assistance.

For each band a purpose built high efficiency PA, filter and directional coupler has been used. These were developed and supplied by Sergey EX9T, Sergey has provided a great deal of assistance and help in integration of these PAs into the design.

GB3MCB 28.215MHz

The 28.215MHz beacon operates 24/7 with 10w to a 1/4wave vertical antenna. The Beacon is licensed under a standard Amateur Radio RADIOBEACON Notice of Variation, submitted via the RSGB and issued by UK Regulator OFCOM.

The official Beacon Keeper is Nick G7KFQ

GB3MCB BEACONS

GB3MCB 40.05MHz and 60.30MHz

The project to replace and re-establish the 40MHz and 60MHz RADIOBEACONs formerly located at the Rutherford Appleton Laboratory site at Harwell Oxfordshire was supported by the RSGB. However, although the existing RADIOBEACONs at the GB3MCB site are all licensed under Notices of Variation (NoVs) within the Amateur Radio service, the RSGB did not feel able to support our 40MHz / 60MHz submissions at this time.

The recent Ofcom move towards Innovation & Research licensing for Amateur Radio related propagation studies on 40Mhz prompted this application course for the RADIOBEACONs on 40MHz and 60MHz. We are please that OFCOM were willing to issue our license by this means.

The 40.050MHz and 60.300MHz beacons operate 24/7 with 5w to omnidirectional "turnstile" antennas. The Beacons are licensed under an Innovation & Research License submitted direct by G8BCG and issued by UK Regulator OFCOM.

The license holder is therefore G8BCG working through the site Beacon Keeper Nick G7KFQ.

GB3MCB 50.005MHz and 50.442MHz

The GB3MCB 50MHz "Synchronous

Beacon Project" (*SBP) beacon, brought into service in 2016, was funded by the UK Six Metre Group and built by Peter G8BCG. The main components of the beacon system were designed and supplied by the OZ7IGY Next Generation Beacon Team

The beacon delivers 12W via a commercial 50MHz BPF. Ident is in the format of the current CW call sign / locator plus a PI4 encoded sequence and repeats every minute.

* The SBP concept is a 50 MHz time multiplexed beacon system. The system consists of three 10 x 1 kHz allocations, i.e. one 10 kHz allocation per IARU Region, and five time slots per frequency. Thus in total there are 150 frequency-time slots.

The Beacon Keeper is Nick G7KFQ.

mailto:beaconkeeper@gb3nc.org.uk

There are local clubs in Cornwall and they will welcome you as a member.

Cornish Radio Amateur club
www.gx4crc.com

Newquay and District ARS
www.newquayradioclub.co.uk

Radio Operators Cornwall
https://g8roc.org.uk/

Poldhu Radio club
http//gb2gm.org

Callington Radio Club
www.callingtonradiosociety.org.uk

Saltash Radio Club
www.sadarc.co.uk

GB3NQ Digital Amateur TV Repeater

The television repeater has undergone a gradual transition from its original FM Analogue roots.

For a few years it had a digital TV input on 437Mhz whilst keeping it's FM analogue transmitter.

Then a Standard Definition digital transmitter replaced the old output. Very soon after this analogue was dropped altogether, and work begun to make the repeater what it is today.

GB3NQ is a Digital in Digital out HD 1080p TV repeater.

It has inputs on 2m, 70cm and 23cm with automatic recognition of transport type.

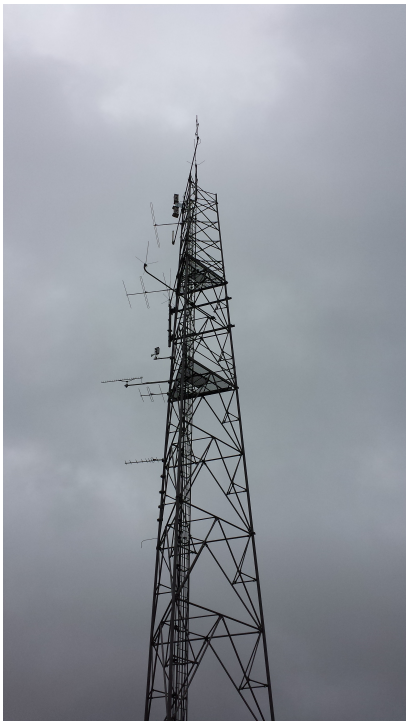
It outputs on 1316MHz using s symbol rate of 2Ms/s FEC 4/5 DVBS-2. More technical details and Internet stream where it can be watched can be found at https://batc.org.uk/live/gb3nq

Activity night is on a Tuesday at 8pm onwards.

Feel free to contact us if you want to know how to join in the DATV fun!

mailto:gb3nqkeeper@gb3nc.org.uk

EchoLink on GB3NC 2m Repeater



Here is a question for you, have you ever wondered how GB3NC announces the time at the top of the hour, or how NC announces another call sign has connected?

Well it is all under the control of a Raspberry Pi, not the baked food version but a single board computer (SBC). The the Raspberry Pi uses a mobile phone processor, a version of the Linux operating system with SM0SVX software called SVXLink. This software package contains a number of modules, around a central configurable core. MCBARG have opted to use only one of the modules, which simulate the Echolink function.

The Raspberry Pi has a low cost USB sound dongle, with PTT controlled by a GPIO pin on the Pi. Both transmit and receive audio is buffered by a, built from scratch, isolation transformer. A PTT switch is provided using a BC107! For information purposes, the radio it interfaces with is a very ancient Icom 3210E.

The SVXLink module is synced up with the appropriate EchoLink cloud server, also checking the Internet for an incoming valid packet and via the sound dongle a valid DTMF (Dual Tone Multi-Frequency) tone via the Icom radio.

The EchoLink organisation has issued our repeater (GB3NC) a designation number of 282184, therefore if another amateur anywhere in the world, requests via there DTMF microphone, or clicks on GB3NC when using the client software, the cloud computer routes the connection and subsequent Voice Over Internet Protocol (VOIP) packets to the Raspberry Pi for processing.
If however you have a DTMF microphone, or programmable DTMF memory in your radio, you can key in the appropriate number and connect to any operational user, conference or other repeater within the Echolink network.

Some useful commands:

To connect to another station, just send the node number ended with a hash sign (#). To disconnect the last connected station, send just the hash sign. For example, suppose you want to connect to GB3KD, enter 78750#, as simple as that.

Subcommands

There are a couple of subcommands that can be used once ModuleEchoLink has been activated (**2#**). Don't forget to send a hash (#) after each command.

- **0** – Play the help message
- **1** – List all connected stations
- **2** – Play local EchoLink Node ID (Number)
- **31** – Connect to a random link or repeater
- **32** – Connect to a random conference
- **4** – Reconnect to the last disconnected station

Command 2 may also be activated even if the EchoLink module is not active. Just send **22#**, and the node id will be read back.
mailto:echolink@gb3nc.org.uk

G8GOR SK - Bryan Pearce

It is with great sadness we report our president Bryan Pearce G8GOR passed away in January. Bryan was one of the best ambassadors for amateur radio you could ask for with his natural ability of making new and visiting amateurs feel very welcome in Cornwall.

In his MCBARG role he would always attend the various radio rallies collecting donations using his great people skills to the full and as a long term member of the Newquay Radio Club he would always be up for transporting club equipment to various locations when the club was taking part in RSGB contests in the summer months.

He was also very active on VHF and if anybody was calling CQ he would always answer the call and have a chat, I am sure there are very few local amateurs that have not had the pleasure of a QSO with Bryan G8GOR.

He will be missed by one and all, as being in his company was something special.

CONTACT US

Mail:
Paul Andrews Secretary MCBARG G6MNJ
10 Summerfield Close
Mevagissey
Cornwall
PL26 6TZ
Email: secretary@gb3nc.org.uk

GB3NC Voice Repeater
Keeper / NoV holder: Mike Bundy [G4WVD]
Band: 2M (RV58))
Output frequency: 145.7250 MHz
Receive Frequency: 145.1250 MHz
CTCSS tone: 77 Hz.

GB3HB Voice Repeater
Keeper/NoV holder: Mike Bundy [G4WVD]
Band: 70cm (RB15))
Output frequency: 433.3750 MHz
Receive Frequency: 434.9750 MHz
This is a multi-mode DIGITAL VOICE repeater. This repeater also has ANALOGUE VOICE capability [CTCSS tone is 77 Hz]
This Digital Repeater has C4FM/FUSION capability.

GB3NQ DATV Repeater
Keeper/NoV holder: Kevin Francks [M0BFB]
Band: 23cm
Output frequency: 1316.00 MHz DVBS-2 2Ms/s FEC 4/5
Receive Frequencies: 146.50 MHz, 437.00 MHz & 1249.00 MHz - Receivers will auto configure check website for expected symbol rates.
Web: https://www.gb3nc.org.uk