

70 cm activity, experiments, and the first EME QSO with 100W QRP Milan OK2BFF technician + Tom OK2PWY as an operator (JN89KW)

We started thinking about the possibility of restoring activity in the 70 cm band in our home QTH. With the antenna at home at the beginning of October dropping the storm, we decided to build a shorter, lighter version of the antenna that Milan built many years ago, which would not create much resistance against the wind. We chose a 5 lambda long DJ9BV with a 4x reflector that has a decent gain and a very good front-end ratio, see the photo. The antenna was supplemented with a preamplifier with MGF1302 NF 1.2dB After installation at the end of October we started to listen to the beacons. In addition to the OK0EP, which can be heard on the finger, there are also good OE3XVB 432400 and HA1BUA 432461 in our QTH valley, OK0EA 432468 is also heard under improved conditions.

The first chance to test the device was on the weekend of 11 and 12 November, when EME conditions were improved. At the West of the Moon, I saw and decoded Franco NC1I -20 dB and a few days later also Dan HB9Q -22 dB, but I did not get the connection due to the short-term instability of the TRX. Matěj OK1TEH sent me instructions on how to remove instability by putting a small foam cube from the thermal insulator to the crystal, the measurement went well. I have also tried a test with Jurgen DK3BW, which I have not seen before.

2.12 I made a test with Zdeněk at the exit of the Moon. Zonek's signal I saw tropo and reflected from the moon, but my signal was unstable again. so we did not get the complete connection because even though Zonek's signal was strong, I was unable to decode the last session. Thanks Zdeněk for patience and I believe we will be able to complete the QSO next time.

10.12. I tried again luck at the moon's west. I negotiated with Dan HB9Q and monitored Dan's frequency from an elevation of 20 degrees. I found Dan's signal right now, just waiting for the right lobe. I monitored the frequency for more than an hour and waited for the moon to rise to the right elevation. When the Moon was 9 degrees high, the strength and readability of the signal improved, I started calling him. Dan meanwhile, he made several QSOs and at 10:32 came the answer, see the photo It was amazing to see that I was heard across the Moon with only 100W At 10:34 am Dan QSO confirmed. Today, frequency instability did not occur and QSO could be established.

Matěj OK1TEH thanks for your help and valuable advice on operation and setup.

There are several large stations on the band that anyone with tropo equipment can do without elevation and see the east and west of the Moon at least try. These are, for example, NC1I, HB9Q, OK1DFC, UA3PTW, OH2PO, DK3WG, DL7APV, DL9KR.

Everyone is happy to try because the new stations on the band are not too much.

Although our QTH in the valley of the Morava river surrounded by hills is not very suitable for tropo activity, in November I participated in Nordic Activity Contest, where I managed to establish several QSOs (eg DLLVV JO64, SP1JNY JO73) and Operational Assets 9A and OK, where I have managed several interesting QSOs to UT, HG, 9A, UT, DL, 70 cm is very nice band, only a pity that there is not so much activity of stations.

Milan OK2BFF and Tom OK2PWY

Printscreen of my 1.st complete EME QSO:

The screenshot shows the WSJT-X software interface. At the top, there's a menu bar with 'File', 'Setup', 'View', 'Mode', 'Decode', 'Save', 'Band', and 'Help'. Below the menu is a spectrum display with a blue line representing the signal and a red line for the moon. To the right of the spectrum, a cyan box displays moon data: 'Moon', 'Az: 269.39', 'El: 8.13', 'Dop: -1035', and 'Dgrd: -1.4'. Below the spectrum is a table of QSO logs with columns: FileID, Sync, dB, DT, DF, W, and a text field for 'DF (Hz)'. The table contains several rows of data, including call signs like 'TU B-23 73', 'CQ HB9Q JN47', and 'OK2PWY HB9Q JN47'. Below the table are buttons for 'Log QSO', 'Stop', 'Monitor', 'Save', 'Decode', 'Erase', 'Clear Avg', 'Include', 'Exclude', and 'TxStop'. Further down are fields for 'To radio: HB9Q', 'Grid: JN47cg', and 'Az: 248 703 km'. A large yellow box displays the date and time: '2017 Dec 10 10:37:23'. At the bottom, there are status indicators for '1.0000 1.0000', 'JT6SB', 'Freeze DF: 32', 'Rx noise: 0 dB', 'TR Period: 60 s', and 'Txing: 73'. The Windows taskbar at the bottom shows the system clock as '11:37 10.12.2017'.

| FileID | Sync | dB | DT | DF | W | DF (Hz) |
|--------|------|-----|-----|-----|-----|------------------|
| 102700 | 0 | -33 | 6.8 | 27 | 2 | |
| 102800 | 3 | -21 | 2.1 | -38 | 5 * | TU B-23 73 |
| 103000 | 4 | -23 | 2.0 | -16 | 5 * | CQ HB9Q JN47 |
| 103200 | 0 | -25 | 2.0 | 11 | 7 # | OK2PWY HB9Q JN47 |
| 103400 | 2 | -30 | | 44 | 3 | RRR |
| 103600 | 0 | -33 | 5.9 | -16 | 28 | |

Antenna: 7el GW4CQT 144MHz, 16 el DJ9BV 432MHz, 27 el G3JVL 1296MHz



First EME signal reception – NC1I

