



432 AND ABOVE EME NEWS

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 Web version hosted at: <https://EME.RADIO>

News Contests and DXpeditions

I start with an apology to RD4D for omitting his contribution last month describing his 10 m dish installation, you will find it below.

DF6NA's Moon reflector, "Moon", no longer operates and is replaced by "Moonbounce-info" which can be found at <https://groups.io/g/Moonbounce-Info>

This month we have a "Radio Astronomy Corner" contribution from Matej, OK1TEH and a new EME signal budget calculator suitable for the higher microwave bands from Gerald, OE2IGL

Contests

The first of the DUBUS-REF CW/SSB contests, on 70 cm, was on Feb 8th. Conditions could be described as unhelpful to challenging. Faraday rotation was mostly 90 degrees but sometimes with very rapid changes. Highest scores so far are SP9VFD, 13x13 and G3LTF 12x12. Activity was lower than previous years but there were at least 18 stations active.

The second DUBUS-REF contest is on 13 cm on Saturday March 8th. Please take a look at rule 3.5 <http://www.marsport.org.uk/dubus/EMERestContest2025.pdf> which is there to take account of the problems of different national allocations. 13 cm is probably the best frequency for EME, lowest sky temperature and losses not too difficult to deal with and quite easy to generate power. The split operations require a bit of ingenuity to deal with but if you operate at 2320 MHz with a 144 MHz IF, the 2304 MHz signals are there at 128 MHz unless you have a very narrow band system.

The day after the contest is proposed by Jan PA0PLY as a 13 cm general activity day, operating with any modes, use the logger to set up tests, (like the old Activity Weekends).

Talking of 13 cm, this looks like a very interesting device <https://www.ampleon.com/products/matched-ism-cooking-defrosting/2450-mhz/BLC2425M10LS500P.html> as does Zdenek's multi frequency coverage transverter: <https://www.ok1dfc.com/eme/technic/LO13cm/lo.htm> lots of ideas here.

The SSB Funtests, pioneered by AI, K2UYH, will run again this year, the dates are May 24th 23 cm and May 31st 13 cm. I'm delighted to announce that PI9RD will be operating on both weekends. The rules will be as last year but we will re-state them close to the dates and we will also feature the full results in the newsletter.

The 11th ARI Italian EME Trophy contest will be held on April 26/27th see: <https://www.ari.it/eme/eme-regolamento/8328-11d-trofeo-ari-eme-2025.html>

DXpeditions

Alex, EA8DBM is off again! From March 1 to March 12, he plans to activate the 23 cm band in KH0, KH2 and T8. Saipan, Guam, and Palau.

Antenna: 2.4 m covered with aluminum foil and with the new OK1DFC Septum feed and 500 watt PA. He is planning to be on 13 cm as well.

Current updates, changes, and logs will be available as usual on his blog: <https://ea8dbm.substack.com/>

From April 23rd to May 4th Botswana, Namibia and Angola will be activated on 70 cm by ZS4TX and team. There is no website so watch the reflectors and <https://www.mmmonvhf.de/latest.php> for the latest news.

PE1CHQ Harry Keizer



Harry PE1CHQ

On January 22 Harry Keizer PE1CHQ passed away. He was only 72 years old.

He became a ham radio operator in 1978 and he was very active on 23 cm in those early years. Mainly terrestrial but he also had some EME QSO back then! He worked his first QSO's in 1982 with VE7BBG, K2UYH and OE9XXI thanks to the support from Jan PA0SSB.

Around 2010 he joined the Dwingeloo dish project and he built his own 4 m dish and started doing 23 cm EME again at home. Harry was a very inspired and enthusiastic guy! Full of ideas.

His second hobby was photography and he made great pictures of birds as he was also very fond of nature. Unfortunately he got ill and although it at first looked like the treatment might be 100% effective and he could be cured, all of a sudden things got worse and he was told he only had a few weeks to live. Despite this prognosis Harry managed to keep going for more than 7 months.

Harry will be missed...

DC1RDB Robert

The first weeks of this year I've been quite busy finding and eliminating sources of my numerous birdies. Some of the culprits were: a cat fountain switching power supply, two bad USB cables and a cellphone charger. More birdies were gone after the neighbors finally took down their LED Christmas lights.

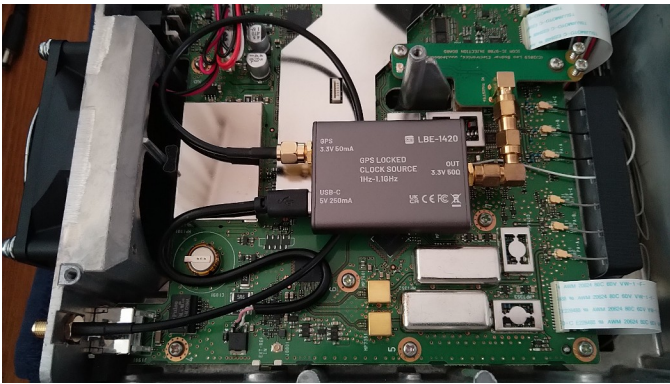
Regarding station hardware, I installed the Leo Bodnar GPSDO inside the IC-9700 to reduce cable clutter in the shack. My current setup with the new Beko HLV-770 PA is working very stable and reliable. One of the recent highlights was my first successful QSO with a one-yagi station: DK0TE. Tnx Hardy!

With the excellent conditions at the beginning of February, I once received NC1I at -7 and Frank heard me at -6 during our QSO the next day. These numbers correlated well with the calculated values from OZ9AAR's SimpleCalc. Great tool, Carsten.

Initials since last report: SM3LBN, W6TCP, ZS4TX, RY4C, PA3FWV, DK0TE, UT6UG, AA5C, VK2CMP, K5DOG, VE6TA



DC1RDB antenna



DC1RDB IC-9700 mod

DL0SHF Christoph

Here I have a short report of my activity with DL0SHF on 23 cm from last weekend (February 8th).

I found conditions fair and it was again fun giving small stations the chance for a contact. I find it amazing that stations with a very decent antenna like 2x23 Element (R1MC) can already make moonbounce contacts - OK our 9.5 m dish surely helps. I worked a number of stations in Q65 Mode: IQ2DB, LB6B, BG7XWF, ES3RF, R1MC, DF7KB, F5KUG, DL4DTU, IK3COJ, DJ2DY, ON4BCV, G4KLX, DK0ZAB (also tried SSB), KA6U, NY1V, K1WHS, SP2SCQ, PY2BS, KB2SA and in CW I got: G4CCH and K1WHS.

After local midnight I went for a sleep and I did not hear the clock later on, as I wanted to be on again two hours before moonset; so I missed that. In between I have been experimenting with SSB echoes, which were nice, and NFM echoes, which were there, but not so really readable. Some QSO partners have seen that our DT (in Q65) has been up to 4.5 sec. The reason for this is obviously that I am operating remote and WSJT software is on my side and there we must live with some latency on the internet, that I cannot change. I hope, I can make it again in March. I learned that the DL0SHF 10 GHz beacon had some slight problems, but that was fixed.

G0JDL John

In February I worked a further six Initials on 70 cm with my modest 2x14 el 200 W system making a total of 21 initials worked since I became active on EME last November. Initials worked were VE6TA, DK3WG, K5DOG, ZS4TX, OK1KIR and SP9VFD. The last of these gave me the strongest signals this month with Raf's 6.4 m dish doing a great job. In addition to this I had QSOs with 8 previously worked stations.

There were a lot of days where Faraday rotation prevented me from having any QSOs at all with EU-EU contacts being particularly troublesome but I noted that even the big guns were also struggling to make contacts as well. I was going to try to hear some CW stations during the contest weekend (not sure how successful this would have been) but Faraday was a problem for a lot of the time and I only managed to make two Q65 QSOs during the entire contest weekend despite there being plenty of active stations on the HB9Q logger.

I'm still rotating my antennas manually but I have to admit it does get a bit tedious! I'd like to add an AZ-EL rotator but the extra weight it will add to my back garden antenna system may be a problem so I think that during the summer I may have to look at rebuilding the entire system but I still need it to be portable as I need to move them out of the way sometimes for so I'm going to look into a few options for this.

I'm lucky enough to live in a quiet rural area with only 22 houses in the entire village so RF noise in my vicinity isn't normally a problem on 70 cm but I'm also going to make use of OZ9AAR's SkyScanner software to map the noise to see if I have any problem areas. I seem to be missing about 1 dB of sun noise compared to SimpleCalc's predictions and I'm not at all sure why so maybe mapping my noise will help shed some light on this.

Despite my nearest town being 4 miles away I know I have a problem with a few birdies of unknown origin in the some parts of the EME section of 2 m (the only place I get any noticeable audible noise on 2 m, 70 cm or 23 cm) and this, along with antenna size, was a major factor in my decision to try EME on 70 cm.

G3LTF Peter

I very much enjoyed my few days operating on 70 cm this month, I'd not been active there for about a year mainly because I'd not got round to repairing my rotatable dual dipole feed.

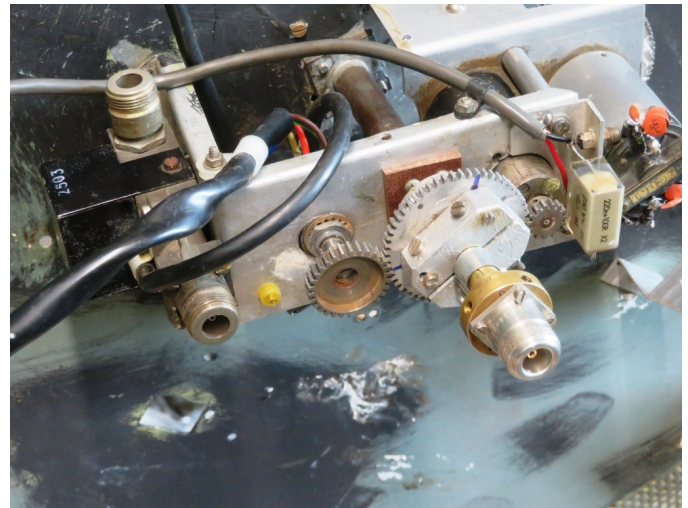
<https://pa3csg.nl/wp-content/uploads/2016/06/432-eme-feed-v4.pdf>

The problem was that the cable twisting with feed rotation always eventually frayed the braid and it was quite difficult to replace it. It took me a while to figure out a good solution that used a connector, (see picture) including using PTFE insulated inner for the section though the Pawsey stub going to the feedpoint. This was such a tight fit that I had to put the cable in the freezer overnight before it would go through the tubing!

I checked the system out on Feb 6th and OZ9AAR replied to my CW CQ with a great signal, initial #490. Next day I worked SM2CEW and then on Feb 8th in the contest I worked PA3DZL, UA3PTW, OK1VUM, G4RGK, SP9VFD, OH1LRY, DF3RU, SM2CEW, SM6FHZ, VE6TA, OM4EX #491 and WD5AGO. Total 12 x 12. CWNR were KD2R and PA2V and I heard KD2LGX.

Conditions were not good with unstable polarisation but the level of activity was disappointing, previous years scores have been in the 20s.

Faraday was very "challenging" especially around sunset. I was seeing 90 degree changes in 10-15 minutes, from no echoes to 579. On Feb 9th I worked OE3JPC, OZ9AAR, PA2V, SM4GGC #492, DL1VPL and F2CT #493. Thanks to everyone for the nice QSOs.



G3LTF new connector system



G3LTF 432 feed in dish

G4RFR Julian

On Sunday 5 January the 10 GHz TWT was tripping again due to damp in the HV cables, so we tried with DL1SUZ on 5.7 GHz with 40 W, but we heard nothing. Later on, the tripping had ceased, and on 10 GHz with 200 W we worked IW2FZR at -10/-1 (1m8/35W) and I6YPK -17/-6 (1m/25W).

On Wednesday 8th January, when we arrived at the Club all ready to go, we discovered that, unknown to us, the electricians were replacing the fuseboard, so there was no activity for a few days!

On Sunday February 2nd, the mains were on, and the TWT was back on good form with 200 W. On Q65D we had a very good day, working IZ0JNY -18/-7 (1m/25W), CT2GUR -8/-2 (best -1) (2m3/40W), DL6SH -3/+4 and on CW 559/589 (2m4/50W), DJ7FJ -15/+2, IK3GHY -13/-6 (1m2/32W), G4YTL -12/+0 (1m8/20W), ON4CDU -12/-2 (1m2/20W), ON5TA -6/+3 (best +4) (2m4/30W), NN3Y -16/-3 (1m/25W), OH3LWP -5/-1 (4m/40W), CX2SC -14/-4 (1m8/20W), and I6YPK -16/-4 (1m/25W). We tried CW with G4YTL, but conditions were very marginal, and we couldn't make it.

On 12th February we tried the 1.3 GHz feed in the dish and saw about 14.5 dB of Sun noise. We now need to sort out a PA. Work on 24 GHz continues.

In the meantime we have been correcting a few minor problems on the system, and Sunday 2nd and Wednesday 5th March and 8/9th look like promising days.

G4RGK Dave

I wasn't very active during 2024, other things had taken precedence. I did get on 432 during the second leg of the ARRL contest, digital only and worked around 50-60 stations. On the last pass the preamp blew and it being within 3 hours of the end of the contest and dark, I gave up.

During January I repaired the preamp along with a few others I had blown previously. Two days before the Dubus 70 cm I replaced the preamp and put the antenna on the Moon. I then attempted a CQ. I should have checked further before TXing! Dead preamp again. Took the relay / preamp box down and pulled the relay apart, I had completely melted the contacts.

I then scrambled around and found the relays I used to use on 2 m EME and modified the box to suit, put it all back together, but the only working preamp I had was a bipolar thing around 40 years old.

I got on the Moon at midnight Friday night at the start of the contest, I found UA3PTW who gave me 579 but he was quite difficult to copy. Then VE6TA but that was very difficult but we exchanged O/O reports. I heard OK1VUM but only very briefly. Went to bed at 0100.

Saturday morning I set about fixing all the blown up preamps, My best preamp is a DL9KR design from Dubus I built around 35 years ago, put a new FET in it, hung it on the HP8970, NF=0.49, good enough.

Winched the array down, fitted the preamp, struggled back in the shack, no noise - nothing. Back up the garden, took the preamp off. Pulled the lid off - hadn't soldered the source leads, must have been working by friction or luck. Fixed that, winched the array back up, all ok now.

Got on the moon around 1300, found another 5 stations to work, and then had to QRT at 1700 for a family birthday party. So that was it, a total of 7 worked. Obviously if I could have been active during the Saturday evening pass I would have added a few more. The 70 cm station has been the same now for more than 30 years, 8 x 27el BV, open wire feeds KR preamp, around 700 w.

I hope to be on 13 cm during the Dubus this month but I need to change the feed and this involves climbing up a ladder and I cant do that at the moment.

GM4PMK Roger

Earlier this year I passed 250 initials on 23cm EME. The recent storms did not damage the dish, fortunately. However last week, while moving the dish back to its parking position, the (admittedly ancient) positioner failed, the dish end parting company with the rest, destroying itself and punching a hole in the dish. (Tnx to GM3SEK for help with dish repairs.) Fortunately the ribs were unharmed. I am in the process of installing a new positioner, but it will take some time to complete; tracking calibration will have to wait until the sun declination increases - around the beginning of April.

IZ0JNY Ivan

Ivan IZ0JNY reports on a "Small Pistols" 3cm QSO.

On Feb 4th we finally made a 3 cm EME QSO between two 1 m dishes after several failed attempts in the past few months.

The QSO was made on the evening of February 4th at 21:31 UTC, with the Moon around 18° EL and 270° AZ. Spreading <15 and good weather conditions.

16YPK: 100cm Gibertini SE satellite dish, 25W at the feed input, WG system, JN72dj

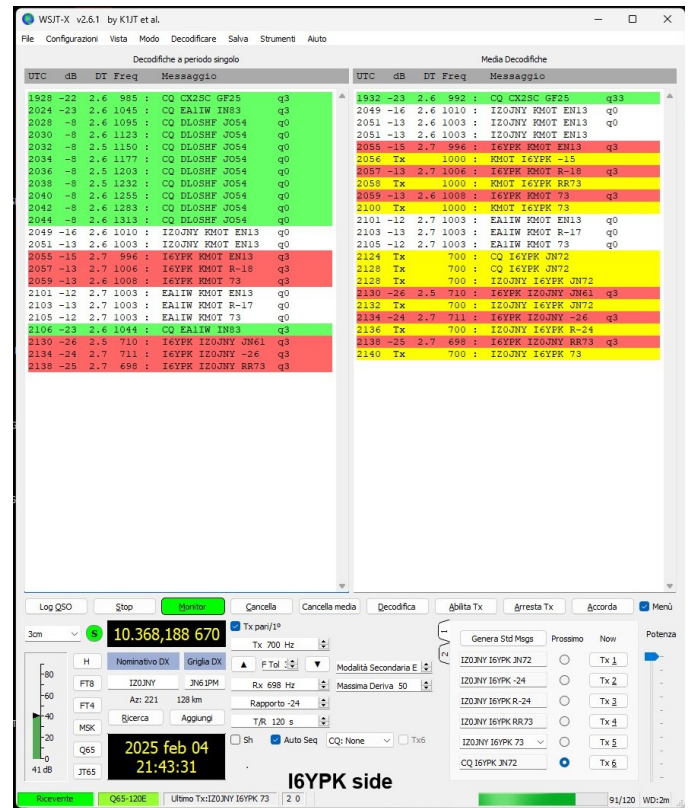
IZ0JNY: 100cm Gibertini SE satellite dish, 19W at feed input, WG system, JN61pm

We choose the mode Q65-120E inspired by an article of Charlie DL3WDG/G3WDG on the EME newsletter of October 2021 (page 9).

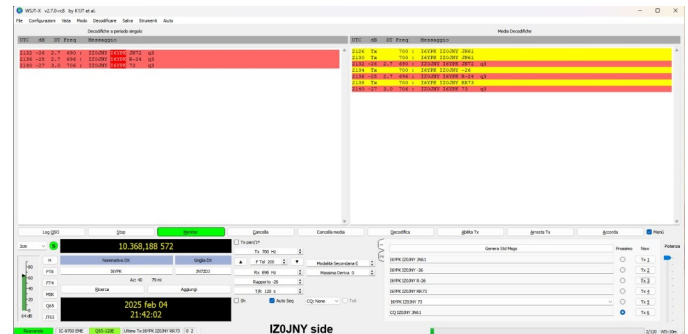
Conditions and sked planned thanks to the EME Link Budget & Analysis Tool developed by our colleague Gerald OE2IGL and Joachim DF3GJ:

<https://wattersat.bplaced.net/EME/EME.html>

The QSO was completed very smoothly, to our incredible amazement.



IZ0JNY 16YPK QSO - 16YPK side



IZ0JNY 16YPK QSO - IZ0JNY side

KA1GT Bob

I'm repairing 23 cm PA after the output connector soldered joint to microstrip failed for the 2nd time. I'm also working on a heater and control system for the heatsink in order to maintain it at a more constant temperature. The PA lives outside where temperatures can drop to -20C, possibly resulting in increased thermal expansion stresses on soldered connections.

I have also developed a direct digital synthesized-beacon system for 23 cm which can run Q65-60C, 30B and 15A, and which also has a mode in which 15A is sent 2.5 seconds early so that it can be decoded after EME delay (with DT=0) by WSJTX. WSJTX does not allow decode after EME delay for 15A, even when it is selected.

Initial test showed good 15A decoding. Using about 100 W to my 3.1 m dish, good decodes were obtained by DL3WDG (2.4 m offset) at -18 dB, at KB2SA (1.9 m dish) at -17 dB and AB6A (2.4 m folding dish) at -21 dB. The beacon uses my station dish and PA, so it will only operate occasionally and for testing when announced on the HB9Q reflector. I'm also looking at the new release of WSJTX 2.7.0 to add modification which may allow Q65-15A EME QSOs.

https://bobatkings.com/radio/experimental_beacon.html

https://bobatkings.com/radio/Q65-15_eme.html

https://bobatkings.com/radio/Q65-15_eme_II.html

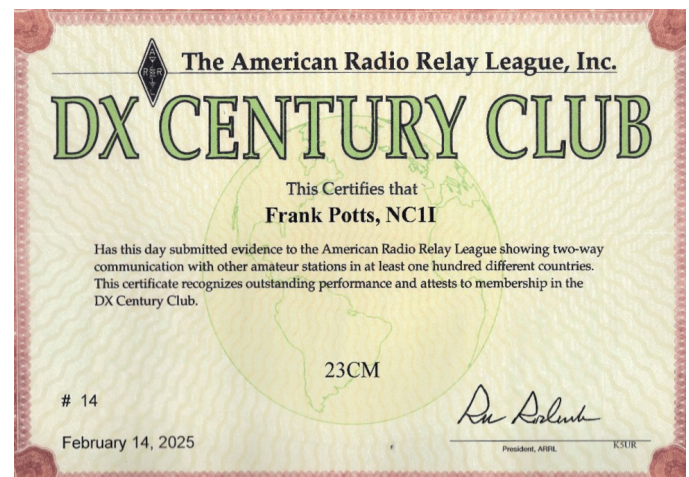
Issues with mobile access to my website (caused by my webhost making changes to .htaccess files without telling me...) seem to have been resolved with the help of Ingebrigt, LB6B. I am greatly indebted to him for his expert help with this issue. I'm now working on getting the pages reindexed by Google, now their crawler can see them again.

NC1I Frank

Since my report last month, I have added the following initials: on 70 cm SM0PYH (-26/-20), 1 x 23-elements & 35-watts. This was Hans first EME QSO. PA2M (-09/-08), 1 x 25-and 400-watts, horizon only. EA7/SM0KAK (-25/-28), 1 x 16-elements & 35-watts. UA1CCU (-27/-18), 1 x 28-elements & 150-watts. This was Kosta's first 70 cm EME QSO. RY4C (-09/-07), 4 x 33-elements & 1000-watts. That brings my 70 cm digital initial total to 736. I believe my overall initial total is over 1100.

On 23 cm I added the following initials: SM0LQB (-23/-18), 4 x 23-elements & 25-watts. Stan is horizon only and that was his first 23 cm EME QSO. R6CS (-15/-12), 3.2-meter & 500-watts. AB6A portable in CM95 (-07/-06), 2.4-meter. That brings my 23 cm mixed total to 610.

The big news this month is I was issued 23 cm DXCC #14 on 14 February. This would not have been possible without the many DXpeditions over the years. Most notably from Alex EA8DBM and the HB9Q team (and there have been others). Another big factor is the availability and use of the Sub-Lunar / W2HRO folding dishes. The small lightweight septum feeds that Zdenek OK1DFC is now making available for the folding dishes will also have a very positive effect on activity and success!



NC1I 23 cm DXCC number 14

The middle of February brought pretty severe winter weather to my station QTH and all over the northeast USA. The combination of snow, sleet, freezing rain, and extremely high winds were nerve-racking and damaging to many. It was probably the worst antenna conditions I have seen in the 30+ years my 70 cm array has been up.

I am still evaluating any possible damage but initial indications are that the 70 cm array may be fine. I am concerned about the elevation drive on the 6-meter dish used on 23 cm. The dish elevation slipped down several degrees on multiple occasions during the storm. I am 2000 km away from my station so I will need to have someone check things out onsite to determine if there was any damage. The last of the snow and ice melted off the dish on 22 February so hopefully I will know more in the coming days.

OE2IGL Gerald

EME link budget & analysis tool (1-300 GHz) by OE2IGL

<https://wattersat.bplaced.net/EME/EME.html>

We have seen that at higher frequencies (≥ 10 GHz) the well known "EME calc" by VK3UM (SK) has some shortcomings. Before and after EME 2022 conference in Praha I had a lot of discussions about some missing effects in EME calc and their impacts. I decided to write an open-source web tool working up to 300 GHz.

This tool considers all known effects correctly and it is a great help to calculate expected sun noise, moon noise, CS/ground noise, SNR EME, ... for given Tx and Rx station parameters.

I just want to highlight the most important additional effects that need to be taken into account at higher frequencies and/or bigger dishes or antenna beam width similar/smaller than moon/sun diameter:

- atmospheric loss
- so called BWF (beam width factor) resulting in additional losses
- dish surface error (RUZE loss)
- antenna positioning/tracking error loss

It is not only a calculation tool. It is also an analysis tool to play with parameters for better link budget understanding, to find unknown system parameters, to find optimization potential and to improve your EME system. In the last 2 years my EME tool was very helpful to improve 47 GHz stations. This tool is very powerful. For instance, it provides a "live" mode to observe expected moon noise, EME SNR in real time and it is possible to search for best timing for a connection.

Last but not least if you will send me your station data I can store it in the tool. gerald.ihninger@inode.at

(EMECalc does include BWF correction, see P38 in https://www.sm2cew.com/Moonbouncers/Orebro2019/EME%20Measurements%20and%20EMECalc_updated.pdf - Ed)

OH1LRY Janne

We made only 10 QSOs with our 8 m antenna in the 70 cm Dubus contest. I think that we heard one or two weak stations, but we were not able to work them. We worked PA3DZL, SP9VFD, OK1VUM, G4RGK, G3LTF, DF3RU, SM2CEW, SM6FHZ, UA3PTW and VE6TA.

Activity level was very low. I was hoping much more as we were using 8 m dish for very first time at 70 cm. I also observed wsjt in the band during the contest. We did not hear/work any US stations which is also very strange I think.

OK1KIR Vlada

In the time of "Bernd's" Dubus 70 cm Contest we were active only with Q65-60B on Sat, Feb 8 and overall completed 16 QSO and made 12 new initials. First was at 16:42 F2CT #357, followed by SK6EI #, SM4GGC #, OK2VJZ (12el.Yagi/40W) -23/18 #, SM3LBN #, GD0TEP, G0JDL #, PA7JB #, W2HRO, NY1V #, DK0TE, RY4C #, W5ZN #, RY4C, KD2LGX # and XQ3SA near Santiago in Chile as #368.

We were hrd at GM8JBJ -18, UA1CCU -21, EA5CJ -10, DC2TH -17, IZ6MVK -25 and G3YEG -23. Fast changing Faraday, Moon far from perigee and increased degradation complicated many QSO attempts.

OK1VUM Mila

At the beginning of February I managed to work two small stations on 70 cm. The first one is Steffen DD0VF with 7el antenna and 60 W and the second one is LY1G with 2x25el and 50 W. On Saturday 8th February I tried my luck in Dubus CW contest. In the first moon-pass of the night I checked the band, made QSOs with UA3PTW, SP9VFD and WA6PY and went to sleep. It didn't occur to me that I might try CQ, the reason being little experience with such a contest.

At the beginning of the second pass I saw VK5MC on Q65 at -6 dB strength, CW contact would certainly have been easy, but the rules did not allow to sked. I was frustrated, walked away from the radio and went for a hike instead. In hindsight, it's clear that the correct response was to call him Q65, he would notice my signal strong enough for CW and start transmitting CW CQ. Next time...

On the second pass I made a QSO with PA3DZL and then started calling CQ. The call worked, some callsigns I read on the first try, others I glued together from fragments written on paper. Thinking that might be right, I tried putting the call sign into QRZ.com to see if it existed. But it didn't occur to me that, for example, OH1LRY was correct and yet it's not on qrz.com 😊 I had a variant of JH1LRY on paper and that's not on QRZ either. Further listening confirmed that it is a Finnish station. Obviously, stations that have been active for many years already know the calls of the active stations and don't need to do such verification because they have it all in their heads, but I don't have that experience.

It happened that a weak station answered my CQ, but I couldn't read the call for sure, from the notes on the paper it looked like it might be OH2LG, but the signal disappeared into the noise. After the contest I contacted OH2DG asking if it was him, the reply was no, so I don't know who it was. *(KD2LGX was heard briefly by myself and SM2CEW, I wonder if it was him? Ed)*

I made a total of 10 contacts during the Dubus contest.

In total I have made 25 inits on 70 cm and 22 inits on 23 cm since the beginning of 2025.

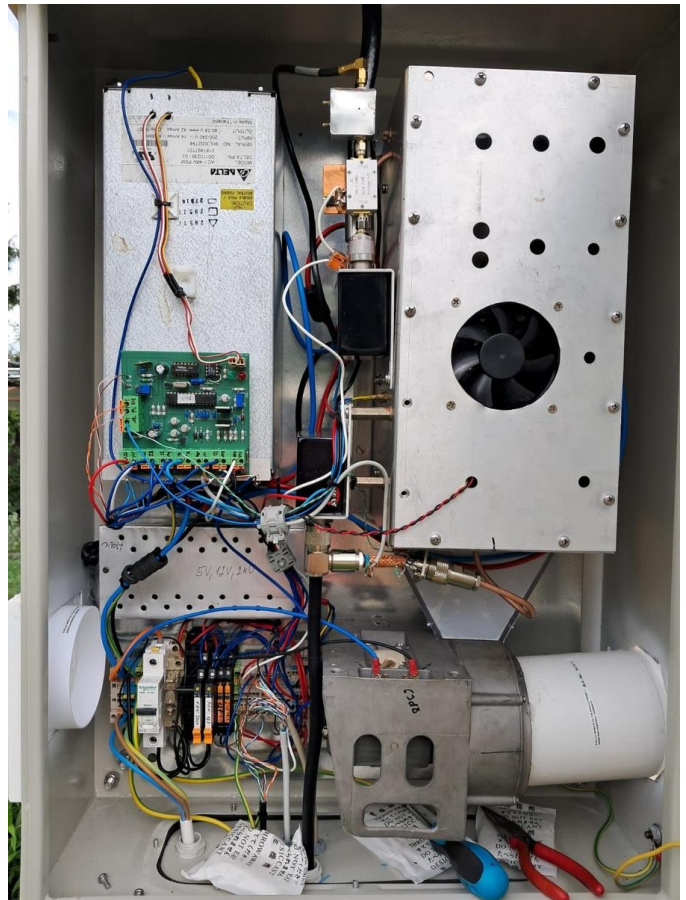


OK1VUM array

OM4EX Ondrej

For the ARRL EME contest, considering my equipment (4x19EL, 600 W) I was happy with quite a good pileup at 1st leg. I made 34 QSOs even though I didn't do the contest all weekend. In the second leg I made 20 QSOs, all digi. Unfortunately I didn't make any CW contacts.

As far as other activities are concerned, I want to mention especially my participation in the European Dubus contest. I made only two CW contacts, although I heard more stations, but they were very weak for me. I was surprised that several well-known big guns stations did not participate in the contest. *(So was I, Ed)*



OM4EX 800 W - 70 cm on mast



OM4EX 70 cm

PA0PLY Jan

This month not so much activity from my side as I still had the 6 cm system in my dish. I did work Erich OE9ERC, finally for #53 both in CW and Digi mode.:
TX report: 579 / -08 RX report: 549 / -1

After this QSO, I removed 6 cm and installed the 13 cm gear. Initial testing showed it did not work at all; no RX no TX.

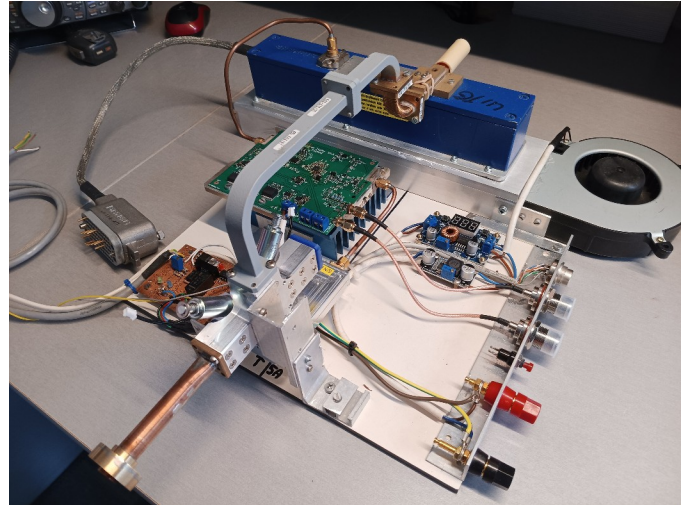
After some deduction I suspected the PLL LO from the DEMI transverter and moved the system into the shack. Funny enough it did work as usual and I suspect that the low temperature causes the LO not to start. I temporary installed an electrical heater in the box, behind the dish and retested with good results.

In the meanwhile I ordered a new PLL-LO from Dieter, DF9NP. He mentioned he always checks the LO in the freeze as well. Although my RX works ok, RF power indicated much lower then normal.

An initial try with Gerry PA3EXV, who ran his first QSO's on 13cm with 3.5 m dish and 150 Watt failed. He did not hear me at all. It turned out that I did not mount the N-connector correctly on the N-N feedthrough. I feared a damaged SSPA (Ericsson - 3x MRF.120) but lucky enough, it worked fine in the shack with some 190 Watt available.

In the meanwhile I continued to work on my new frequency: 24 GHz. It is almost finished waiting for the PCB controller for the WR42- WGswitch.

Also spent time to put up a new WEBSITE, thanks to my son, who prepared this in Wordpress to replace my old Frontpage organised version. I updated the EME directory as well, and will do this on a monthly basis.



PA0PLY 24 GHz

PA3DZL Jac

Worked in Digi Mode: Nice activity and happy with initials: F2CT # initial, NC1I, WQ5S # initial, K5DOG, VE6TA, PA7JB # initial ufb signal from John with his 2.4 m offset dish and 400W, OZ9AAR, W7TZ, W4YTB, NY1V, SV3AAF, GØJDL, VE3CIQ # initial great QSO with Phil running with his single 19el. and 100 W, GW4ZHI, OK2AQ , W2HRO, RY4C # initial, SK6EI # initial, S57Q, SM3LBN, RA3FD, DC2TH, ON4AOI, SM6CEN # initial, SP9VFD, IWØRNA, OE3JPC, VK4EME, SM7SJR # initial, JO4KVP.

During the 432 MHz DUBUS CW/SSB Contest I made QSO's with: SP9VFD, OH1LRY, OK1VUM, UA3PTW, G3LTF, DF3RU, SM2CEW, SM6FHZ and PA2V. Only 9 QSO's were made, Signals were nice and it was so nice to do CW QSO's again. I'm very pleased with my Rotatable Ringfeed, helps a lot when there is Faraday!

1296 MHz activity on the 1st of February: worked in Digi Mode Q65-30 sec Periods!! This really increases the number of QSOs: PA3JRK, KB7Q, K3SK, IZ8GGF, OK1VUM, OK1USW

PRESENTATIONS

To get more Moonbounce activity I regularly give presentations on how to do Moonbounce with simple means. Last week I was in Utrecht at club VERON, There were more than 30 OMs. It is always great fun to do. Among the visitors (first row) also some Moonbouncers John, PA7JB and Hans, PE1CKK for mental support and help to promote Moonbounce. You need very little to have a QSO with Frank, NC1I (as you can see on the picture).

I also brought with me my 23 el. 1.75 m boom Tonna Yagi for 23 cm to show that I made 17 QSOs off the Moon with this antenna in just 5 days of operation. Just to show that very little is needed.



PA3DZL Utrecht EME Presentation



PA3DZL Utrecht EME Presentation

PA7JB John

At the EME meeting at Trenton 2024 Jac PA3DZL gave a talk about "Moonbounce with a small dish". This was the beginning of my experiment with my 2,4 meter offset that is used for 23 cm up to 24 GHz but now on 70 cm.

With a PF dish it maybe easy to put in a ringfeed from OK1DFC or a patch feed from PY2BS. But how about an offset dish? I am trying it with a Flexa yagi which I think has the right -3db point for my 0,6 F/D dish (see photo)

What is important that I can change from H to V Pol. On Ali-express I found a motor that changes from H to V in 4 seconds. Yes, not in time for my echo but this is I think not possible with the 400 watt that I have at the feed. The whole system is at the yagi for lowest loss.

The preamp I use is a Micomm (thanks Uwe DL1SUZ)
Now it's time to make some QSOs!

So far I worked DL1VPL # DK0TE # G4YTL # GD0TEP # ON7EQ # OK1KIR # OK1VUM # OZ9AAR# NC1I SP9VFD # PA3DZL # PA3FWV # VE6TA # ZS4TX #

Special was Hardy DK0TE with a 5.5 meter yagi!!!!
Also special was OK1KIR who I worked now on 7 bands!!
And to SP9VFD who I also worked in CW, thanks for the QSO Rafael!!

And also a special thank to Jac PA3DZL who inspired me to try it with my 2,4 meter offset dish. I hope with this writing other amateurs will think "I can do this as well"
See you from the moon



PA7JB 2.4 m dish

RD4D Yuri

A little about myself, I am 35 years old. My previous EME antenna 3.7 meter dish was dismantled due to great tension with neighbors. In January 2024, I got the idea to assemble an antenna a little larger, 10 meters in diameter. My friend Yuri RW6HM came to my aid, who prepared the ribs and subsequently took part in the assembly of this antenna. The antenna is completely aluminum, including the mesh, painted black. The weight of the antenna is about 200 - 250 kg.

A reinforced SDE9 rotary device is used. The choice of a locator for installation was very difficult, and the choice fell on the bank of the Volga River, away from noise and people, there is no one within a radius of 10 km.

My new locator LO42AF63. There is also no electricity and internet.

In 2024, the following was done:

- Manufacturing an antenna with a diameter of 10 meters and 0.37
- Installation of screw piles under the foundation of all towers (3 pcs)
- Manufacturing towers with a height of 6 meters, 3.5 meters and 2 meters
- Manufacturing an insulated hut from a sea container of 18 m²
- Installed 3 kW solar panels, a 12 kW gasoline generator, a 5 kW wind generator and powerful inverters providing a load of 10 kW. And Lifepo4 battery with a capacity of 300 AH 51 Volts
- High-speed wireless and unlimited Internet with a permanent IP address at a speed of 100 Mbit
- Assembly and adjustment of a preamplifier for 3 bands
- A powerful 1296 MHz power amplifier was made on 4 transistors MRF13750HR5
- The first tropo connection was made on 1296 MHz in CW with a power of 1 mW, at a distance of 100 km with a report of 599.

LibreSDR and the SDR Console program are used as a transceiver. A lot of daily work lies ahead, on the way to the Moon! See you soon on the air!

(additional photos can be seen in the web based version of the newsletter - Ed)



RD4D 10 m dish rib assembly



RD4D 10 m completed dish



RD4D 10 m dish on tower

SM2CEW Peter

This year the February weather allowed me to use my 8 m dish for some 70 cm CW EME. On February 7 moonrise I worked the dynamic EME duo - the two Peters - PA2V and G3LTF with good signals despite almost full tree coverage during my rising moon. Being a "Peter" myself, there we were, all three of us.

In the DL7APV Memorial on February 8 the following stations were worked: SP9VFD, G3LTF, OH1LRY, PA3DZL, UA3PTW, DF3RU, OK1VUM, SM4GGC, SM6FHZ, PA2V, VE6TA. Heard KD2LGX and OM4EK. Conditions were not stable, very deep QSB but also some very strong signals on peaks. Faraday was never aligned with my H/V dual dipole feed, always similar strength echoes coming back in both polarities indicating a 45 degree offset, positive or negative. Nice to hear CW EME on 70 cm again though, due to the winter weather it's been a while since I was QRV on this fine EME band.

SM4GGC Stig

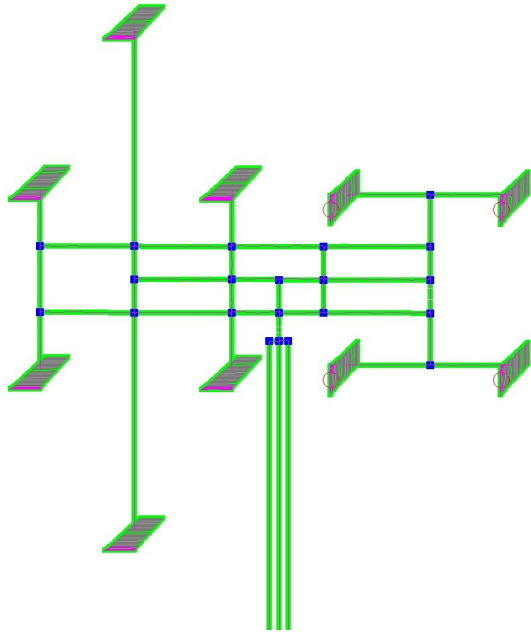
I was QRV in the 70 cm DUBUS/REF DL7APV memorial contest in the second leg for a few hours. I experienced that the conditions were not so good, it was very hard to copy the stations I could see in my waterfall. I had QSO with SM2CEW and SP9VFD. Heard stations but not worked UA3TPW and OK1VUM. Day after contest I worked G3LTF in CW with very good signals.

My report for Q65 up to 13-2-25.

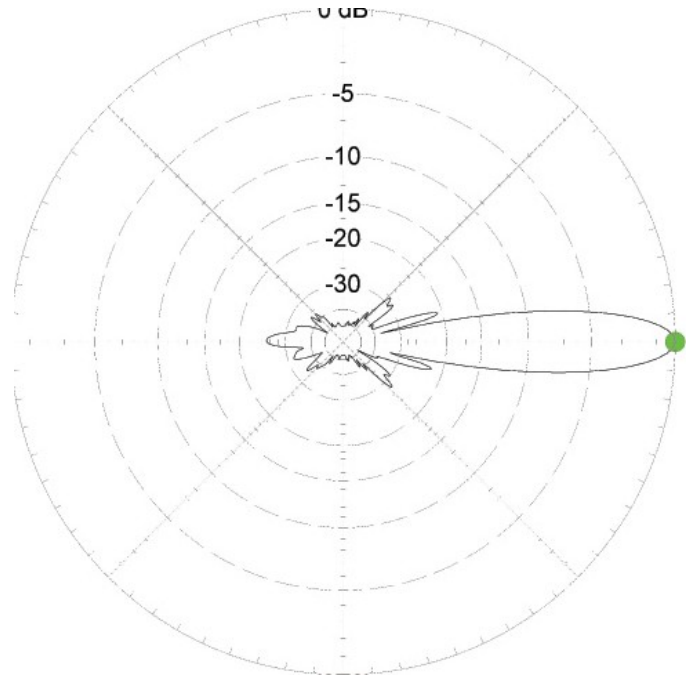
I have been sporadically active mostly evenings and afternoon since 11-1-25 and had qso with EA5CJ, JR7PJS, ON7EQ, DL6KAI, JH7OPT, DC1RDB, OZ9AAR, OK1VUM, VK5MC, OK1KIR, PA3FWV, S57Q and F2CT. Current antennas 4X26 el YU1CF H-pol and 450 W.

My plan for 70 cm in the spring is to put up 2 more YU1CF 26 el yagis for H-pol and try to make 4 24 el yagis for V-pol.

I imagine a configuration like the one in the image below that will give a favorable radiation pattern for H-pole with strongly suppressed side lobes according to antenna modeling with EZNEC.



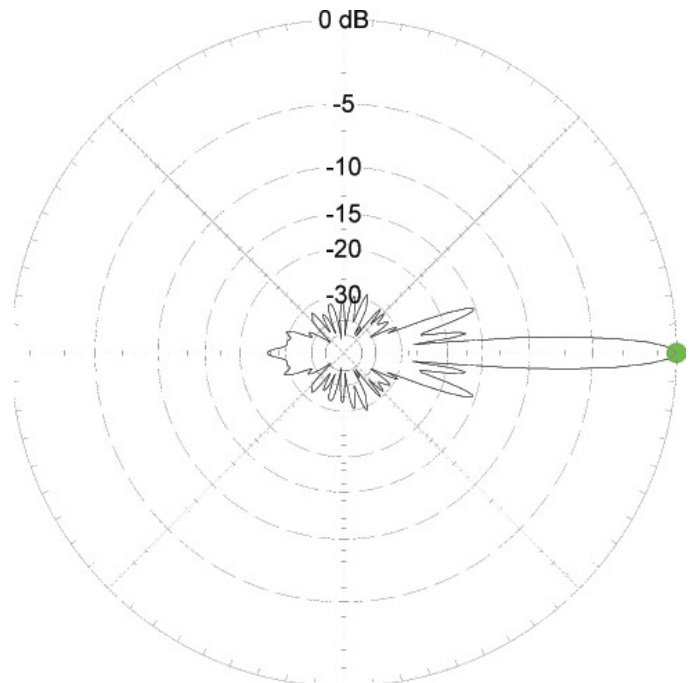
SM4GGC 70 cm antenna design



SM4GGC 70 cm antenna AZ

H-pol AZ radiation pattern. Gain 26,97 dBi.

Front/Sidelobe 20,82 dB



SM4GGC 70 cm antenna EL

H-pol EL radiation pattern. Gain 26,97 dBi.

Front/Sidelobe 15,26 dB

SM6FHZ Ingolf

On 70cm I worked 8 stations in CW, OH1LRY, G3LTF, SP9VFD, SM2CEW, OK1VUM, PA3DZL, VE6TA and DF3RU. I got the impression that Faraday was unfavourable all afternoon but got slightly more cooperative in the late evening. Spent most of the time listening to the stations I already worked calling CQ and throw a CQ myself now and then.

SP9VFD Rafael

I don't like winter time due to cold and harsh snowing weather but seems that February has advantages for 70 cm activity. On February 8th I was active Dubus EME Contest, pure random CW as usual, using 6.4 m dish with rotatable loop feed. Conditions were good enough considering the Moon was so far away from Earth. Most bounced signals were coming in H-pol. I have worked with: VE6TA, UA3PTW, OK1VUM, WA6PY, DF3RU, PA3DZL, OH1LRY, G4RGK, VK5MC, G3LTF, SM2CEW, SM4GCC, SM6FHZ. I didn't hear anyone else.

After the contest, on February 9th I was operating on 70 cm using Q65B mode. I did some nice QSOs with: G0JDL, SM3LBN, OZ9AAR, DL5FN, PA3DZL, W2HRO, DK0TE, ON7EQ.

During next weekend, on February 14th – 15th I had Q65B QSOs with: PA2V, 4Z5CP, PA7JB, NY1V, G4YTL, GW4ZHI, GD0TEP, ES3RF, SM7SJR, F2CT, OH4LA.

I worked with PA7JB on CW as well. This CW QSO with John PA7JB was an extraordinary, it has taken more than 30 minutes to complete and put callsign into the log, but it was worth it. Tnx John!

I will keep 70 cm feed at my 6.4 m dish until March 6th, then swap for 13 cm before Dubus 2nd leg. So let me know if anyone would like to try QSO either CW or Q65. Thank you for very nice 70cm February activity. I have uploaded my log to LoTW.

As winter time isn't nice and suitable for outside work with my new dish (3 m solid dish for 3 cm / 6 cm / DSN), I have started building new antenna controller based on Gary's N8CQ WinTrak system. The first test made on the desk in the shack shows there are a lot of very useful features. I have had successfully tested WinTrak with both Windows 11 and Raspberry Pi 4 using MABMPuv1.1 unit boards and HH-12 encoder / HH-12INC inclinometer. At now I will start to build suitable rack 19" enclosure for this nice controller project. Attached some pictures with tests made recently.

I'm going to be active 13cm Dubus EME on March 8th.



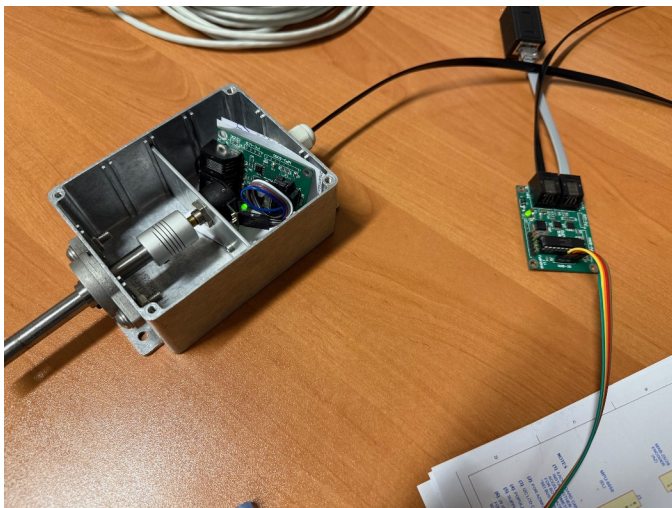
SP9VFD wintrak



SP9VFD tracking board



SP9VFD HH 12INC



SP9VFD AZ

VE6TA Grant

Stations worked during the contest in CW were:
 UA3PTW, SP9VFD, G4RGK, WA6PY, G3LTF, SM6FHZ,
 OH1LRY, SM2CEW, DF3RU.

I found the QSB to be very fast and lots of faraday rotation.

Also worked on digi before and after the contest;
 OM4EX, F2CT, VK2CMP, VK4EME, W2HRO, RY4C, PA6Y,
 G0JDL, DL8GP, PA3DZL, OZ9AAR, NY1V, OK2AQ, SV3AAF,
 PA7JB, W4YTB, DC1RDB, ON7EQ, DL1VPL, OK1VUM,
 NC1I, W5ZN, PA2V.

All in all some nice activity on 70 cm.

I am also working to get a larger tube amp going on
 222 MHz EME. (3cx1500). A nice winter project for our
 -20 Deg C weather these days.

VK2CMP Mick

I was active during the DL7APV weekend contest but alas did not complete any CW contacts. I did send some CQs on 038 and 040 during MR and MS and heard a station at my MS but could not complete the contact as the moon was getting low and into my QRM. I was also limited to 250 to 300 W on 70 cm as the Beko HLV-1470 was making clicking noises if I turned up the power greater than 300 W on CW. I would like to hear if any other HLV-1470 owners have experienced same?

I did work another VK - my 2nd ever - Chris VK5MC with a big signal.

I am currently looking into building a portable 1296 Mhz station to be operated out of my 4WD and would like to know if there is any interest in grids or states from VK for this type of operation? I can't work 1296 Mhz from the home QTH. More details as I progress through the procrastination, design and build project phases next NL.

WD5AGO Tommy

After 15 years away from 432 EME, Tommy dismantled the old 16x10 ele K5GW array from his college-employer due to his semi-retirement. He then overhauled the yagis and redesigned them for 12 elements and 50-ohm direct match (removed open-wire system). When it came time to put some of them back together for Friday night's 432 MHz operation the phasing lines connectors that were sent to him were for LMR400 and not LMR600. Manage to work around this issue on Saturday and finished system at 2200Z then ended up just hauling all equipment outside for CW operation. Signals were not that strong; however, the 8x12 ele array gain is just 22.4 dBG. Hot switched the newly built PQL amp at 500 W at the relay. After 3 hours he only blew one LNA!

Good thing he was able to just go inside in the lab, replaced the device, tested n/f at 0.25 dB, and back at the antenna in 5 min. Hope to do some serious system checks when it warms back up with equipment back in the house. As you notice in the picture, this area of the yard is the only semi-clear path. Area trees (not just mine), have grown to a point of total blockage so the microwave dish is not usable. Completed QSO's with UA3PTW, G3LTF, and a partial with W5ZN. Looking forward to getting back on 5.7 GHz in the next few months from another location. I have a new 2 stage, 26 dB gain LNA available and will be used in the system with 50 W.



WD5AGO 432 MHz outside

ZS4TX Bernie

I am planning to be active from Botswana, Namibia and Angola on 2 m and 70 cm during the last week of April and first week of May 2025.

Activity is planned for the following dates and times:

A21TX KH22, Kasane, Botswana

23 April 2025

Late afternoon/Evening 2M and 70CM TEP tests to EU.

24 April 2025

EME - Moonrise to Moonset 2M/70CM + TEP 2M/70CM.

25 April 2025

No EME. TEP 2M/70CM.

26 April 2025

EME - Moonrise to Moonset 2M/70CM. + TEP 2M/70CM

A2, Botswana was activated on 6 m, 2 m, 70 cm and the microwave bands during the A21EME EME DXpedition in October 2019 so the demand for 2 m and 70 cm EME contacts may be low although the A21EME log shows no NA stations worked on 70 cm. The idea is to alternate between 2 m and 70 cm to work everyone that still needs A2. Band changes will be advertised on the relevant HB9Q chat.

V5/ZS4TX JH92, Nkurenkuru, Namibia:

[CALLSIGN change pending]

28 April 2025

14:00Z until Moonset 70CM EME + TEP 2M/70CM.

29 April 2025

Moonrise to Moonset 2M/70CM EME. + TEP 2M/70CM

30 April 2025

Moonrise to ~16:00Z 70CM EME.

V5, Namibia has already been activated before on VHF, UHF and Microwave bands during a DXpedition in 2009. However, there should be several new EME stations that need V5 as a new one on 2 m and 70 cm EME.

There may be another opportunity to activate V5 again from a different location on 2 m and/or 70 cm EME on the way back to ZS between 6 and 10 May.

D2TX JH93, Cuatir Nature Reserve, Angola

01 May 2025

In late afternoon/evening, TEP 2M/70CM towards EU.

02 May 2025

Moonrise to Moonset 2M/70CM EME + TEP 2M/70CM

03 May 2025

Moonrise to Moonset 2M/70CM EME + TEP 2M/70CM

04 May 2025

Moonrise to ~15:00Z 2M/70CM EME

As D2 was recently activated on 2 m EME, most of the activity will be directed to 70 cm which required a special operating permit. The road to the Cuatir Nature Reserve will be a ~300 km round trip from the V5 border on 4x4 off-road sand tracks with a ferry crossing over the Cubango river as a bonus.

Equipment for 2M: 1 x 2M18XXX, IC-9700

[One less antenna than used at D2TX in 2022]

Equipment for 70CM: 2 x 9WL, IC-9700

[Same as used from 7P8Z]

[Multiple spares of almost everything...]

Direct QSL's for any of the calls can be requested from Lins, PA3CMC. Contributions will be gladly accepted and can be directed via Paypal to Lins, PA3CMC at info@pa3cmc.nl Please include your callsign to be listed as a contributor.

All direct paper QSL requests and contributors will receive LotW confirmation as well. Any changes to the schedule will be communicated via the relevant HB9Q chats, and/or QRZ.COM pages.

All the accommodation has been pre-booked and paid so the dates are not subject to change unless something unplanned comes up.

Particular attention will be given to marginal and short common Moon windows. Please feel free to send an email to indicate such windows that will require specific attention. A portable QO-100 SAT Station provided by PA3CMC will be used to relay messages in case there are no internet coverage available.

RS-44 satellite contacts may also be considered if the EME activity is low enough.

No 23/13/6CM activity is planned.

Radio Astronomy Corner

OK1TEH Matej

Are Fast Radio Bursts Caused by Interstellar Objects Crashing Into Neutron Stars?

We already know that extremely intense and at the same time very short bursts fly through space, especially in the radio wave region. These are Fast Radio Bursts (FRBs), and they are still giving scientists a hard time. These millisecond to multi-second radio bursts were discovered in 2007 and usually come from a great distance. For a long time, their origin was unclear. The problem is that they are very short and also come from point sources, so they are not easy to detect. It's only thanks to wide-angle radio telescopes like Canada's CHIME that answers are starting to emerge.

Today, the prevailing view is that magnetars, or neutron stars with extremely intense magnetic fields (generating magnetic fields hundreds of millions of times stronger than those produced by humans), are the origin of fast radio bursts. But it is not yet clear what specific mechanism generates the fast radio bursts. For example, the idea that fast radio bursts are caused by the crossing and subsequent relaxation of magnetic field lines (magnetic realignment) has attracted attention. But this idea has a catch. The fast radio bursts are so short that the mechanism of crossing and releasing the magnetic field lines probably should not be able to do so. Therefore, other explanations have been put forward.

In a new study published in the November 2024, Dang Pham of Canada's University of Toronto and colleagues suggest <https://arxiv.org/abs/2411.09135> that these could actually be impacts of interstellar bodies into magnetars. Such a collision would trigger a massive blast of electromagnetic radiation. When researchers examined the timing of the fast radio bursts, it turned out to be somewhat consistent with the distribution of bodies in the Solar System. Similarly, the calculated duration of such an event roughly corresponds to the duration of an event following an impact of interstellar bodies.

However, in the case of the interstellar body impact hypothesis, other problems are again at play. Scientists have discovered repetitive, rapid radio bursts that are quasi-periodic. Something like this is difficult to explain by random interstellar impacts. But it's also possible that periodic and non-periodic fast radio bursts are produced by different mechanisms. Neutron stars, pulsars and magnetars thus remain at the forefront of interest for radio astronomers and astrophysicists.

Polarization Calculator

OK2AQ Mirek

Many of us use crossed Yagi antennas with switchable H and V linear polarization. Since the polarization plane of the received signal is usually twisted due to the spatial angle and Faraday rotation, strong stations can usually be received by both H and V antennas with different strengths.

Excel spread sheet allows to calculate the polarization plane twist angles and the resulting losses to orthogonal polarizations from the signal level values given by WSJT-X. The polarization planes determined in this way are in principle two, but the losses are the same in both cases. If we have a rotary feed at higher microwave bands (e.g., 10 GHz, where F. rotation is negligible) can measure V and H polarizations and the angles should correspond to the WSJT-X Dpol data.

Spreadsheet can be downloaded from this page:

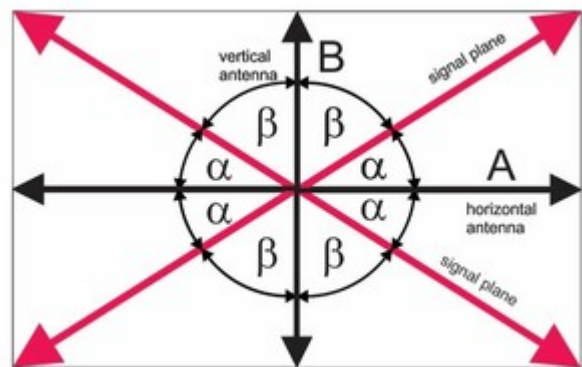
<https://www.radio.feec.vutbr.cz/esl/files/EME/Downloads/Downloads.html>

Mike W9IP points out that if you know the DX station's location, then you can calculate the spatial polarization offset. Subtract this value from the observed polarization and you will reveal the current net Faraday rotation along the EME path. You can use this information to set your TX polarization to the best angle for calling other stations in that general area of the world.

Calculation of signal plane angles and losses for linear polarized H/V switchable antenna by OK2AQ

inputs			
A =	-13	signal level from horizontal antenna showed by WSJT-X	e.g. = -13 dB
B =	-17	signal level from vertical antenna showed by WSJT-X	e.g. = -17 dB
results			
α =	21,7 deg	losses to pure horizontal polarization -	1,5 dB
β =	68,3 deg	losses to pure vertical polarization -	5,5 dB

OK2AQ spreadsheet sample



OK2AQ diagram

W1QA Bob

This month's PDF version of the newsletter has been produced a bit differently. The previous versions (since the 2024 EME conference) were produced using Microsoft Word. This month's newsletter was produced using LibreOffice Writer and saved / maintained in an open document format.

LibreOffice is a free, open source office productivity package that runs on a variety of platforms. While I am still learning the suite of programs I felt this would be a good direction to move in to ensure that it will be easy to have others assist in the future with the production of the newsletter. (And in recent years I've become increasingly frustrated with the quality of Microsoft software, among other things.)

As time permits I've also been working with content on Rein PA0ZN / W6SZ (SK) website. Some of it has been successfully moved to the <https://eme.radio> site.

We're still looking for someone with Joomla! CMS experience to assist with oversight in the website. (Does not have to be someone from the EME community.)

We have had a few questions about the lack of email addresses in reports. The main reason why we have not been including them is to not make the newsletter another source where spammers can obtain email addresses by scraping the web page and PDF doc.

Be glad to receive any feedback you have regarding the newsletter or the website.

WSJT

WSJT v2.7.0 has been released as of 25 Feb 2025.
Download link for 64-bit Windows installer:

<https://sourceforge.net/projects/wsjt/files/latest/download>

FOR SALE

OK1FPC has for sale 9/6/3cm cheap transverters, multipliers more at:

http://ok2kkw.com/next/ok1fpc_10g.pdf

Ales also reports that he can sell 9/6/3 cm ready to use RIG include tuned antenna. PS: Ales FPC and OK1TEH are considering to make small series of WR12 SLOT omni antennas with good SWR for 76-77 GHz tropo beacons, anybody interested in joining us?

DUBUS-REF CW/SSB Contest 2025

13 cm SAT March 8 (24h)

23 cm SAT+SUN Apr 5+6 (48h) VK3UM Memorial

9 cm SAT May 3 (24h)

1.2 cm SAT June 21 (24h)

3 cm SUN Jun 22 (24h) K2UYH Memorial

6 cm SAT Jul 19 (24h)

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