

## 432 AND ABOVE EME NEWS NOVEMBER 2020 VOL 49 #10

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**CONDITIONS:** Activity this month as well as will be next month were dominated by the ARRL's annual EME Contest. Fortuitously, conditions were excellent on both 432 and 1296. CW activity was also excellent on 1296. On 70 cm DL7APV reports 113 mixed QSOs. KL6M reports 29 CW QSOs – who says CW is dead on 432. OK1TEH scored 27x19 with his single yagi including 2 on CW. His best first weekend ever, as it was for many others. On 1296, OK2DL has the top reported QSOs with 121. OZ4MM reports 75 QSOs on CW. **The final weekend is coming up on 28/29 Nov. It should be a great finally! Although the DEC and loss are not optimum, the Moon times are much more friendly!** There was a surprise this month with KB7Q showing up on 1296 from MT. He will be on again during the ARRL Contest weekend. See Gene's report in this newsletter (NL). **HS0ZOP** plans to be QRV from Thailand in a few weeks – see HB9DRI's report.

**The dates for the 2021 DUBUS Contests are 13 cm 23/24 Jan, 2 m/70 cm 20/21 Feb, 9 cm 20/21 March, 3 cm and up 17/18 April, 23 cm 15/16 May and 6 cm 12/13 June. The annual SSB Funtests will be on 30 Jan for 23 cm and 31 Jan for 13 cm. The full details will appear in the next NL.** There is no 70 cm CW Activity time period (ATP) because of the ARRL EME Contest.

The **ON0EME**, 1296 EME Beacon is back in operation at full power; however, DK7LJ's 3 cm EME Beacon had a disaster. The 7 m dish's AZ gear (120 kg) has broken and a repair will take some time. The 24 GHz beacon is still in operation.

We are very sad to report the passing of two major EMEers.



**RW1AW** on 30th Oct became silent key. Alex was an extraordinary EME who was active on just about every band, but especially the microwave (MW) bands. As G3LTF notes there are not many left like him. Not many people know that he was a military pilot and got the state honor "Hero of the Soviet Union". When he left

the air force, he built a big EME dish-farm close to St. Petersburg and was one of the first active UA stations on

GHz EME. Alex wrote an excellent tutorial for 10 GHz EME newcomers, which can be read at <http://www.vhfdx.ru/eme/3cm-eme-rw1aw>. The other, **W2DRZ** also became an SK in Oct after a prolonged illness. Tom was active from western NY on 23 cm EME, but is probably best know for the EME tracking system he developed with K2TXB; and which is still available from Russ. They will both be greatly missed. Our condolences to their families.

### **REPORTS:**

**DK3WG:** Jurg [dk3wg@web.de](mailto:dk3wg@web.de) continues to contact initials rapidly – In Oct, I added initials on 432 using JT65B with RA3EME, DM9EE and DN5HR [same station?], KG5CCI and OZ1SKY; and on 1296 using JT65C with W3CJK (RI) and RX6AIA.

**DL7APV:** Bernd [dl7apv@gmx.de](mailto:dl7apv@gmx.de) shares his experiences during the Oct ARRL EME Contest weekend -- This year I decided to run the contest full time. Last year, I thought I'm too old to run 2 nights in a contest. I changed my mind since retirement. I now feel better than ever and could sleep a bit in front of the contest. So, I was on whenever the Moon was up; except of course, two breaks for breakfast. Luckily, the activity was superb and the conditions especially excellent on Saturday. On Sunday conditions were also very good till sunrise, then the QSB became very deep. **I made 113 QSOs** and 3 DUPs - my best ever result for the first leg! A big TNX to all who gave me point in the contest. It was much fun. (I wanted to test a new 2 m array in contest, but there was just no time. I made 13 CW contacts, so CW activity is still there. I found not enough time to CQ in CW as JT kept me busy all time. The number of getaways by the end of contest was very low. I hope to get them and some more during the next leg. However, I added no new grid squares, but did a add some new calls (not all were initials). Initials were RA3EME KO72, K2QFA FN20 (his 1st EME), N1QG FN34, JH9TJT PM86 with 2 x 25 el yagis and 50 W also a 1st EME, 7M2NZN PM96 with 2 x 25 el yagis and 50 W another 1st EME, JK1BLA 11 year old son of JE1TNL, VK3BJM QF22, RK9Y MO92, RU4AN LO20, DN5HR 7 year old daughter of DM9EE!!!, UR7IMM and UR7IM both KN88. OZ1SKY set a new record on receiving my JT signal (26DB) with only a Comet GP9 antenna and preamp! Two days before the contest, I replaced my old Drake TR7 TRX by a new K3 in front of my transverter. At the same time, I switched from WJST10 to WSJT-X. It took me several

hours to get everything running, but during contest I had nearly no problems. My **first impression is that -X decodes a bit better**, as I had in parallel a FT897+WSJT10 for RX. The reports on -X are much higher versus WSJT10; I've never given so many (1DB) reports. For the first time my SSPA gave up on Saturday. I ran it with lower power until I could replace it after moonset. My next project is to replace all my air-cooled PAs with much smaller water-cooled PAs. I am now looking forward to the next leg.

**F6ETI:** Philippe's [f6eti@wanadoo.fr](mailto:f6eti@wanadoo.fr) reports for both Sept [missed by us] and Oct -- Currently, I can only be active during EME contests because of my remote location. I was QRV for the **Autumn ARI EME Trophy**. Echoes were good and activity very satisfactory considering the location of the Moon. I had no window to either Asia or the Americas. I QSO'd all using CW or SSB on 1296 OK1CA, OH2DG, SM5DGX, DL3EBJ, G3LTF, IK3MAC for an initial #89, LZ2US, SP6ITF, I1NDP, IK1FJI, IK3COJ, F5KUG, IK5VLS, DL0SHF, F6CGJ, DG5CST, IK2MMB, OE5JFL, I5MPK #90, P19CAM (CW and SSB), IZ1BPN, IK3COJ DUP and F6CGJ on SSB - fabulous! **My total was 24 QSOs**. Video/sound recording of some of my contacts are at [https://youtu.be/H75p\\_Jw0xUU](https://youtu.be/H75p_Jw0xUU). I was QRV again for the **Oct leg of the ARRL EME Contest on 1296 and made 42 QSOs with 41 on CW and one SSB**. Worked were SP6JLW, DL3EBJ, G4CCH, SP6ITF, G3LTF, I5MPK, DL6SH, IK1FJI, DF3RU, SP7DCS, DG5CST, OK2DL, OK1CS, OK1KKD, IK3MAC, YL2GD, F5KUG, SM4IVE, UA3PTW, IK3COJ, DL0SHF, OE6JFL, OH1LRY, IK2MMB, OH2DG, LX1DB (SSB), VE6TA, OK1CS DUP, OK1CA, I5MPK DUP, RA3EME, IK5VLS, FR5DN, OK1KKD, F5FEN #91, I1NDP, OZ4MM, W4OP, W6YX #92, SP2HMR, SP3XBO and K2UYH. 37 of my QSOs were made in response to my CQs and 5 while going hunting. Recording of some of my contacts can be found at <https://youtu.be/D--RDUkyR0o>. My rig is a 3.05 m dish, septum feed, 300 W SSPA (DF9IC), G4DDK 0.35 NF VLNA23, TVTR (SG-Lab), IC-202 plus on RX TRANSFOX SDR + Aureon Xfire 24 bits external sound card. My Sun noise was 10.5 dB (SFI 72). Given the travel restrictions in France due to the pandemic, I may not be able to participate in the Nov contest weekend.

**G3LTF:** Peter [g3lft@btinternet.com](mailto:g3lft@btinternet.com) reports his recent EME activity -- **In the Oct leg of the ARRL Contest** I QSO'd using CW or SSB on 10 Oct starting on 23 cm DL3EBJ, IK1FJI, DL6SH, SP6ITF, DF3RU, F6ETI, JH1KRC, SP7DCS, G4CCH, F5KUG, DG5CST, I5MPK, FR5DN, DL4DTU, took a 4 hour break, continued with OK1CS, OH2DG, DL0SHF, OK1KKD, OE5JFL, IK3COJ, SP6JLW, SM4IVE, K0PRT for initial #498, OZ4MM, VE6TA, IK2MMB, SM6PGP, LX1DB (SSB), WK9P, W4OP, WA6PY, N4PZ, N5BF, W5LUA and OK2DL, and on 11 Oct VK3NX, UA3PTW, UA4AAV, JA4LJB, PA3FXB, DL7UDA, RA3AUB, JA6AHB, IK5VLS, F2CT, I1NDP, LZ1DX, IK3UVC, SM4GGC, LA3EQ, F6KRK, IK5QLO, RA4HL and DJ3JJ; at 1000 changed my feed to 70 cm for I2FHW, SM2CEW, KL6M, G0JLO, UA3PTW, DL8UCC, DL7APV, PA3DZL, SM7THS, PA2V, UT5DL and F6HLC; and at 1230 changed my feed back to 23 cm again for OK1CA, VA7MM, K2UYH, K5DN, WA9FWD and lastly KA1GT with the dish

grinding into the ground! Heard on 23 cm were SP2HMR, UA9FAD, PA3CSG, S53MM, W6YX, SM4DHN and PA0PLY. **My score so far is 58x30 on 23m and 12x9 on 70 cm for a weekend total of 70x39**. After the contest, I worked on 1296 using CW on 16 Oct OK1DFC, and on 17 Oct DF3RU, SM6FHZ, XE1XA and I5YDI. Since then our WX has been very unsettled with a lot of rain and wind, so no more EME. In the final leg I will be on 70 cm more especially looking for JA and VK and more American stations.

**G4BAO:** John [john@g4bao.com](mailto:john@g4bao.com) writes about his 24 GHz plans -- G3WGD has inspired me to do more work on my 24 GHz EME system. I now have all the parts and yesterday was metal bashing to put my 1127 TWT on to a heatsink and into the feed tray. I've worked out a way to get it all on my standard "tray" slung under the offset dish arm with the TWT PSU behind the dish. I'm a little scared of the EHT, but I think I can at least "showerproof" it and remove it pretty quickly to change bands to 10 GHz. I feel I'm on target for a QSO in the spring at the latest; assuming the TWT is OK - I'm assured it worked when he last used. The only thing I need to find now is a length of flexible waveguide to get to the feed. I can get away with coax on receive as I have an LNA and relay right at the feed. Hopefully I can find some "new old stock" WR24. 24 GHz flexi WG is notorious for ageing, especially at 24 GHz. Power measurement at the 25 W level might be a challenge. I'm going to look at the return loss of my 18 GHz HP 30 W (precision N type) attenuator. Does anyone have suggestions?

**HS0ZOP:** Alex (HB9DRI) [hb9dri@emeham.com](mailto:hb9dri@emeham.com) sends news that Thailand will be on 432 and later 1296 EME -- It is with great pleasure that I announce that the National Broadcasting and Telecommunications Commission of the Kingdom of Thailand has issued me a temporary license to use HS0ZOP for EME on 432 and 1296. I was successful after one year of long technical discussions with the dedicated support of HS1FVL (President of the Radio Amateur Society of Thailand) to get permission for the first EME operation on 70 and 23 cm. The authorization is just for 3 months, but with the option for an extension. The initial period for 3 month is not long enough for me to put both bands in operation. 70 cm will be ready in few weeks. Operation will be from grid OK03gr in Bangkok with 4 x 15 LFA-JT cross yagis on a full fiber glass H frame. I will have a Kuhne MKU 0.35 NF LNA with a 1 kW W6PQL SSPA running at 700 W using JT65A (400 W at the antennas). RX will be with IQ+revC 70 cm UADC4 for full adaptive pol switching (every 45 degs) with Linrad as the frontend. Due the antenna size and RF power available, I will operate mainly using JT65B, but CW is and option "ONLY" for big stations. Operate on CW will force me to run my SSPA at its limit (1 kW); I cannot risk my only SSPA to "try" CW QSOs with stations of limited capacity. More details will follow soon. I expect to be QRV in 3 to 4 weeks.

**K0PRT:** Gary (WA2JQZ) [gca7sky@aol.com](mailto:gca7sky@aol.com) reports on his group's first attempt at EME with their refurbished 60' dish during the **Oct ARRL Contest weekend** -- Our first EME trial was successful! We have been working towards this goal for several years. Prior to the moonrise, we successfully

tested our system with several tropospheric scatter contacts, over a hundred miles distance. We operated just for the first moon pass on 10 Oct. **We made 30 contacts, 24 initials in total**, 25 on CW and 5 on SSB. 4 were to EU, 2 to Japan, and the rest were with NA. We only made our first contact about 2 hours after moonrise, after we troubleshooted our antenna azimuth pointing offset. We found we needed to adjust the offset by 1.5 degs. QSO'd were DL0SHF, OH2DG, G3LTF, I5MPK, SP6JLW, DL4DTU, SM4IVE, DG5CST, VE6BGT (SSB), W4OP (SSB), OK1KKD, OE5JFL, W6YX, IK2MMB, OZ4MM, OK1CS, OK2DL, VE6TA, JH1KRC, AA4MD, WA9FWD, W5LUA (SSB), VA7MM, XE1XA, VE6TA (SSB), K2UYH, JA6AHB and W6YX (SSB). We operated with our club callsign K0PRT. Our team was Gary WA2JQZ, Myron KL7YY, Ray AA0L, Bill KC0FHN, and Glenn Davis, our lead software engineer who led the design of our new automatic tracking system. We used a 1296 septum feed built by KL6M to the specifications provided by KL7IZW. We plan to operate again during the EME contest in Nov. We had problems with our 200 W SSPA located at the antenna feed. A relay control on the amplifier had failed that kept the unit continuously in transmit mode. We believe we had about 180 W at the feed. We have added an 18 W amplifier to our FT-735R transceiver to help boost our signal over the 180 feet of half-inch hardline that feeds to our antenna. We also added a laptop and interface to do some JT65. We plan to operate CW, SSB, and JT65 digital. For the first pass in Nov, the Moon will already be above the horizon at the start of the contest, and will set at 1203. For the second pass, the Moon will be above our horizon from 2247 on 28 Nov to 1303 on 29 Nov. We will at least operate during the first pass. We will have information posted at our website, <http://dses.science/our-1st-dses-earth-moon-earth-eme-moon-bounce-communications>. This was definitely exciting for me. This was my first EME experience. (I have had a taste of meteor scatter and satellite QSOs.) And I think it was exciting for our whole team. Some have done EME in the past on lower frequency bands. Much has had to come together for us, to restore the 60-foot antenna and the site, and bring the antenna back to life again with more modern features. EME has been a long term goal for us. I think we're all excited and proud. I think we're all pleased that we're a group that works this well together, and that we can continue to do more. The EME itself is exciting too, especially with the capability we have. I am still taking in the experience of hearing my voice or CW coming back from the Moon a couple of seconds later.

**K1DS:** Rick [rick1ds@hotmail.com](mailto:rick1ds@hotmail.com) was active on 432 from his Florida QTH during the **ARRL Oct Contest weekend** -- I tried hard to increase my capabilities by using a pair of K1FO-22 yagis and my W6QPL 500 W SSPA. My WD5AGO cavity preamp was in the shack due to switching and cabling limitations with my portable set-up. I saw a few traces and worked using JT65B DL7APV (19DB/15DB), UA3PTW (O/O) and HB9Q (O/O). I tried CW with KL6M and SM2CEW. This was not as good as my previous experience with a single K1FO-25 and only 150 W with a lesser preamp in the shack. I don't think it was only conditions and I'm checking all my cables and connectors.

I am hoping to be on 23 cm for the final weekend with a WIMO yagi, 250 W and a good preamp.

**K2QFA:** Chris [k2qfa.fn20@gmail.com](mailto:k2qfa.fn20@gmail.com) completed his first EME QSOs during the contest -- I was on the Moon for the first time during the **Oct portion of the ARRL Contest**. On 70 cm with my modest station consisting of an AGO preamp and 110 W into a single 12 el yagi, I was able to work DL7APV (22DB), UA3PTW (26DB) and HB9Q using JT65C. I look forward to working many more QSOs! TNX to K2UYH for all his help and encouragement.

**K4EME:** Cowles [candrus@mgwnet.com](mailto:candrus@mgwnet.com) wrote the following related to his participation in the **Oct ARRL EME Contest** -- Conditions here were terrible with high winds, heavy rain and cloud cover. With the cloud cover during the contest, I was off the Moon most of the time. This explains why I only worked some of the larger stations. I never hear very well during heavy rains. Also, I had a much higher VSWR than normal. Now for some good news, I was able to fix my tracking issue with a Green Heron engineering controller. I can now track the Moon's azimuth and elevation well - within about 0.2 degs when I have no wind! This should improve both my TX signal and RX sensitivity during overcast conditions, when the Moon's view is not available. In the contest, I **operated on both 70 and 23 cm and worked around 30 stations**. This was way down from last year when I had clear skies and much better weather for most of the contest.



**K4EME's 16 long yagi array for 432**

**K7ULS:** Mike [k7uls@yahoo.com](mailto:k7uls@yahoo.com) sends a 222 report for the ARRL Oct Contest weekend -- I worked on 222 EME 5 stations including one initial with K7EME and am now up to WAS 28. I'm leaving the mountain for the winter. It's been a great summer for ham radio up here at 9000'.

**KB7Q:** Gene [geneshea@gmail.com](mailto:geneshea@gmail.com) is now QRV on 23 cm **EME from MT and probably more places soon** -- I was able to achieve first RF into a W2HRO 1.6 m dish on 7 Nov and worked 16 stations on 23 cm from my condo. I used a less than optimal preamp as I didn't want to blow my best one if my RX port isolation was found wanting. No worries - logged using JT65C HB9Q (8DB), PA3CSG (19DB), PA3DZL (17DB), DL0SHF (7DB), NC11 (18DB), SP5GDM (27DB), K2UYH (17DB), DK3WG (30DB), PA3FXB (24DB), UA3PTW (19DB), ON4QQ (30DB), ES3RF (28DB), G4CCH (13DB), IK3COJ (19DB) and DF2VJ (30DB), and using CW G3LTF (419) - easily. I'm very happy to do CW

who thinks we can make it. I had about 250 W at the feed. This is my 5th EME band from MT. I'm hoping to be active on 1296 for both nights of the Nov ARRL Contest weekend. I was just on 222 EME from NV to help the WAS effort there. I QSO'd 8 via EME.



**KB7Q's stealth, folding 1.6 m dish and path feed**

**KL6M:** Mike [melum@alaska.net](mailto:melum@alaska.net) discusses his Oct operation -- I ended up on 70 cm CW for the whole ARRL weekend due to my 23 cm amplifier failure. I built this great new patch panel for 7 bands of EME. Then, I forgot to patch the amplifier to the antenna. I transmitted into thin air. It melted the center conductor of my output coax and arced and burned a path to ground, but the MRF13750 device still are alive! I believe the spec says it will survive 10:1 VSWR, but in this case it survived an infinite VSWR. I got a new output PCB from W6PQL, so I am ready to go on 23 cm in the next segment. I had a great time on 70 cm. I worked 29, many really weak, so it was quite a challenging weekend. A highlight was working OK1TEH with his single yagi station on CW. Nothing worse than QSOing 4 or 5 really weak stations in a pile up. It took me a half hour to sort that one out. I appreciate the patience of so many stations. I QRZ'd a lot.

**KNOWS:** Carl [carlhasbargen@q.com](mailto:carlhasbargen@q.com) finally had fun and a successful weekend from his summertime EME QTH in northern MN -- The Oct Contest weekend turned into an exclusive 23 cm event as I did not set up my 20' dish used on 70 cm. The weather was good for a change. My successes included RA3AUB, SP5GDM, LZ1DX, RA3EME, HB9Q, UA3PTW, UA9FAD, OK2DL, DF3RU, IK5VLS, K7CA, ON4QQ, KA1GT, OK2ULQ, N1AV, K2UYH, DL0EBJ, KD3UY, OK1DFC, PA3FXB, DL7UDA, VA7MM, W6YX, N5BFF, K5DOG, AA4MD, JA6AHB, NC1I, OK1CA, KD5FZX, ES3RF, UA4LCF, F1RJ, OK1UGA, DF2VJ, G7TZZ, G4FUF, CX2SC, IK7UXW, WA3RGQ, IK5QLO, DF2GB, RN6MA, W1PV, PA0PLY, VE3KRP, GM0PJD, AA6I, WA3GFZ, K5DN and VE6TA. I am always a bit frustrated to decode other operators as they work other stations and then I never see them again. Those copied but missed included RA4HL (15DB), ES6FX (10DB), DG5CST (19DB), G4FQI (13DB), I0NAA (20DB), YO2LEL (19DB), IK2MMB (17DB), OK2ULQ (11DB) and DL4DTU (DB15). I have hesitated to call during their QSO's, but I may become a bit more aggressive to let folks know I can see them. |

ended with 51 contacts, which is the most I have done in one ARRL weekend -- so I am happy! I did have some disappointments. I thought my electronic keyer had dried out and was working; but when I tried CW with G3LTF, Peter informed me that he was just receiving a carrier wave without characters. Thus, I had no CW QSOs. I also tried some 2 m EME with a couple of cross-yagis when 23 cm was quiet, but heard nil. Work will limit my Nov contest activity to one moonpass. It will again be on 23 cm. I am not sure if I will figure out how to get my CW operational, but that might be a way to add some stations that I have missed so far. [You can always use the JT CW mode]. My polar mount alignment has shifted over the years, which affects my dish pointing, and needs correction.

**LX1DB:** Willie [wbauer@pt.lu](mailto:wbauer@pt.lu) wrote about his 47 GHz station [a couple months ago, but the report was place in the wrong file -- sorry] -- My 47 GHz equipment is operational with a tracking system accuracy of 0.05° checked by tracking Moon noise; and am available for 47 GHz skeds. I am using a solid prime focus 3 m Andrew dish with a f/D of 0.3. My Sun noise was 7.1 dB with a flux of 63 measured on 9 Sept, with temp 19°C and hum 63%; Moon noise was 0.45 dB and CS/G 0.8 dB. I was using a commercial LNA from SPACEK LABS (Model: SL 472-18-3M) with a gain 18 dB, NF (2.4 - 2.8 dB) indicated as 2.2 dB on data sheet.

**N1AV:** Jay [whereisjay@gmail.com](mailto:whereisjay@gmail.com) QRV for his first ARRL EME Contest in Oct -- It was a thrill to see so many stations on the waterfall. I ended up working 49 stations using JT65C on 1296 over the weekend. I added several initials and new DXCCs -- very excellent. There is nothing like operating both passes to fully understand how your equipment works. I am planning improvements to my TX and RX lines, dish and some software changes for the next weekend. I will be using CW on 1296 for the next contest weekend and hope to pick up some stations that are only running CW and or SSB in the contest. (I will be also on 144 and 222; and possibly 432 with 2 long yagis and 500 W as well). My 23 cm station in DM43 consists of a 3 m TVRO dish with a septum feed and 500 W. Most important will be the expansion of my dish to 14'. I am also thinking of adding 13 cm with a system with which I can go portable. I already have an 8' dish, 200 W, a septum feed and ODO preamp.

**N5BF:** Courtney [courtney.duncan.n5bf@gmail.com](mailto:courtney.duncan.n5bf@gmail.com) writes about his plans and results for the Oct ARRL Contest weekend on 1296 -- With my 1296 system upgraded from a 3 to 3.8 m dish and a repaired G4DDK LNA, I started the Oct EME weekend with a stretch goal of 66 QSOs (I am hoping for 100 in the two 23 cm weekends) and did in fact end up with 62x28! As always, opportunities were missed and mistakes were made, but the weekend was overall very successful. Mixed initials were added with UA4LCF (19DB/14DB) JT65C for #194\*, IW2FZR (549/559) CW #195\*, I5MPK (549/559) CW #196\*, W3CJK (24DB/O) JT65C #197\*, UA9FAD (21DB/10DB) JT65C after many tries #198\*, AA6I (20DB/O) JT65C #199\*, OK2ULQ (12DB/12DB) JT65C #200\*, DL7AIG (19DB/17DB) JT65C #201\*, OK1UGA (19DB/16DB) JT65C #202\* and G7TZZ

(22DB/18DB) JT65C #203\*. Post contest, on 1 Nov, I completed an impressive QRP EME QSO with 4O6AH (26DB/19DB) JT65C #204\* for my DXCC 44 (Montenegro). I am very much looking forward to the Nov weekend.

**NC1I:** Frank [frank@NC1I.COM](mailto:frank@NC1I.COM) has made terrific progress on repairing his big 432 array -- Thanks to the great assistance of W1QA, KA1QFE, N1DPM, KU1RT and a big crane we were able to lift the rebuilt 432 mount and array back up on the tower on 3 Oct. Everything went smoothly and we have some video that we will upload to the web soon. We were not able to get all connected and wired up by the following weekend. Since then, we have had to resolve a couple of small issues but as of 6 Nov we are back in full operation on 432 and seeing excellent results. I was on very briefly during the ARRL Contest and completed with the following stations on 11 Oct (a little over one year since my last QSO) S51LF, SM7THS, OK1TEH, GW3TKH, EA3MS, YO2NAA, RA3EME, RD3FD, US8IGT, DL7APV, W2HRO, and 4Z5CP for a 432 total of 12x10. I was experiencing a couple of problems that I believe (hope) are now resolved. I added on 5 Nov W2HRO and UA4AQL, on 6 Nov GW4LWD, DL8DAU, IW4ARD, G8UDI and OK2AQ, on 7 Nov N8AM, PA3HDG, GW3TKH, RD3FD, PA2V, W7TZ, OH2BYJ, PA4VHF, F5JDI, WP4G, 2M0ETJ and SM3GGC, on 8 Nov WQ5S, N0AKC, WA1FXK, OK2AQ, IZ2DJP, N8AM, IK2TIF, UR7IMM, N1QG, UR7IM (believed to be a different station than UR7IMM) and OH2DG, and on 10 Nov RD3FD, DL8DAU and IZ2DJP. I still have one significant issue on 432. I have major interference that I believe is coming from an electric cattle fence about 800 m to my south. I am hearing/seeing 20 over 9 popping every few seconds. The wide NB on the FTDX5000MP does a pretty good job reducing it and it is tolerable on WSJT (especially with the audio turned all the way down) but it is extremely annoying on CW. At this time, I am not sure if I can do anything about it but would love to hear from anyone else that may have dealt with this type of interference. The following stations were also worked on 1296, during the contest on 11 Oct DF3RU, KN0WS, DL3EBJ, RA3EME, RA4HL, RN6MA, PA3FXB, UA4AAV, DL7UDA, OH1LRY, OK2DL, DL3EBJ, UA9FAD, DL1RPL, KA1GT, RA3AUB, ON4QQ, OK1DFC, DF2GB, RD9SAC, DL1SUZ, OK1UGA, LZ1DX, OZ9KY, W6YX, IK5VLS, AA4MD, DL4DTU, G7TZZ, K4EME, UA6AH, W3CJK, EI2FG, PA2DW, IONAA and UA3PTW for 1296 total of 36x20 and an overall total of 48x30; after the contest on 12 Oct OK1IL, on 4 Nov RX6AIA, RA4HL, 4O6AH, and PA0PLY, on 6 Nov PH0V and GM0PJD, and on 7 Nov KB7Q in MT, on 8 Nov 4O6AH, and on 10 Nov I5MPK. I would have liked to have spent more time on during the contest but was exhausted from working on getting the 432 array back in operation, so I was only active for about 4 hours. **In late Oct W1QA and I spent an afternoon adjusting the scaler ring on the 1296 feed and picked up 0.8 dB of Sun noise. The previous location of the scaler ring was not adding any Sun noise (vs. no scaler ring). We are currently measuring almost exactly 14 dB of sun noise with the 4.5 m dish and the new scaler ring location. I think theoretically we should see over 15 dB, so there is**

**probably more work to be done, but this is the most sun noise I have measured to date.** We will try and see if we can make more improvements in the spring. I expect to be active the last weekend of the contest. If my 432 station is working properly, I will likely spend the vast majority of my time on that band, but the level of activity on each band will also factor into my plans. We just uploaded all EME QSOs through 8 Nov to LOTW. I will try and catch up on the paper QSL cards over the next couple of weeks.

**OK1CA:** Franta [fr.strihavka@seznam.cz](mailto:fr.strihavka@seznam.cz) reports on the Oct part of ARRL EME Contest -- I planned to be QRV during the contest weekend on 70 cm. I installed the rig on Friday and everything was fine. The night before the contest, I worked VK4EME using JT65B, but then started to lose power. I found the fault to be in one of my two SSPAs. There was no chance to replace it in the available time. Thus, I switched to 23 cm on Saturday. There was high activity and I made a total of 77 QSOs with 56 on CW, and CW initials with EA3AUC #377 and EI2FG for # 378. I made more initials using JT65C with OK1UGA, RA4HL, DJ3JJ, DF2GB, RX6AIA, VK6KCC, SV1CAL, RA3EME, G7TZZ, LZ4OC, KA1GT, DL1SUZ, VE3NXK, UA4LCF, CX2SC, N1AV and WA3QPX to bring me to digital initial {#85}. The end of the of my Moon widow was very hectic; when I had my antenna at 10° el the calling started from stations in NA.

**OK1DFC:** Zdenek [ok1dfc@seznam.cz](mailto:ok1dfc@seznam.cz) was active during Oct Contest weekend on 1296 -- I worked 50 different stations on 23 cm. On the Monday after ARRL contest, I swapped the TRV in the dish for the 24 GHz band and did a DL0SHF beacon reception test. After all the modifications and calibrations including a new 24 GHz feed all performed outstandingly! I listened to DL0SHF come thru with a tremendous signal both on the CW and in QRA24D mode. Printscreen and MP3 files are on my page, if you're interested. My own echoes were 15 dB above noise and easy copy. See <http://www.ok1dfc.com/eme/offst260cm/offset260.htm>. I am looking forward to more 24 GHz tests. Thanks to OK2AQ, I now have feedhorn analysis for the 47 GHz band. The feedhorns are for 0.6 and 0.8 f/D dishes - see [http://www.ok1dfc.com/eme/47ghz/w2imu\\_feed.htm](http://www.ok1dfc.com/eme/47ghz/w2imu_feed.htm).

**OK1KIR:** Vlada [vlada.masek@volny.cz](mailto:vlada.masek@volny.cz) and Tonda report on their Oct EME activity -- The increase in COVID has suppressed our activity a bit and our report is shorter than normal. Fortunately, we are still OK. During the ARRL Contest, due to time conflicts, we decided just to search for initials and consequently made only 10 QSOs with almost all initials. On 1296, we worked on 10 Oct using JT65C at 0247 RX1IAI (12DB/18DB) for digital initial {#383}, 1044 UB4UAA (19DB/O) {#384}, 1207 KF2T (22DB/O) {#385}, 1237 W2LY (15DB/O) {#386} and 2305 OK1UGA (13DB/16DB) {#387}, and using CW at 0818 RA3EME (579/579); and on 11 Oct using JT65C at 0642 RD9SAC (8DB/9DB) {#388}, 0838 CE3VRT (21DB/O) {#389} for 1st CE-OK QSO on 23 cm and 1032 AA6I (4DB/10DB) {#390}, and using CW at 0532 F2CT (569/569) for initial #473. Unfortunately, we missed VK6KCC when we mistakenly transmitted 1.6 kHz above the displayed QRG.

**OK1IL:** Ivan [ivaknn@gmail.com](mailto:ivaknn@gmail.com) wrote -- Time is rushing by, since my last NL contribution in June, I added initials on 1296 using JT65C with DK5AI, LU1HKO, UA9FAD, KD5FZX, DL1DWI, IK3MAC, LY3DE, G7TZZ, RD9SAC, W3CJK, PA3CSG and 4O6AH – QRP with a 3 m dish and 20 W for DXCC 63, and using CW WB2BYP for WAS State 26 and N4PZ State 27. Both QSOs were during fall contests. I didn't compete, but only looked for initials and States. My mixed initial count on 23 cm is now up to #240\*.

**OK1TEH:** Matej [ok1tehlist@seznam.cz](mailto:ok1tehlist@seznam.cz) operated the Oct ARRL Contest on only 70 cm – What a contest! On 432 I used my single 23 el horz pol 5.7 m long DK7ZB yagi with about 700 W at dipole. Worked using JT65B unless noted were UA3PTW (15DB), UB4UAA (26DB), PA2V (21DB), DL7APV (12DB), S51LF (25DB), HB9Q (16DB), UT5DL (25DB), DF3RU (20DB), PA3DZL (26DB), YL2GD (26DB), KL6M using CW – FB sig, VK4EME (29DB), SQ9CYD (28DB) for mixed initial #142\*, F6HLC (27DB), DL6KAI (23DB), SM7THS (22DB), 4Z5CP (26DB) #143\* and DXCC 55 - after 3 years of trying, PA2CHR (23DB), G4FUF (27DB), NC1I (14DB), DK3WG (26DB), ZS4TX (26DB), W2HRO (27DB), EA5CJ (26DB), DL9KR (599) using CW and W5LUA (26DB) for a total of 27x19 (2 on CW). Heard but not worked were on JT65C were LZ1DX, G4R GK, DL4KCG, K4EME, DL8DAU, PA9R, 7M2PDT and W7MEM, and using CW SM2CEW and G3LTF. I tried to run up as big a score as possible with my small setup. I hope during the next leg to exceed my personal contest record of 33 contacts. This ARRL Contest should be my last with a QRP setup!

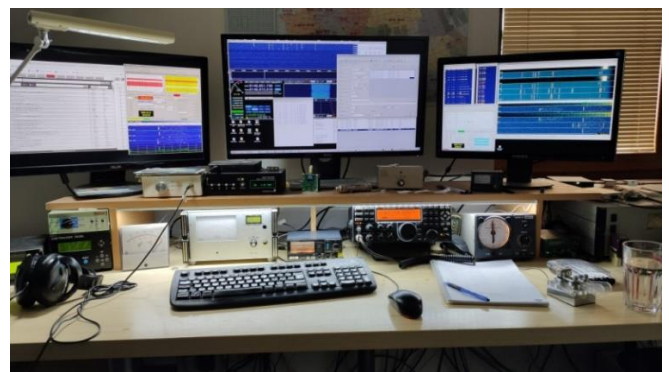
**OK1UGA:** Martin [ok1uga@volny.cz](mailto:ok1uga@volny.cz) was QRV on 23 cm EME during the first pass of the Oct ARRL Contest weekend – This was the first time I was on 1296 EME. I used a new 6 m dish. I had hoped to be QRV the day before, but had problems with my TR control and then heavy rain. I was forced to wait until contest day. I put my PA power supply in a plastic garbage bag and I tied everything in the ribs behind the dish to reduce feedline loss. I did not want to loss any power as I only had about 60 W. It was a mess, but it worked. I was ready an hour and a half before moonrise. I then just waited for the Moon. As soon as the Moon appeared, the band went crazy. Much to my surprise, I had absolutely no problems with my station's low power. The reports that I received literally shocked me. I worked OK1KIR first, quickly followed by OK1DL, OK1DFC and OK1CA. Their signal strength was brutal – 144 was not like this! I literally did not hear a weak signal. Later, the signals did begin to weaken and conditions appeared worse. I know from 2 m how EME conditions can change; so, I assumed it was the same on 23 cm. However, it turned out that my azimuth tracking had moved, and that I was 2 degs off the Moon. After correction, everything functioned as before. I made 32 QSOs in 11 new countries. QSO'd were OK1KIR, OK2DL, OK1DFC, OK1CA, DL7UDA, UA3PTW, IK5VLS, UA9FAD, RA3AUB, PA3FXB, JA6AHB, DF3RU, HB9Q, RA4HL, SV1CAL, KA1GT, SP5GDM, F1RJ, LZ1DX, ES3RF, UA4LCF, KN0WS, NC1I, N5BF, KD3UY, WA3RGQ, N1AV, PA0PLY, VE3KRP, CX2SC, AA6I and ES6FX. I have much to learn,

such as how to best adjust for Doppler; but I am very satisfied with the results of my first try. They far exceeded my expectations. I have a lot to do. My main task is to build a high power PA. I already have the components. I plan to reappear again on 23 cm next year. [TNX to OK1TEH for translating - <http://ok1uga.nagano.cz/emeqth23.htm>].



**OK1UGA's 6 m dish used for the first time on 1296**

**OK2DL:** Marek [ok2dl@seznam.cz](mailto:ok2dl@seznam.cz) was QRV on 23 cm with his 6 m dish in Oct for the ARRL EME Contest -- I made 121 QSOs; the last was at 0.1 degs of elevation. Initials were VK6KCC, RX6AIA, UB4UAA, IK7UXW, W1LY, K0PRT, AA6I, OK1UGA, RD9SAC, K3UVC, DL1RPL, CE3VRT, WA3QPX and G4ALH. During the contest I had colder weather, so I didn't have a problem with cooling the PA. The smallest station worked was OZ1CTZ, who was running 2 x 35 el yagis and 60 W. I also had an interesting QSO with CE3VRT, who was using a 1.8 m dish and 25 W. The conditions were excellent, the signals of stations very strong and beautifully copiable. [TNX to OK1TEH for translating - <http://www.ok2dl.eu>].



**OK2DL's operating position**

**OK2ULQ:** Peter [ok2ulq@seznam.cz](mailto:ok2ulq@seznam.cz) operated on 23 cm during the Oct leg of ARRL Contest -- I completed my first round of the contest in two stages. In both, only operated during the western half of my Moon window. The activity seemed excellent; and my efforts produced a total of 52 contacts. My operating time was also split in half between WSJT and CW. New stations added were KN0WS, UA4LCF, UA9FAD, KD3UY, RX6AIA, N5BF, CX2SC, and N1AV. All these stations were QSO'd with JT65C. From OK

I worked with OK2DL, OK1CA, OK1KKD and OK1DFC. [TNX OK1TEH translating - <http://ok2ulq.blogspot.com>].

**OZ4MM:** Stig [gsvestergaard@gmail.com](mailto:gsvestergaard@gmail.com) sends info on his activity in the **Oct leg of the ARRL EME Contest** – I was QRV only on 1296 CW for both days but only during my western window. I had lots of fun **working 75 stations**. Initials were OE3JPC, UA9FAD, K0PRT, IK3MAC, IK3UVC, G4ALH and I2FG. There were really great signals both days and good CW activity. In Nov, I plan to remount my 70 cm dual dipole feed again in the dish. Not sure how much time I can spend in the contest, but I will do my best to be around on both 70 and 23 cm.

**PA0PLY:** Jan [pa0ply@pa0ply.nl](mailto:pa0ply@pa0ply.nl) sends his report **on 23 cm during the Oct ARRL Contest weekend** -- Last year, I participated in the ARRL Contest as well, but concluded my 200 W of RF power was insufficient to make CW QSOs easily. I started to collect materials to complete a 2 x DF9IC SSPA to increase my power to 500 W. It took this summer to completed the project and install the SSPA in a box behind my 3 m dish. I included an RF detector mounted on the isolation relay in the preamp box to give me feedback on the power being delivered back in the shack. All worked fine and I was ready to go for the contest. Just before the start, I checked with VK6KCC. We have a very limited Moon window and I had hoped to QSO Alex. I was disappointed to learn that he had damaged his preamp. I copied him FB (18DB), but due to his RX limitation did not call him. In the contest, there was lots of activity and the signals were stunningly strong. In the first moon, I made 36 QSOs of which 6 were on CW. For the second pass, I was only QRV for second half, after my house did not block the Moon. There was even more activity. I added another 22 QSOs with 7 on CW. My CW experience was not as good as I had hoped; but I worked all who called except for one around 0045. I'm curious who it was? MAP65 did a good job and enabled me to work GM0JPD, who called way off frequency. I **ended with a total of 58 QSOs and 15 initials**. After the contest I worked on 31 Oct/1 Nov on 23 cm using JT65C DL6SH (11DB/21DB) - Slawek used only 10 W, LY3DE (22DB/24DB) – with 4 x 44 el yagis and 300 W, 4O6AH (28DB/27) – with only 20 W to a 3 m dish, RA2FFG (9DB/15DB), W2HRO (23DB/22DB) - with a 1.8 m dish and 250 W and W3CJK (24DB/30DB) - with a 1.8 m dish and 400 W. I also added 13 cm RX for 2400 to receive the JAs. I plan to be QRV again for the Contest in Nov.

**PA3DZL:** Jac [pa3dzl@icloud.com](mailto:pa3dzl@icloud.com) sends his activity report for Oct and the start of Nov – I was on 432 with my 3.7 m dish and Ringfeed (H+V pol). I am still very surprised by what I can do with my small dish on 70 cm! I made initials using JT75B with S51LF for mixed #256\*, WP4G #257\*, RA3EME #258\*, UB4UAA #259\*, W2HRO #260\*, F6HLC #261\*, OK2AQ #262\*, RU4AN #263\* and JA4UMN #264\*. In Oct and first two days of Nov I made 26 QSOs on 432. 24 using JT65B and 2 using CW. (I am also QRV on 144). I am working on 24 GHz EME. I have a small linear actuator, which I will use to move my 24 GHz feed/rig forward and backward to get the best focal point. The control unit is finished. My RW1127 TWT is mounted on a heatsink with

a blower. During the winter months, I hope to finish this project. I plan to change my feed from 432 to 1296 for the final part of the ARRL Contest.

**PA2V:** Peter [pa2v@advipe.nl](mailto:pa2v@advipe.nl) [has a new email address, please note new address shown here] wrote about his participation in **ARRL EME Contest on 432** -- I was QRV for most of the time, but took some periods to sleep because QRL starts early for me on Monday mornings. It was wonderful to have such a long Moon times both days. I **worked 49 stations and 29 mults**, and 7 CW QSOs. Sunday brought really good conditions and over the weekend, I added 6 initials and several single yagi stations. It was fun to work KL6M at moonset and hear him at moonrise too. Mike had an amazingly strong signal at moonrise. Activity from VK and JA was fair, EU was busy but again not too many stations from NA. Where have all those NA stations gone to? I had lots of pleasure this weekend.

**PA4VHF:** Dick [pa4vhf@gmail.com](mailto:pa4vhf@gmail.com) is now QRV on 70 cm – I am now up to 53 initials worked on 432 EME with 4 x 21 el F9FT yagis and 150 ~ 200 W at the feed. In Oct, I added using CW OZ4MM, and using JT65B ES3RF (20DB/24DB), VK4EME (13DB/18DB), G4YTL (20DB/25DB), JA6AHB (17DB/18DB), PA2CHR (19DB/23DB), DL8FBD (21DB/24DB), DK5SO (24DB/27DB), G4IDR (26DB/27DB), KF8MY (20DB/22DB), LU8ENU (25DB/26DB), EA5CJ (21DB/21DB), IW4ARD (21DB/25DB), G3LGR (27DB/27DB) – with a single yagi, SQ9CYD (19DB/22DB), PA3DZL (16DB/20DB) and YL2GD (21DB/O), using CW SM2CEW, using JT65B RA3EME (26DB/O), using CW KL6M (559/549), and using JT65B DL4ZAG (19DB/25DB), F6HLC (21DB/O), UB4UAA (16DB/O) and PA9R (13DB/16DB). I am getting close to the limits of my present setup. I amazed to work single yagi stations with my present station. I plan to upgrade my 432 station by removing the 144 antennas from the tower, replacing the Tonna yagis with longer ones, reducing the coaxial cable losses and whatever else I can come up with.

**SM3BYA:** Gudmund [SM3BYA@wannberg.net](mailto:SM3BYA@wannberg.net) writes about his recent activity and future lack of activity -- This is a sad report. After years of talk about the Swedish P&T auctioning off the 2.3 and 3.4 GHz bands, it is finally going to happen. The auction is scheduled for 11 Nov and has been advertised on the PTS website for several months. The EU commission has indicated that it sees the 3.4 GHz band as the Europe-wide core band for 5G, so there will probably be quite a few big telecom operators bidding for spectrum slots there. We can consider the band lost forever. 2.3 could be a different story; there is no consensus among the EU countries as to what use that band should be put to and so the interest from operators may be less. We will have to wait and see. I worked on 13 cm on 9 Aug W5AFY on sked for initial #73 and PY2BS, on 13 Sept during the ARRL MW contest 11 QSOs including OM1TF #74 – possibly my last on this band; on 9 cm on 15 Aug, the 9 cm AW, SP6OPN, G3LTF, G4CCH, OK1KIR and K2UYH, on 12 Sept during the ARRL MW Contest DF3RU, G4NSS, SP6OPN and SP3XBO, and on 14-16 Sept tried a series of unsuccessful skeds with WB2BYP - (John was using a 3.4 GHz offset feed and never was able to find me, nor could

he find the Sun and ultimately blew up several of his LNAs). As a consequence of the spectrum auctions, all current SM 2.3 and 3.4 high power permits will terminate on 30 Sept. In summary on 2.3 GHz from May 2011 to present, I achieved 74 initials and 28 DXCC with all on CW; and on 3.4 GHz from July 2018 to present achieved 32 initials and 17 DXCC with all on CW. Interestingly, I have never heard a terrestrial signal on either band! All great contacts are appreciated. I will move to 5.7 and/or 10 GHz soon (but probably not next year as I will need a new dish and a new pedestal). I am now setting up for Oscar 100.

**SP6JLW:** Andrzej [sp6jlw@wp.pl](mailto:sp6jlw@wp.pl) and Jacek (SP6OPN) took part in the Oct leg ARRL EME Contest on 23 cm -- We used the callsign of SP6JLW, and initially intended to operate in the "Multi operator CW Only" category. Our plan was to work on two bands, 70 and 23 cm, with priority on 23, while remotely monitoring 70 (to avoid interference) and switch when we found activity there. Unfortunately, CW activity was even lower than last year and there was no point in wasting time, especially since 23 was very active. We put off the 70 cm band for the second round. During the first orbit, we had a minor PA failure, it was removed and quickly fixed. On 23 cm using only CW we made 68 QSOs with F6ETI, DL6SH, DL3EBJ, JH1KRC, I5MPK, F5KUG, OK2DL, SP7DCS, FR5DN, RA4HL, DF3RU, IK1FJI, DG5CST, OK1CS, PA0PLY, DL4DTU, JH4LJB, G4CCH, OK1KKD, UA9FAD, PE1LWT, IK3COJ, IK5VLS, SM6PGP, PA3FXB, IK3MAC, SM4IVE, DL7UDA, OH1LRY, DL0SHF, UA3PTW, OE5JFL, W4OP, SP3XBO, SP6ITF, OK2ULQ, AA4MD, VE4SA, YL2GD, RA3EME, G3LTF, W6YX, OZ4MM, S53MM, K0PRT, LZ1DX, N4PZ, VE6TA, VA7MM, IW2FZR, N5BF, WA6PY, WK9P, VK3NX, RA3AUB, OK1CA, SP2HMR, I1NDP, LA3EQ, OH2DG, F6KRK, DJ3JJ, G4RGK, SM4DHN, K2UYH, WK9P (DUP), IK2MMB and WA9FWD. If we missed you, we hope to CU in the second round! [TNX to OK1TEH for translating <http://emejo80jk.cba.pl/aktualnosci.html>].



**Making a quick fix of SP6JLW's 23 cm PA**

**UA3PTW:** Dmitry [ua3ptw@inbox.ru](mailto:ua3ptw@inbox.ru) was active in Oct part of the ARRL EME Contest [last's year's top score, both single and multi-op as his single op score was higher than the multi-op scores] – My initials QSOs in Oct were on 432 using JT65B R3YA, PA1BVM, RA3EME, EA3MS, DM9EE

and K2QFA; on 1296 using JT65C UB4UAA, OK1UGA, VK6KCC, RX6AIA, LY2R, EW7T and 4O6AH; and on 2320 using JT65C 4X1AJ. [Thanks to DK3WG for forwarding this report].

**UA6AH:** Nickolay [via [dk3wg@web.de](mailto:dk3wg@web.de)] was QRV again on 1296 EME in Oct – This month I added initials using JT65C with DL6SH, DK4RC, RA3AUB, RA3EME, DL3EBJ, RA4HL, DF3RU and WA3RGQ. [Thanks to DK3WG for forwarding this report].

**VA7MM:** Mark (VE7CMK) and Toby (VE7CNF) [va7mm@rac.ca](mailto:va7mm@rac.ca), the Project Moonbounce Team, were active again on 1296 during the ARRL Oct Contest weekend -- This was our eighteenth year of operation in this event! We operate multi-operator, mixed mode. This year we used a network for the operation with one operator at the station controls and another operator remote spotting using a networked SDR receiver on the station's antenna. We completed 57 QSOs of which 17 were CW and 40 were digital. The weekend's operation added six initial contacts to our log; initials were on JT65C N1AV, KD5FZX, CX2CS, GM0PJD and AA6I, and on CW K0PRT. These additions bring our initials count to mixed initial #269\*. We're running a vintage water cooled OZ9CR cavity amplifier that produces about 200 W at the feed of our 3 m dish. On RX we have a 0.33 dB NF preamp with about 35 dB gain in three stages. We're planning to operate the final leg of the contest in Nov. We are available for scheduled contacts anytime, contact us by email.

**VE3KRP:** Fast Eddie [eddie@tbaytel.net](mailto:eddie@tbaytel.net) is now dealing with winter-like WX at his northern QTH, but was QRV during Oct in the Contest on 1296 -- The weather here has played a bit of havoc with my activity. We have had some snow (way too early); it has since melted but the temperatures were below average. Yesterday, we had 80 kph winds, which made the power company very busy. In my log for 23 cm using JT65C on 11 Oct are PAFXB, OK1UGA for a mixed initial (#\*), OK1DFC, KD3UY, VA7MM, DL3EBJ, OH1LRY, N1AV, GM0PJD, KN0WS, N5BF, WA3RGQ, K5DOG, K2UYH, OK2DL, LU1CGB, KA1GT, AA6I (#\*), W1PV, K5DN, VE6TA, JA6AHB and W6YX for a total of 23x18.

**W2LPL:** Les [llistwa@gmail.com](mailto:llistwa@gmail.com) is back on 1296 with a 2.1 m dish, after a 2 year absence, and at the time this report was received preparing to operate in the Oct leg of the ARRL Contest -- I have upgraded to a Belko 350 Amp and replaced my square Septum with a W2HRO built circular polarized patch feed, which is lighter and smaller. Initial measurements with the ON0EME beacon show a 1 to 2 dB improvement. I am trying to deal with a calibration issue with my TS-2000x. It is consistently 2 kHz low in frequency (correcting via XIT/RIT). [See <http://www.k2txb.net/recalibr.htm>]. Using WSJT-X with its auto Doppler correction has really reduced the complexity of dealing with Doppler calculations. I'm looking forward to playing in the contest.



**WA6PY:** Paul [pchominski@maxlinear.com](mailto:pchominski@maxlinear.com) reports on his **ARRL EME Contest** effort -- During the Oct contest weekend, I worked on 432 using CW I2FHW, SM2CEW, KL6M, UA3PTW and DL7APV. I heard strong JT signals, called on CW and UA3PTW responded right away. A few kHz higher, I heard even stronger JT signal moving my S-meter up to S8, called on CW and QSO'd DL7APV. On 1296 also using CW, I QSO'd IK3MAC SP7DCS ,OZ4MM, OE5JFL, SM4IVE, N4PZ, DF3RU, WK9P, I5MPK, DL0SHF, IK2MMB, G3LTF, S53MM, N5BF, DL6SH, SP6JLW, SP6ITF, OK1KKD, G4CCH, OH2DG, DL4DTU, IK3COJ, W5LUA, IK1FJI, OK1CS, DL3EBJ, VE6TA, PA3FXB, W4OP, SP2HMR, W6YX, OK2ULQ, DG5CST, OK1CS, OK2DL, OK1CA, SM6FHZ, DL7UDA and WA9FWD. Heard were F6ETI, K2UYH and OH1LRY. I also called several times K0PRT, but couldn't get their attention. I ended on 432 with 5x5 and on 1296 with 39x18 for an overall total of 44x23. On 28/29 Nov, we will have low DEC, apogee (maximum path loss) and high libration. Not very good combination for EME contest especially for stations with small antennas. On Saturday I will have only 2 hours window to EU, and on Sunday 2.5 hours, but I will try to do my best.

**WK9P:** Tim [тчerrone@yahoo.com](mailto:тчerrone@yahoo.com) is a big tube fancier and writes that his new TH327 HPA is working great -- During the Oct part of the ARRL contest, I participated on 23 cm, CW only, for about 4.5 hours each day (10/11 Oct). I would like to thank K2UYH and KL6M for their assistance with my setup. Recently my trees were trimmed, increasing my operating time. I worked 24 stations. I heard others, lost a few with QRM, QSB and being half asleep as when I was nearly completely pointing into neighboring trees. I had a great time and enjoyed all the QSO's. I am looking forward to the Nov Contest weekend and will again be QRV.



**WK9P assembling his 4.5 m dish used on 1296**

**K2UYH:** I (AI) [alkatz@tcnj.edu](mailto:alkatz@tcnj.edu) had a great time operating the ARRL contest, but this year it was different. Because of COVID, I operated alone and not with the usual group in the shack. I operated 1296, while W2HRO operated 432 (under his own call) and K2TXB operated 144 (under his own call). W2HRO had family conflicts, which limited his results, but Paul hopes to do better in Nov. See his report

under his call. The contest did not start well with my blowing 2 preamps. I concluded, it had to be an intermittent T/R relay (only for RX protection) and replaced it. After that there were no other preamp problems until the very end of the contest weekend. However, the preamp I used throughout the contest was one reserved for a 2nd stage. I QSO'd on 1296 on 10 Oct using JT65C at 0700 UA3PTW (1DB/O), 0709 ES6FX (10DB/O), 0802 F1RJ (11DB/5DB), 0904 PA0PLY (11DB/7DB), 0910 SP5GDM (6DB/4DB), 0914 RA3AUB (2DB/O), 0918 K4EME (17DB/O) VA, 0926 IK5VLS (3DB/11DB), 0930 OK1DFC (12DB/8DB), 0934 RA4HL (6DB/O), 0938 PE1CHQ (5DB/6DB), 0946 PA3FXB (5DB/7DB), 0912 AA6I (6DB/O) TX for mixed initial #644\*, 0956 N1AV (5DB/O) AZ, 1002 VA7MM (7DB/9DB), 1010 DL7UDA (5DB/8DB), 1015 I0NAA (9DB/4DB), 1020 UB4AA (18DB/O) #645\*, 1024 UA9FAB (20DB/O) #646\*, 1030 OK2DL 91DB/1DB, 1034 RA3EME (4DB/6DB), 1039 DF3RU (10DB/O), 1045 OH1LRP (4DB/2DB), 1057 DL8EBL (4DB/1DB), 1106 KN0WS (17DB/13DB) MN, 1113 KD3UY (21DB/O) MD, 1120 K7CA (7DB/9DB) NV, 1125 WA3RGQ (12DB/12DB) FL, 1136 OK2ULQ (5DB/7DB), 1143 OH2DG (6DB/1DB), 1149 DL4DTU (9DB/15DB), 1155 LU1CGB (14DB/3DB), 1216 IK5VLS (9DB/8DB) DUP, 1334 EI2FG (15DB/O) #647\*, 1244 IK2MMB (9DB/2DB), 1300 HB9Q (1DB/1DB), 1309 W6YX (1DB/O) CA, 1337 KD5YZX (1DB/3DB) TX, 1345 N5BF (3DB/11DB) CA, 1351 XE1XA (5DB/10DB), 1420 W3CJK (14DB/O) RI, 1425 K5DOG (5DB/1DB) TX, 1446 KA1GT (5DB/4DB) ME and 1456 AA4MD (8DB/6DB) FL, switched to CW at 1518 W5LUA (559/559) TX, 1528 W6YX (559/559) DUP, 1544 WA9FWD (559/569) WI, 1553 XE1XA (559/559) DUP and 1600 JH1KRC (559/569), back to JT65C at 1620 W1PV (11DB/10DB) CT, 1632 JA6AHB (6DB/8DB) and 1637 K5DN (3DB/1DB) TX, to CW again at 1737 VE6TA (559/579), 1740 K0PRT (569/579) for initial #422 CO and 1815 AA4MD (559/559) DUP; and on 11 Oct using JT65C at 0807 OZ9KY (15DB/16DB) #649\*, 0816 UA4AAV (5DB/10DB), 0822 LZ4DC (9DB/10DB) #650\*, 0831 DL1SUZ (19DB/18DB), 0840 UA4LCF (5DB/8DB), 0845 I4FNW (9DB/2DB) #651\*, 0849 DF2GB (5DB/1DB), 0855 DJ5DY (8DB/7DB) #652\*, 0901 G7TZZ (12DB/7DB) #653\*, 0909 ON4BCV (16DB/O), 0915 LZ1DX (1DB/5DB) and 0922 DL1RPL (1DB/5DB), then to CW at 0940 SM4IVE (589/579), 0945 IK3COJ (559/579), 0952 OE5JFL (589/589), 0957 G4CCH (579/579), 1002 OK1CS (559/579), 1014 SP2HMR (559/579), 1023 W4OP (569/589) NC, 1025 OK1KKD (579/579), 1030 I5MPK (569/569), 1034 SP7DCS (569/599), 1041 F5KUG (559/579), 1046 SP3XBO (559/569), 1054 F6ETI (559/589), 1059 DG5CST (589/589), 1105 DL6SH (569/579), 1111 SP6JLW (579/579), 1114 IK1FJI (569/579), 1123 DL7UDA (559/579), 1151 OZ4MM (589/569), 1157 WK9P (559/689) IN, 1226 N4PZ (579/579) – lost, 1238 OK1CA (579/579), 1253 F2CT (569/559) and 1325 G3LTF (579/579), and back to JT65C at 1349 VE3KRP (10DB/2DB), 1408 GM0PJD (10DB/8DB), 1725 WA3GFZ (13DB/O) PA, 1806 KD5FZX (2DB/2DB) DUP and 1843 JA4LJB (6DB/O) – lost. I ended with total of 97x35 with 34 CW QSOs and 10 initials. I am looking forward to Nov Contest weekend. I did not make many contacts outside of the contest. I ran several tests using

linear pol on 1296 without success, and worked on 1 Nov on 432 using JT65B UT6UG (16DB/11DB). One high point was a QSO with on 7 Nov at 0836 with KB7Q (16DB/17DB) using JT65C in MT #654\*. I had worked MT many years ago, but could not find the QSL. I really appreciate Gene's coming on 1296 to work me. The same night I also worked 4O6AH (20DB/9DB) #655\*, DL1DWI (19DB/O) and UA6AH (19DB/O) all on JT65C.

**NET/CHAT/LOGGER NEWS:** **N6OVP** should be QRV on 1296 CW for **the Nov Contest weekend**. David overslept and missed his brief EU window in Oct. He is also interested in skeds at [n6ovp@pacbell.net](mailto:n6ovp@pacbell.net). **G3WDG** is successfully receiving the new DL0SHF 24 GHz beacon using a 1.2 m dish. The signal is audible, and there is no problem to decode the QRA64D periods. More details can be found at: [http://ok2kkw.com/next/g3wdg/dl0shf\\_24g\\_tests\\_by\\_g3wdg\\_oct2020.pdf](http://ok2kkw.com/next/g3wdg/dl0shf_24g_tests_by_g3wdg_oct2020.pdf). **KD2NX** is setting up for 23 cm EME and is looking for guidance on tracking and readouts. You can reach Phil at [kd2xn@icloud.com](mailto:kd2xn@icloud.com). **RA2FFG** is using a 3 m dish and 350 W. **PH0V** (JO22jp) is QRV on 23 cm with a 2.5 m dish and 200 W. **WA2FGK** (PA) missed the Oct Contest weekend but expects to be QRV in Nov on 1296. Herb can be reached for skeds at [wa2fgk@yahoo.com](mailto:wa2fgk@yahoo.com). **CX2SC** was active on 1296 in Oct and is now focusing on 3 cm EME. **OM4XA** was not QRV on 1296 for the Oct EME Contest, but will be on in Nov. **OK2PE** will be QRV on 23 cm with a new 3 m dish in Nov for the ARRL Contest.

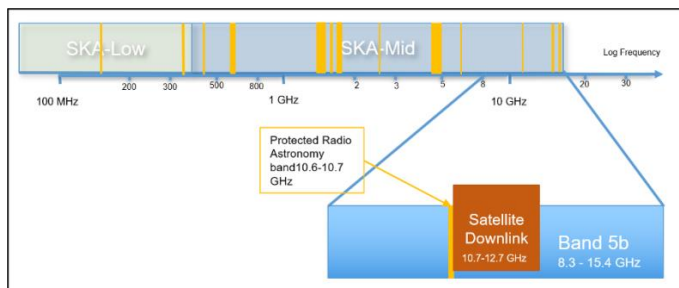
**FOR SALE:** **N2IQ** has for sale his 28' Kennedy dish in amazing condition. It is almost turn key and comes with precision (Lockheed Martin) AZ/EL mount with encoders, back frame, counter weights, 20' Rhon 80 tower, original feed poles and feed ring. Also, VE4MA feed horn and VE1ALQ tracking package. Mark will see to all crane work and dismantling and possibly transport to new owner. Price open but not cheap! He also has a KB2AH 23 cm Thompson 328 amp for sale with HV supply. If interested contact Mark at [marknationalaudio@gmail.com](mailto:marknationalaudio@gmail.com) or tel 315-491-0678. **DJ5BV** Gerd has for sale his Commercial Plisch TV Linear SSPA ULE 1012A with 0.1 W in for >> 1 kW out, including the PS 32V/80A, liquid-cooling unit, optional air-cooler, technical documentation. NO shipment pick-up only in JO30KI! - eBay #174478891842 and a 432 hi-power 4-way splitter - eBay #174478886293. **W2HRO** has for sale 1.8 m fabric dishes that folds into a very compact package that is great for portable EME on 1296 and higher bands. Paul also has 3D printed patch feeds for use with his dishes and other light dishes. If interested contact him at [w2hro.fn20@gmail.com](mailto:w2hro.fn20@gmail.com). **F2DRO** is looking for Telefunken SV5379 schematics (Dom's 432 PA has problems) - write Dom at [dominique.dehays@enac.fr](mailto:dominique.dehays@enac.fr). **OK1TEH:** has still for sale a 3 m solid dish with massive ribs that is usable for EME on 24 GHz. Any offer will be considered. For more info see [ok1tehlist\(x\)seznam.cz](http://ok1tehlist(x)seznam.cz). **PA3DZL** has for sale 4 x 38 el 432 13WL M2 yagis with an RF Hamdesign power splitter. For more information see <https://www.m2inc.com/content/PDF%20MANUALS/70CMANTS/FGMAN432-13WL.A.pdf>. If interested contact Jac at [pa3dzl@icloud.com](mailto:pa3dzl@icloud.com). **PA4FP** is selling Kuhne Electronic high performance 2 m to 23 cm and 2 m to 13 cm transverters. Output power is 20 W on 23

cm and 15 W on 13 cm. TX/RX Output/input are separate. There is an input for a 10 MHz standard. Contact Frank at [frank.pa4fp@gmail.com](mailto:frank.pa4fp@gmail.com). **LNAs** for sale - Find an LNA for 47 GHz at <https://www.lownoiseactory.com/projects/ata>.

**TECHNICAL:** URLs for Information on millimeter-wave EME and the 47 GHz follows -- **PA0EHG** has sent some new interesting articles on his 47 GHz EME project at <http://www.pa0ehg.com/extra/optimising%20feedpoint.pdf>, [http://www.pa0ehg.com/image\\_rejection.htm](http://www.pa0ehg.com/image_rejection.htm) & <http://www.pa0ehg.com/cooledlna.htm>. **VE4MA** has sent some presentations on 24/47/76 GHz EME. See them at <https://www.youtube.com/watch?v=Vx7ho2lqw8Q>, [http://www.ok2kkw.com/47g/2018\\_high\\_performance\\_systems\\_for\\_47\\_78\\_ghz.pdf](http://www.ok2kkw.com/47g/2018_high_performance_systems_for_47_78_ghz.pdf), [http://www.ok2kkw.com/47g/2017\\_eme\\_in\\_desert\\_sbms.pdf](http://www.ok2kkw.com/47g/2017_eme_in_desert_sbms.pdf), [http://www.ok2kkw.com/47g/2010\\_78g\\_eme.pdf](http://www.ok2kkw.com/47g/2010_78g_eme.pdf), [http://www.ok2kkw.com/47g/2005\\_47g\\_eme.pdf](http://www.ok2kkw.com/47g/2005_47g_eme.pdf), [http://www.ok2kkw.com/47g/2002\\_24g\\_july\\_update.pdf](http://www.ok2kkw.com/47g/2002_24g_july_update.pdf) & [http://www.ok2kkw.com/47g/2002\\_24g\\_eme.pdf](http://www.ok2kkw.com/47g/2002_24g_eme.pdf). And, from K6ML on the 122 GHz band [http://www.bay-net.org/uploads/1/2/2/7/122774721/122\\_ghz\\_radio\\_k6ml.pdf](http://www.bay-net.org/uploads/1/2/2/7/122774721/122_ghz_radio_k6ml.pdf).

**RADIOASTRONOMY CORNER BY OK1TEH:** Radio Astronomers are worried about the upcoming interference due to launch of Mega-Constellations such as Musk's Starlink. In the coming years, a number of next-generation observatories and arrays will become operational. They are intended to make a significant contribution to many fields of astronomy, such as the study of the early universe, gravitational waves, determining the role of hidden (dark) matter and dark energy in the evolution of the universe, and the direct "imaging" of Earth-like exoplanets - a revolutionary project in the development of astronomical observatories. However, this and other projects are seriously threatened by another large project - satellite megasets. The SKAO (Square Kilometer Array Organization) wants to prevent this problem and insists that corrective measures must be taken to enable these observatories to observe space without interruption. Due to the fact that satellite megasets want to share the same radio frequencies in which radio telescope networks operate, there is a real problem of radio interference with observations from orbiting satellites. You may be wondering how it is possible that this problem has not been here in the past. It is because the number of satellites currently visible above the horizon that would interfere with observations has been severely limited. In addition, most are located on the geostationary orbit in almost the same position. Now the situation is different. As of 1 Aug, we had 2,787 operational satellites in Earth's orbit. In the next few years this number will multiply to more than 6,400. The real threat is this number increasing to the hundreds of thousands. Such numbers will pose a real threat to radio telescopes, especially those currently under construction, such as the SKA-Mid telescope in South Africa. This observatory consists of 197 radio antennas monitoring the sky in the mid-range of radio waves. There are concerns about interference with band 5b (X-band), which is used by both satellites and the SKA-Mid telescope. The current analysis of the effect of satellite megasets has not yet looked at the effect on antennas in Western Australia that

use low frequency telescopes. As information on megasites, such as the Starlink network, began to emerge, the SKAO conducted a study to quantify the impact of these satellite constellations on radio telescope networks. The survey focused on three areas. The first focuses on the possibility of physical damage to radio telescopes. The second on the interference to instruments and the third on the impact on scientific results. In the first case, the strong radio signals from satellites may be strong enough to damage huge radio telescopes' sensitive LNAs. In the second, that the instruments can be overloaded by the satellites' signal and the signals of the observed objects obscured. This will make the receiver unusable for short time periods. In the first phase of the construction of megasets, these would outage periods should be relatively acceptably, and may not completely ruin the observations. However, in the case of 100,000 satellites, the pauses between interference could be so short that it would actually be a continuous interference. This could mean, the third case, a complete loss of scientifically valuable observations. However, SKAO shows that even with 6,400 satellites, radio telescopes will lose some of their sensitivity due to constant interference. This will have the greatest impact on the study of, among other things, large clouds of organic molecules and molecules in the extragalactic environment. Dr. Robert Braun, SKA's scientific director, explains: "There is tremendous scientific and public interest in identifying the origins of life beyond that found on Earth and one of the most promising methods of tracking it down elsewhere in our Galaxy is the detection of complex prebiotic molecules, whose spectral signatures are concentrated between about 10 and 15 GHz. This is only one of many exciting science goals that depend on sensitive access to this frequency range. The prospect of losing sensitivity in this key frequency band is extremely worrying.



If the satellites transmit in the radio band 5b, this will, according to the analysis, lead to us losing the opportunity to study the weak signals of objects in space in this band and further increase the time required for observation by 70% compared to a state where observation would not be disturbed. According to the study, the planned observatories will be able to be used only about half the time. In the case of 100,000 satellites, observation will be virtually impossible. Based on the study, SKAO suggests, among other things, that the beams of satellite transmitters should not be directed to areas where SKA antennas will be located. It should be possible to ensure this without affecting the launch method, the orbit or the hardware of the satellites. The authors of the analysis are aware that

this is already happening today, when satellites pass areas where they encounter satellite signal paths on geostationary orbits. If the same strategy were applied in this case, the impact on the SKA-Mid telescope would be reduced at least tenfold and the loss due to interference would fall below 7% of the observation time. Expected future protection of radioastronomy observations and possible mitigation measures can be found at <https://www.skatelescope.org/news/skao-satellite-impact-analysis/> & <https://www.universetoday.com/148263/radio-astronomers-are-worried-about-mega-constellations-and-the-square-kilometer-array/>.

**Sun noise at 122 GHz?** As you probably noticed, the list, [http://ok2kkw.com/next/nl\\_k2uyh/sun\\_noise\\_table.xls](http://ok2kkw.com/next/nl_k2uyh/sun_noise_table.xls) of Sun noise levels is based on actual measured data. Our problem is to get some measured data from 122 GHz. I (Matej) have ask experimenters such as K6ML to consider trying to measure Sun noise at 122. Their answer is the RX chip used in their receivers is often located right at the dish focal point and the chip could get quite warm (maybe even damaged) if it were pointed at the Sun. A new simple transverter for 122 GHz with a 9 dB NF developed by VK3CV offers a solution. It uses a TRA\_120\_002 chip coupled to a separate feed horn; so, Sun noise measurements with this design would be less likely to be damaged by heat. Another problem is there is an enormous atmospheric gas loss (oxygen and water vapor) pointing thru the atmosphere, making reception Sun noise very difficult. G8ACE has tried several times with a 35 cm Cassegrain dish, but detected nil. The atmospheric loss has been > 1 dB/km in UK. It is much easier at 76 GHz!

**FINAL:** There is some more disturbing news. The US NSF announced that they will be decommissioning the Arecibo Observatory due to the two failed cables and the significant safety challenges associated with stabilizing and fixing the telescope.

► I5WBE sends the results of the ARI EME Autumn Trophy Contest for 432 & Up. Enrico notes that although the Moon declination was low there was a good participation. Top scores in ARI Autumn Contest were for 432 Mixed PA2V, for 1296 Mixed-A UA9FAD, Mixed-B DL3EBJ, CW-A IK1FJI and CW-B IK3MAC, for MW 2.3 GHz DF3RU, 10 GHz OZ1LPR, 24 GHz OK1DFC, and Mixed Multi Band IK3COJ. Top scores in ARI Autumn Trophy were for 432 Mixed DL7APV, for 1296 Mixed-A PA3FXB, Mixed-B DL3EBJ, CW-A IK1FJI, CW-B G3LTF, for MW 2.3 GHz IK3COJ, and 10 GHz OK1DFC. The next ARI Contests are on 24/25 April and 25/26 Sept.

► There is also not good news on the future of 9 cm in EU. See SM3BYA's report.

► K1DS is looking for pictures, comments and anything that was unique as Rick will be writing the summary of the EME Contest for QST-on-line.

► A list of stations planning be QRV in the ARRL Contest in Nov can be will be found at <http://www.darksidedarkside.cz/eme.php>.

► We will be looking for you in the final weekend of the ARRL EME Contest. We both plan to be active. 73 and GL in the contest, AI – K2UYH and Matej – OK1TEH.