

432 AND ABOVE EME NEWS DECEMBER 2022 VOL 51 #11

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VERY BEST SEASONS GREETINGS FOR A WONDERFUL NEW YEAR FROM ALL ON 70 CM & UP EME TO ALL

CONDITIONS: We send our holiday greetings to all. We had expected to get this newsletter (NL) out to you before Christmas, but the holiday spirit slowed us down. It has certainly been an exciting and rewarding few months:

In the ARRL Contest, **1296 activity broke all records**. This will be hopefully not an exception but an indicator of the future. 1296 has clearly become the band for EME CW operation. The top CW QSOs reported were from **IK1FJI** with 74. It shall be interesting to see what the activity levels will be during the VK3UM Memorial/Dubus Contest on 22/23 April. We do not have the full picture of ARRL Contest results, but of the reports received **OK1DFC** is the clear leader with a total operating only on 23 cm of 185x63 for 1,159,200 points. On 432 DL7APV again has the top reported score of 104x54, which is down from the past, but Bernd operated 3 bands this year. The **K2UYH group** has the highest multiband total of 4,631,500 points received thus far.



OK1DFC operating position

The fun is not over: The 1296 SSB Funtest will be from start 1700 to stop 1700 on Jan 28/29. [This a change the date in the last NL; while the 13 cm SSB Funtest has been moved to 24 March. We are trying to get the very best compromise for the difficult 2023 Moon conditions]. These events are intended to be fun. You do not need to transmit on SSB to participate. CW to SSB and vice-verse

exchanges are encouraged and count for points. (Only one QSO between stations is allowed, i.e., you cannot work a station SSB to SSB and SSB to CW for extra points). Scoring is contact points x number of two letter Grid Sectors (IO, JM, FN, EM ...) x 100. SSB to SSB contacts count as 2 points. SSB to CW (or CW to SSB) count as 1 point. The exchange is your Sector (IO, JM, etc.). Only the 2 sector letters need to be sent and copied by EME. The exchange of signal reports and/or 4-character grids is optional and not required. Operation may be by single or multiple operators from one location. No distinction for scoring will be made. This is a **Funtest** and meant to be similar to an activity event – the goal is to have fun. Communication on Loggers (HB9Q) is OK - ["TU FB QSO", "GM..", "73", etc. is OK]. Logs should be sent to the 432 and Up EME NL by email to alkatz@tcnj.edu ASAP after the end of the contests. (All logs for contest awards should have been received within *about* a month following the contest). The top scoring station on each band will receive an attractively framed certificate that will be presented at the next International EME Conference (Trenton 2024). Last year activity on 13 cm was quite low. To improve activity, we have move it to a different weekend, actually on the Friday before the Dubus 23 cm Contest. If you have equipment for 13 cm, please come on for the Funtest. **13 cm is an ideal band for SSB EME.**

The DUBUS/REF 70 cm (also 2 m) will be on 25/26 Feb. This is a good time to show 70 cm CW is not dead.

The 2023 70 cm Activity Time Periods (ATP) are not yet available and thus not shown in the 2023 EME Calendar – TNX Bernd (DL7APV).

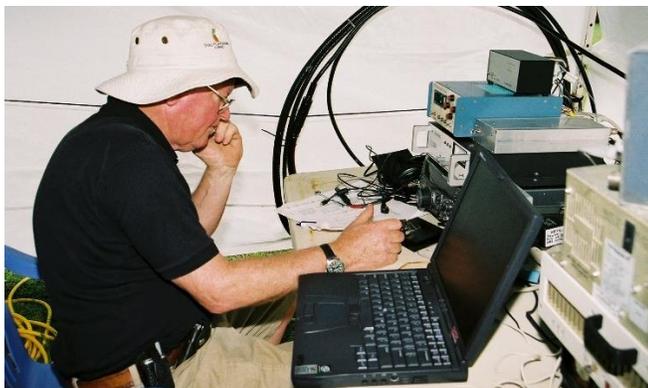
The **ZC4RH** dxpeditions to Cypress BSA was a great success. Coming up is **PJ2T** (FK52); to be QRV from 7 to 14 Feb. KB7Q and PJ2BR are combining forces to activate Curacao on 23 cm EME. **JD1YCC** will be QRV 2 m, 70 cm and 23 cm from Ogasawara chichi island (QL17cc) from 10 to 13 Feb – see report in this NL. [Unfortunately because of the southern dec chosen for 70 and 23 cm operation, many stations will not be able work them. For example, in NJ there will be no common window for 23 cm]. N1AV is heading back to Hawaii (**N1V**) for 1296 and 902 EME on 5-

9 March. **SV8/DF2ZC** from Santorini (KM26ri) on 2 m and 70 cm EME is planned 30 March to 4 April.

State dxpedition activity continues by **KA6U** – see Peter's report in this NL; **AC0RA** is also now on the road; and NC1I's group put **K1KEEP** on from VT – see report. Recent WAS successes are in no small measure due to efforts as these. **NH6Y** is now QRV from his home QTH on 432 EME.

Congratulations for receipt of 1296 WAS #9 and #10 by W2HRO and N1AV respectively.

K0YW is an SK. We are very sad report that we have lost another EME pioneer. Bruce (ex-K6JYO) was a good friend and mentor to many of us. He passed away on 27 Nov in Durango, CO. He was 80 years old. In earlier years, K6JYO was very active in EME. He made the first US to Africa EME QSO from the WA6LET station with ZE1DX (now ZS6CCY) on 2 m. Bruce was part of the original Eimac EME group that operated WA6LET at the 150' Stanford dish. Bruce went out to Hawaii in April 2007 to provide KH6 for many of us on 1296 and enabled the 1st 23 cm WAS by W5LUA. [I have his KH7Q coconut QSL]. He also activated KH6 on 2304. Bruce was a truly great ham and will be dearly missed.



Bruce, K0YW concentrating on a weak EME signal

AC0RA: Rod (K0DAS) rod.blocksome@gmail.com writes about the "Corn Field EME group" that participated in the 902 EME activity weekend (AW) -- Our group AC0RA, KC0SKM, N0LN0, N0R0X and me assembled our 902 station in Wyatt's (AC0RA) truck and parked close to our permanently mounted 16' dish located in a corn field. We were running 225 W with 30' of LMR-400 to a patch feed. The T/R relay was in the truck with no preamp. The RX feed went directly to a Q5 Signal Transverter. On Friday (LT) 3 Dec (GMT) at about 0400, expected 40 - 50 mph winds started and "modulated" the direction of our dish. AC0RA did manage to complete with K2UYH during this wind event. Earlier, we completed QSOs with VE6TA and W5LUA. The good news was that our local terrestrial noise was NIL. On Saturday the wind had died down, and we added a preamp at the feed and lower loss coax and added more QSOs.

CX2SC: Rick cx2sc.base@gmail.com has solved his 1296 QRN problems at his city QTH and very happy -- I'm finally receiving stations and have worked my first 23 cm EME

QSOs from my GF15 QTH using 140 W and a 1.8 m dish. After multiple tests, I concluded that the LNA was saturated from GSM signals, and that nothing I did after it could solve the problem. Following the recommendation of W2HRO and F2CT, I placed a filter before my DDK LNA. I built two 4-pole interdigital filters (based on a VK3UM design) and another based on a pipecap design from LU5EWR. Both have a loss of more than 1 dB. The Pipecap offers the best performance. I received KD5FZX without a filter at (9DB) with birds every 100 Hz. With the filter in, he was (11DB) but still solid copy and clean otherwise. N5TM is a better example. Without the filter, he was not seen. With a filter he was solid copy (24DB). Does one know of a filter of about 100 MHz BW with lower loss?

DK3WG: Jurg dk3wg@dar.de sends news on his Nov results on 70 and 23 cm – I worked (JO72GI) initials on 432 using Q65B with DL5DAN, **ZC4RH for DXCC 145**; and on 1296 using Q65C with **KA6U dxpedition in grids EM90, EM92, EM56 and EM31, DM9LSB, G0LBK (JO03), N9HF, W6TCP, NX90, K8ZR for OH my 49th WAS State and PA3HDG.**

DL7APV: Bernd dl7apv@gmx.de was not as active in the last weekend of the ARRL Contest – I concentrated on 1296 and 432 in Nov. My final score on 70 cm is 104x54, way down from last year. On 23 cm it was much better. The addition of autotrack, full el and 100 W more (+3 dB from 2021) made a big difference with my tiny 1.8 m dish. So final score is 52x29, which is much better than 31 last time. [Bernd recently had some health problems that will likely limit his activity].

G3LTF: Peter's g3ltf@btinternet.com report for Nov follows -- I decided that as I was not able to be QRV for the first 50-1296 Contest weekend, and because the hours were not good for feed changing to operate 23 cm only. I had a reasonable score on the higher bands and so I set a "target" of 60 CW QSOs. In the end I had 69 contacts with 31 mults. The weather (WX) was very calm and the gear all performed well. The water in the pipes to my 23 cm 6 tube PA got quite hot, but it liked the warmer temperature and gave about 50 W more power! I worked using only CW on 12 Nov SP6ITF, G4CCH, F5KUG, DL1AT, G4RGK, F2CT, SP3YDE, 9A5AA, OK1DFC, OK1KKD, SP9VFD, N8CQ, DF3RU, VE6BGT, ES3RF, OK2DL, OH1LRY, LA9NEA, WK9P, DL6SH, VA7MM, SP3XBO, IK2DDR, F6ETI, OM4XA, IK3COJ, N1AV, K3WM, PA3FXB, SK0CT, OK1CA, K6VHF for initial #528, OZ4MM, HB9Q, RA4HL, IK5VLS, IK1FJI, SP7DCS, UA9FAD, LZ2US, IW2FZR, UA5Y, JH1KRC, DG5CST, OZ6OL, SA6BUN, LZ1DX, F6CGJ, DU3T, G0LBK #529, IQ2DB, OK2ULQ and G4YTL, and continuing on 13 Nov OK2PE, DL4DTU, SP7EXY #530, WA6PY, PA3DZL, NQ7B, N4PZ, PI9CAM, SM6PGP, N5BF, N0CT, W2ZQ #531, VK5MC, JF3HUC and SP6GWN. When I worked W2ZQ the dish was nearly touching the ground and partly shadowed; this QSO was made by WX2S (operator), and was his first ever EME QSO! Stations heard but not found calling CQ were VE4SA, SM7FWZ, XE1XA and DL7APV. Very nice to work so many old friends and exchange names and thank-yous

in the QSOs. I was surprised to see quite a few NA stations who could work CW (and who I have worked in the past) not take the opportunity for a QSO and gain equal points to a digi QSO. My final claimed total score over 4 bands is 570,000 points slightly down on last year.

IK1FJI: Valter valter_dls@yahoo.it focused on CW in the ARRL EME Contest -- I was QRV for about total of 12 hours in the Nov contest leg; but had some wind that prevented movement of the dish some of the time. My new 3.8 m dish work great along with my 1.4 kW PA. I was QRV only on CW and finished the ARRL Contest with 74 CW QSOs with some dupes (but always enjoy my QSOs including the dupes). On 1296 the initials were OH1LRY, K0PRT, NQ7B, UA5Y, SP3YDE, JF3HUC, G0LBK to bring him to #162. I also worked some digital QSOs; and added initials using Q65C with dxpeditions KA6U (in FM29) and ZC4RH, whom I worked on both 2 m and 23 cm for new DXCCs. I was not able to do any more 3 cm RX testing due bad WX and the beacon being off; I did manage to see about 1 dB of moonnoise.



IK1FJI's big SSPA enabling his top CW score on 1296

IK2DDR: Francesco frankddr@yahoo.it writes about his ARRL EME Contest results -- I'm very satisfied. It was my 2nd time on 23 cm EME. I made 125 QSOs (31 on CW and 94 on Q65C) - my best score yet. I made 21 initials with F5DUO (CW), WR8AA, AC0RA, OZ9KY, DL3WDG, VE4MA, PA3HDG, K4EME, G0LBK, W4OP, WA3GFZ, W5GLD, N9HF, VK3VJP, UA6AH, SV1CA, DK0ZAB, W5LUA, SM6PGP, VE4SA and W6TCP. After the contest, on 16 Nov I worked my mixed initial #277* and a new 23 cm DXCC with ZC4RH. I felt very lucky and happy to be

the first Italian to work this country. I have always operated with a polystyrene cover over my feed. It was suggested that my RX did not seem as good as it should be - possible 2-3 dB low. After checking each piece of my RX system, I decided to remove the polystyrene cover. It made no difference. I concluded that my RX was OK. I enjoyed very much the contest with UFB signals on CW and on Q65. However, I suggest that for the mixed class, contest credit be given for both CW and digi QSOs. I believe this would increase not only CW QSOs but overall contest activity.

IQ2DB: Alessandro (I2SVA) i2sva@i2sva.it writes about his club's EME operation on 23 cm in Oct/Nov – The last two month were very busy with the last two legs of the ARRL Contest and a very informative- visit by DU3T. Ron gave us many useful hints to on how to get better performance from our station. We discussed in particular on value of adding to our Septum feed a choke and flare; hopefully we will shortly benefit from this advice. The ARRL Contest was very challenging. During Oct we made 101 QSOs and in Nov added 44 QSOs. Our total for the whole contest is 145 QSOs (118 Digi and 27 CW) for a declared total of 783,000 points. We worked 1 new country (UN6PD) and 12 Digi initials with UN6PD, WR8AA, AC0RA, PA3HDG, VE4MA, G0LBK, K4EME, WA3FGZ, SV1CAL and UA6AH), and 9 CW initials with SA6BUN, F6CGJ, F5KUG, PI9CAM, SP6ITF, OZ6OL, YL2GD, WA6PY and VE6BGT. We are quite happy for our results considering that we only have one year of 23 cm EME experience. Overall, we are at mixed initial #263*, 50 DXCC and 45 WAS (thanks Peter). **A consideration for contest operations: we did 12 Digi QSOs using Q65-30B, but if we review the TX/RX reports 100 out of 118 QSO could have done using Q65-30B and saving a lot of time for more CW operation! Unfortunately, Q65-30B is not yet widely used; why?**

JD1YCC: Kay (JH3AZC/JD1BPW) jh3azc@jarl.com writes the JD1YCC (G-G HAM Club) is planning to activate EME on 2 m, 70 cm and 23 cm from Ogasawara chichi island (QL17cc) – Operation is expected on 7-9 Feb 2 m JT65B, 10–11 Feb 70 cm Q65B and 12–13 Feb 23 cm Q65C. Equipment on 70 cm is IC910 with HB SSPA and two 20 el yagi and on 23 cm IC910 with HB SSPA and 2.4 m HRO folding dish. Info for 144/432 will be via NOUK Logger and for 1296 via HB9Q logger. Team members JP3EXR/JD1BPY, JA1PFP/JD1BQB, JJ3JHP/JD1BQD, JH3BUM/JD1BPX, JH3QFL/JD1BQA, JH3VAA/JD1BPI and JH3AZC/JD1BPW. We depart from Tokyo by ship on 5 Feb. After arrival, we will take an onsite verification test by Telecommunications bureau on 7 Feb to get the license for operation and 500 W output power. Assuming we pass, operation will be started as soon as possible. QSL will be LOTW will be uploaded shortly after the trip. Beautiful paper QSL card will be prepared in March. You can send your QSL card with SAE+1GS to JH3AZC directly only.

JH1KRC: Mike qq363gud@voice.ocn.ne.jp reports on the ARRL EME Contest operated on 23 cm CW – Quite honestly my results were pretty miserable. I made only 19 QSOs including 3 DUPs. On Saturday of the Oct weekend,

during the NA window in their very early morning (and in our evening hours) I found very low activity as is too often the case. I only made 4 QSOs in two hours with K2UYH, NQ7B, DU3T, and WA6PY. In my EU window, just after I began operation, my EL motor fatally stopped at 40 degs. I was only able to make 3 QSOs with SP7DCS, KL6M, and DF3RU before the failure. No other operation was possible later. I found the DC motor power supply terminals in the gear housing were corroded causing the actuator to stop. After I repaired the EL motor system, I also switched to an HB9BBD LNA. My total gain was reduced from over 40 dB to 25 dB in order to reduce distortion from my second stage and receiver saturation caused by very strong signals from a local telecom tower. I also followed this LNA with a 7-pole very narrow band-pass filter and a cavity LNA using an FHX35LG. This new RX arrangement works really fine. My Moon echoes are excellent and sound very strong, and the sky was calm during the Nov weekend. On Saturday evening, I worked four QSO's in my NA window, including two DUPs, with JA6XED, WA9FWD, DU3T and NQ7B, again in two hours of trying. Unfortunately, the NA window CW activity was very poor. One W6? called several times, but his transmissions were very short every time, so I couldn't fully copy his call. The EU window on the Sunday morning here was terribly foggy; visibility was < 50 m and the sky noise was up by 1-2 dB. I guess such WX gives more RX noise even when the Moon elevation is high. The band sounded very active; and in an hour of operation I made eight QSO's with one dupe. QSO'd were SP6ITF, G3LTF, OK2DL, SP7DCS (again), DG5CST, G4CCH, OZ6OL, and LZ2US. Heard were OZ4MM, OK1DFC, I1NDP, F6CGJ and more. This time my driver amplifier power supply suddenly stopped working due to unknown cause. I could not find the cause of trouble even with another DC supply in place. So, it was very regrettable I had to stop further contest operation. I ended with a total of 16x14. It is almost 25 years since I began EME operation. Many parts, cables, antennas, etc. have become much older (most of them were already 'old' when I started), and often I have serious troubles. It seems time for me to renew and replace much of my equipment to continue my favorite hobby, amateur radio, especially EME.

K1DS: Rick rick1ds@hotmail.com was QRV in the ARRL Contest from his FL QTH -- I had modest success in the final weekend with a single yagi on 432 considering that I had only about 100 W at the antenna, visual aiming and only one moonpass. I worked the usual QRO stations of DL7APV, OK1CA, K2UYH and K5QE for an initial; for a score of 4x4. I decoded VK4EME and VK2CMP several times calling CQ but alas, my transmissions were inadequate to complete a QSO with them. I plan to get my 500 W W6PQL SSPA on line for the next time. I had to defer using my 2.4 m dish on 1296 because of rain, winds and lightning just before moonrise. I am grateful for all the EME community support and the patience getting QSOs completed.

K1EEP: Frank (NC1I) frank@NC1I.COM provides the story on his 70 and 23 cm VT dpxpeditions – We were pleased with our 70 cm results with 35 different stations

worked. We completed 34 Q65B QSOs and 1 CW QSO (DL9KR of course), all on 20 Nov. The following stations were worked on 70 cm: OK1DFC, UA3PTW, K4EME, ZS4TX, DL7APV, DL8FBD, DG5CST, OH2DG, ON4AOI, PA3DZL, RD3FD, G4YTL, DL8GP, SM3LBN, DF3RU, PA2V, DL5FN, DL1VPL, OH3AWW, KU4XO, W7JW, PA4VHF, DL9KR (CW), N0AKC, EW7CC, DL9LBH, K5DOG, DL8DAU, AA5C, N9HF, W2HRO, N9LHS, K7KQA, VE6TA, and W4ZST. DL9KR had an incredible CW signal and we exchanged (579) reports. Conditions seemed good. Surprisingly almost every QSO with EU utilized horizontal polarity for both TX & RX; I don't experience that very often. We did have an apparent computer glitch that cost us about 90-minutes of operation just as the Moon was setting in EU. This probably cost us a few QSO's. During that time, we decoded OK1TEH calling and could have easily completed with Matej, but we kept losing communication between the computer (WSJT-X) and the IC9700. W1QA spent a great deal of time troubleshooting but ultimately, we are not certain what was causing the problems and why it resolved. Our apologies to Matej and anyone else we may have missed due to this glitch. All QSO's have been uploaded to LOTW and cards were mailed to everyone on 16 Dec. The 70 cm array was taken down immediately after our final QSO and the 2.4 m dish was installed. Dish calibration was confirmed, and the 23 cm equipment was tested and found ready to go. Our 23 cm activity also went well. All equipment performed flawlessly throughout the weekend. WX was perfect (for early Dec) the first night. The second night we had rain for the first few hours followed by VERY strong winds! The wind even caused a brief AC power outage. We found that our elevation was off by three degs for the first five hours on Saturday night, but we are not certain if that was related to the wind or not. Activity was a bit lower than expected but **we still managed 54 initials** so it was a good weekend. I suspect after KA6U's VT activation a few months ago the demand for VT on 23 cm wasn't high. We still had a great time offering up the State to those that missed Peter or just wanted an initial or new grid. Stations worked on 23 cm on 2 Dec starting at 2016 were OK1DFC, PA3FXB, OH2DG, ES3RF, DL1SUZ, G4CCH Q65 and CW (559/559), DF2VJ, DL7UDA, N9HF, W7JW, N9LHS, DG0FE, G7TZZ, W5LUA, W5AFY, LA3EQ, NC1I, OK1USW, W1PV, N1AV, G3LTF CW (549/559), W6CTP, KB2SA, K5DOG, KD5FZX, WH6A, G4YTL, CX2SC, W2LPL, K5LA, and KN2K; on 3 Dec (still the first moon pass) K8ZR, N5BF, N5TM, W2HRO and VK3VJP; on Saturday night/Sunday starting 3 Dec at 2042 were G0LBK, K3WM, ON4AOI, DL8FBD, IK3COJ, PA3DZL, PA100THALES, F1RJ, PA0BAT, OK1DFC Q65 and CW (559/559), HB9Q, DJ3JJ, PA3HDG, IQ2DB; and on 4 Dec N0CTR, K5QE, K4EME and AE6GD. All 23 cm QSOs have been uploaded to LOTW. We will not have cards back from the printer until early Jan. We expect to fill them out and get them in the mail by the second weekend of Jan. Emily would be thrilled to receive QSL cards in return. Her mailing address is on the QSL cards and can be found on qrz.com. Thanks to everyone that called in! Now working on plans for 2023.



K1EEP 432 array in VT

K7ATN: Etienne climb2ski@gmail.com is QRV on 432 EME from CN85 and interested in **backpack EME** -- I eagerly looked forward to the ARRL EME Contest this year, hoping to better last year's score of 3 contacts with my carryable portable EME setup. I missed moonrise with the neighboring trees and house and it seems that I then also missed a number of EU ops that could have worked my single yagi station. Still, this year I made 4 contacts (a 33% improvement!) on 70 cm with my last contact being an initial with K2UYH.

K7ULS: Mike k7uls@yahoo.com had excellent results on 432 during Nov Contest weekend -- I used my single M2-432-9wl yagi and 250 W from a Gemini70 SSPA to work using Q65B on 12 Nov at 0330 DL7APV (22DB/20DB) and on 13 Nov at 1242 NC1I (21DB), 0507 K5QE (24DB/27DB), 0524 K2UYH (22DB/26DB), 0550 W7JW (32DB/30DB) and 0608 K0PRT (29DB/25DB) for 6x6 total.



K7ULS antennas in ARRL EME Contest

K8ZR: Tony WA8RJF@ARRL.net sends his activity report for the Nov weekend of the EME Contest on 1296 and the days that followed -- With the help of W5LUA I was able to resolve the decoding issue that I had experienced during the Oct weekend. Heavy rain the first moonpass prevented me from being on the Moon. The WX improved considerably the second pass and I worked 19 stations all on Q65C. An all-time high regardless of mode for my small station -- a 3 m dish and 250 W. In the log were UA5Y for

a mixed initial (*), OK1DFC, W2ZQ (*), W5LUA, OM4XA (*), OK2DL, N1AV(*) to give Jay his 50th State (Ohio) on 1296, W2HRO (*), AC0RA (*), KB2SA(*), RA4HL (*), DF3RU (*), G7TZZ (*), SP5DGM (*), K5QE (*), SK0CT (*), W7JW (*), IK3COJ (*) and GM0PJD (*). At one time I had four stations calling me -- amazing. I could only operate about half the moonpass as several inches of wet heavy snow had filled the dish and the azimuth rotor could not handle the additional load. I was QRV again after the contest to worked work G0LBK (*), RX6AIA (*), DK3WG (*) for his 49th State, IQ2DB (*) and YL2GD (*) and 17 Nov OK1IL (*) State 49 for Ivan, DL8FBD (*), G4YTL (*), IK7EZN (*), LU8ENU (*), DL1SUZ (*), DG5CST (*), DL6SH (*), G4CCH, PA3FXB (*) for Jan's State 49, DL7UDA (*), N5BF (*), KD5FZX (*) and N0CTR (*). During the contest I would have liked to have made a few CW QSOs but I find it difficult to copy CW with the IC9700 filtering. I much prefer a K3 & xverter and hope to have that operational in the near future. Over three moonpasses I worked more stations than I normally work in a year by a factor of at least 2. The contest and post contest activity has rejuvenated my interest in 23 cm EME! [Tony is also interested in 902].

KA6U: Peter petervanh143@gmail.com brings us up to date on his spectacular States dxpedition -- In 2022 from Jan thru Nov I was on the road approx 4 months. The focus of this year was helping operators make progress toward 23, 70 and 125 cm WAS. Total driving distance this year was about 15,000 miles with operations in 40 States. During the trips, I completed 835 23 cm QSOs. Some operators on 23 cm connected with me from over 30 States. The highlight of my trips was the opportunity to help several operators complete 1296 and 222 WAS. I also attended my first Ham conference, the Central States VHF Society in July. One event in 55 years on the air. On 70 cm, I completed only 245 QSO's. Unfortunately, my 70 cm PA failed in early July due to a relay failure. This was early in my 4 month roving trip, so we lost many 70 cm opportunities. For 2023 I will have redundant preamp/TX/RX relay boxes for 70 cm and will also have spare PA transistors. So, if the PA fails, I can replace the PA transistor in about an hour. I bring a spare 23 cm PA on my roving dxpeditions; so of course, I haven't needed to us it yet. The W2HRO 2.4 m folding dish has performed exceptionally well on 23 cm. I normally run 350-400 W at the feed. In the past two years, I have set up the dish about 100 times from portable locations. The time from parking the car until QRV on 23 cm is only 15 mins. In 2023, I plan to make several long roving trips from my home QTH in FL. The focus for 2023 will continue to be helping operators achieve WAS on 70, 23 and 125 cm. Before the 70 cm PA failed, I was successfully running 23 and 70 cm operations simultaneously. **23 and 70 cm operators please send me an email with the states you need.** I can use this information to help plan my operations. I will continue running both bands simultaneously in 2023. During 2023 dxpeditions, the target areas are the states east of the Rocky Mountains. I am building a second 23 cm portable EME station using a W2HRO 1.8 m dish. If tests with this station are successful,

I plan to lend this 23 cm EME station to operators in states that I don't visit. The station will be compact and easy to ship. K5QE, NC1I, W6TCP, N1AV, NH6Y and I have collaborated to deploy a permanent 70 cm station at Tom's QTH on Maui. The initial station was operational starting in early Dec. Tom's current station is using the PA and antennas that I used roving last Summer, but with HPOL only. We plan to continue to improve the station in the next months. The station should eventually be better than the station I use for roving. The photo shows the 23 and 70 cm antennas in North Dakota at moonrise. The total setup time for both arrays is 40 minutes. Running pile-ups on both bands at 2:00 am LT in the morning is a good way to wake up. This day in North Dakota started after sunrise. For more info see <http://ka6u.blogspot.com>.



KA6U's 23 and 70 cm antennas in ND at moonrise

KB2SA: Bill is pleased to report a 23 cm EME QSO between Beijing, China and San Diego, CA -- On 4 Dec, I completed a QSO with a 1.9 m dish and 850 W to BH1TSU (Xiixin) with a single 36 el yagi and 300 W in Beijing. We tried over several nights using Q65-120D with the greatest difficulty being my decoding his yagi signal. Xiixin decoded my signal fairly easily when he could avoid the QRM from his apartment amongst 22 million people. The breakthrough was when we realized decoding was possible with the Moon less than 5° el. This increased our QSO window from 30 mins to nearly 60 mins. Many thanks to Xiixin for his patience in completing this very difficult QSO. I'm looking forward to many more when he soon upgrades to two 56-el yagis. [Bill has since QSO'd Xiixin using QRA65C].

KNOWS: Carl carlhasbargen@q.com sends his Nov EME report -- I operated on 23 cm exclusively for the final ARRL Contest weekend. I QSO'd using Q65C unless noted in the first moonpass OM4XA (15DB), WA3RGQ (20DB), DF2VJ (21DB), RX6AIA (9DB), KD5FX (6DB), DK3WG (17DB), IK3COJ (14DB), CE4VRT (19DB), DL6SH (8DB), VE4SA (15DB), WA3GFZ (15DB), G4CCH (10DB), AA4MD (11DB), KN2K (18DB), UA9YLU (20DB) and initials with DF7KB (18DB), OK1KKD (17DB), SP3YDE (18DB), PA3HDG (19DB), W3HZU (19DB), N5TM (21DB), JH7OPT (20DB), VK3VJP (17DB) and AC0RA (14DB) and DG5CST using CW; and in the second moonpass DL7UDA

(15DB), NC1I (10DB), ON4QQ (14DB), W3HMS (17DB), GM0PJD (19DB), PI9CAM (4DB), LU1CGB (20DB) and initials with G7TZZ (19DB), DJ7FJ (18DB) and OK2ULQ (16DB). This brought my final ARRL totals to on 9 cm 4x4, on 13 cm 4x3, on 23 cm 80x38 and on 70 cm 30x21 and an overall total of 118x66. I did decode ON4LX (15DB), JH3AZC (14DB), N9JIM (23DB), OK1USW (21DB) and RA2FGG (22DB). I added a second preamp in front of my radio to help with hearing CW and did copy G3LTF and G4CCH but did not complete with them. I would have spent more time on CW, but kept getting drawn into the digital pileups whenever a station appeared who had not been worked previously. My gear is now stowed away for the winter; so I am reflecting on 2022. My EME activity was almost exclusively during contests, as is usually my case. Because of various hardware and software issues, I had only completed 45 QSO's over 8 non-ARRL contest days, then 120 QSOs during the ARRL weekends (including a few DUPs). After 11 years doing EME I have reached mixed initial #219* on 23 cm and #98* on 70 cm. I remember years ago when I was trying to be OK1TEH's 100th initial with his single yagi, so my progress is clearly slow - especially considering I have a 6 m dish for 70 cm! Having to drive 100 miles to my main location limits my opportunities - so look for me during contests, guys! Having a good ARRL contest this year made me happy enough to last into 2023, when I hope to see you on the Moon.

N1AV: Jay whereisjay@gmail.com discusses his ARRL Contest results, completing WAS #10 on 1296 and participation in the 902 AW that he initiated and future plans -- The EME contest was a great experiment for me, as I was trying to run 4 bands (2, 222, 433 and 1296) on the same weekends at the same time, as a single op. I had a goal of 1.5 million points and my raw score was 1,581,000. I worked on 144 22x18, on 222 5x5, 432 29x19 (lost a relay and preamp on Saturday in Nov), and 1296 114x51. Heavy rain and flooding in Oct caused a several hour stoppage, and equipment breaking and malfunctions took me off a few bands in Nov. **Nov was also a very big month for me as I worked K8ZR for State 50 on 1296, securing #10 on the WAS list.** Thank you, Tony. I also want to acknowledge KB7Q (9 states), AC0RA (3 states) and KA6U (13 states). I was able to wrap up 1296 WAS in 22 months! Thanks to all that were on (or tried to get on) 902 this weekend! It was exciting to see the stations on the HB9Q logger and even more exciting to see the stations off the Moon! I did not get QRV until till 3/4 Dec moonpass. I was hearing several stations and made one QSO but had to stop operation because of rain. I don't like to operate my 2.4 m sub-lunar folding dish in the rain. Heard W5LUA (18DB), worked VE6TA (20DB), partial K2UYH (19DB) but he could not decode me with 100 W and heard AC0RA (24DB). [Jay improved his system adding auto tracking and ended up working many of the active stations including W5LUA, AC0RA and KL6M]. I learned from the AW: First - there is a lot of noise on 902, but most of my noise decreased around 35 degs. At the horizon the noise was at least 10 dB higher. Second - I found that polarity rotation is important but never more than 40-45 degs. Never even close to 90 degs. Most changes were 10-20 degrees, with

signals increasing 6-8 dB as I changed positions. This makes me think that a 90 deg change via a relay might not be the best solution for the portable dish. Third - The new SL-1 lightweight expedition rotor from Sub-lunar systems worked very well with the breakout board and the W2DZR controller; once I changed to a laptop with a serial port and serial cable. Setup was easy. I am still learning all the ins and outs of the software and how to tweak it. It is much nicer than hand aiming. Fourth - the smallest dish I worked was AC0RA with a 12' dish and 225 W. I needed 120D to complete. I am currently running about 200 W with a 2.4 m folder. I bet I could use 30C with LUA and KL6M, maybe Grant as well. They were all (16 to 17DB) with the new rotor keeping me on the Moon. Fifth - I will be using this setup on 902 and 1296 for the next 3 months in prep for Hawaii. I can go from 1296 to 902 quickly as I have different feeds and support poles for each band. If you are ready to run, let me know and let's try! Sixth and final - we need to schedule the next 902 AW. It should be preferably before I leave for Hawaii so those that want to try to work me can see if their gear will work. Anyone have some good dates to suggest in the next two months? (PSE avoid the Jan VHF contest). [Jay is also trying to organize a group to discuss 902 EME at 902EME@groups.io. If interested see NA1V's webpage or email Jay].

N5BF: Courtney courtney.duncan.n5bf@gmail.com provides info on his Sept, Oct and Nov EME on 1296 -- Due to well publicized portable opportunities and other good fortune, I am among those approaching WAS on 23 cm EME. TNX to KA6U's operating I now have Georgia #39, Missouri #40, Delaware #41, and K8ZR in Ohio for #42. I missed some of the other State activations for various reasons and also was unable to detect or decode a signal from ZC4RH in Cypress, which was horizon-to-horizon for my situation, and too marginal for a small station. Mixed initials over the past three months using QA65C unless noted are N5TM (20DB/20DB) #299, OK2UZL (22DB/20DB) #300, DK0TE (23DB/25DB) #301, W2ZQ (20DB/14DB) #302, M0DTS (18DB/17DB) #303, OK1KKD (6DB/7DB) #304, WR8AA (14DB/17DB) #305, PA3HDG (18DB/18DB) #306, G0LBK (18DB/15DB) #307, N9HF (14DB/18DB) #310, ON4LX (16DB/20DB) #312, SA6BUN (569/549) #313* using CW and W6TCP (18DB/19DB) #314*. I also participated in the Fall ARI EME Trophy and ended with 31 QSOs (6 CW and 25 digital) and a mult of 6 for a final score of 392 points. This made for a points total of 542 for both 2022 events, which was 4th place in the B-mix > 3.2 m category. In the ARRL Oct weekend, I had a record 78 QSOs (47 on Saturday and 31 on Sunday) with a multiplier of 44. This is a higher score than I had in both weekends in any contest from 2016 to 2019. In the Nov weekend, despite a significant non-amateur-radio conflict, I was able to complete another 23 QSOs (10 on Saturday and 13 on Sunday) for a record final total of 101x49!

NC1I: Frank frank@NC1I.COM reports on his home QTH activity in Nov -- With the WR8AA and K1EEP dxpeditions there was very little activity from my home station, but we did manage some QSOs. The following stations were worked on 23 cm in Nov prior to the contest weekend. I

worked on 6 Nov ES3RF, DJ7FJ, OM4XA, DL4DTU, IQ2DB, G0LBK for mixed initial #475* and digital initial {#369}, DK3WG, PA3DZL, UA9FAD, DL1SUZ, and KA6U in SC #476* and {#370}; on 8 Nov KD5FZX (0DB/+2DB); and on 11 Nov KA6U in LA #477* and {#371}, ON4AOI, AC0RA in IL #478* and {#372} and LU8ENU. W1QA operated my 23 cm station for a few hours during the ARRL Contest and worked on 13 Nov IQ2DB, OK1DFC, ES3RF, UA5Y, SP3YDE, DJ7FJ, W2ZQ, RX6AIA, AC0RA in IA #479* and {#373}, ON4LX, K3WM, KA1GT, SP5GDM, UA6AH, AA4MD, DL7UDA, DL7APV, PA3HDG #480* and {#374}, KB2SA, IK2DDR, KN0WS, WA3RGQ, OK1USW, DF3RU, K6VHF, KB7Q, VA7MM, DL7AIG, W6TCP #481* and {#375} and LU1CGB for a total of 29x20 on 1296 during the weekend. After the contest, on 17 Nov I added KA6U in DE and W2HRO. I attempted to work the ZC4RH dxpedition on 17 Nov but strangely only had one decode over many hours. This may have been due to a strong birdie a few hundred hertz above them. During the ARRL Contest on 70 cm, we worked on 13 Nov ON4AOI, DL5DAW for digital initial {#545}, K1WHS {#546} with a real big signal, KD2LGX, BV3CE {#547}, S51LF, N1QG, W4ZST, KU4XO, VE3MIS, K4EME, KA9OKH {#548}, W1PV, OK1TEH, YL2GD, LU8ENU, DL7APV and K7ULS for a total of 18x17 on 432 during the weekend. Post contest on 18 Nov caught ZC4RH {#549} and DXCC 99 with 95 confirmed, PA4VHF, W2HRO, DL8DAU, ON4AOI, DL4DTU {#550}, YO8RHI and OH4LA. My 70 cm RX system is still down about 4 dB. Hopefully I can get someone to climb the tower before we get too deep into winter and swap out the LNA. It is no easy task to get at the preamp box. This requires climbing up the polarity mount, a job for someone much younger and much more flexible than I am. It's been nearly 15-years since I climbed the polarity mount - the wife says NO!

NH6Y: Tom worth@maui.net on Maui in Hawaii has added a permanent 70 cm EME station at his location -- TNX to K5QE, NC1I, W6TCP, N1AV and KA6U for helping me become QRV on 70 cm. The station is essentially the same as KA6U's roving station. The station is at my residence in (BL10ts) and includes 2x25 H POL K1FO yagi's from Directive Systems, 600 W Tajfun 70 cm SSPA, Q5 transverter and WD5AGO cavity preamp. Work thus far are K5QE, ON4AOI and DL4APV. [KA6U adds: Based on the experience with my roving station Tom should be able to work most 4 yagi or larger stations and in good conditions 2 yagi stations. He doesn't have polarity rotation so on some days Faraday will win. Tom's location has a delayed moonrise in the eastern direction (Maui is a volcano after all), which may result in a short EU window to the east on some days. When the Moon is north, the EU window at Tom's moonset can be about 3 hours long because he has a clear view of the horizon to the West].

OK1CA: Franta fr.strihavka@seznam.cz writes on his recent EME -- I started my Nov EME activity on 23 cm on Wednesday 9 Nov by connecting with KA6U in Kentucky for WAS 46 and continued on Friday morning with KA6U in Louisiana for WAS 47. Saturday morning, I was QRV for about 3 hours in the ARRL EME Contest on 1296 and

added another 14 QSOs. I worked 3 digi initials were N9JIM, VE4SA and SK0CT and OK2UZL to bring me to {#169}. My check score on 23 cm is 116x49. Then I installed my 70 cm rig and was QRV in the second moonpass of the contest weekend. When I started on Saturday night, the first signal was using Q65C from ZL3AAD. Unfortunately, the Moon immediately disappeared behind the mountain at Graham's end. I made a total on 432 of 47 QSOs and 32 mults in the Contest. The only option on 70 cm during the contest was basically the digital mode. On Sunday morning I did make a single CW QSO, to my delight with WA6PY. Paul only works CW without the help of the HB9Q logger. We QSO'd in the contest on all the bands that I was QRV. I made 30 digi initials during the contest. My last was S56P to bring me to {#93}. Traffic on 70 cm was busy, many new stations were on from the USA and DL, and QSOs from stations on all continents could be made. I contacted stations from 19 DXCCs and 21 US States and 2 Canadian Provinces. In total, in this year's ARRL EME Contest, I made 222 QSOs and 122 mults on the 70, 23, 13, 9 and 3 cm bands.



OK1CA's multi-band switchable feed

OK1DFC: Zdenek ok1dfc@seznam.cz reports on his ARRL Contest effort plus additional activity -- For the Nov part of the contest, I made a major change. During the week before the contest, I finally found time to finish the SSPA mounting mechanics in the dish. Now there is only 3.5 m of 2" cable between the PA and the feed and the power is where it should be - at the septum feed connector. I have stretched the control cable to control the SSPA, temperature and power measurements so that I have a constant view of what is going on in the PA. There is also a PTT lockout function when the heatsink temperature exceeds 65°C, but even with full operation and CQ calls both Q65 and CW, I only managed to heat the copper plate to 16.5°C. Before the start of the contest, I managed to contact the ZC4RH dxpedition for DXCC 122 on 1296. Unfortunately, it did not find them during the contest. The contest started on Saturday at 0000 and the 23 cm band was immediately full of stations from the start with both Q65 and CW traffic. I picked up stations one by one on the band and occasionally called CQ. I made 37 QSOs before moonset. Truthfully, I didn't expect this much turnout after the first round and was worried about finding activity later in the contest. The opposite was true; from 1927 when I contacted VK3VJP until 0932 on Sunday 13 Nov I made another 33 QSOs. My last QSO was with OK2UZL for a total of 11 OK QSO! The last part on Sunday until 2359, I

added 7 more QSOs; however, 2 were DUPs because the other station wanted to make a CW initial. So, at the end of the contest I ended up with a score of 185 QSOs and 37 DXCC mults plus 21 US States and 5 Canadian provinces. My total score came to a whopping 1,159,200 points just on 23 cm and single op. The US activity was especially high this year with 53 stations in the log. I moved up to CW initial #476 and digital initial {#512}. A very successful contest and great satisfaction with the operation of the equipment. **(OK2DL did an analysis of both our logs. Marek found that 196 different stations participated on 1296. This is an almost unbelievable number, close to the best results in the 23 cm band held under normal conditions in terrestrial contests).**

OK1KIR: Vlada vlada.masek@volny.cz and Tonda's Nov EME report -- On Wednesday 11 Nov we installed our 24 GHz system for a test with UR3VKE. During the test we made an easy QSO at 1752 with RA3EME (8DB/12DB) who was using a 2.4 m dish and 70 W at predicted spread of 350 Hz. Later we succeeded with Anton at 1822 UR3VKE (11DB/15DB) for digital initial {#51} and the first 24 GHz UR-OK QSO at predicted spreading of 380 Hz. Both QSOs we made with Q65E. Initial tests with Q65D failed. UR3VKE used 1.8 m offset dish, DB6NT LNA and 23 W from TWTA with V pol. We were heard (11DB) at UR3VKC with 2.4 m prime-focus dish and 1.3 dB LNA. Artem has only 1 W of rf power. (Later UR3VKE QSO'd RA3EME using Q65E. After both QSOs we measured the moonnoise at 1.8 dB at elevation of 28 degs with continuous drizzling. The Friday eve, 11 Nov before ARRL Contest on 23 cm, we contacted using Q65C at 1753 ZC4RH (22DB/17DB) for digital initial {#513} as 1st QSO ZC-OK on 23 cm. Later we worked at 1840 4X1AJ (20DB/20DB) on 1268/1268 and 1917 VK3VJP (7DB/8DB) {#514}. During ARRL Contest we operated on 23 cm and again were searching mainly for initials. We worked using Q65C on 12 Nov at 0030 DF7KB (7DB/2DB) {#515}, 0058 W2ZQ (8DB/7DB), 0107 DK1KW (16DB/15DB), 0434 N9HF (5DB/7DB) {#516}, 0452 W7JW (7DB/6DB), 0742 IQ2DB (6DB/6DB), 0752 N6DJB (11DB/4DB) {#517}, 0852 OK2DL (1DB/2DB) and 2244 G0LBK (5DB/5DB); and on 13 Nov at 0640 W6TCP (14DB/14DB) {#518}, 0700 K6VHF (8DB/6DB), 0720 N1AV (5DB/7DB), 0746 OM4XA (5DB/12DB), 0800 NX9O (14DB/13DB) {#519}, 0829 DL7UDA (7DB/4DB), 0834 ON4LX (8DB/10DB) and 0847 DF3RU (3DB/5DB). With CW worked only on 13 Nov at 0649 DG5CST (589/599) with his 10 m dish for a total of 18x13 over the weekend. On 432 we worked using Q65B on 18 Nov at 0348 ZC4RH (20DB/15DB) for 70 cm digital initial {#329}, first ZC-OK QSO and new DXCC.

OK1TEH: Matej ok1tehlist@seznam.cz discusses the ARRL EME Contest and his results -- The ARRL Contest is always the main EME contest for me. This time I decided to run 70 cm with main target to get into Q65 world, learn and compare all the possibilities especially as related to 1 yagi QRP operation. During both (50-1296) legs I worked DL7APV (13DB), PA3DZL (23DB), HB9Q (16DB), K4EME (23DB), KN0WS (26DB), K5QE (29DB), UA3PTW (16DB), DK3WG (21DB), UA5Y (27DB), VK2CMP (28DB) and a

mixed (#*), ON4AOI (27DB), OK1CA (26DB) [at 42 km it was not so easy to avoid direct QRM), NC1I (17DB), VE6TA (25FB), K2UYH (23DB), PI9CAM (22DB), VK4EME (25DB), DL4DTU (24DB) (#*) and S57M (22DB) for a total of 19x26 and 600 points. Compared to last year when I was running JT65 and CW, then I worked almost 40% less stations. My question is how much is the reason for this difference due to bad EME Condx during both weekends when Moon was at Perigee, which is really critical with my "small pistol" station or due to often "diode condx" with locked pol and my linear H pol antenna. Q65B worked well, but I'd appreciate the K1JT team improving the waterfall as WSJT10's SpecJT seemed far better for signals around (29 DB). Good trick that helped me with my 12 year old PC running Win7-64 was to let WSJT-X run with win-thread priority for real-time and narrow filter; then the decoding time was acceptable even with my Core2Duo T9800 CPU and 8 GB RAM.

OK2DL: Marek ok2dl@seznam.cz writes in his blog -- After a month, I was ready to run the final round of ARRL EME Contest on 23 cm. The Moon came up in the middle of the night, which is now not that easy for me. I started on Saturday morning at 3 am local time; the band was full of stations. A second weekend of operating is usually marked by slower activity and DUPs. Indeed, the contacts increased slowly. On the other hand, I enjoyed incredibly warm WX, temp around +10 deg C, clear sky and almost windless. Initials added were VK3VJP, DF7KB, PA3HDG, N9HF, EW7CC, YL2FZ, NX9O and W6TCP. I ended with a total score of 172x63 for 1,083,600 points! [TNX to OK1TEH for translating].

OK2ULQ: Peter ok2ulq@seznam.cz wrote in his blog -- The final part of the contest took place in beautiful sunny WX and without any problems. My result was a total of 49 contacts and 18 initials. I QSO'd DL1AT on CW, N8CQ, KB2SA, ON4LX, AC0RA, K6VHF, DL7AIG, W3HZU, AE6GD, DL7AIG, DK0TE, W3HZU, AE6GD, K3WM, RA2FGG, KB7Q, W5GLD and IK7EZN with Q65C. My total for both legs I operated was 81 QSOs. It will not be for a victory again, but it was still a great event and that's what I like. [TNX to OK1TEH for translating].

PI9CAM: Jan (PA3FXB) pa3fb@amsat.org tells us about operation from 25 m radio telescope in Dwingeloo during the Nov ARRL EME Contest weekend. We were on during the Saturday to Sunday moon pass. Mainly on 23 cm but also some on 70 cm.

PJ2T: Gene (KB7Q) geneshea@gmail.com is collaborating with PJ2BR to put Curacao (FK52) on 23 cm EME starting around 7 March for about a week. The gear will be a 1.8 m dish with 350 W at the feed. They will operate Q65C, but will also do CW on request.

SP9VFD: Rafal rgrigorow@gmail.com was active in both 50-1296 legs of ARRL EME Contest on 23 cm random CW/SSB only -- I had 71 QSOs with some DUPs and worked on the 12/13 Nov weekend F2CT, G3LTF, W2ZQ, 9A5AA, PI9CAM, IK3COJ, F6ETI, F6CGJ, UA5Y, RA4HL,

IK5VLS, UA9FAD, DL4DTU, ES3RF, OZ6OL, W4OP, LA9NEA, VE6BGT, N4PZ, WA6PY, K3WM, PA3DZL, N5BF, SP6GWN, PA3FXB, DU3T, G0LBK, JF3HUC, DG5CST (SSB), G4YTL and DJ3JJ. My total score was 66x100x27 = 178200 points. I probably missed some calls as I was a bit tired during best NA activity window after spending all night spent in my shack. In the final leg I used a 6.4 m homebrew dish, RA3AQ septum feed, 500 W homemade SSPA mounted at feed support and HB G4DDK LNA. After some improvement I successfully tested a new setup with Icom IC-9700 (144MHz IF) and Kuhne MKU 13 G4 transverter. My measured moonnoise of about 0.5 dB on lovely old GR1236 meter was very useful for pointing the dish. Recently I added to my garden an IP cam with an infrared illuminator. It help me control the position of the dish in the night. The contest was amazing! I enjoyed all the CW contacts in both legs and plan to be active in the SSB EME Contest at the end of Jan.

SV8/DF2ZC: Bernd (DF2ZC) BerndDF2ZC@gmail.com and DH7FB (the X-Team) and are in an advanced planning for a dxpedition to Santorini (KM26ri) for 2 m and 70 cm EME from 30 March to 4 April. The equipment for 70 cm is to decided will include an SSPA for ~200 W. For more info see www.x-team-dxp.de.

VA7MM: Mark va7mm@rac.ca write that their multi operator (VA7MM, VA7MAY, VE7CNF and VE7HRY) were active mixed mode on 1296 for two 50-1296 weekends of ARRL EME Contest -- We wrapped up the event with 105 QSOs (11 on CW and 94 digital) x 50 mults for 525,000 points. This is our highest score in 20 years of operation. 26 of our contacts were initials and all digital with YO2LAM, W7JW, DJ7FJ, IK7EZN, W2ZQ, EA1IW, WR8AA, K6VHF, N6RZJ, JS6UJS, PA3HDG, LZ4OC, DG0FE, OK9KY, N5TM, KC2HIQ, KN2K, AE6GD, AC0RA, SM6PGP, DL7APV, W3HZU, OK2UZL, JH7OPT, UA9YLU and VK3VJP. In 20 years of operation we've accumulated 323 mixed initial contacts of which 147 are CW and 176 digital. We use an OZ9CR water cooled cavity amplifier; our power at the feed of our 3 m dish is 200 W. On receive, we have a 0.33 dB NF LNA with about 35 dB gain total in three stages. We are available for scheduled contacts at almost any time by email. (Use email above).

VK2CMP: Mick vk2cmp@me.com followed up in Nob on his 432 Contest successes in Oct -- I finished the EME Contest on 432 with a total of 53 QSOs over the two weekends. It was the first time that I cracked 50 QSOs in a contest; and so, I was happy with this result. In Nov I added initials with OK1CA, HG5BMU, EW7CC, G3LGR and DL4DTU; as well as, S51ZO after the contest. I am now in the nervous 90's for initials and am eying a particularly good bottle of rum to celebrate my initial #100*. Hopefully this is not in the too distant future. Unfortunately, the timing for the east coast of VK did not allow me to work the ZC4RH dxpedition. I now plan to do some maintenance on the 70 cm mast over Dec/Jan and have already had new footings dug and poured ready. I used a commercial Bobcat this time to dig a 2 m x 500 mm footing; and I gotta say it did leave me wondering why I dug

the last two tower and mast footings using a hand operated petrol auger!

W2HRO: Paul w2hro.fn20@gmail.com sends news on his recent EME – My focus the past month was on setting up for 902 EME. I have also been involved in improving the W2ZQ EME DVRA Club station. As there was no 902 activity during the Nov Contest weekend, I supported W2ZQ efforts. We had a nice group of first time EME operators. I find that FT8 is a good primer for digital EME. K1JT [DVRA member and EME station supporter] tells me that W2ZQ's total was competitive with last year's single band multi-op top score – it was a very nice effort for what was a first EME contest for most of the operators. [See the W2ZQ report in this NL]. **In other news, I worked K8ZR in Ohio for my 50th state on 1296! KA6U was in Ohio the next day, so I worked him as a backup.** The ARRL awards desk sent me an email that I was awarded 1296 WAS #9. It's a real honor to be in the top 10! I was not able to catch ZC4RH despite switching between V & H pol. For the 902 AW on 2/3/4 Dec, I helped K2UYH get set up again for 902. He was configured for circular pol (CP). I used the same patch feed design (scaled down to 902) with a 4-port quadrature hybrid as I used very successfully on 1296. At K2UYH we had an 8 m dish with 200 W at the feed. My idea was that CP would limit our possible cross-pol loss to 3 dB, but we would never see a deep cross-pol null. We were easily heard but our reception was poor due to cellular or WiFi noise. [See K2UYH's report]. In any event it was fun and we got lots of exercise during 3 days of climbing the ladder to the feed mounted equipment. I did not get my own home station going until the end of the AW. I did not have the noise problem that was experienced at K2UYH's QTH and was able to make several QSOs with my 2.4 m folding dish. I made my first 902 EME QSOs using my 3 m dish and 50 W with W5LUA but increased my power to over 200 W for K5DOG. I'm looking forward to the next 902 activity weekend at the end of Jan. In other news, NH6Y - Tom in Hawaii is now active on 432 with 2 yagis and 500 W.



W2ZQ 3 m dish used on 1296 in the ARRL Contest

W2ZQ: Paul (W2HRO) w2hro.fn20@gmail.com reports on the DVRA's ARRL EME Contest effort – This was our best results by far! We operated exclusively on 1296 multimode and ended with a claimed score of 128 x 52 or 665,600 points. The effort was led by K1JT with operators AC2YD, AD2CC, K3EA, KB2MT, W2HRO, W2LPL and WX2S; many of whom were first experiencing EME. The station consisted of a 3 m dish and 250 W (closer to 215 W at the feed). I think we did a great job! QSOs added using Q65C unless noted as CW were on 12 Nov DL4DTU, GOLBK, OK1KIR, DG5CST CW, SP9VFD CW, DF7KB, AC0RA, W5AFY, N0CTR, W5GLD, SP3YDE, PA3HDG, W5LUA, KD5FZX, K6VHF, OK1UGA, DF2VJ, WA3GFZ, ON4QQ, SK0CT, N9LHS, N9HF, OK2UZL, VE4SA, AA4MD, JS6UJS and UA9YLU, and on 13 Nov DL4DTU, UA5Y, SP7EXY, OK1DFC CW, F6COJ CW, NC1I, K8ZR, W1PV, W3HMS, DL8FBD, AE6GD, SV1CAL, GM0PJD, OK2ULQ, SM6PGP, W6TCP, OK1IL, LA3EQ, G3LTF CW and JH7OPT.

W4OP: Dale's parinc1@frontier.com operating time was limited during the final ARRL Contest weekend -- I only was able to operate a total of 5 hours, but managed 26 QSO's all on 1296 CW. It was nice to hear a good amount of CW activity. I hope to be more active during the 2023 Dubus Contests.

W5LUA: Al w5lua@sbcglobal.net devoted his report solely to 902 EME activities even though he worked some of the last weekend of the EME contest on 1296, and also worked KA6U and K1EEP in some new grids -- Thanks to N1AV for coordinating the 902 EME AW. We all had a great time on 902 for what lasted a week or so. On 3 Dec, I worked N1AV in DM43 AZ for a 902 initial. During the same evening, I worked AC0RA in EN42 IA, followed by KC0SKM and K0DAS who were part of a Cedar Rapids group [the Corn Field EMEers] and co-located. I then worked VE6TA followed by K2UYH and WA3RGQ. All QSOs made during the AW were with Q65C unless noted. During the following night on 4 Dec, I worked VE6TA, KL6M, and N0LNO from the Corn Field group. On 5 Dec, I had a repeat partial contact with K2UYH and QSO with N1AV. Later that evening I worked KL6M and VE6TA with (559) signals on CW. I had additional contacts on 8 Dec with N1AV, on 9 Dec with N1AV again followed by K5DOG, on 10 Dec another with K5DOG, and on 11 Dec W2HRO for an initial. Paul was running a 3 m dish and just 50 W. On 12 Dec Paul was able to up his power to 140 W and we had a second QSO. My system is a 5 m dish and 400 W in the shack from a pair of phased Motorola 300 W amplifiers. The coax to the feed was about 40' of Andrews 1/2" Helix. Most of these QSOs occurred just after moon rise due to the Moon coming up at later hours as the week progressed. One of our main goals was to look at Faraday rotation. Earlier in the week, it was appearing that signals were coming back in both polarities at W5LUA. This was traced to some stations using an X configuration for Vertical and Horizontal pol, while others such as myself are running Vertical and Horizontal in a + configuration. Because of this mismatch of 45 degs, I was seeing signals at both polarities on my end. Once we got synced up on polarity, we found

some pretty good nulls when switching 90 degrees on polarity. Some examples are signals as high as (20DB, 21DB, and 23DB) on N1AV but when I switched pol 90 degs, I had no decodes. The evidence points to a lack of Faraday rotation. This was consistent for hours. The only concern would be the spatial offset between 2 stations. This would be most noticeable when the lower 48 works KL7 and KH6. I think it is best to have both polarities and a quick way to switch between them. I use a patch feed and an N type D relay to switch between ports. My receive system is an old ATF-10135 LNA that I designed years ago at Avantek. Its noise figure is 0.3 dB and it is the only LNA at the feed. It feeds about 40' of 1/2" Heliac to a HB transverter in the shack that is preceded by a low loss Motorola 1/4 cavity filter with a 3 dB bandwidth of about 10 MHz. Looking forward to the next 902 AW adventure.

WA6PY: Paul pchominski@maxlinear.com reports on the last two legs of ARRL EME Contest -- I operated using CW only on 432 and 1296. I started on 70 cm and QSO'd 15 Oct I2FHW and KL6M; and on 16 Nov DL7APV and OK1CA for a total of 4x4. I heard some relatively strong JT stations, but only DL7APV responded to my CW call. I heard my echoes on the same polarization as my TX signals. DL7APV was very strong on horiz pol (579) and only traces of his signals were copied on vert; therefore, I called him on horiz, but he responded only with QRZ. When I switched to vertical, I received a (559) report. I am still using only a single 8 WL cross yagi. On 1296 I QSO'd on 15/16 Oct IK3MAC, DL6SH, G4CCH, OH2DG, F5KUG, VE6BGT, OK1DFC, N8CQ, OH1LRY, VE6TA, OK2ULQ, NQ7B, SA6BUN, OZ4MM, SM5DGX, SP7DCS, SM6FHZ, F6CGJ, SP9VFD, SP6ITF, JH1KRC, VK5MC, K3WM, K2UYH, OK1CA, I1NDP, OK1KKD, CT1FGW, DF3RU, SM6CKU, IK1FJI, IK3COJ, OK2DL, VE4MA, KL6M, LZ2US and WK9P for a total of 37x20. During the Nov leg I added on 1296 on 12/13 Nov W4OP, PA3FXB, SP3XBO, UA9FAD, VE6BGT DUP, NQ7B DUP, VA7MM, DG5CST, 9A5AA, SP3YDE, N5BF, LZ1DZ, SP9VFD DUP, IQ2DB, PI9CAM, UA5Y, IW2FZR, G3LTF, PA3DZL, IK2DDR DUP and LA9NEA for a Nov added total of 21 and 5 new mults for an overall total on 1296 of 58x25. Stations from EU came with relatively high libration. Strange thing is that some station had less libration than the others. I don't know why; I started to suspect that maybe not good circular pol may have an impact. I had a hard time to copy LA9NEA; his signals were so badly chopped that the letter E sounded like the letter I. I started to key very slow, as this would have helped me to copy; but LA9NEA didn't follow my speed. His signal was not that bad, and moving my S-meter by 6 dB. When my window starts at an EL of about 14 degs, I have a partial dish blockage that not only lowers the effective Gain, but also increases the noise floor. Stations calling me at this time without success should try again later.

WC8RK: Joe (WA8OGS) gkreute@gmail.com and Richard (WC8RK) operated the ARRL Contest together on 432 -- We had relay problems during the Nov weekend. On 12 Nov, we made only three contacts with PA4VHF, K5DOG and N9HG. At 0825 we decoded K2UYH at (19DB) calling us. Signal levels were changing fast. Conditions at our

(EM79ui) QTH seemed poor, and the relay/sequencer problems also prevented operation on Nov 13. During the 15/16 Oct weekend (our first EME contest), we completed 9 contacts the first night and 11 the second night with AA5C, DK3WG, DL4ZAG, DL5FN, DL7APV, DL8DAU, DL8GP, G4RGK, HB9Q, K5QE, KD2LGX, KU4XO, OH6UW, PA3CSG, PA3FWV, RD3FD, SM3LBN, UA3PTW, UA5Y and ZS4TG. On 16 Oct at 0922, we decoded both SM3LBN and DL8GP answering our CQ, and were able to work them both. We thus ended with a total of 25x15. Equipment used is a homebrew 70 cm H-frame array of 4x15 el LFA yagis horiz pol, IC-9700 and a 500 W amp. We completed building two new yagis; YU7EF's 21 el EF7021 yagis 5.3 m (17.4') boom and approx 18.6 dBi gain, using type 61 material ferrite cores that clamp over the coax at the feed-point. Mounting these vertically polarized will allow us to transmit with 4x15 horiz yagis, and select either the 2x21 vert or 4x15 horiz for receiving.

WD5AGO: Tommy wd5ago@hotmail.com after a while sends some news on his EME from OK -- I got part of my 432-array going again for the ARRL EME Contest but ran into several TX problems. There seems to be a lot more birdies (about every 10 to 12 kHz) and general noise on the band than I remember from 10 years ago. I have decided to rebuild my old 16 x 10 el K5GW yagis array. The yagis are being modified to a 11 el design with a lower noise temp. Testing has shown an improvement. I hope to have all 16 or even 24 of them updated and on the air in Jan. I am advising a student engineering team at OSU with their senior design project, which is an EME system consisting of a 4 x 14 el yagis array and 600 W SSPA. They blew their pre-amp during the Nov contest, their first outing. With a few of them, we did receive several EME signals. It was just too cold to operate outside. We hope to be QRV again in Jan. [The Dubus 70 cm contest is on 25/26 Feb]. If they use CW, I will be at the key, else they will use WSJT for the majority of future contacts.

WK9P: Tim тчerrone@yahoo.com was active on 1296 for the final leg of the ARRL Contest -- I had some family concerns (my son was in an accident; he will be fine in time) that slowed my EME efforts since the Oct leg. With the moonpasses not during hospital visiting or work hours, I settled in to the shack in my sleep deprived state. I had a great time on 12 Nov, although had to shut down early, too tired. I did battle keeping the el tracking in 45 mph wind. On 13 Nov at one point the dish was taking on snow and the AZ stalled out. I went outside wearing shorts and cleaned out the snow, climbed up to free the AZ drive. This must have been an interesting site for my new neighbors at 2:00 am LT. Got it going and picked up two more contacts. It was not my best year but not my worst.

ZC4RH: Chris (PA2CHR) post@pa2chr.nl sends the story and results of the Cyprus SBA [(S)overeign (B)ase (A)real d]xpediti]on -- We finished the VHF/UHF activity from Cyprus SBA and are happy with the results. It was very good to be able to assist making ZC4RH available on EME. Dave became very interested EME and maybe will

do another activity in the future, or even join us while at another DXCC. In Dec I had a QSO with Dave on the QO-100 satellite. This was the start of email contact with him. As it is not possible to get a license for the ZC4 entity for anyone who does not belong to UK military; he proposed to obtain equipment and knowledge needed to be able to become active on EME. So, preparations started to find a suitable location, which was not easy. No hotels or B&B's are there. I went to Cyprus in June; and with Dave found a good place to stay owned by UK veterans. We then needed an official confirmation and permit to use this location. This was received in Oct. We then had to arrange for flights. Airline tickets are still not too expensive, but the transport of 190 kg of luggage is another story. With the great help of a friend, it was possible to send about 110 kg by UPS to a storage place in Nicosia. The rest of the equipment, we took in 4 suitcases with us on the flights. On 8 Nov, Jos (PA3FYC, the 3rd member of the team) and I flew to Larnaca and met Dave at the dxpedition location. We started building up the antennas on the flat roof of the building. On 10 Nov, Friday morning we were able to run the 1st 144 EME. 2 m worked well expect for a problem with a TR relay that was fixed. **On 11 Nov we started running 2 m and 23 cm simultaneously.** After working 10 stations, we noticed some noise on 144 produced by the 1296 SSPA power supply. We then switched to plan B. **We delayed further 1296 activity until after the first 5 moonpasses.** 1296 started again on 15 Nov. 2m operation ended with 213 initials. For some unknown reason the 1296 SSPA produced less power than expected, probably only about 70 to 80 W out. It was tested before at 140 W. **We thus did not do as well as at previous locations with higher power.** Up to now with the SSPA close to the 67 el yagi worked well as long there is no rain. **The receiving part worked very well and there was also no QRM at all on 23 cm. We end working 32 initials.** The 432 rig worked also fine, but on this band we had some QRM on different frequencies with sometimes a couple of birdies close to each other. **54 initials were worked with the X-pol. antenna with 27 el. horiz and 23 el vert.** This amount of QSO's is more than ever before with this setup. QSLs can be send to PA2CHR direct with SAE and minimum 2 EU/\$ for postage. Every sponsor will receive his QSL direct. We will do an LotW upload soon. We hope to see/work you again in the future.

K2UYH: My (AI) alkatz@tcnj.edu My Nov Moon time was again mainly during ARRL Contest weekend but on 432 rather than 1296 – This time I had a storm with very high wind right at the beginning of my contest Moon window. I worked on 70 cm on 12 Nov using Q65B at 0422 DL7APV (18DB/11DB); realized that I had a serious wind problem. I had to stop operation and theater the dish for a few hours. The wind died down enough at around 0700 to begin operation again. I QSO'd using Q65B at 0705 KU4XO (18DB/24DB) SC, 0726 K5QE (18DB/11DB) TX, 0757 HB9Q (8DB/8DB), 0825 WC8RK (18DB/11DB) KY and mixed initial #1075*, 0905 PA4VHF (15DB/17DB), 0908 KD2LGX (13DB/24DB) NY, 0913 DL1VPL (20DB/18DB) #1076*, 0918 N1AV (23DB/17DB) NV, 0922 ON4AOI (18DB/11DB), 0928 PA2V (9DB/20DB), 0930 G4R GK

(17DB/17DB), 0948 OH3AWW (24DB/16DB), 0955 K7ATN (25DB/25DB) OR #1077*, 1032 W4ZST (18DB/11DB) GA, 1100 SM4GGC (18DB/11DB), 1202 JR7PJS (20DB/20DB), 1212 K7KQA (23DB/22DB) WA #1078*, 1222 NN3Y (18DB/28DB) FL, 1230 VK3CMP (18DB/28DB) #1079*, 1239 VK4EME (15DB/16DB), 1246 7M2PDT (25DB/22DB) and 1314 JF6CTK (17DB/16DB); and on 12 Nov (I decided to stay on 432 because of prime EU time lost in the 1st pass) at 0451 K4EME (18DB/8DB) VA, 0504 W7MEM (19DB/15DB) ID, 0510 YL0RHI (17DB/16DB), 0515 UX0FF (17DB/16DB), 0525 K7ULS (26DB/22DB) MT, 0529 LU8ENU (22DB/26DB), 0545 K0PRT (18DB/13DB) CO #1080*, 0554 ZS4XT (8DB/13DB) #1081*, 0600 VE4MA (14DB/21DB), 0604 AE6EQ (16DB/16DB) CA #1082*, 0620 K1DS (22DB/16DB) FL, 0628 DL5DLW (20DB/17DB) #1083*, 0634 PA3FWB (14DB/21DB) #1084*, 0642 RD3FD (14DB/19DB), 0655 LU1CBG (21DB/19DB), 0705 OK1TEH (17DB/16DB), 0712 SV8CS (25DB/18DB), 0726 OH3DP (24DB/23DB) #1085*, YL2GD (17DB/22DB), 0753 OH1LRP (13DB/22DB) #1086*, 0837 VE6TA (15DB/8DB), **0843 EW7CC (23DB/15DB) #1087* and DXCC 139***, 0859 S57M (9DB/24DB), 0951 PI9CAM (7DB/5DB), 1025 S56P (14DB/17DB), 1040 R1NW (17DB/18DB), 1050 DF2JV (17DB/16DB) #1088*, 1224 AA5C (18DB/16DB) TX, 1235 JH7OPT (15DB/16DB), 1326 K5DOG (14DB/15DB) TX, 1334 N1OG (14DB/19DB) ID #1089*, 1340 JG2XWH (19DB/24DB) #1090*and **1527 BV3CE (16DB/19DB) #1091** for total on 432 of 57x32. With our Oct total on 1296 of 107x45, MW total of 44x36, and K2TXB's 144 contribution of 87x44 for a total 295x157x100 = points in the multiop, multimode class. This was not our best, but a lot of fun. The ops this year were in addition to me where K2TXB (2 m), W2HRO and NE2U. **After the contest I worked on 16 Nov on 1296 using Q65C at 0756 ZC4RH (22DB/18DB) for #752* and DXCC 124***, and on 18 Nov on 432 using Q65B at 0908 ZC4RH (22DB/21DB) for **#1093* and DXCC 140***. I was also on for the 902 AW thanks to the support of W2HRO. We set up Friday afternoon on 2 Dec with one of Paul's patch feeds fed with a quadrature hybrid for circular pol, a 200 W modified Moto SSPA and transverter to 144. Everything was feed down a single feedline to my TS2000X in the shack. I use the same arrangement of the MW bands. There was a great deal of noise (QRM) that made my SDR useless for any quantitative noise measurement. We could see there was a difference between ground and cold sky but not much more. As soon as the Moon was somewhat clear of the trees to the east, we looked for echoes. I was quite sure we were seeing/hearing them, but they were much weaker than we expected. I added a cavity filter after the preamp. It did not seem to help very much. We then started to look for stations but did not find any until W5LUA showed up. We were able on 3 Dec to work using Q65C at 0227 W5LUA (18DB/15DB) followed by at 0308 VE6TA (15DB/17DB) Q65C and 0326 AC0RA (26DB/24DB) for mixed initial #5* and a new State. We also tried with K0DAS and N1AV without success although both were coping me. Al reported that we were not on frequency and drifting. The next day, 4 Dec, we connected a 10 MHz reference to the transverter and adjusted its gain. We also

tried putting the filter in front on the preamp. Nothing seemed to work. Later in the evening KL6M showed up with a big signal, but a huge drift. Before I could work out a way to decode him, he left for dinner. Mike returned a little later with a much more stable signal but I again could not decode him. However, before I had much time to try, he lost his preamp and went QRT. I returned to 902 on 5 dec and tested with W5LUA. AI found me but I was never able to decode him. W2HRO now his system at his home station working well. Paul does not seem to have the level of noise that I have here and has been able to QSO almost all the stations QRV on 902.

LOGGER/NET NEWS: G4RFR was to be active on 10368 on 21 Nov using Q65-60/CW/SSB with their 12' dish and 200 W. [Thus far no reports on results have been received]. **N6QVP** is improving his station to have a better window to EU. Dave has increased his dish size to 12' and moved its position to now be able to see an AZ of about 100 degs. **N8CQ** is interested 902 EME and hopes to be QRV for the next AW. **VP9NO** is interested in advice on setting up for 432 EME from Bermuda. He already has a 50 ~ 80 W and 13 el yagi (designed for 433 MHz). Dominic sunday.weaver@gmail.com wonders if he could make QSOs on EME using such a setup? [If the yagi works on 432, you should be able to make QSOs]. **W3HMS** was QRV on 1296 during the contest using Q65C to make 19 QSOs. John used a 3 m dish and 450 W.

FOR SALE: PA3DZL has available 6 cm 40 W SSPAs. They require about 50 mW of drive and offer very good protection with isolators between MMIC and Power FET and at output. Contact Jac for more info. He also has directional couplers at 6 dB, 10 dB and 21 dB all with 50 W power rating for EU20 each (shipping not included). If interested email pa3dzl@icloud.com. **OK1TEH** has 10 GHz OK1FPC transverters for sale, see https://ok2kkw.com/next/ok1fpc_10g.pdf. If interested write to ok1teh@seznam.cz. **SM5DGX** has for sale 1296 high power SSPA deals: 1) Highest quality PCB to make NXP MRF13750 SSPA for 1296 producing 700 W out with 50 volts supply for 700 SEK (including shipping). 2) PCB and all components for bias and RF for the SSPA but without transistor for 2100 SEK (including shipping). (You solder components with hi temp solder. Solder transistor with soft solder). 3) Power supply for SSPA, Eltek flatpack, programmed to 50 V 3 kW with PCB for connection of 220 V in and 50 V out for 2000 SEK + shipping. 4) Low noise, hi Gain LNA with 2x sky67151 that is good for 21 dBm input (don't need so good protection relay) for 1296 and 432, broadband, better than 0.3 dB NF (typ 0.26-0.28 dB) and more than 30 dB gain (40 dB on 432) for 1400 SEK (including shipping). See sm5dgx.se for more info, all schematics, etc. If interested email Anders jatk@live.se. **SM6FHZ** has for sale several high quality power meter heads and cables. If interested contact Ingolf directly at ingolf.fhz@gmail.com. **YU1CF** announces the availability of a 23 cm 300 W Band-Pass filter with super low loss. See <https://antennas-amplifiers.com/product/band-pass-filter/23cm-band-pass-filter/23cm-band-pass-filter-300w/>. **UR5LX** is looking for SSPA for 140-160 and 400-440 MHz.

Output power 200-300 W with 1-5 W drive. Perhaps someone who has an extra and not very expensive SSPA. If so, let Sergey know at email ur5lx@ukr.net.

TECH: Elevation Sensor Calibration from HB9DUK – To calibrate. I use the OE5JFL control and after finding max Sun or Moon, I just push the correct button ... and it will set the new offset. [The W2DRZ and other trackers now offer this same feature]. The way my dish mounting (1.8 m offset) is done. It should be correct for all positions (using exactly central mounted 12 bit coders). However, my elevation axis rod is too thin (only 20 mm and it is subject to torsion. Particularly noticed between 0 and 60 deg of el. If I had to construct again, I would use a 50 mm rod. BTW LIDL has sold a inclinometer (about 10~15 EU or so) with 0.01 deg resolution and supposedly a 0.05 deg accuracy. I have one that I use as a sanity check in parallel with my OE5JFL FIP display. (I have removed the LCD and placed it via 4wire into the shack).

New Yagi Element Mounting from WC8RK -- No holes are drilled in the boom! Cable ties hold each "Stauff" clamp and element to the boom. Both our 70 cm 4x15 ele LFAs and our 2x21el (EF7021) yagis are mounted above the round aluminum boom using industrial Stauff clamps with standoff insulators. These clamps are made of polypropylene PP material (green in color), with sizes available for many different boom diameters. Stauff clamps are also available in aluminum, usable for boom-to-mast plate clamps. Black nylon standoff spacers 12 mm OD, 5 to 8 mm ID and 30 mm long fit into the Stauff clamp mounting holes, and can be secured using industrial UV resistant adhesive such as E6800. These standoffs are available from several sources including Grainger (black nylon spacers 3ZMU9). We initially used one long cable tie to attach each element. With this latest 2x21 el (EF7021) yagi build, I found it much easier to first attach the Stauff clamps to the boom with a cable tie. Then use another cable tie to attach the element to the Stauff clamp. This gives the additional benefit of having two ties holding the Stauff clamp tightly to the boom.

Moon Position Map from DL3WDG -- For an at-a-glance view of where the moon is currently visible, and many other useful things, the program by G4ELI is worth a look: <https://www.g4eli.com/world-map>

RADIO-ASTRONOMY CORNER: In pace of the regular radio astronomy update we have a Holiday treat that will illustrate Moon-Earth geometry. Because of size, we will email separately.

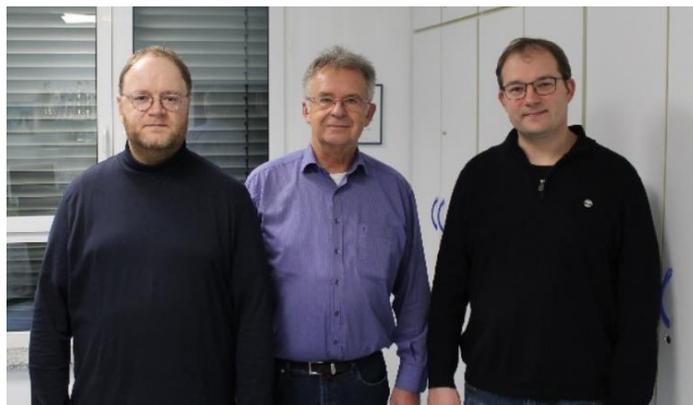
FINAL: We are again running a bit late. We had wanted to express our Holiday Greetings before Christmas (and the end of Hanukah). However, we have not missed any expeditions or contest dates.

► **I5WBE** writes that you can find the results of ARI EME Autumn Section 2022 and ARI EME Trophy 2022 at URL <http://www.eme2008.org/ari-eme/contest2022.html>. **The 432 and above winners were listed in the last NL.**

Awards for ARI EME Contest 2022-2021- 2020-2019-2018-2017-2016- 2015 at <http://ari.it/eme/awards.html>. The next ARI EME Contest will be on 1/2 April for the ARI EME Spring Contest. The rules can be found at <http://www.eme2008.org/ari-eme/contest2023.html>. Enrico sends his congratulations to all the Winner and TNX to all participants.

► **DK7LJ** reports the 10 GHz Beacon is down again. The good news is that the AZ drive is repaired. However; the SSPA has failed. Per has tried to repair it, but with -5 deg C temps and 12 cm of snow, it may take some time.

► Matej and OK1VPZ visited on 2 Dec DB6NT at his company together with his son DK5NJ. While Michael is true SHF legend, you may not know that he isn't working for the Kuhne company anymore. He is retired, but he has an arrangement to use the property for the EME operation with his 3.7 m solid dish. Kuhne was sold recently to Alaris Holding; however, this will not affect the production for amateur radio. The labs will stay in Berg city. The main problem that is limiting production is the lack of some special components – this a problem of the whole RF/microwave industry. It has especially badly affected the production of 2 m transverters and 47 GHz PAs. Michael is aware of the need for high-power PA for 24 GHz by the EME community. They are searching for devices for their 10 W SSPA. Michael is primarily interested doing CW EME. His rotator controlled to with 0.01 deg step with a special system of his own, similar to OE5JFL's system. On 10 and 24 GHz, he uses TWTAs. His feed can be easily replaced for switching bands in contests. What I liked was the LO reference. The whole Kuhne company has fiber-network in every room, so 10 MHz from an HP reference (I think cesium standard) is distributed everywhere. Related to the super-microwave bands, I was interested in his 200 mW system for 241 GHz. It was nice to see how it's works. The tripod is mechanically designed for stability. I was surprised by his use of 30 cm dishes made by OE5VRL. A 2nd station with a light-weight dish is used for the optical communication. It's easy to replace the 241 GHz by the red-laser. Michael is preparing something new for the laser communication. Many thanks for the nice visit.



OK1TEH, DB6NT and DK5NJ during Kuhne plant visit



DB6NT with his 241 GHz Station

► **K7ATN** who operate back pack EME (see Etienne's report) writes that when operating EME out in the wilderness, I sometimes feel like I am touching the Moon. The following story, painted by Hokusai, reminds me of these moments.

"One day during the Autumn moon festival, Zhou Sheng stayed at a Buddhist temple and overheard a group of pilgrims lamenting that they would never see the legendary Palace of the Moon for themselves. Zhou fashioned an adder of clouds, climbed to the moon and descended with it for the pilgrims to see."



Daoist master Zhou Sheng ascends a cloud-ladder to the moon

► Thank you to everyone who participated in the ARRL EME Contest WE. We both had a great time. We are now thinking about the 1296 SSB Funtest in Jan and the 70 cm Dubus Contest weekend in Feb. We be looking for you off the Moon. Have a wonderful heathy, happy and EME DX filled 2023. **73, AI – K2UYH and Matej – OK1TEH**

Lunar weekend calendar 2023 by DL7APV

2400_Sat/ 0000 Sun	Decl/ °	Loss/ dB	Sun off- set/ °	Temp 432/ K	contest dates & meetings	Comments
Jan 07/08	+11,3	-1,2	-111	30		Day PM
Jan 14/15	-8,5	-1,2	92	30		Day AM
Jan 21/22	-24,7	+0,3	-6	30		Sun noise
Jan 28/29	+15,4	-1,2	-92	35	1296 SSB Funtest 1700 to 1700 28/29 Jan	Day PM
Feb 04/05	+22,8	-2,0	-176	20		Night
Feb 11/12	-13,0	-1,2	111	30		Day AM
Feb 18/19	-22,6	+0,2	13	30		Sun close
Feb 25/26	+18,7	-1,2	-73	35	REF/DUBUS 2/70	Day PM
Mar 04/05	+20,2	-1,9	-158	15	REF/DUBUS 9 cm Eu VHF/UHF Tropo	Night
Mar 11/12	-17,2	-1,1	129	35		Day AM
Mar 18/19	-19,9	0	32	25		Day AM
Mar 25/26	+21,4	-1,1	-54	35	REF/DUBUS 13cm [*13cm EME on SSB FUNTEST FRIDAY 24 MARCH]	Day PM
Apr 01/02	+17,4	-1,8	-138	20	ARI Spring EME Contest	Day PM
Apr 08/09	-21,0	-0,9	147	40		Night
Apr 15/16	-16,3	-0,2	49	25		Day AM
Apr 22/23	+23,5	-1,2	-34	35	REF/DUBUS 23cm	Day PM
Apr 29/30	+14,3	-1,8	-118	20		Day PM
May 06/07	-24,0	-0,6	165	45	Eu VHF/UHF Tropo	Night
May 13/14	-11,9	-0,4	67	25		Day AM
May 20/21	+25,2	-1,3	-16	45	Xenia HAMvention REF/DUBUS 3cm	Sun close
May 27/28	+10,8	-1,8	-98	20		Day PM
June 03/04	-26,2	-0,4	-177	80	EU 23&up Tropo	Night
June 10/11	-7	-0,4	85	25	ARRL VHF Tropo	Day AM
June 17/18	+26,4	-1,5	2	45		Sun noise
June 24/25	+7	-1,8	-78	20	HAM Radio	Day PM
July 01/02	-27,7	-0,2	-158	160	Eu VHF/UHF Tropo	Night
July 08/09	-1,9	-0,4	103	25		Day AM
July 15/16	+27	-1,7	20	40	CQ WW VHF REF/DUBUS 6cm	Sun close
July 22/23	+2,9	-1,8	-58	25		Day PM
July 29/30	-28,6	-0,2	-140	260		Night
Aug 05/06	+2,9	-0,3	122	25	ARRL UHF Tropo	Day AM
Aug 12/13	+26,9	-1,8	37	30	ARRL EME 13cm & up	Day AM
Aug 19/20	-1,5	-1,8	-38	30		Day PM
Aug 26/27	-28,9	-0,3	-122	160		Day PM
Sept 02/03	+7,1	-0,2	142	25	Eu VHF Tropo	Night
Sept 09/10	+26	-1,8	54	25	ARRL Tropo & EME 13cm up & Weinheim	Day AM
Sept 16/17	-5,8	-1,7	-19	30		Sun close
Sept 23/24	-28,3	-0,4	-105	60		Day PM
Oct 00/01	+10,9	-0,2	162	30	ARI Fall EME Contest	Night
Oct 07/08	+24,5	-1,8	73	20	Eu UHF Tropo	Day AM
Oct 14/15	-10	-1,5	1	30		Sun noise
Oct 21/22	-26,7	-0,5	-89	40		Day PM
Oct 28/29	+14,4	-0,3	-177	30	ARRL EME 6m-23cm	Night
Nov 04/05	+22,5	-1,8	92	20	Eu VHF CW Tropo	Day AM
Nov 11/12	-13,7	-1,3	21	30		Sun close
Nov 18/19	-23,9	-0,4	-73	30		Day PM
Nov 25/26	+17,8	-0,6	-158	35	ARRL EME 6m-23cm	Night
Dec 02/03	+20	-1,8	111	15		Day AM
Dec 09/10	-17,1	-1,2	41	35		Day AM
Dec 16/17	-20,4	-0,2	-57	30		Day PM
Dec 23/24	+21,2	-0,9	-140	35	Xmas	Night
Dec 30/31	+16,9	-1,8	131	20	HNY	Day AM