432 AND ABOVE EME NEWS
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CONDITIONS: The F5SE Memorial 1296 SSB Funtest was the big event in Jan. For once the weather (WX) was not bad and the hours reasonable, but the activity was down from last year. This was particularly evident in North America. **The Top Fun maker was DG5CST with 36 QSOs and 108,000 points** compared to PI9CAM who last year had 40 QSOs and 134,300 points, but did not compete this year. OK2DL was in 2nd place with 76,800 points compared to 127,800 points last year when Marek was also in 2nd place.

It shall be interested to see how the turnout will be during the new 13 cm SSB Funtest scheduled for Friday 24 March (0000 to 2400) the day before the 13 cm Dubus/REF CW Contest weekend (WE). One of the big differences between the Funtest and the Dubus Contest is that the prohibition on the use of Loggers is relaxed. [Comments such as “TU FB QSO”, “GM..”, “73”, etc. are OK]. The Funtest is meant to be a *fun* event and not a serious contest. [See the rules in the last NL]. Then directly following will be the more serious but also fun Dubus 13 cm CW Contest WE on 25/26 March.

The Feb fun is not over, you do not want to miss the DUBUS/REF 70 cm (also 2 m) Contest WE coming right up on 25/26 Feb. This is a good time to show 70 cm CW is not dead. The Dubus 9 cm CW Contest WE will follow on 4/5 March.

Jan/Feb was a good month for dxpeditions. The **PJ2T** (FK52) dxpedition to Curacao on 1296 ended up giving out 51 new DXCCs – see Gene report in this NL. The **JD1YCC** dxpedition to Ogasawara chichi island (QL17cc) despite problems on both 70 and 23 cm still gave out many initials and DXCCs. See their report in this NL. They promise to return next year. N1AV is heading back to Hawaii (**N1V**) for 1296 and 902 EME on 5-9 March. **SV8/DF2ZC** from Santorini is cancelled; however, they now plan to be QRV from **SV5**, Rhodes (KM46CK) from 30 March to 4 April. Flights are already booked. Operation is planned by DH7FB and DF2ZC with help of SV5BYR on 70 cm (& 2 m).

State dxpedition activity continues by **KA6U** with activity from NM and KN plus multiple new grids. Recent WAS successes are in no small measure due to efforts as these. **NH6Y** is now permanently QRV from his home QTH in HI on 432 EME.

Congratulations go to HB9Q for receipt of 1296 WAS #6, VE4MA #8 and N5BF for WAS (#?), and to W5AFY for 432 WAS #31. Also IK2COJ reports completing 1296 DXCC on 21 Feb with ZL1NJR!

BV3CE’s 4 x 20 el yagis on 70 cm

BV3CE: Tom tom33638998@yahoo.com.tw sends an update on his Moon activity -- After few years absence from EME, I am back with 4 x 20 el yagis on 70 cm. The bigger array helps to make QSOs. It is much easier than with my previous 2 yagis. As before, the antenna is is on the roof of my QTH. Due to the obstructions, I am limited to 17 degs (AZ 0 to ~140 degs) on moonrise. However, moonset is almost at the horizon (for AZ 150~360 degs). I have installed a HB BPF to prevent out of band QRM from desensing my LNA. I have the same 500 W PA and 0.45 dB LNA. Between Oct and Feb, I worked DL7APV, ON4AOI, OH2DG, PA3DZL, VK2CMP, S57M, S56P, G4RGK, NC1I, VK4EME, K5DOG, K2UYH, W7MEM, VE6TA, JF6CTK, DL1VPL, DG5CST, JR7PJS, JE1TNL, W2HRO, ZS4TX, ZS6JON, G4YTL, RD3FD, DL4DTU, JH7OPT, OH3AWW, DL8DAU, W5LUA, PA2V, EA5CJ, PA3FWV, YO8RHI and N9XG. All contacts were on Q6560. Please email me for skeds. I am planning to build a 1.5 kW 70 cm SSPA. My goal is to hear regularly hear

my echoes from Moon, and start operating CW even SSB with a bigger array in the future. For my new SSPA, I want to use 2 LDMOS devices. Does anyone have experience using big LDMOS devices; and which are best? Please share your ideas with me.

DG5CST: Sebastian dg5cst@googlemail.com did outstandingly in the 1296 SSB Funtest – I made 36 SSB QSOs in 15 sectors for (36x15x2x100) =108,000 points. All QSOs were SSB to SSB. Worked on 28 Jan were at 1708 SM6CKU (59/59) JO, 1710 OZ6OL (55/56) JO, 1713 G3LTF (57/57) IO, 1720 DF3RU (57/58) JN, 1728 SP3XBO (55/57) JO, 1729 OK2ULQ (56/57) JN, 1733 LX1DB (59/59) JN, 1734 SA6BUN (57/57) JO, 1751 DL6SH (58/59) JN, 1812 OK2PE (53/57) JN, 1819 OH2DG (57/58) KP, 1839 OK2DL (59/59) JN, 1845 DJ7FJ (54/57) JN, 1850 DL7UDA (55/57) JO, 1905 WA9FWD 53/57) EN, 1907 DL1SUZ (54/56) JO, 1910 LZ1DX (57/58) KN, 1951 K2UYH (57/57) FN, 1956 RA3EME (56/59) KO, 1958 VE4SA (55/53) EO, 2006 XE1XA (55/53) EK, 2030 VE6TA (55/57) DO, 2037 W2ZQ (53/57) FN, 2109 WA6PY (55/56) DM, 2125 K7EME (53/56) CN and 2134 SP6ITF (54/59) JO, and on 29 Jan at 1141 SM5DGX (57/58) JO, 1210 G4CCH (57/58) IO, 1214 VK2JDS (55/55) QF, 1241 PA0PLY (55/55) JO, 1312 IK1FJI (56/56) JN, 1318 IK3COJ (55/56) JN, 1330 I1NDP (59/59) JN, 1513 IK2DDR (55/53) JN, 1557 EA1IW (53/53) IN and 1620 M0DTS (54/55) IO.

DK3WG: Jurg dk3wg@darc.de reports on his Jan results – I added initials on 70 cm using Q65B with NH6Y in HI, and on 23 cm using Q65C with KA6U in grids DM85, DM97 and DM96, and WH6A in FL.

DL1SUZ: Uwe dl1suz@t-online.de made some 1296 EME SSB contacts during the SSB Funtest -- I QSO'd both DG5CST and OK2DL on SSB for a score 2x2x2x100 = 800 points! I also made CW initials with SA6BUN, LZ1DX, DL6SH und IK1FJI. My rig is a 3.2 m dish and 300 W. I'm working to complete my equipment for 9 cm EME and hope to make the 9 cm Dubus Contest weekend on 4/5 March. I will start with 50 W and a DDK 0.5 dB NF LNA with my present dish.

DL1SUZ's 3.2 m used 0n 23 and 13 cm

DL6SH: Slawek dl6sh@online.de made an excellent showing in the 1296 SSB EME Funtest – QSO'd on SSB were on 28 Jan at 1712 SA6BUN (57/56) JO, 1724 G3LTF (57/56) IO, 1732 DF3RU (57/57) JN, 1735 OK2ULQ (56/57) JN, 1738 SM6CKU (58/58) JO, 1743 OZ6OL (56/55) JO, 1746 SP3XBO (56/56) JO, 1752 DG5CST (58/59) JO, 1805 LZ1DX (56/57) KN, 1811 IK3COJ (55/54) JN and 1829 OH2DG (55/55) KP, 1833 OK2DL (58/59) JN, 1858 DJ7FJ (55/56) JN, 1914 LX1DB (58/58) JN and 2053 K2UYH (57/55) FN, and on 29 Jan at 1149 SM5DGX (57/56) JO, 1224 G4CCH (57/57) IO, 1241 VK2JDS (55/57) QF, 1257 PA0PLY (55/54) JO, 1307 IK1FJI (56/55) JN, 1317 OK2PE (55/56) JN, 1415 I1NDP (59/57) JN and 1526 DL7UDA (56/55) JO for a total of 23x7x2x100 = 32,200 points. I also made 3 CW QSOs with XE1XA (569/579), DL1SUZ (559/549) and IK2DDR (549/579).

DL7UDA: Dietmar dl7uda@online.de reports on his results in the 1296 Funtest – On SSB I QSO'd on 28 Jan at 1756 SM6CKU JO, 1848 DG5CST JO, 1904 OK2DL JN and 2031 LX1DB JN, and on 29 Jan at 1341 DF3RU JN, 1418 I1NDP JN, 1452 OH2DG KP, 1524 DL6SH JN and 1535 LZ1DX KN. My score was 9x4x2x100 = 7,200 point.

G3LTF: Peter g3ltf@btinternet.com sends his EME Report for Jan – I made my first 1296 QSOs of the New Year on 28 Jan before the start of the SSB Funtest on CW with DF3RU, LA9NEA and JH1KRC, and on SSB with SA6BUN. In the contest I worked all on SSB unless noted starting on 28 Jan at 1700 SM6CKU, OZ6OL, DG5CST, DL6SH, SA6BUN, DF3RU, OK2ULQ, RA3EME, LX1DB, G4CCH, OK2DL, VE6TA and K2UYH, and on 29 Jan LZ1DX, IK1FJI, I1NDP, IK2DDR, IK3COJ (SSB/CW) and OK2PE. DL7UDA then called me but my RX front-end failed and we didn't complete. I had 19 completed QSOs, which I was very pleased with for a score of (18x2+1)x7x100 = 25,900. I also heard during the contest OH2DG on SSB, and on CW N7QB and WA6PY. I was running between 300 and 350 W with the speech processor in for most of the time at the feed of my 6 m dish. On 31 Jan after having checked out the LNA and relay and found nothing wrong, I worked on CW IK2DDR, UA9YLU for initial #531 and VE6TA. The contest was a lot of fun, and it was really nice to hear the voices of so many old friends. Thanks Al for organizing it. I was disappointed in the low level of NA activity. There are a lot of NA stations in the 3.5m / 350 W and above class who could have made contacts. Are people there only interested in digi QSOs?
I am looking forward to the DUBUS/REF 432 CW Contest coming soon, near the end of Feb.

GI7UGV: John gi7ugv@johngrant.com had been considering getting on 3 cm; here is his story – I had success tracking the Moon and receiving DL0SHF and others using an LNB on a 1.2 m dish. As part of my testing, I temporally attached (temporarily held in place with electrical tape) my existing portable 3 cm tropo system with a 9.5 W SSPA to the dish; just to see how the receive side compared. Signals were significantly down compared to the LNB. This was not unexpected with no LNA and a bad temporary feed setup. I speculatively transmitted to

G4RFR assuming with my low power and lossy feed I would not be heard. Thus, I was extremely surprised when I got a response and completed my first 3 cm EME QSO with them! This was followed by initials with OK1KIR and OZ1LPR, confirming it wasn't some sort of fluke! I'm now putting together a more appropriate EME setup with more power and properly mounted on the dish. I will hopefully be fully operational in a couple of months and am looking forward to making many more contacts.

GI7UGV's 1.2 m tropo dish used on 3 cm EME

HB9Q: Dan dan@hb9q.ch updates us on his recent Moon activity from 18 Sept to 5 Feb -- In Oct we were awarded WAS #6 on 1296. Many thanks to all our friends who helped make this honor possible! I have put together a summary of initials worked since Sept. All initials were using Q65 unless noted. They were **on 432:** WR8AA (FMØ9) 4 x12 el yagis & 500 W, UA5Y 5 m dish & 1 kW, N4OGW with 2 x18 el yagi & 100 W, 7M2NZN 2 x 25 el yagis & 50 W, JR5FGP 2 x 18 el yagis & 50 W, VK2XN single 19 el yagi & 120 W, WA3RGQ 3 m dish, **G3YEG single 21 el yagi & 55 W indoors!!!,** K1OR 4 x 33 el yagis & 500 W, EW7CC 4 x 23 el yagi & 300 W, DL5DAW 4 x 14 el yagis & 400 W, EA2LU single 13 el yagi & 100 W, ZC4RH single 27 el yagi horz & single 23 el yagi vert for DXCC 171, NH6Y 2 x 25 el yagi & 350 W, DL4DTU, GW4HDF single 15 el yagi & 60 W for 1st EME, IK8XLD, JS6UJS and OZ9AAR 2 x 15 el yagis & 45 W **to bring us to mixed initial #1268***; **on 1296:** ACØRA (EN42hb) 2.4 m folding dish & 200 W, WR8AA (FMØ9pg) 2.4 m dish & 250 W, W5GLD 4.5 m dish & 300 W, N6RZJ 3 m dish & 55 W, KA9OKH 2 x 48 el yagi & 200 W, KØPRT 18.5 m dish & 200 W, DF7KB 4.8 m dish & 300 W for 1st EME, PA3HDG 3 m dish & 250 W, DL3WDG 2.4 m offset dish & 30 W, DL1HTT 2 x 37 el yagi & 250 W for 1st EME, PA9RX (JO32BW), GØLBK (JOØ3BD), VK3VJP 4.5 m dish & 300 W, ZC4HR single 67 el yagi and 100 W for DXCC #131*, SA6BUN (JO78CP) using CW, K1EEP 2.4 m dish & 425 W, JJ3JHP 4.5 m dish & 500 W, BH1TSU 2 x 36 el yagi & 300 W, HA6NAB (JN97uu) and IW3ROW single 44 el yagi and 150 W **to bring us to mixed initial #879***; **on 13 cm: DL6SH 8 m dish & 75 W using SSB for mixed initial of #203*;** and **on 3 cm:** DG5CSG 3.5 m Cassegrain dish & 25 W **for mixed initial #207***. We are always looking for initials, especially QRP stations! When QRV, we are standby on the HB9Q band-loggers. If you would like to work us, send us an e-mail to dan@hb9q.ch or look for us on the loggers.

IK1FJI: Valter valter_dls@yahoo.it sends info on his recent 23 cm EME – Since my last report, I worked on 29 Dec using CW and SSB where noted were OK2PE (559/579), SP7EXY (579/589), SM6CKU (589/589), RA3EME (55/55) on SSB, PI9CAM (57/58) on SSB and G0LBK (42/56) on SSB. I enjoy the SSB Funtest. I was QRV for only four hours on Sunday afternoon; no other time was available due to family business and high winds in my area. Worked on SSB unless noted on 29 Jan were OK2DL (55/55) JN, DL6SH (55/55), DG5CST (56/56) JO, DF3RU (56/55) JN, PA0PLY (42/55) JO, SP3XBO (54/55) JO, I1NDP (56/56) JN, OK2PE (44/55) JN, G3LTF (55 /56) IO, OH2DG (56/57) JP, IK3COJ (559/56) CW to SSB JN and G4CCH (56/56) IO for a total of (11x2+1)x4x100 = 9,200 points. I lost IK2DDR; his signal was too weak, into noise level, and he forgot to call me on CW. Later using CW I worked DL1SUZ (559/559) for a CW initial. [Please note there is a correction to Valter's report in the last NL. The photo shown was just of his SSPA driver and not of his final TH327 PA that produces 1400 W at his feed]!

JD1YCC: Kay (JH3AZC/JD1BPW) jh3azc@jarl.com reports the JD1YCC (G-G HAM Club) EME dxpedition was successful on 2 m, 70 cm and 23 cm from Ogasawara chichi island (QL17cc) despite a very poor window and equipment problems – We changed our schedule for 1296 EME for operation on 9 Feb. This change enabled us to QSO using Q65C, with an IC910 with HB SSPA and 2.4 m HRO folding dish UA3PTW, OK2DL, IK3COJ, RA4HL, HB9Q, OK1KIR and PA3DZL before our VSWR went very high. DG5CST asked us to try with just the IC910 and no preamp or SSPA. Amazingly we were able to add QSOs with DG5CST and OK1DFC! We initially had problems with our 70 cm LNA but we were able to fix it and work on 432 using the IC910, HB SSPA and two x 20 el yagis on 10 Feb JA6AHB, UA3PTW, VK4EME, OH2DG, OK1DFC, OK1KIR, DG5CST and DK4RC, and on 11 Feb ZS4TX, ZS6JON, VK4EME, UT6UG, UX5UL, UT5DL and DL7APV. We ended with 9 QSOs on 1296 and 15 (includes 1 DUP) on 432. QSL will be by both LOTW and beautiful paper QSL cards. You can send your QSL cards with SAE+1GS to JH3AZC directly only.

JH1KRC: Mike qq363gud@voice.ocn.ne.jp writes about his recent activity on 1296 -- During the ARRL contest last year, my driver amplifier stopped giving output suddenly. Tests showed the DC voltage was OK, but the current was only several ma. Further trouble shooting revealed a cheap fuse holder was bad. The material inside made of galvanized metal had a high resistance even when tight!

After by-passing this fuse, I was back in operation for the 23 cm SSB Funtest during my EU window. I QSO'd G3LTF IO on SSB, G4CCH IO on SSB and LA9NEA on CW/SSB for a score of only 1,000 points. I also copied an SM6?. No other signals were heard on the band, but I did enjoy the coolness of the night this time year. The Moon was only at 14 degs elevation and already in a tree, but only with thin branches without leaves that did not disturb the traffic so much.

K8ZR: Tony WA8RJF@ARRL.net tells us about his post ARRL Contest EME -- In the past I have removed the feed and preamp after each contest or major activity weekend. Both have remained at the dish since the second weekend of the ARRL EME contest but covered with a heavy duty plastic bag that has so far held up to the snow and rain. On 1296 using Q65C I have contacted ON4LX for a mixed initial #73*, K5DOG #74*, W5AFY #75*, K1EEP #76*, N9LHS #77*, N9HF #78*, N5TM #79*, W6TCP #80*, K3WM #81*, AE6GD #82*, ON4AOI #83*, ES3RF #84*, DF2VJ #*85, W1PV #86*, OZ6OL #87*, DL7FJ #88*, AA4MD #89*, AA6I #90*, PA3HDG #91*, UA9YLU #92*, AC0RA #93*, RA9FLW #94, XE1XA #95*, OK1UGA #96*, PI9CAM #97*, RA3EME #98*, IK2DDR #99*, CX2SC #100, YO2LAM #101*, KA6U #102* in NM, W5GLD #103*, KA6U #104* in KS, SP7EXY #105*, OK2ULQ #106*, PA0PLY #107*, EA1IW #108* and K5AL #109*. I am very pleased with my results and now have #44 initial on CW and digi initial {#65} on Q65C.

KH0/KC0W: Tom cqdx4@aol.com is setting up for 1296 EME from the Island of Saipan - I'm currently constructing a 23 cm EME station on Saipan. I have a 2.4 m folding dish and a Khune 250 W SSPA on order. Realistically it will probably be about 2.5 months before I am QRV. I'm interested in known the EME history of Saipan and KH0 in general? Saipan is a different DXCC than Guam. [There has never been EME operation from Saipan to the best of my knowledge. Guam was active on 432 EME for several years. I do not believe it has been on 1296, but cannot confirm this - AK].

N1V: Jay (N1AV) whereisjay@gmail.com will be QRV on 23 cm EME from KH6 from 5 to 8 March and then on 902 from 9 thru possibly 10 March. -- I will be on MR until about 70-80 degrees each day, barring rain. I will use the HB9Q logger for chat. I will use my special 1X1 call again, N1V. Anyone who needs KH6 for WAS, please reach out to me so I can add you to the list. More info is at my website: https://www.n1rwy.org/?p=925. My 222 and 432 EME stations are both currently down for upgrades until the end of March. **[We have learned that W2HRO will join Jay for this dxpedition].**

N5BF: Courtney courtney.duncan.n5bf@gmail.com writes about his Dec 1296 EME activity nd test results -- Since the fall ARRL contests, I worked initials with on 15 Nov K1EEP for mixed #317* and **WAS** [#43 on CW?], EA2BRI (19DB/22DB) #318*, N0OY (559/559) #319* and CW initial #77, DF7KB (15DB/15DB) #321*, VK3VJP (22DB/22DB) #322* and OZ6OL (12DB/12DB) #323*. The QSO with N0OY was on Straight Key Night - the "low key" (so to speak) ARRL operating event held annually on 1 Jan where participants rag chew using straight keys. So far I've not used anything but a straight key for my CW EME QSOs, but I have started thinking about hooking up a memory keyer to the station for those long CW CQ sessions. N0OY was a true "random" QSO. I was just calling CQ without any idea that anyone else was even on the Moon New Year's Eve, when a respectable answer appeared; a call I had not heard before and was not aware was EME active. I've done SKN on EME in the past (even getting my picture in QST), but in the past have worked old friends (like KL6M) who I already knew. I had been trying to get OZ6OL in the log for a long time and when I found him finishing a QSO with VE6TA on 31 Jan tailended at a different freq. After reading K1JT's article in DUBUS (4-2022, p. 65) I got interested in checking my station echoes and Sun noise. After verifying that my Sun noise had not changed significantly (~ 9.5 dB, probably limited by my inability to find truly "quiet" sky), I did some echo tests on the next moonrise and was surprised at what I found. My system is a 3.8 m prime focus pointed by an AlfaSpid in one deg steps. At 1296, the half power beamwidth should be 3.5 to 4.0 degs and I had seen that in measurements made in the past. So I was thinking that one deg steps would provide more than enough accuracy. I was surprised when I could see the echo changing significantly from step to step or even within steps, between motor pulses. Eventually it occurred to me what was going on. When doing echoes, you are using your antenna twice; so the half power beamwidth is actually the "quarter power" echo beamwidth. A pointing error of 1.8-2.0 degs should be 6 dB down from "best possible." That's what I was seeing and was more than the usual fluctuation between echo points, especially now that I was averaging for ten points to get a "pretty good" reading. That means that my "1 dB beamwidth" would be on the order of one deg, so I could be seeing averaged echo variations of 2 dB just for having the calibration one deg off! And that, too, was exactly what I was seeing. After an hour and a half of this, I finally found what I thought was "best" (about -14 dB echoes with one point at -11) and left the calibration alone after that! I realize that all of you who really understand your stations have known this all along. I'm happy to have joined you among the "in the know." This got me to reminiscing about the Deep Space Network, where the specification is not the 3 dB beamwidth or the 1 dB beamwidth but the 0.1 dB beamwidth! When calculating a link budget for your mission you put in 0.1 dB "antenna pointing error" and the antenna people have a requirement to keep it <= 0.1 dB. I did a back-of-the-envelope calculation for the 70 m antenna and decided that the 0.1 dB beamwidth at 8.4 GHz (the typical downlink band from deep space) would be only several seconds of arc. Roughly the size of another planet as viewed from earth. I'm guessing that the DSN has better pointing control and knowledge than I do! [Try 3 cm with a big dish].

OK1DFC: Zdenek's ok1dfc@seznam.cz operating time was limited in Jan, but Feb yielded 4 new DXCCs -- At the beginning of the month, I wanted to try a QSO with NH6Y,

who is now permanently QRV 432 from HI with a small 2 x 22 el yagi system and about 500 W. I found him on the HB9Q chat and after agreeing on a frequency the contact was successful. So, one of the hardest States for WAS is now QRV. The contact was successful without me even having to rotate the pol, even though the pol angle was 85 degs vert at the time of the QSO. Rare DXCC country activations were announced for Feb by stations KB7Q and JH3ACZ. PJ2T was to be on 1296 and JD1CYY on 432 and 1296. The contact with PJ2T was uneventful, although it was quite windy at the time and the "umbrella" antenna tended to fold. Gene, however, managed and made several connections during the first orbit to give me DXCC 123. My contacts with JD1YCC were not so easy. During their first orbit, they had problems with their 432 LNA and no QSO resulted. The next day on 1296, the dxpedition was scheduled for a very inconvenient date when the Moon was already setting behind the equator. The window was both short and at moonrise through a village where I always must wait until 10 degs of el to get signals. I watched them make contacts with UA3PTW, OK2DL and OK1KIR. When I started decoding JD1YCC, they disappeared! A few minutes later a message was received saying they had a SWR problem and were trying to fix it. This was just before their moonset. I asked them to disconnect the LNA and SSPA, which fixed the problem. They transmitted with only an IC910 and a 2.4 m dish. I immediately decoded them together with DG5CST who was using my original 10m dish. First, they called me, then Sebastian. The contacts were successful and so, with great luck and thanks to the new 8 m offset dish, JD1 is in the log for DXCC 124 on the 1296. They scheduled 432 the next day as the LNA repair was successful. The Moon was rising more southerly again, so I had to wait until 12 deg el, when it was an hour until moonset in JD1. As soon as I decoded, I started calling and promptly got a report of (22DB) on vert pol for DXCC 143. It is also the first JD1-OK QSO on the 432. Looking at the HB9Q chat screen, I see that DU9JJY is logged from the Philippines, a country I don't have. I gingerly ask if we can try a contact. I got a reply of yes, but that he only had 50 W and 14 el yagi. That should be enough for my station. So, we start and after a while, the decoded marker appears with a (21DB) report. This makes the contact successful and gives me DXCC 144 on the 432. At this point as it was freezing in the shack, I turned the equipment off and went home. I logged during this period QSOs on 432 using Q65B on 8 Jan with NH6YBL for mixed initial #515*, on 9 Jan with VK4EME, VK2CMP and JF6CTK; on 1296 using Q65C on 8 Feb with PJ2T for mixed initial #517* and DXCC 123; back on 432 using Q65B on 8 Feb with JS6UJS, OH3AWW, PA5Y and JA4UMN, then on 1296 on 9 Feb using Q65C with JD1YCC #518* and DXCC 124; on 432 using Q65B on 10 Feb with JD1YCC #516* and DXCC 143, F6GRB #517* and DU9JJY #518* and DXCC 144 DXCC. At the end of Feb the first round of EME DUBUS Contest will be on 432. I am looking forward to some of you showing up and trying a QSO.

OK1KIR: Vlada vlada.masek@volny.cz and Tonda's Dec/Jan EME report -- Early in Dec we installed 3 cm for a potential test with GI7UGV after John with his QRP rig (1.2 m dish & 8.5 W) made a QSO with G4RFR. We worked using Q65D on 4 Dec easily at 1835 DJ7FJ (8DB/1DB) - John was not QRV at this time but we convinced him to try later, on 6 Dec at 1821 IU0BTM (16DB/7DB) for digital initial {#235} and later surprisingly easily at 1934 GI7UGV (20DB/16DB) {#236} and the 1st GI-OK 3 cm QSO. John again used his tropo rig connected by a short piece of coax (!) to the feed of 1.2 m offset dish mounted on a tiny satellite Az-El rotator (no WG LNA or switch). We installed 23 cm and worked on 10 Dec using Q65C at 2026 BH1TSU (21DB/26DB) with 2 x 36 el yagis, 300 W and high QRM for digital initial {#520} and a new ON field. Our only activity in Jan was on 70 cm. We QSO'd on 7 Jan using Q65B at 1654 with NH6Y (18DB/16DB - best) for digital initial {#330} and a new field BL in Hawai. Thomas signal was best on V pol. In Feb we waited for the PJ2T (23 cm) to Curacao and the JD1YCC (70 and 23 cm) to Ogasawaru island dxpeditions. The JD1YCC dxpedition was scheduled when the Moon was very low with only a few hours of mutual Moon-time. On 7 Feb we installed our 23 cm gear and after our midnight at 0120 on 8 Feb worked using Q65C easily PJ2T (21DB/15DB) {#521} for the 1st 23 cm QSO PJ2-OK contact. Gene's signal was weaker than expected. This turned out to be due an initial wrong connection of the hybrid to the patch feed. Afterwards on 8 Feb, we switched to 70 cm and while waiting for JD1YCC worked using Q65B at 2105 OH3AWW (21DB/20DB) {#331}. A failed LNA unfortunately prevented JD1YCC from 70 cm that day. We switched back to 1296 the next eve on 9 Feb and were very happy to succeed at 2012 with JD1YCC (16DB/18DB) {#522} for a new DXCC and QL field. Later JD1YCC lost their 23 cm SSPA, but were able to QSO some of the bigger stations with only 10 W from IC910! On 10 Feb we returned to 432 to work JD1YCC with a repaired LNA. We succeeded very close to our mutual moonset using Q65B at 2234 JD1YCC (21DB/20DB) {#332} as new DXCC and QL field. Later we added at 2310 using Q65B F6GRB (19DB/20DB] {#333}. Quite remarkable is the fact that all CQs and QSOs were made with Q65 and CFOM. Also 1500 Hz (trial tone for testing own echoes) was obviously used for CQ and QSOs by JD1YCC.

OK2DL: Marek sochor@kwradio.cz had outstanding results in the Funtest – It was a very nice event. I ended with 33 QSOs all on SSB except 2 on CW/SSB for a score of (31x2+2)x12x100 = 76,800 points. QSO'd were on 28 Jan SA6BUN JO, OZ6OL JN, DL6SH JN, DG5CST JO, DF3RU JN, OK2ULQ JN, DJ7FJ JN, OH2DG KP, SP3XBO JO, LX1DB JN, WA9FWD EN, XE1XA EK, RA3EME KO, G4CCH IO, VE6TA DO,W2ZQ FN, DL1SUZ JN, WA6PY DM, G3LTF IO, K2UYH FN and SP6ITF JO; and on 29 Jan SM5DGX JO, VK2JDS QF, PA0PLY JO, IK1FJI JN, IK3COJ JN, I1NDP JN, SP7EXY KO, IK2DDR JN, M0DTS IO. My station consists of a 6 m HB dish with DB6NT 1 kW SSPA mounted at the feed, 0.1 DB NF DDK LNA and OE5JFL tracking system.

OK2PE: Karel ok2pe@kbb.cz was active on 1296 SSB during the Funtest – I worked DG5CST JO, OK2DL JN, DL6SH JN, I2NDP JN, IK1FJI JN and

G3LTF IO all on SSB for a score of 6x2x3x100 = 3,600 points. My stations consisted of a 3.2 m dish, 500 W PQL SSPA and DDK LNA.

PI9CAM: Jan (PA3FXB) reports that the CAMRAS group again ran its New Year's EME SSTV Party on 23 cm again -- We started doing annual (close to July 21) SSTV parties in 2019 to honor the Moon landing. It appears to be big fun and nice to see the surprising results. Even small stations can have nice results with 23 cm EME SSTV. We had an SSTV QSO with KB2SA (1.9 m dish). We use the software MMSSTV for SSTV and we use MARTIN2 mode. Over the years we found that this mode works best for EME.

OK1TEH on SSTV as copied by PI9CAM

PJ2T: Gene geneshea@gmail.com had some initial difficulties, but found the problem and had a very successful dxpedition -- The PJ2T 23 cm EME effort is complete. It came together nicely. Travel to Curacao was easy, and after getting the patch feed/hybrid device connected up correctly the station operated as a 1.8 m dish with 350 W station should. I operated over four sessions with mostly visual Moon. This was the first 23 cm EME from Curacao, so all 51 folks who completed QSOs had a new DXCC to add to their lists. W3HNK is the QSL manager for PJ2T. LoTW is done. Perhaps I will do Bonaire next. Logged via Q65C were OK1KIR (15DB), UA3PTW (20DB), OK1DFC (18DB)), G4CCH (20DB), ON4AOI (24DB), RA4HL (19DB), PA9RX (22DB), RD4D (19DB), W2HRO (28DB), PA3FXB (25DB), KD5FZX (14DB), OH2DG (15DB), PA3DZL (20DB), YO2LAM (22DB), SM6CKU (19DB), ES3RF (21DB), SM5DGX (15DB), OK2DL (18DB), HB9Q (12DB), DK3RU (20DB), K2UYH (19DB), OK1IL (23DB), SP5GDM (25DB), DG5CST (16DB), IK3COJ (23DB), PA0BAT (21DB), IQ2DB (22DB), YO2LAM (23DB), ZS6JON (25DB), SP7EXY (26DB), DK3WG (25DB), W5AFY (24DB), DL8FBD (26DB), PA0PLY (28DB), ZS4TX (2DB3), N1AV (23DB), KB2SA (24DB), VE6TA (23DB), W7JW (24DB), N5BF (25DB), JA6AHB (25DB), K5DOG (23DB), VK2JDS (25DB), G4CCH (23DB) and later on CW (419), DL7UDA (26DB), YO2LAM (24DB), DG0FE (23DB), NC1I (16DB), IK2DDR (22DB), W5GLD (26DB) and K7EME (27DB).

VE4MA: Barry barryve4ma@gmail.com is wintering again in Arizona – I am presently not QRV from AZ. N1AV now has the 3 m dish that I used as a 1.5 m offset dish for many years. There are now at least 3 active 23 cm stations in AZ. I would like to be QRV on 10 and 24 GHz from here, but not until next winter. I have been helping K6QPV to be active again on 3 cm. I am also working with W7CJO to become QRV using WSJTX with his 4.5 m dish and 300 W on 10 GHz. Just before I left for AZ, **I complete 23 cm WAS #8**. When I return home in early April the focus of my EME activity will be on 10, 24 and 47 GHz.

VK2CMP: Mick vk2cmp@me.com is now up to mixed initial #99* on 432 EME – I spent my Xmas break moving the 10 m mast of my 4 x 21el X-pol yagi array to new footings further from the house. The old location prevented me from being able to lower the carriage/array down for maintenance and in storms. The array would slip in large winds and not being able to lower it, this meant that I just kept putting larger offsets in my PST rotator counter. I took the opportunity to up grade the array mounting and rotator. It now functions much better in poor weather. I also have adaptive pol. The 1st LNA is a cavity WD5AGO LNA, which has the 2nd stage replaced with a filter and in turn feeds a 2nd Kuhne LNA. On TX I have a Beko HLV-1470 PA which runs at 1kW that the special permit of my license allows. Since the last NL, I have added initials with W2HRO, WA5AFY and new DXCCs with IZ4FUA and NH6Y to bring me to initial #99*. Who will be 100? I have purchased a very very nice bottle of rum as an incentive and look forward to opening it when I work #100*. The bottle is sitting above the radio.

VK2CMP's 4 x 21 el X-pol yagi array used on 432 with 1 kW PA

VP9NO: Dominic sunday.weaver@gmail.com have some 'good' news for those wanting to work Bermuda on 23 cm EME -- I now have a 1296 36 el yagi, a transverter coming

my way and a new SDR (RSP1a). So far I have not heard any EME signals. I may need a better and narrower band LNA. I am assuming that the yagi is not effective without free space at the back end and a decent elevation off the ground, which I was unable to do in my tests! [This is not correct; the back end of the yagi can come quite close to the ground (<1') as the reflector should send most of the energy in the forward direction]. I am gathering hardware for properly mounting the yagi and hope to be seriously listening in a few weeks. [Dominic is also interested in 70 cm EME – see Logger/Net News in the last NL].

W5AFY: Dan wb5afy@wb5afy.net had a busy Jan on 432 EME -- I worked on 1 Jan NH6Y for state #50 to complete 432 WAS. **The ARRL awarded me 432 WAS #31** on Jan 19,2023. My first 432 EME contact was with K2UYH in Oct 1984. It has been quite a journey and lots of fun. Also in Jan on 432, I worked RD3FD, K5DOG, N1AV, N1QG, KB0Z, KU4XO, YL2GD, DL4DTU, UT6UG, N9XG, K5QE, EA5CJ, KD2LGX, VK2CMP, DL8DAU, LU8ENU, OH3AWW, DK0TE, SM3LBN, PA2V, W5LUA, HG5BMU, KF2T, KF8MY and GM0HBK. I plan to switch feeds back to 1296 after 5 Feb to look for PJ2T. [QSO confirmed, see list in PJ2T's report].

W5RZ: Dennis dennisw5rz@gmail.com writes about battery powered EME -- I noticed the item on page 7 of the last NL about battery powered EME. My first battery powered contact was in 2016 during National Parks on the Air. I put together the battery pack shown for that event. In 2019, I made a contact with DL7APV using just what I could carry in a backpack. I took advantage of a 12 ah lithium battery for the QSO. I just wanted to set the record straight. I did make the other contacts described in the report; but as well as I can remember, they were made while connected to the AC mains.

XE1XA: Max general.manager@corix.us writes about his experiences on SSB during the Funtest -- I have been participating in the 23 cm EME Funtest for a few hours. My opinion is that conditions were not at their best for both path loss and libration. In any case it is still impressive to be able to contact stations by voice off the Moon. On 28 Jan after moonrise, I worked OK2DL (55/55), LZ1DX (54/54), DF3RU (55/55) - his RX system performing above the average, DG5CST (55/54), DL6SH on CW (569/579), LX1DB (55/55), K7EME on CW (O/539) and missed OK2ULQ with good signal, and G3LTF who went QRT for dinner just when I heard him. I heard K2UYH when he stopped his operation and a few others. In the late afternoon I worked on VE6TA on CW (569/559), K2UYH (549/549) below his typical report and VK3JDS (O/549), and final K2UYH on CW/SSB (54/559) for a contest point with his dish at 7 degs el and mine at 25 degs. My dish was pointed into the woods behind my house; proof that trees in full leaf are not the best RF absorbers! My 5 m dish will be 30 years old, but it is looking even better that when I put it up, thanks to maintenance (painting the base and post, changing cables, screws and bolts with stainless steel and greasing the gears). It will last more than me! The feed, with a calculated flared septum, is giving now a lower Tsys temp than before with the collar choke.

K2UYH: I (Al) alkatz@tcnj.edu was reasonably active in Jan despite some business travel. I QSO'd on 432 while trying to work out some bugs with WSJT-X on 3 Jan K5DOG (14DB/7DB) using JT65B and (14DB/7DB) using Q65B. I was next QRV for the 1296 Funtest and worked on SSB unless noted on 28 Jan at 1943 RA3EME (55/57) KO, 1948 DG5CST (57/57) JO, 2000 DF3RU (56/58) JN, 2017 LX1DB (56/57) JN, 2037 G4CCH (56/57) IO, 2044 RA3EME DUP, 2050 DL6SH (56/57) JN, 2117 OK2DL (57/57) JN, 2119 G3LTF (55/56) IO, 2124 LZ1DX (55/57) KN, 2147 VE6TA (54/56) DO and 2303 K7EME (559/569) CW for initial #454, and on 29 Jan at 0350 XE1XA (569/559) CW, 0528 XE1XA (559/55) EK CW/SSB and 0540 VK2JDS (559/55) QF CW/SSB for contest total of (10x2+2)x12x100 = 26,400 points. I was joined for the fun by NE2U. It was not one of our best results, but we enjoyed all the EME SSB. (G3LTF believes that we were not hearing as well as we should. I later check my Sun noise and was seeing 20 dB). On 8 Feb, I was on 1296 looking for PJ2T but did not copy Gene and worked at 0534 DK3WG (7DB/7DB) using JT65C, 0552 N5BF (10DB/9DB) Q65C and 0602 K5LA (15DB/15DB) Q65C for mixed initial #754*. I was on again on 9 Feb to QSO at 0524 PJ2T (26DB/22DB) Q65C for #755* and DXCC 125. I felt Gene's signal was too weak and suggested he check his hybrid as nothing else made sense for the large amount of signal loss. I was on again the next day (10 Feb) and copied Gene at (15DB)! He had checked the hybrid and found the problem. I did not try to work him again as everyone was trying for a QSO, but did work using Q65C at 0612 YO2LAM (5DB/4DB), 0618 K2BSA (8DB/9DB) and 0618 LA3EQ (19DB/17DB). I never tried with JD1YCC as our common moon window was in the minutes and I had a very busy work schedule – probably a mistake. I plan to be QRV for the Dubus 70 cm CW Contest Weekend on 25/26 Feb and the Dubus 9 cm CW Contest Weekend on 4/5 March.

XE1XA's 5 m 30 year old dish still going strong – smaller dish used for space reception on microwaves

LOGGER/NET NEWS: **DL0SHF:** Chris df9cy@web.de has DL0SHF back on the Moon again after many equipment disasters with the 23 cm station. **WH6A** is just starting out on EME from FL using W2HRO folding dish and 600 W W6PQL pallet. **KH0/KC0W** should be QRV on 23 cm EME from the island of Saipan before too long. Tom cqdx4@aol.com should be the first 1296 station to be active on EME from Saipan. **K1WHS** was active again on 70 cm EME during the Nov weekend of ARRL EME Contest and worked among others PI9CAM. Dave was very excited to get "received" on that history making dish! **K4QF** is still trying for a 1296 QSO with his 16' and was on listening during the SSB Funtest without success. Ben is not using the digi modes and looking for CW/SSB signals. **K5QE** was QRV in the ARRL VHF Tropo Contest on 21/22 Jan on 432 EME using 16 x 28 el yagis and 650 W out and on 1296 EME with a 4.5 m dish and 650 W out. [Unfortunately Marshall's announcement missed the Dec NL]. **K7ULS** reports working with his single yagi DL7APV on 2 Feb on 432.

FOR SALE: **K2LNS** has for sale 2 13 cm feeds. One was made by VE1ALQ and the other by WD5AGO for best offers. Contact Herb at wa2fgk@yahoo.com if interested. **SM3BYA** is looking for info on a Varian TWT VTR6201A2. Any and all help will be appreciated! Contact Gudmund SM3BYA@wannberg.net. **PA3DZL** has for sale high quality adapters, N-male to SMA-female, DC-18 GHz, N-female to SMA-male, DC-11 GHz, N-male to N-male, SMA-male to SMA-male, DC-18 GHz, Bulkhead SMA-female to SMA-female, DC-18 GHz, bulkhead precision N-female to SMA female, N-female to SMA-male, Bulkhead N-male to SMA-male. If interested contact Jac PA3DZL@planet.nl.

RADIO-ASTRONOMY CORNER: The SAR https://www.ntms.org/files/Aug2022/SARA_Conference_N5BRG.pdf can be found on YouTube where are placed many very interesting Radioastronomical presentations <https://www.youtube.com/channel/UC-SzptAQZ-20c9CkRb9ZPxw/videos>.

For the SETI Community: Scott, VE3CGN writes -- I am the Special Projects Coordinator for SETI League and I run a Project Argus SETI Station. I recently started a SETI Community on the Discord messaging platform and am hoping to build a central message area where we can collaborate and share information about SETI. Whether you are just curious about SETI or if you are interested in using your EME station to participate in SETI League's Project Argus, we would certainly value your participation. The URL for a Discord server invite is https://discord.gg/T7327m6x. This URL expires in 7 days, but a new link can be obtained by emailing me at search@setidata.ca if required. I hope to see you on-line!

TECHNICAL – The CASE FOR USING YAGIS ON 1296: Jac (PA3DZL) writes -- If you want to start with moonbounce on 23 cm a yagi works for sure. Several DX-peditions in the past years used a single 67 el 5 m boom yagi with great success. You need to pay attention to details such as good AZ and EL readouts, low noise preamp <0.5dB as close as to the yagi as possible, having some power > 100 W as close as to the yagi as possible, a freq stable transceiver/transverter, and some patience. Barry (VE4MA) adds -- If you just cannot handle a dish, for whatever reason, and you have loop yagis; use them! Some success is better than none. A hybrid coupler can provide circular polarity with a pair of linear or X pol yagis. You cannot easily make X pol loopers on one boom, but 2 booms slightly separated will make cross pol possible. In the early 1980s I heard my first 1296 EME CW SIGNAL with a single 45 El looped and a 0.5 dB NF LNA. VERY WEAK but with today's preamps and some of the Big guys a contact would be possible. One of the French stations had 8 linear yagis on 1296 for a dxpedition and had an excellent signal. I am sure their receive performance was not great due to the noise contribution of the phasing harness.

TECHNICAL Stig (SM4GGC) has done some modeling on stacking yagis:

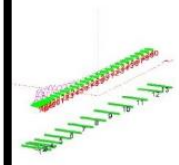
Stacking antennas on different bands with antenna modelling software

Comments:
The modelling is done with EZNEC Pro/2 v7.0
All elements are in free space
Antenna boom or other metal structure for mast or mounting hardware is not in the in the calculation

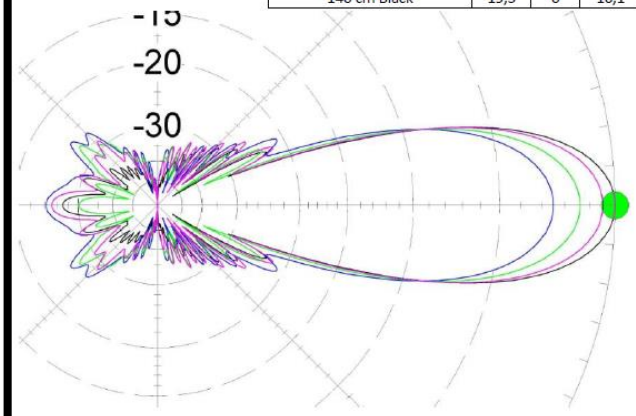
The degradation seems to be on the highest frequency in this case 70 cm and stacking vertical has a bigger impact then horizontally with the antennas side by side.
The square stacking 2m with 70cm inside seems to surprise me with good result.
It would be interesting to hear if there are some modelling done with mast or mounting hardware included especially for the square stacking.
/SM4GGC, Stig

Ref ant. 2m YU7EF EF0213M Gain 16,1 dBi
Ref. ant 70cm YU7EF EF7027 Gain 19,50 dBi

First case is a 2m antenna close to 70 cm in vertical stacking.



2m 13 el och 70cm 27 el Yagi				
Distance between antennas vertically	Gain 70 dBi	Loss 70cm dBi	Gain 2m dBi	Loss 2m
17,5 cm Blue	17	-2,5	16,1	0
35 cm Green	18,1	-1,4	16,1	0
70 cm Purple	19	-0,5	16,1	0
140 cm Black	19,5	0	16,1	0



FINAL: We are sorry to be late with this NL. We wanted to have it out back in Jan. It has been a very busy time for both Matej and me. Besides business travel on my part, there have been a number of events that have required my

attention. I chair TCF (The Trenton Computer Festival – see <tcf-nj.org>) and was one of the founders in1976. After 3 years virtual, it will in person again this year on 18 March. At the same time Matej's work also heated and prevented him from his usual contributions.

► See the end of this NL for **the 2022 results of the REF/Dubus EU CW EME Contest. [TNX to Dubus and Joe (DL8HCZ) for permission to reprint the contest results]!**

► **Planning for EME2024 Trenton** has begun. The organizing/planning committee will be international this time around with members from all over the world. We will meet on Zoom. The 1st is tentatively scheduled for Saturday 8 April. **If you are interested in being on the EME2024 Committee, please let me know and I will send you connect information.**

► VE1KG recommends to those interested in receiving the 3 cm beacon to watch Paul N1BUG's video on YouTube at https://www.youtube.com/watch?v=Beurcep8Tj0.

► The OK VHF Club's EME and Microwave meeting will take place at Hotel Medlov near Nové Město na Moravě on 14 – 16 April. More information see https://www.vhf.cz/seminare/item/627-31-eme-a-mw-seminar-2023. Register by contacting OK1DFC ok1dfc@seznam.cz.

► Thanks to everyone who participated in the 1296 SSB Funtest in Jan. As noted by almost all – it was great fun. Don't missed the 70 cm REF/Dubus CW Contest weekend in Feb – just after this NL should arrive! The following weekend is for 9 cm CW EME, but if you also get on with Q65C this would be nice too – especially if you give those on CW a try. 3400 is a great band. We be looking for you off the Moon. Have a wonderful heathy, happy and EME DX filled 2023. **73, Al – K2UYH and Matej – OK1TEH**

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REF / DUBUS European EME Contest 2022 – CW/SSB
Results for 432 & Up *by Joachim Kraft, DL8HCZ*

MULTIBAND
Place Call Points PWR Bands
1. OK1CA 2.678.000 QRO 70/23/13/6/3
2. G3LTF 2.160.000 QRO 70/23/13/9/6
3. PA3DZL 1.726.600 QRO 2/23/13/9/6/3
4. OH1LRY 1.569.800 QRP 70/23/13/9/6/3
5. WA6PY 1.324.400 QRO 70/23/13/9/6/3
6. KL6M 963.900 QRO 23/13/9/6
7. RA3EME 862.500 QRO 23/13/6/3
8. SP9VFD 826.800 QRO 70/23/13
9. G4CCH 727.600 QR O 23/13
10. SP7DCS 569.600 QRO 23/13
11. DL4DTU 561.600 - 13/9/6/3
12. F2CT 518.700 QRO 23/3
13. SP3XBO 240.500 QRP 2/23/13/9/6/3
14. SP6OPN 231.000 - 13/9
15. IK1FJI 206.400 QRO 2/23
16. DB6NT 179.200 - 9/6
17. 9A5AA 158.400 QRP 23/6
18. IK3COJ 73.500 QRP 23/13/6
19. F5JWF 57.000 QRP 23/13
20. SM2CEW 46.200 QRP 7

432 MHz
Place Call Points QSO Multi Pwr OP
1. DL0BFA 65000 26 25 QRO SGL (@DL7APV)
2. G3LTF 48400 22 22 QRO SGL
3. DL9KR 42000 21 20 QRO SGL
4. SM2CEW 40000 20 20 QRO SGL
5. OK1CA 19600 14 14 QRO SGL
5. SP9VFD 19600 14 14 QRO SGL
7. OH1LRY 4900 7 7 QRO SGL
8. DL8UCC 2500 5 5 QRO SGL
9. DL1VPL 1600 4 4 QRP SGL
9. WA6PA 1600 4 4 QRP SGL

1296 MHz - VK3UM Memorial Contest
Place Call Points QSO Multi Pwr OP
1. OK2DL 406.000 70 58 QRO SGL
2. OK1CA 312.000 60 52 QRO SGL
3. I1NDP 306.800 59 52 QRO SGL
4. G3TLF 285.600 56 51 QRP SGL
5. G4CCH 277.300 59 47 QRO SGL
6. SP9VFD 268.800 56 48 QRO SGL
7. KL6M 254.400 53 48 QRO SGL
8. SP7DCS 239.700 51 47 QRO SGL
9. IK1FJI 171.600 44 39 QRO SGL
10. IK2DDR 148.200 39 38 QRP SGL
11. IK3MAC 147.600 41 36 QRO SGL
11. LZ2US 147.600 41 36 QRO SGL
13. PA3DZL 128.700 39 33 QRP SGL
14. SP6KBL 127.100 41 31 QRO MUL
15. F2CT 122.100 37 33 QRO SGL
16. CT1FGW 118.800 36 33 QRO SGL
17. WA6PY 112.200 34 33 QRO SGL
18. DU3T 108.000 36 30 QRO SGL
19. 9A5AA 105.400 35 31 QRP MUL
20. F5KUG 84.000 30 28 QRO MUL
21. OH1LRY 70.000 28 25 QRO SGL
22. RA3EME 59.400 27 22 QRO MUL
23. VA7MM 57.500 25 23 QRP SGL
24. F6ETI 38.000 20 19 QRP SGL
25. PA0PLY 22.400 16 14 QRP SGL
26. SP3XPO 18.200 14 13 QRP SGL
27. DL7UDA 16.900 13 13 QRO SGL
28. F5JWF 16.800 14 12 QRP SGL
29. OK2PE 15.400 14 11 QRP SGL
30. DJ3JJ 14.300 13 11 QRP SGL
30. IK3COJ 14.300 13 11 QRP SGL
32. DL1AT 12.000 12 10 QRP SGL
33. N5BF 3.600 6 6 QRP SGL

2320 MHz
Place Call Points QSO Multi OP
1. OK1CA 52.800 24 22 SGL
2. G4CCH 50.400 24 21 SGL
3. G3LTF 46.000 23 20 SGL
4. OH1LRY 44.000 22 20 SGL
5. PA3DZL 41.800 22 19 SGL

6. SP6OPN 39.900 21 19 MUL
7. SP7DCS 32.300 19 17 SGL
8. SP9VFD 28.800 18 16 SGL
9. WA6PY 24.000 16 15 SGL
10. OM6AA 16.800 14 12 SGL
11. RA3EME 12.100 11 11 MUL
12. KL6M 10.000 10 10 SGL
13. DL4DTU 9.000 10 9 SGL
13. IK3COJ 9.000 10 9 SGL
15. F5JWF 5.600 8 7 SGL

3400 MHz
Place Call Points QSO Multi OP
1. G3LTF 22.500 15 15 SGL
1. OH1LRY 22.500 15 15 MUL
3. DB6NT 21.000 15 14 SGL
4. PA3DZL 19.600 14 14 SGL
4. SP6OPN 19.600 14 14 SGL
6. KL6M 16.900 13 13 SGL
7. WA6PY 14.400 12 12 SGL
8. DL4DTU 10.000 10 10 SGL
9. OK1KKD 6.400 8 8 SGL
10. SP3XBO 100 1 1 SGL

5760 MHz
Place Call Points QSO Multi OP
1. OK1KIR 75.600 28 27 MUL
2. OK1CA 44.100 21 21 SGL
3. OH1LRY 44.000 22 20 MUL
4. SQ6OPG 42.000 21 20 MUL
5. PA3DZL 39.900 21 19 SGL
6. DL4DTU 34.200 19 18 SGL
7. RA3EME 28.900 17 17 MUL
8. DB6NT 23.800 17 14 SGL
9. WA6PY 19.500 15 13 SGL
10. G3LTF 15.600 13 12 SGL
11. KL6M 10.000 10 10 SGL
12. IK0HWJ 9.000 10 9 SGL
13. 9A5AA 2.500 5 5 MUL
14. IK3COJ 400 2 2 SGL
14. SP3XBO 400 2 2 SGL

10 GHz
Place Call Points QSO Multi OP
1. F2CT 64.800 27 24 SGL
2. OZ1LPR 59.800 26 23 SGL
3. SP6JLW 52.800 24 22 MUL
4. HB9BBD 48.300 23 21 SGL
5. OK1CA 44.100 21 21 SGL
6. RA3EME 39.900 21 19 SGL
7. DL4DTU 22.500 15 15 SGL
8. SP3XBO 21.000 15 14 SGL
9. PA3DZL 13.200 12 11 SGL
10. WA6PY 9.000 10 9 SGL
11. OH1LRY 4.900 7 7 SGL
12. OK2AQ 3.000 6 5 SGL
13. SM2CEW 100 1 1 SGL

Comments: Congratulations to all winners and many thanks to all who sent their entry, also 1 x 1 entries are always appreciated! Overall activity in the 2022 contest was lower than in 2021. There were several reasons, the 23 cm date was bad as there was also the EU terrestrial contest at the same time. Some UA and UR stations were missing for known reasons. Others are not sending entries as they don`t exactly follow the rules, and others because some break the rules but still send entries. And, of course some oldtimers went QRT or are SK. The tendency is clear, there are not many newcomers to CW EME and the critical mass of active CW operators who want to "compete" in a contest will be too small very soon to justify a separate contest. Also many of the older operators don`t like to be awake all night long any more, and others don`t want to sacrifice a full weekend. 2023 will be the final good bye edition of the 2 m CW contest. The number of entries in 2022 simply was too low. Also, on all the other bands the contest format (times, full weekends) will be held for the last time in 2023. We will think about a new format for 2024 or 2025 in case there is still interest in a CW only contest. 73 Joe, DL8HCZ/CT1HZE