# 432 AND ABOVE EME NEWS
## OCTOBER 2021 VOL 51 #8

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**CONDITIONS:** This month the ARI Autumn EME Contest and the super dxpedition by HB9Q and the Q-team to Rhodes; not to mention the excellent State and grid dxpeditions by KB7Q and KA6U, very much kept the bands alive; and limited some of our sleep. We want to express the thanks for all the DXCCs and great EME included with the many activity reports in this newsletter (NL). For brevity we have not included them, but the feelings of thanks are there! Of course, the fun has only begun! **Coming up in only a few days (23/24 Oct) is ARRL Microwave EME Contest for the bands from 13 cm and up.** The following weekend (30/31) Oct W1E will be on 432 from CT using the NC1I/W1QA's new dxpedition station – see their reports in the NL.

**DL7APV:** Bernd dl7apv@gmx.de only had a few initials on 432 during the past month – The highlight of my EME was a QSO with G3YEG who was using a 21 el yagi and 40 w under the roof his QTH. We tried several times, where we heard each other, but not at same time. Finally, Nic fixed an audio problem with his PC and we made it on 8 Oct (28DB/32DB) using Q65B. I could work KB7Q (559/539) from DN82 on CW and later W1QA test his dxpedition equipment he and NC1I will use to put some rare States on the Moon later this year – [see W1QA's report]. At the end of Sept, I added 7M2MZN (PM96) with 2 x 25 el yagis and 50 W portable; W7JW (EN82) with 2 x 33 el yagis and 50 W; and OV3T (JO46) with a single 21 el yagi and 50 W. I was not successful with SV5/HB9COG; Not clear why. Possible due heavy rain (bad SWR?), wrong pol? [Bernd had a huge signal]. I heard Dan most of the time well, but not vice versa.

**F2CT:** Guy f2ct@wanadoo.fr sends some news about his 3 cm EME -- I was QRV during the ARI Autumn EME party only on 3 cm CW. Activity was regrettably very low due to Moon being at apogee with massive spreading. Most of activity was on Q65D. I was pleased to contact on random DL4DTU, OK2AQ, HB9BBD, IK6CAK, PA0PLY and W6YX for a total of 6 QSOs. On 2 Oct I worked SV5/HB9COG on 10 GHz. We tried 3 times on CW, but had to use Q65D to complete the QSO. I will be QRV on 3 cm during ARRL MW EME Contest on 23/24 Oct.

**G3WDG:** Charlie g3wdg1@gmail.com writes about Q65 and his recent 3 cm EME - After a rather long break, we reassembled our 1.2 m dish with 70 W 10 GHz station just in time for the SV5/HB9COG dxpedition. The day before the dxpedition, on 2 Oct we worked DF2GB while testing out the system. We needed to use Q65-120E for this QSO, since we could not decode Gun with our small station using -60D. The next day, we worked SV5/HB9COG followed by OK1KIR, OZ1FF, OZ1LPR, PA0BAT, DL7YC, OK1DFC, OK2AQ, K2UYH and G4RFR. G4KGC (Petra) was also QRV and worked SV5/HB9COG, DL7YC and OK1KIR. We were QRV again on 8 Oct, and worked CT1BYM, F6BKB, and WA3RGQ. **[see info on getting more from Q65 at end of this NL].**

**F2CT's 3 cm dish used in ARI Contest**

**G3LTF:** Peter g3ltf@btinternet.com reports on his recent EME activity -- I was active on 23 cm in the ARI Trophy Contest. I QSO'd using only CW on 25 Sept IK1FJI, IK3MAC, IK3COJ, SM5DGX, OK1KIR, IK2DDR, K2UYH, N5BF, ON5GS, DG5CST, and PA3FXB, and on 26 Sept UA3PTW, SP6ITF, LZ2US, G4CCH, DF3RU, SP7DCS, IW2FZR, OM4XA, OK1DFC and W6YX. My score was 880 points; my log has been submitted. I was QRV next for the dxpedition to SV5. All my QSOs were on CW. Unfortunately, after a long, very calm period, the weather changed to strong winds from the SW. I worked on 29 Sept

on 13 cm SV5/HB9COG for initial #152 and DXCC 49; on 30 Sept on 9 cm SV5/HB9COG for initial #76 and DXCC 31. Sadly, when the SV5 team were on 6 cm, it was far too windy to even undo the dish. I did work on 30 Sept on 23 cm KB7Q for initial #507 in WY; and on 4 Oct on 23 cm SV5/HB9COG #508 and DXCC 80 followed by CT1BYM #509. Thanks Dan and Sam, some excellent operating and the equipment working perfectly to be able to work on CW with a 1.5 m dish. On 1 Oct, I spent a lot of time trying to work KB7Q in NB, but could not keep my dish on the Moon due to strong winds blowing across and into it. Slippage was occurring in the HA axis of about +/- 10 degs (my –3 dB BW is 8 degrees) and to work a single yagi station, everything has to be spot on. Gene was very patient and he did copy me at one point with (429). I have worked his station with the same set up before, so it is possible. Thanks again Gene! In the last few days, I believe I have now found and removed the slippage. During the month, I replaced a joint in a 50 m run of 1 5/8" heliax with a pair of connectors and a short cable. The loss is unchanged at 2.4 dB, but the VSWR is better.

**G3LTF's cable repair**

**G4RFR:** John (G0API) john.g0api@gmail.com along with G3YGF and M5AHQ are active on 3 cm EME -- We finally got G4RFR up and running reliably in time for the SV9/HB9COG event on 2 Oct, which certainly created a lot of interest. I was able to give advanced warning of our activity and had several listening stations email to say they had heard our CW and Q65D signals - several saying it was the first time they had heard EME on 10 GHz. We ran our 12' prime focus dish with Super VE4MA feed and a Thompson TWT @ around 200 W output via 4 m of EW90 WG; and a locked Gold Star LNB for RX. We worked using Q65D on 1 Oct OK1KIR (7DB/1DB) and OK1CA (12DB/1DB); and on 2 Oct SV5/HB9COG (15DB/7DB), DL3WDG in JN68(14DB/09DB), SM6CKU (17DB/4DB), K2UYH (13DB/2DB), DL7YC in JO62 (9DB/2DB) and finally VE6TA in DO33 (22DB/13DB) just as the Moon was setting. Friday was clear blue sky; Saturday it never stopped raining - local WX station recorded 100 mm (4") of rain. It was Bamboo curtain quality, yet our own echoes peaked at nearly +20 dB/N in 200 Hz RBW. SSB also worked.

**JH1KRC:** Mike jh1krc@syd.odn.ne.jp after 8 months of not being QRV is back in operation on 1296 EME – I had intended to participate in the ARI Contes; but inopportunely the Moon elevation was too high to track. I missed the NA/SA window. I plan to be QRV around 1296.020 CW on Sunday from 2200 to 2400. I am using a 4.4 m TVRO dish, 500 W at my PA - (it may be a half power because I have not had time to cut my feedline to minimum length), and a 0.18 dB NF and 41.7 dB gain LNA.

**KA6U:** Russ (K2TXB) russk2t@comcast.net writes that Peter petervanh143@gmail.com has been doing an extended rare state/grid dxpedition on 144, 220 and 432, and recently visited NJ – He operated on 20 Sept from the Project Diana site on 2 m with his own antennas, while I operated on 1296 with the 60' dish located at the site. I was surprised by the low activity, but still enjoyed the opportunity to use the big dish, which is usually only activated on special occasions.

**KB7Q's 1296 operating location in Nebraska**

**KB7Q:** Gene geneshea@gmail.com sends news on his recent State dxpedition activity -- Joyce (my XYL) and I rolled east in the camper on 30 Sept to put Wyoming back on 23 cm and Nebraska on both 70 cm and 23 cm EME. The Wyoming stop was a great success. I worked on Q65C HB9Q (18DB) who remoted in from SV5, OK1KIR (13DB), SM6CKU (13DB), OH2DG (13DB), G4CCH (15DB), UA3PTW (11DB), UA9FAD (22DB), DK3WG (20DB), ES3RF (16DB), DL8FBD (21DB), F1RJ (23DB), IK2DDR (18DB), DF2VJ (24DB), LA3EQ (24DB), W2HRO (22DB), DJ2DY (23DB), ON4AOI (22DB), NC1I (13DB), PA0BAT (20DB), N6NU (26DB), SP5GDM (21DB), KB2SA (21DB), K5DOG (17DB) and OK1DFC (23DB). On the legacy JT65C mode, I logged IK1FJI (15DB), SM5DGX (12DB) and GM0PJD (30DB). CW was hard work, but rewarding with OK1KIR (319), G4CCH (329), SM6CKU (319), G3LTF (429) and SM2CEW (419) all logged. On 1 Oct in Nebraska (DN82) on 70 cm EME, I worked using CW DL9KR (429) and DL7APV (539) as the moon cleared a low line of trees; then switching to JT65B NC1I (21DB), PA5Y (24DB), DK3WG (14DB), UA3PTW (9DB), ON4AOI (20DB), OH2DG (19DB), OK1KIR (28DB), G4FUF (26DB), G4EZP (26DB) and DF3RU (15DB). G3LTF had rain and very high winds that keep buffeting his dish around as he attempted to track the moon, as much as we tried over several hours we did not complete on CW. [This QSO would have been Peter's 50th State]. On 2 Oct on 23 cm (same location), I had a fantastic session with 40 contacts, five on CW. A very nice visible moon and no wind again made for perfect conditions. Logged on Q65C were DG5CST (9DB), OK1KIR (10DB), PA3FXB (23DB), ES3RF (18DB), IK2DDR (21DB), DL8FBD (22DB), DG0FE (23DB), UA3PTW (12DB), OK1IL (18DB), DK3WG (18DB), G4CCH (15DB), I1NDP (10DB), UA9FAD (23DB), DL7UDA (18DB), N1AV (19DB), PA3CSG (17DB), ON4AOI (20DB), PE1CHQ (16DB), DJ2DY (23DB), DF2VJ (23DB), RX6AIA (26DB), PA0BAT (16DB), K5DOG (16DB), SM5DGX

(9DB), SM6CKU (16DB), IK1FJI (19DB), W2HRO (20DB), LZ4OC (27DB), W3CJK (21DB), PA3DZL (18DB), KB2SA (21DB), F1RJ (22DB), DF3RU (14DB), I7FNW (22DB), W1PV (23DB) and N5BF (22DB); and on CW OK1KIR (429), G4CCH (419), SM5DGX (419), DG5CST (539). It was a great fall outing! [Gene used his 1.8 m dish

**KN0WS:** Carl carlhasbargen@q.com reports on his EME activity this past month -- I was going to operate 70 cm during the ARI Fall Contest from my remote EME site, but when I rotated my polarity a bit, I lost all sorts of RX gain. This suggested some sort of loose connection out by the feed and my generator/PA combination seemed to have a variety of problems, as well. I packed up and went home. If I had been successful, I was thinking of 70 cm during the Nov leg of the ARRL, but I think this band might have to wait for another year. My only QSOs this month were from the backyard of my home during the SV5/HB9COG dxpedition. Using my inefficient 13 cm setup with my 1.8 m dish, I worked an initial Q65C QSO on 29 Sept with DL4DTU(23DB/23DB) (#); and the next night on 30 Sept on 9 cm using Q65C, I saw K2UYH (12DB) and HB9COG (22DB) but only worked DF3RU(16DB) (#) and VE6TA (18DB). For the ARRL Oct MW Contest I think I will try 13 cm for the first moon-pass and am un-decided on the second.

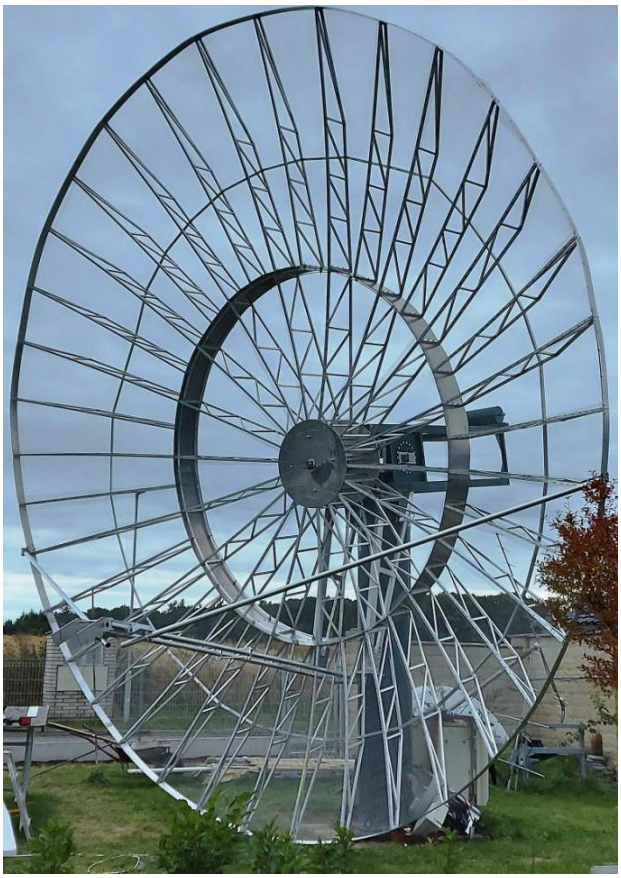
**N5BF:** Courtney courtney.duncan.n5bf@gmail.com reports on his recent results with upgraded dish -- It has been over a year since I increased my dish from 3 to 3.8 m. The makeover included a much better pattern match from a septum feed. It continues to perform quite well; particularly in the Fall ARI Contest where I had 23 QSOs (6 CW and 17 digital) and 7 Italian station multipliers (3 CW and 4 digital) for a total claimed score of 410. This was a much larger QSO count (and Italy count) than ever before, although I only worked a limited number of hours (about 6 hours between the two days). I was very pleased to see several Italian stations staying on to the end of their moonpass to give me a chance for a QSO here way out in the far west. The situation wasn't as good with SV5/HB9COG; however, my horizon in the direction of moonrise for that declination is about 11 degs. I am unable to decode small stations until I am clear of the trees at about 30 degs el. The dxpedition was losing the moon minutes before I reached that threshold on both 23 cm days. This unfortunate limitation of my QTH was a choice I made when I bought the house in 1994; well before I was aware of the geometric parameters or sociology of EME operation! Initials since my last report are N6NU (17DB/17DB) for mixed initial #235*, TX7EME (27DB/22DB) #236* and DXCC 51, IK7EZN (18DB/18DB) #237*, KB7Q in NB (19DB/22DB) #238*, W1QA (18DB/21DB) #239* and FG8OJ (22DB/21DB) #240* and DXCC 52. I also worked on CW IK2DDR (539/539) for initial #68 – previously QSO'd on digital.

**NC1I:** Frank frank@NC1I.COM writes on his late Aug, Sept and early Oct EME -- I was a bit more active over the last couple of months and have hit a milestone on 1296 by reaching the 400* (mixed) initial mark. The other news is the completion of a new portable station and related W1QA activity on both 432 and 1296 on 2/3 Oct. [See separate W1QA activity report]. On 432 I have added initials with N6WS (1 x 50 el XPOL yagi and 100 W), AA5C, G4DDK (1 x 16 el yagi and 35 W with no preamp), JR7PJS (4 x 25 el yagi and 50 W), F1IXQ (1 x 21 el yagi and 50 W with no preamp), W7JW (2 x 33 el yagis and 50 W), KB7Q in NB, K5DNL (2 x 20 el yagis and 100 W for his first 432 EME QSO) and SV5/HB9COG. The SV5 team was (26DB) when we completed but they were heard later at a steady (21DB) and peaking at an incredible (19DB). [Frank's QSO was one of only two QSOs made on 70 cm]. It seems there are always new stations to work on 432. On 1296 I have added initials with OK2TIF (2.4 m dish and 100 W), VE7ZD, TX7EME (outstanding dxpedition with a great signal), OK1USW (1.8 m dish and 150 W), W1LY (1.8 m dish and 350 W from RI), OH3DP (4 x 44 el yagis and 50 W), G4CBW, KB7Q in WY (15DB/13DB), SV5/HB9COG (16DB/12DB), FG8OJ (1.9 m dish and 100 W), IQ2DB (3 m dish and 500 W) and EA1IW (1.8 m dish and 300 W) to bring me to 1296 mixed initial #400*. I expect to be far more active on 432 and 1296 in the coming months. It seems the vast majority of digital activity on 1296 is Q65C, which is great; however, digital activity on 432 seems to be split almost equally between JT65C and Q65C. I think we should all try and be on the same digital mode, ideally Q65. The split mode activity could certainly have a negative impact on the upcoming ARRL contest. I'm not sure how this can be accomplished. [Q65-60C does seem to be rapidly becoming the dominant mode; along with CW, which is very alive on 1296].

**OK1CA:** Franta fr.strihavka@seznam.cz sends news of his Sept/Oct operation -- In the autumn part of the ARI EME Trophy Contest I was QRV on the 10 GHz band. I worked with Q65D OK2AQ, IK6CAK, F6BKB, UR5LX, PA0PLY for digital initial {#57}, DL4DTU {#58} and OE4WOG; and using CW OK2AQ, IK6CAK for initial #101, HB9BBD, OH2DG and PA0PLY #102 for a total of 7 on Q65D and 5 on CW. I measured Moon/quit sky noise at 3.3 dB all weekend. The following week, I was QRV for SV5/HB9COG dxpedition. I contacted on 29 Sept on 2.3 GHz SV5/HB9COG (12DB/13DB) using Q65C for digi initial {#22} and DXCC 50, and using CW (559/529) for initial #161; on 30 Sept on 3.4 GHz SV5/HB9COG (11DB/10DB) for digi initial {#13} and DXCC 34, and CW (549/529) for initial #69; on 31 Sept on 5.7 GHz SV5/HB9COG (9DB/15DB) using Q65D for digi initial {#16} and DXCC 38 in the morning; I then switched to 10 GHz for DF2GB Q65D digi initial {#59}, G4RFR Q65D {# 60} and WC8VOA CW; and on 1 Oct still on 10 GHz SV5/HB9COG (13DB/16DB) Q65D {#61} and DXCC 41. Unfortunately, I couldn't be QRV on Sunday to work them on 1296.

**OK1DFC:** Zdenek ok1dfc@seznam.cz sends info about his Sept activity -- During the month I spent all my free time on finishing the new offset dish. On 17 Oct I did a reception test on 1296. SM5DGX who called CQ using Q65C was copied (+1DB) and from the speaker 59+. I will continue to finish installing all the cables. I have to make new feeds for 70, 23 and 13 cm with F/D of 0.457. I hope to have

everything completed by the ARRL MW Contest. I would like to be QRV on 13 cm on all sub-bands. I was QRV for a while in the ARI contest and gave out a several points. During the SV5/HB9COG dxpedition I worked them on all bands except 13 cm, where I had interference. I now knew where it was coming from but the dxpedition is over. I worked in the ARI Contest on 23 cm using Q65C unless noted DL4DTU, UA9FAD, PA3FXB, OM4XA, IK2DDR, OK1KIR, UA9FAD (DUP), IK3COJ, OK1UGA, OK1KIR CW, IK1FJI CW, SP7DCS CW, G4EZP JT65C, RA3EME JT65C, DF2VJ JT65C, DG0FE JT65C and for digital initial {#430}, IK7EZN JT65C, N5FB JT65C, I7FNW JT65C, G3LTF CW, SM5DGX CW, KB7Q {#431} and N0CTR {#432}, KB2SA, IK2DDR CW for initial #452, SV5/HB9COG {#433} and CT1BYM {#434} for a total of 27 contacts; on 3400 using Q65C unless noted SV5/HB9COG for digital initial {#21} and DXCC 24; on 6 cm SV5/HB9COG using Q65D for digital initial {#28} and on CW for initial #44; and on 3 cm using Q65D SV5/HB9COG for digital initial {#35} and DXCC 69 and DL3WDG {#70}, and back on 23 cm CT1BYM Q65C {#434}. More info on my new dish can be found at 8m_offset (ok1dfc.com).



**OK1DFC's new 8 m offset dish**

**OK1KIR:** Vlada vlada.masek@volny.cz and Tonda write on the ARI EME Contest and EME dxpeditions by SV5/HB9COG and KB7Q – The evening before ARI Contest we worked on 23 cm with Q65C at 2036 RJ3DC (12DB/11DB). In the whole ARI EME Contest we operated only on 23 cm. We collected 65 QSOs of which 29 were CW and 36 digi. We gained 7 CW and 6 digi multipliers. In total we acquired 3040 points; and added DK2VJ and RU4AN digi initials. On 28 Sept during the first moonpass of the SV5 dxpedition we worked them with JT65C on 2304 instead of 2320 due to WiFi trouble at SV5 at 2156 (14DB/18DB) for digital initial {#80} and the 1st SV5/OK 13 cm QSO. Later we repeated on 2320 at 2210 using Q65C SV5/HB9COG (15DB/15DB); and on 29 Sept at 0007 SV5/HB9COG (O/529) using CW for initial #188; and also QSO'd at 0650 W2HRO (3DB/2DB) {#81} with a huge signal. In the next orbit, on 30 Sept we worked on 9 cm at 0250 SV5/HB9COG (14DB/13DB) using Q65C for digi initial {#45} and the 1st SV5/OK 9 cm QSO, and 0437 using CW SV5/HB0COG (539/529) for initial #86; in the morning we switched feeds to 23 cm for at 0611 OH3DP (21DB/15DB) for digi initial {#436} using JT65C and 0731 KB7Q (15DB/13DB) dxpedition to WY in DN70{#437} Q65C, 0759 DL1DWI (14DB/16DB) Q65C, and 0925 KB7Q (O/O) CW for initial #491; and in the next orbit, still on 30 Sept, on 6 cm, just a few degs above horizon, at 2252 SV5/HB9COG (15DB/15DB) using Q65D for digi initial {#52} and a 1st SV5/OK QSO on 6 cm, 2330 SV5/HB9COG (O/O) CW for initial #117, and 2355 UR7DWW (549/559) CW. We added on 1 Oct still on 6 cm at 0255 UR5LX (12DB/11DB) Q65D; at morning, we changed to 70 cm using JT65B for at 0924 KB7Q (16DB/28DB) in NE (DN82) for digi initial {#290}, 0946 RD3FD (13DB/15DB), 0954 OH3DP (30DB/22DB) {#291}, 0959 DC2TH (21DB/20DB) {#292} and at 1017 W7JF (30DB/22DB) {#293}; then we installed 3 cm for at 1236 G4RFR (1DB/7DB) using Q65D for dig initial {#218} with an excellent signal, 1242 DF2GB (18DB/11DB) Q65D {#219}, and 1307 WC8VOA (O/O) CW. On 2 Oct in the night, still on 3 cm at 0013 SV5/HB9COG (16DB/16DB) using Q65D {#220} and 1st SV5/OK QSO on 3 cm, 0201 SV5/HB9COG (539/539) on CW for initial #144, 0229 OK2AQ (549/569) CW, 0239 F2CT (559/549) CW, 0701 DL3WDG (also G3WDG) (11DB/9DB) Q65D {#221} and 0756 DL4KGC (also G4KGC) (9DB/10DB); after which we returned to 23 cm for at 0910 KB7Q (14DB/11DB) using Q65C in DN82 of NE {#438}, and 1058 KB7Q (O/529) CW #492. We QSO'd on 23 cm on 3 Oct at 0551 SV5/HB9COG (13DB/11DB) using Q65C {#439}; and on 4 Oct at 0808 SV5/HB9COG (539/529) CW #493. On 5 Oct, the last day of the SV5 dxpedition, they were on 70 cm with a single 11 el yagi and only 50 W. We tried different WSJT modes with 1.5 kW into our 6 m dish without any success. We did copy a few CQ decodes (29DB and 30DB) levels, but they did not copy us. Later we worked at 0802 IW4ARD (9DB/19DB) Q65B {#294}.

**OZ1FF:** Kjeld kjeld@oz1ff.dk was active on 3 cm EME in the beginning Oct -- I worked using Q65D DF2GB in JN39 for my mixed initial #83*, SV5/HB9COG in KM36 #84* and the 1st SV5 – OZ 3 cm QSO -- an easy QSO despite dish pointing into birch tree causing ~ 4 dB loss, and DL3WDG in JN68 #85*. My station is 2.4 m offset dish, 50 W SSPA @feed and an LNA with a 0.64 dB NF.

**PA0PLY:** Jan pa0ply@pa0ply.nl report on his early Oct and late Sept EME -- After the relocation earlier this year to JO32lr, I managed to have my dish up and running again. I have started with my 10 GHz equipment. I installed and

tried calibrating positioning using my moonnoise meter. This meter is based on an AD8313 and did function very well until now. For some reason it shows erratic movements of the meter, which I could not cure. **I changed to a SAT LNC with an RTL dongle and I0NAA total power software (SW). This gives me a reading resolution down to 0.1 dB. Mario's SW is very helpful to check pointing. Off the IF of the TS2000, I use a Softrock receiver connected to MAP65. This helps a lot in finding those off frequency guys, HI!** I worked using Q65D unless noted during the ARI Contest weekend on 3 cm, on 24 Sept OK2AQ (11DB/12DB); on 25 Sept DF2GB (17DB/8DB); on 26 Sept OK1CA (8DB/7DB) (559/559), OK2AQ (12DB/14DB), DL4DTU (12DB/8DB), IK6CAK (13DB/15DB), F2CT (529/559) using CW and HB9BBD (559/419) CW for 8 contest QSOs; after the contest on 2 Oct SV5/HB9COG (13DB/16DB), OK2AQ (10DB/12DB), UR5LX (16DB/14DB), OH2DG (18DB/16DB) and (529/539) CW; on 4 Oct IK0HWJ (8DB/18DB), G4YTL (17DB/19DB) and SM6CKU (13DB/15DB); and on 5 Oct partial IZ4BFA (18DB/-), SM6CKU (13DB/13DB), DF2GB (15DB/8DB) and G4BAO (16DB/14DB) - John was the smallest station I have worked so far with a 1.1 m dish and 25 W. I tried with JA6XED, crossband (XB), but our moon window was quite small, only 15 min. I heard Hisao (529) but we could not complete. **I upgraded my TS2000X with the latest firmware, which should it make possible to run CFOM in digital mode as well. Further, I am preparing for GPS control of the oscillators in my transverters and the TS2000, using a GPSDO and 15.6 MHz PLL from DF9NP.**

**PA3DZL:** Jac pa3dzl@icloud.com sends news on his recent multiband activity -- I was very happy to QSO SV5/HB9COG on 5 different bands: 23, 13, 9, 6 and 3 cm. All bands gave me a new DXCC. It was also great to QSO with the KB7Q dxpeditions and W1QA pre-dxpedition tests. At the end of Aug, I worked on 1296 N1AV, CE3VRT for a mixed initial (#*) and DXCC, N6NU (#*) and TX7EME (#*) and DXCC. The beginning of Oct yielded on 23 cm KB7Q (#*) from NE, NØCTR (#*), VE7ZD (#*) - nice sign from 2 x 45 el loop yagis and 300 W, W1PV (#*), VE3NXK, OK1UGA (#*), I7FNW, IK7EZN, W1QA (#*), N6NU, FG8OJ (#*) and DXCC, AA6I (#*) and W1LY (#*).

**PA5Y:** Conrad g0ruz@g0ruz.com is now putting out a big signal on 432 – I was active in the ARI Contest using Q65B unless noted and work on 25 Sept G4FUF, RA3EME, 4Z5CP, W2HRO, DL7APV, DL7APV CW, 7M2PDT, JA4UMN, 0Z1SKY, RU4AN, DL6KAI and UA4AQL; on 26 Sept NC1I, SM3LBN, DL8DAU, KK6FAH, SM4GGC, PA4VHF, K2UYH, PA2CHR, IW4ARD, ON4AOI, SM2CEW CW, K2UYH CW, 9A5M, N1QG, VK2CMP, F4VTP, JA4UMN DUP, JH7OPT, DG0KW and JF6CTK. I ended with 31 contacts and 3 on CW, but only one Italian station.

**SM6CKU:** Ben ben@sm6cku.se writes about his recent EME -- The weather has been very bad - 100 mm of rain in a couple of days and high winds too. SV5/HB9COG on 6 cm did not happen because of a broken PSU. I had good echoes the day before. On Saturday, 2 Oct, I made it on 3 cm with them; KB7Q in NE, with a very consistent signal, was also worked but on 23 cm. On Sunday, 3 Oct, I added SV5/HB9COG on 23 cm despite problems with both power and drift; I also QSO'd on 23 cm for an initial W1QA. Three other initials were worked on 3 cm with DF2GB, G4RFR and G4YTL. All QSOs were with Q65D on 3 cm and Q65C on 23 cm.

**SP7DCS:** Chris sp7dcs@wp.pl sends news on his ARI Contest participation -- I was QRV only on 1296 for a few hours from Saturday to Sunday and had a great time on CW. I operated in the 1.2GHz/Categories-B/6m dish CW/SSB/Mode/. I made 23 CW QSOs (92 points) x 7 Italian CW (14 mults) = 1,288 points. Logged were on 25 Sept IK3COJ, SP6ITF, SM5DGX, IK3MAC, RA3EME, IK1FJI, PA3FXB, I5MPK, UA9FAD, OK1KIR, OM4XA and OK1DFC, and on 26 Sept IK5VLS, RA3EC, OK2PE, LZ2US, IK2DDR, G4CCH, DG5CST, WK9P, DF3RU, G3LTF and IW2FZR.

**SV5/HB9COG:** Dan's (HB9Q) preliminary report on his group's great Rhodes dxpedition follows – We started on 13 cm on 29 Sept with 6 dB of Sun noise and finished with 13 initials. Most stations were worked using Q65C, 4 stations with CW for a total of 16 QSOs. The next day, 30 Sept we were set up on 9 cm with 6 dB of Sun noise. We started at 0300 and finished 13 initials. Most stations were worked using Q65C, 5 with CW for a total of 18 QSOs. We were on 6 cm on 30 Sept from 2230 to 2300 and then on 1 Oct from 0300 to 1100. During test we had 7 dB of Sun noise. We finished with 20 initials. Most stations were worked using Q65D, 5 stations with CW, for a total of 28 QSOs. Next, we were QRV on 3 cm, on 1 Oct at 2330 to 2 Oct at 1130 with 9 dB of Sun noise. We finished with 26 initials. Most stations were worked using Q65D, 1 with Q65-120E and 2 stations with CW for a total of 28 QSOs. On 23 cm we had 5 dB of sun noise and were activity on 3 Oct from 0030 to 1230 and 4 Oct from 0140 to 1300. We worked 67 initials the first day and increased to 73 initials the second day. Most stations were worked using Q65C and 8 stations with CW for a total of 81 QSOs. We tried 70 cm on 5 Oct from 0530 until about 1400using Q65B. We completed only 2 initials. Conditions were very difficult, Europe to Europe was most of the time at 90 cross pol. With our QRPP equipment of a single 11 el yagi and 60 W we were very much limited. We are sorry for those trying to work us with no success. QSLs should be send with an SAE to: HB9Q, PO Box 39, CH-5737 Menziken. More information will follow including pictures, on our web-page, www.hb9q.ch. We hope to do our next dxpedition in spring 2022, Covid permitting. Stay tuned!

**VE3KRP:** Fast Eddie eddie@tbaytel.net sends his Oct report on 1296 EME and is getting ready for the first snowflakes – I worked on 23 cm using Q65C on 3 Oct SV5/HB9COG for a new mixed initial (#*) and DXCC, ZS5Y, YO5BIN (#*) and OK1UGA; and on 4 Oct SM5DGX - (his signal dropped from 3DB to 17DB when his PA flashed over), FG8OJ (#*) and DXCC, N8NU (#*), W1PV, N0CTR, CT1RYM (#*), IK7EZN, W1LY (#*) and KB2SA. It was nice to see all the good activity on the band!

**VE4MA:** Barry barryve4ma@gmail.com was a leader in getting the 902 EME weekend going, but had some problems – During the first weekend (25/26 Sept) Murphy visited more than a few of us. Most activity was using Q65C. I copied PY2BS fine. Then something failed and my TX dropped to 140 W; so, Bruce did not see me. VE6TA had a good QSO with Bruce. K5DOG was seeing weak echoes, but did not make it with Bruce. KL6M arrived late, also had TX problems and made no QSO. Bruce may have had a PA failure. My T/R relay failed completely; however, my preamp is OK. The activity the second weekend (2/3 Oct) on 902 was limited due to the 1296 dxpeditions. This time I was able to get a 400 W PA operating FB. On 2 Oct I worked K5DOG (14DB/15DB). I needed to operate with vertical pol to copy Steve. Later, I worked VE6TA (11DB/11DB) with a very nice signal and horizontal pol. I tested with N8DJB on CW, who had a very nice signal, but was having RX problems; so no QSO. I worked W5LUA (16DB/19DB) and then the surprise of the weekend was the appearance of W3RGQ, who just finished his station in time for the activity. He was using his 3 m dish but with only 50 W. We QSO'd (26DB/19DB). I continue to work on preparations for 47 GHz EME; and am working on Sun noise checks this week. I have sent a power sensor away for calibration so that I have a more accurate reading of my TWTA power soon. It looks that I will be going to winter in AZ again starting in Dec. I am not yet sure what bands I will operate on EME while there.

**VE6BGT:** Skip's macaulay.skip@gmail.com Oct submission to the NL follows -- My 21' dish has been out of commission for the last month after working on and building up parts and pieces for the huge slew gear upgrade for the azimuth drive over the summer. Before I was using a chain that ran off a drive shaft at the top and over to a rotating head assembly the dish was mounted to. It had terrible slop and using the dish above 13 cm with any kind of wind was impossible. The new slew gear weighs in at 180 pounds and took some reengineering to get it all to work. Before, the main mast pipe was fixed; and I wanted to replace it with a larger pipe. My dish on this mast, hinges over by means of a winch, to lower the whole dish assembly. The main mast was increased to a 5.5 inch pipe and uses a large truck bearing at the bottom, which is also used for hinge to wich over the dish assembly. Since in the new design, the whole mast rotates, I had to have some kind of bearing at the top. This bearing is a huge ring bearing that was mounted to the mast before being winched up into the tower frame. The large slew gear sits at the bottom below the hinge bearing. After the dish and mast were winched up into position, a smaller winch was used to raise the big slew gear up to the middle of the tower frame. A mounting frame was then slid in under it and bolted to the frame, and the slew gear lowered onto it. It was bolted down; and the motor and other parts assembled on it. It takes around 17 minutes to rotate 360 degrees at full speed. My PWM control circuit runs it perfectly for slower tracking. I am using a specially built multi tooth sprocket on the worm gear opposite to the motor, and two proximity switch sensors for positioning sensing. This arrangement and some math in the PIC code of my controllers, makes it work within 0.1 of a deg accuracy over the whole rotation. As for it being solid in the wind, I am very pleased with the result. I can't wait to try it on 6 cm. [Hopefully in the ARRL MW Contest].

**VE6TA:** Grant ve6ta@xplornet.com has been busy off the Moon in the beginning of Oct -- Unfortunately the moonrise times were very early and many changes of feeds were required to keep up with the activity. My primary dxpedition of interest was SV5/HB9COG in KM36. I have a limited window to the east with many large trees; so, I only worked them on two bands, and decoded them on a third, 3 cm just prior to their loss of the Moon. In addition, there was some very nice activity on 902 spurred on by VE4MA. Stations recently worked were on 9 cm using Q65C SV5/HB9COG for mixed initial #56* and DXCC 25*, KN0WS #57* and State #10 and DF3RU on SSB; on 6 cm SV5/HB9COG using Q65D for mixed initial #40* and DXCC 20 and K2UYH on CW – (my transverter refused lock to a 10 MHz reference due as later discovered a bad connection, so it was more difficult to work the SV5 on digital modes); and on 3 cm using Q65D OK2AQ, F6BKB, G4RFR for mixed initial #26* and DXCC 16, and decoded SV5/HB9COG on his moonset but ran out of window. During the second 902 AW, I worked using Q65C VE4MA, K5DOG, W5LUA and WA3RGQ for initial #9* and State 6. I also copied N8DJB calling on CW, but he appears to have been having some receive issues and no QSO resulted. All in all, a pretty good week of activity on some lesser used frequencies. The new slewing drive is working very well in windy conditions. I find that I have lost some Sun noise on 3 cm, so will have to sort that out while the Sun still appears above my trees this fall.

**W1E:** Frank (NC1I) reports that plans are in place for a 432 dxpedition to CT using the W1E call as follows -- W1QA, KA1QFE, KU1RT, and NC1I will be activating Connecticut on 432 on the weekend of 30/31 Oct. There is also a chance that we will be on for the last hour or two that we have moon on Friday 29 Oct. We will arrive at the site around 1300 Friday and begin setting up. Our operating frequency will be determined once we have everything set up and working, and we are able to listen/look for a quiet frequency. We will be using the HB9Q logger and will post our frequency there. The grid is FN32 just over the MA line in CT. The operating mode will primarily be Q65B, but when things are slow, we can go to JT65 and CW (for the big guns) on request. We will have about 600-700 W to the feed of 4 x M2 12 el yagis with polarity rotation - (see complete station details in W1QA's report). This system will have about 2.5 dB less gain than the system we have used in prior 432 dxpeditions. We feel the tradeoff in having polarity rotation will be well worth the drop in gain. Operating times

are 29 Oct (possibly) from 1630-1830, 30 Oct 0500-1900 and 31 Oct 0615-1500. Hours are subject to change depending on activity (or lack of) and weather. As in the past, all stations worked will automatically be mailed a QSL card to their qrz.com listed address. If anyone wishes their card to be mailed to a different address or if their address is not shown on qrz.com, please email NC1I at frank@nc1i.com and provide the correct address. There is no need to send an SASE/SAE with cash, or a QSL card. Everyone will be mailed a QSL card within a few days after the dxpedition. If you want to send a card in return you can mail it to NC1I's qrz.com address.

**W1QA:** Bob bob@w1qa.com reports on his testing of his group's new 432/1296 dxpedition station -- After many hours of work, we have completed the new portable station in hopes of activating rare east coast States on both 432 and 1296. Our objective was to put together a portable station that was large enough to complete QSO's with the vast majority of stations that are active on these bands. The other goal was to make the station much easier to set up than our previous portable stations. I believe we have accomplished both of our goals. It took us about 90 minutes to switch from 432 to 1296 (had to take the 432 array down and mount the dish) but it should not take us nearly as long next time. The 432 station uses 4 x M2 12 el yagis with mechanical polarity rotation. The amplifier is a BEKO HLV-1470 running at 1 kW providing about 600 W at the feed point. Preamp is a WD5AGO cavity. On 1296, we are using a 2.4 m TVRO dish, KL6M feed and a G4DDK preamp. The amplifier is a new BEKO HLV1023. This amp easily produces 1 kW; however, we kept it at around 750 W, which provides 375-400 W at the feed. Common components for 432 and 1296 include an IC9700 (modified with split TX/RX connections) with Leo Bodnar Reference Injection board and Precision GPS Reference Clock, HA8YU Hamtech HSQ5-EME-5V sequencer, and bandpass filters by Antennas-Amplifiers. The antennas/dish are mounted on a 3" slew drive provided by W2HRO/Sub-Lunar and controlled by a Green Heron RT-21 AZ/EL controller. A PST rotor was used for 1/10-degree tracking. This system worked flawlessly. Bob is in the progress of uploading details and images of both the antenna setup and equipment on his website <w1qa.com>. We set everything up at a convenient site in MA and put the station on the air for the first time on 2 Oct. Activity started on 432. Our first QSO was at 1001 with DK3WG (13/DB/13DB), followed by DL7APV (6DB/6DB), PA3CSG (10DB/14DB), OZ1SKY (17DB/26DB), UT6UG (7DB/16DB), N1QG (22DB/19DB), G4FUF (15DB/19DB), PA5Y (10DB/14DB) and KU4XO (19DB/25DB). Activity seemed low on 432, but I believe there was a European UHF tropo contest over the weekend. On 3 Oct we switched to 1296. Our first QSO was at 1116 with SV5/HB9COG (23DB/18DB) followed by PA3FXB (17DB/12DB), DK3WG (19DB/15DB), I1NDP (5DB/3DB), UA9FAD (20DB/10DB), OK1UGA (18DB/8DB), K5DOG (11DB/18DB), IK2DDR (14DB/12DB), N1AV (17DB/13DB), IK3COJ (16DB/9DB), W2HRO (19DB/18DB), RX6AIA (20DB/18DB), DF2VJ (21DB/17DB), SM6CKU (10DB/5DB), RN6MA (23DB/16DB), PA3DZL (10DB/12DB), SM5DGX (8DB/6DB), ES3RF (14DB/15DB), F1RJ (14DB/15DB), IK7EZN (19DB/17DB), G4FUF (25DB/22DB), KB2SA (16DB/17DB), N6NU (21DB/14DB), N5BF (21DB/18DB), K2UYH (7DB/6DB) and N0CTR (20DB/16DB). We were very pleased with the performance of the new set up and really look forward to activating rare States on both 432 and 1296.

**VK2CMP:** Mick vk2cmp@me.com is relatively new on 432 and reports on his recent activity -- I had 3 initials in the last month with JF6CTK, JR7PJS and OZ1SKY for a new DXCC. I had just completed upgrading my TX feedline to 7/16 DIN connectors, including swapping out the TX relays, power dividers and LNAs. The new relays have excellent isolation and low loss. The new setup should give me close to 0.5 dB less loss in front of the LNA! I recently applied to the ACMA (our FCC) for a high power permit and have submitted lots of forms and calculations over a 3 month period. Fortunately, when the inspector finally rang me to arrange a site survey, he had the same calculations. Interestingly they measured my direct on-axis field at ground level using a very expensive NADA field strength meter (seems the days of battery powered 435 power meters and 10 cm horns are gone). They averaged over 10 minutes, 3 times. I had to point the antenna down at negative elevation for some of their tests. They did not measure again at 0 degs elevation – not clear why. My premise is that with the antenna at 10 m high and 0 degrees elevation the exclusion zone is 5 m in the air above ground level and in addition I also offered to limit the antenna elevation to be greater than 9 degrees elevation, which would provide some 6 dB additional headroom. I guess they are using the antenna data, I provided to estimate the field safe levels. At least I will have better RX regardless of the outcome high power request. EME really is like a game of golf, it's that one good shot (QSO) that keeps you coming back and in the case of EME looking for ways to keep improving the system - especially important for us small stations.

**W3CJK:** Bill n46jenny@gmail.com in RI is very pleased with his new dish for 1296 – I rescued a 3 m former SAT TVRO dish. It was missing 3 panels, needed much work. It is now operational on 23 cm. I am using a Slew drive and patch feed from W2HRO, a G4DDK VLNA at feed, an ICOM 9700 to BEKO HLV 350. It seems to perform well. I worked both TX7EME and SV5/HB9COG.

**W3CJK's 3 m dish with W2HRO patch feed**

**W5LUA:** Al's w5lua@sbcglobal.net Oct report follows -- On 22 Aug, I worked CX2SC on 5760 for the first CX-W QSO. On 30 Aug, I worked TX7EME on 1296 using JT65C and again on 1 Sept on CW. On 1 Sept, I was also able work CE3VRT on 1296 using Q65C. In late Sept/early Oct, I was able to work the SV5/HB9COG expedition on 2304, 3400, 5760 and 10368 MHz for new DXCCs. I also worked DL4DTU on 5760 with Q65D. On 3 Oct, I installed my 902 feed and worked VE6TA, VE4MA, K5DOG and WA3RGQ using Q65C. I finished up by working FG8OJ on 1296 Q65C for another DXCC. I plan to get back to work on the 47 GHz EME project in the next month by testing my revised TWT HV power supply wiring.

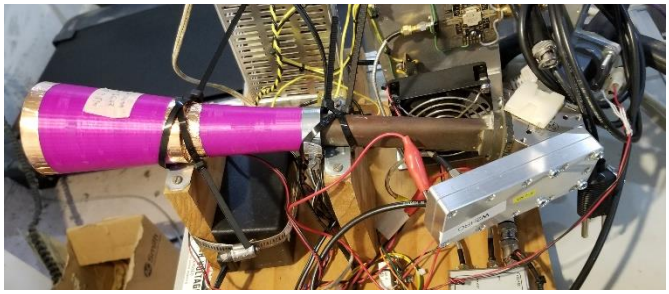
**WA3QXP:** Paul wa3qpx@atlanticbb.net wants folks to know that he is alive and QRV on 1296 EME from DE – Just email me if you want a sked. I will also be on in Nov for the ARRL EME Contest and especially looking for stations needing Delaware. I will be checking the HB9Q logger during the contest. My station is a12' TVRO dish, KL6M feed with 300 W at feed using DEMI's latest XVTR to a Flex 6300. I have no current plans bands above 1296.

**WA3QXP's 12' dish with 1296 feed located in DE**

**WA3RGQ:** Don donhawbaker@outlook.com is now located in FL year round -- Following my permanent move from Pennsylvania to Florida in Aug, I have been busy preparing for the Oct ARRL MW EME Contest. At my new QTH, I plan to have two 3 m TVRO dishes and a 1.5 m prime focus dish. I am going to try to operate on the 13, 6, and 3 cm bands during the first weekend of the contest. When I saw the announcement about a 902 EME activity weekend, I began collecting parts. I should have worked a little faster. The feed did not arrive until Saturday morning. When I went on the air Sunday, I think some of the solder joints were still warm. But everything worked. I made good contacts with four stations: K5DOG, VE6TA, W5LUA, and VE4MA. There were some challenges. Because of a cell phone site one half mile away, I have to use a very narrow bandpass filter in front of my preamp. And then the amplifier I purchased advertised at 120 W, turned out to be 50 W. I was still able to make contacts and could see my own weak echoes. It was a good weekend. There was some discussion about polarization. I think we were all using linear, some horizontal and some vertical. It did not seem to matter. If I would have had more time, I would have hooked up a relay to switch between the two. A future project, along with many others. 902 is the fifth band I have made EME contacts on. Now I need to tidy up the system boxes a little. Operating EME is a full-time job to just keeping everything running.

**K2UYH:** I (Al) alkatz@tcnj.edu was busy off the Moon TNX to the ARI Contest and the wonderful dxpedition activity. I worked during the ARI EME Contest on 1296 using Q65C unless noted at 0519 PA3FXB (7DB/9DB), 0523 DF2VJ (14DB/11DB), 0531 N1AV (12DB/10DB), 0534 IK7EZN (16DB/13DB), 0539 UA9FAD (13DB/17DB), 0550 I7FNW (6DB/11DB), 0607 OM4XA (15DB/10DB), 0614 IK2TIF (21DB/14DB) for mixed initial #693*, 0630 OK1KIR (+1DB/1DB) – [first WSJT + report I can remember!], 0656 IK1FJI (569/569) using CW, 0706 IK3COJ (559/569) CW, 0718 ON5GS (569/569) CW, 0731 N6NU (12DB/11DB), 0737 I0NAA (12DB/5DB), 0753 G3LTF (569/579) CW, 0804 IK2DRR (559/559) CW for initial #436 and 0812 OK1KIR (579/589) CW; then switched to 432 using Q65B unless noted at 0846 F4VTP (28DB/26DB) for mixed initial #1039*, 0959 WA1FXK (20DB/20DB) #1040*, 1206 7M2PDT (21DB/21DB) #1041, 1212 JR7PJS (24DB/28DB) #1042*, 1228 JH7IHV (26DB/18DB) #1043*, 1236 KB0Z (21DB/25DB) #1044*, 1244 KU4XO (14DB/24DB), 1258 K7ULS (19DB/33DB), 1346 JF6CTK (18DB/21DB) #1045* and 1410 JA4UMN (24DB/23DB); on 26 Sept still on 432 at 0619 PA5Y (10DB/19DB), 0624 PA4VHF (17DB/21DB) #1046*, 0636 PA2V (8DB/13DB), 0642 DL8DAU (15DB/16DB), 0650 SM3LBN (21DB/18DB) #1047*, DG0KW (22DB/18DB) 1048*, 0718 IW4ARD (15DB/22DB) 1049*, 0722 PA2CHR (17DB/19DB), 0815 PA5Y (559/559) using CW for initial #749 and 0822 SM2CEW (589/589) CW; switched to 1296 using Q65C at 0908 SM5DGX (+1DB/1DB), 0914 NB5BF (10DB/8DB), 0920 DG0FE (10DB/14DB) #695*, 0926 G3ALF (23DB/15DB) #696* and 0938 IK3COJ (6DB/6DB); back to 432 using Q65B at 1408 JH7OPT (17DB/23DB), 1434 JA1TGO/R (24DB/23DB) #1050*, 1408 JH7OPT (17DB/23DB), 1450 W7MEM (13DB/24DB) and 1514 JR7JPS (22DB/17DB) DUP. I ended with 24 contacts (2 on CW) on 432 and 22 (6 on CW) on 1296. On 29 Sept my station was set up for 2304 EME while I was at a conference in WDC. W2HRO kindly came to my QTH at 3 am local time, while I was on the telephone, to QSO at 0612 SV5/HB9COG (19DB/22DB) using Q65C for mixed initial #130* and DXCC 35 – TU Paul. I was back home on 30 Sept to switch feeds for 9 cm, get an hour or so sleep and work at 0820 SV5/HB9COG (15DB/14DB) Q65C for mixed initial #69* and DXCC 34, and 0852 SV5/HB9COG (O/O) CW for initial 55; on 1 Oct with my 6 cm feed now in place, I added at 1120 SV5/HB9COG (15DB/14DB) Q65C for mixed initial #71* and DXCC 35 – (this was a cliffhanger as I could not find the Moon at first

and only found it at Dan's moonset), 1120 DL4DTU (11DB/21DB) Q65C #72* and 1133 VE6TA (559/559) CW; and on 2 Oct I was on 3 cm to QSO at 1008 SV5/HB9COG (13DB/17DB) Q65D for mixed initial #65* and DXCC 29, 1026 DL3WDG (17DB/17DB) Q65D #66*, 1032 OK2AQ (14DB/15DB) Q65D, 1040 F5VKQ (12DB/12DB) Q65D #67*, 1048 DF2GB (17DB/17DB) Q65D #68*, 1153 G4RFR (2DB/13DB) Q65D, 1351 F6BKB (18DB/13DB) Q65D 1356 and 1410 CX2SC (22DB/17DB) Q65D #69* and DXCC 30. I was back on 1296 to work using Q65C unless noted on 3 Oct at 1048 SV5/HB9COG (15DB/12DB) #697* and DXCC 122, 1104 IK2DDR (9DB/5DB), 1134 RX6AIA (14DB/14DB) #698*, 1146 RN6MA (17DB/10DB) #699*, 1245 I1NDP (589/579) CW, 1245 partial I5MPK (569/?) CW – disappeared, 1314 OK1UGA (8DB/0DB), 1332 F1RJ (9DB/6DB) #700* - (worked before but missed as an initial), 1338 FG8OJ (17DB/10DB), 1346 N6NU (10DB/6DB), 1403 W1QA (6DB/7DB) #701*, 1453 N0CTR (10DB/6DB) and 1507 KB2SA (7DB/9DB); and on 4 Oct at 1120 SV5/HB9COG (O/O) CW for initial #437. Quite a month! I am now looking forward to the ARRL MW Contest. We will probably start the first day on 3 cm and then switch to 13 cm. The next day we will start on 6 cm and switch to 9 and then back to 13 or 3 cm. I have made some progress on improving the performance of my dish on 3 cm. I am testing a 0.9 f/D feed based on a W1GHZ design. The horn was produced by KN0WS using 3D printing. I appear to be getting about 0.5 dB increase in moonnoise or about 1.5 dB. I have more work to do, but will be trying it in the MW Contest.



**K2UYH 3D printed 3 cm feed mounted for test**

**NET/CHAT/LOGGER NEWS: HB9BBD** was QRV on 3 cm for the ARI Contest and is looking forward to coming activity weekends. **N1AV** is QRV on 902 with his 2.4 m dish and 350 W. Jay plans to be QRV for the 902 activity weekends. Plans HI dxpedition are for Feb on 1296 and 902. **N8DJB/4** is QRV on 902 with a 5.6 m dish and up to 600 W from his SSPA. If interested in skeds contact Craig at n8djb@coastalwave.net. **KL6M** tried to be QRV for the 902 AW but had power supply troubles and never did get power output. I copied PY2BS very well with quality good enough for JT or CW. **PY2BS** also had a PA failure, but worked VE6TA (18DB) before losing his SSPA. He also copied K5DOG (23DB) later. Bruce should be QRV on 902 again soon.

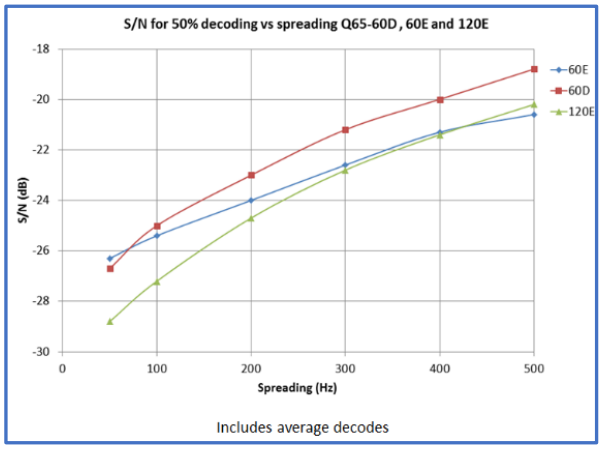
**FOR SALE: WA2FGK** has a 1296 and a 2304 EME dish feeds for sale. If interested contact Herb at wa2fgk@yahoo.com or (570 829-2695). **N9SD** has for sale a brand new Cushcraft 13B2 yagi, sequencer and 160 W mirage amp. Asking $500. If interested contact Scott at sdawley1@gmail.com. **PA3DZL** has for sale nice N and SMA switches/coax relays. DowKey N-type high power at 1.3 GHz and SMA multi position switches to 18 GHz from Narda and Amphenol, and more. He also has Microlab/FXR Signal Samplers good from 50 MHz to 12 GHz to PWR 500 W. For more info contact Jac at pa3dzl@icloud.com. Also, **PA3DZL and PA7JB** have for sale a 3 cm 22 W SSPA http://ok2kkw.com/next/pa3dzl_10g_sspa_ver1-7_20-8-2021.pdf [TNX AF4JF]. **DL2AM** has available 10 GHz parts for EME and radio astronomy including a 3 cm transverter with 6 W out for EU950. See http://www.dl2am.de/pa1d.htm for more info. **DL0SHF** has for sale QRO 3 cm TWTs. See http://filmserver.dl0shf.de/MoonEME/equipment-for-sale/ **PA0PLY** has Varian TWTs and DU3BC's LNAs for sale at http://www.pa0ply.nl/sspa_amplifiers.htm. **PE1RKI** has a 3 cm 8 W SSPA http://www.pe1rki.com/10ghzamplifiers.html. Feeds for 10 and 24 GHz can be found at RFHam Design at https://www.rfhamdesign.com/products/dish-feeds/**.** 3 cm MKU/B at https://www.ebay.com/itm/324823931947**. DB6NT**'s parts at http://www.db6nt.de/en/for-sale.html and more at Kuhne web https://shop.kuhne-electronic.com – (DLs use https://funkboerse.de/dsuch.htm) where you can find a 4.5 m solid dish from **DL7YC** and much more; just try google translator and you'll see.

**TECHNICAL BY G3WDG:** There is a need for a better understanding of the Q65 modes by users who are trying to work very marginal signals, especially on the higher MW bands. For most QSOs the standard modes work very well, but when trying to work a very small station that you can't decode, the choice of modes can be critical. For a signal that has sufficiently low spreading, simply going to the next lower mode; going for example from say 60D to 60C will improve sensitivity. However, the program does use adaptive filtering, so that if you were using 60D and the spreading is sufficiently low, it would use narrower internal filtering, so that the difference between 60D and 60C would not be as much an improvement as you might expect. On 10 GHz and up, where spreading is high, you can fall into the trap of using a mode that is too narrow. Then, the energy from one tone will spill too much into the adjacent tone's bin. Most operation there is with 60D, following Joe's recommendation in the Quick Start Guide as to what mode to use on what band. However, often the spreading is too high for 60D, and 60E would be better. This is the reason we run the DL0SHF Beacon most of the time on 60E. For a while normal 3 cm activity was also on 60E, but possibly the SV5 expedition's decision to use 60D has moved folks back to 60D (for now). The longer period modes are certainly generally more sensitive, since more energy is transmitted for the same amount of data in a longer time - (basically tones are longer duration for the longer period modes). What does confuse some folks is the notion that the tone spacing is fixed for each designator letter. This is not true; when you change period length, the tone spacing reduced. For example when you go from -60D to -120D, it is reduced by more than a factor of 2. **So, if 60D was the optimum mode at the time and you wanted better, you should go to 120E to get the benefit of the longer period**

**and keep roughly the same tone spacing to be compatible with the spreading.** The following table shows the tone spacing and signal width for the different submodes:

| T/R Period (s) | A Spacing (Hz) | A Width | B Spacing (Hz) | B Width | C Spacing (Hz) | C Width | D Spacing (Hz) | D Width | E Spacing (Hz) | E Width |
|---|---|---|---|---|---|---|---|---|---|---|
| **15** | 6.67 | 433 | 13.33 | 867 | 26.67 | 1733 | N/A | | N/A | |
| **30** | 3.33 | 217 | 6.67 | 433 | 13.33 | 867 | 26.67 | 1733 | N/A | |
| **60** | 1.67 | 108 | 3.33 | 217 | 6.67 | 433 | 13.33 | 867 | 26.67 | 1733 |
| **120** | 0.75 | 49 | 1.50 | 98 | 3.00 | 195 | 6.00 | 390 | 12.00 | 780 |
| **300** | 0.29 | 19 | 0.58 | 38 | 1.16 | 75 | 2.31 | 150 | 4.63 | 301 |

(Ref: https://physics.princeton.edu/pulsar/k1jt/Q65_Quick_Start.pdf).
The following graph from my simulations using Joe's simulator shows how decoding threshold varies for three submodes commonly used on 10 and 24 GHz:




You can see, comparing 60D to 60E, that above a spreading of about 70 Hz, 60E is more sensitive. This is why since most of the time on 10 GHz spreading is more than 70 Hz, 60E is the better 60s mode. In the early days of Q65 a number of stations experimented and agreed with this conclusion. Comparing 120E to 60E, you can see it offers clear benefits up to about 300 Hz spreading, above which the tone spillover dominates over the longer period length. At very high spreading, the 120s is actually worse. For very high spreading we really need a 120F mode, but this remains to be implemented by the developers. Folks also wonder how Q65 copes with signals that are wider than the tone spacing. The answer is that the "fast fading" algorithm used to find the center of a spread tone is very good. It can distinguish up to a certain point the center frequency of a spread tone with excellent precision.

**ASTRO CORNER WRITTEN BY OK1TEH:** Hi, today I would like to bring to your attention the discovery of a new radio source located near the center of our galaxy, Askap J173608.2-321635. This object does not correspond to any other known radioastronomical source. As reported by the research leader, Ziteng Wang from the Australian University of Sydney, its strangest feature is that its signal has very strong polarization and fluctuations. The source appears to turn on and off randomly. According to Wang, we haven't seen something like this before. His first thought was that it is a pulsar or a strongly eruptive star, but its behavior does not with these objects. Wang's team discovered this source using the Australian Askap radio telescopes in Western Australia. Subsequent observations carried out at the Meerkat radio telescope in South Africa confirm his observations. The discovery occurred within the VAS project (Variables and Slow Transients), which in recent years has concentrated on finding unusual radio sources. Radio astronomers were impressed that at first it was completely invisible, then suddenly lighted up, faded, and lit up again. Such a radio source behavior is completely unknown. When researchers detected from this source a total of 6 different series of radio signals within 9 months, they tried to find an object in the Infrared range, but found nothing. The behavior of these radio signals change over time. First, a series of radio signals lasted for weeks. Then, suddenly this source paused in a single day. So what comes next? The researchers plan to continue monitoring the signals as much as possible using a new transcontinental Square Kilometre Array (SKA) radio telescope. More can info be found at: https://earthsky.org/space/weird-radio-waves-from-milky-way-center-askap-j173608-2-321635/

**Radioastronomical photos from Czech Republic:** As you know, my country in center of Europe is quite small; we have only around 400 km at the longest distance over land and only a few more inhabitants than New York City. Nevertheless, Radio-astronomy has a very long tradition since the late 40s; its discoverer Dr. K. Jansky even has Czech roots. The main research today is in the field of Solar Physics, Stellar Physics and Interplanetary Matter, http://www.asu.cas.cz/en/departments/solar-department. While the biggest Czech scientific work in radioastronomy involves the ESO partnership, and observation at ALMA in Chile. The Czech Academy of Science also uses the main home observatory at Ondrejov, located about 25 km south-east of Prague, where are situated radio telescopes for Solar monitoring. The biggest is 10 m diameter. They even have a good old 7.5 m Würzburg-Riese. It is still in daily use since 50's, together with two smaller 3 m dishes. It should be noted that this Würzburg-Riese antenna was used for the first EME QSO from the former Easter European Block between OK1KIR and W6LET on 432 in 1976. The bigger 10 m dish is the same type, which is used at the Czech Ionospheric station at Panska Nova Ves, which is also the main EME dish of OK1CA. See https://www.ufa.cas.cz/en/institute-structure/department-of-ionosphere-and-aeronomy/panska-ves-observatory/
I made visitations using the Ondrejov solar radiotelescope on 9 Oct 2021 and captured few photos that can be seen at https://ok1teh.rajce.idnes.cz/Ondrejov091021/.

**FINAL:** The Autumn ARI Contest was excellent this year. Now is the time to get your ARI Contest logs in! I5WBE asks that you send in your log even if you only had one QSO. All formats will be accepted. Excel is best. JPG is a pain. The official deadline is 25 Oct. Email logs to Enrico at i5wbe@i5wbe.it.

► With the upcoming MW EME Contest, some of you who do not have MW EME band stations, but do have MW tropo

stations, might want to try them on EME. You can see from the reports, it does not take much to make a MW EME QSO.

► CORRECTION – Our apology to ON5GS. We had Dirk's name listed wrong in his report in the last NL. It is corrected on the webpage and in the archives.

► For the first time we are seeing WSJT reports with positive values. Because all digi reports were negative, we dropped the negative sign for simplicity and used (xxDB) to call attention to digital reports. When there is a positive report, we will add a + sign in front of the report (+xxDB) to indicate the positive value. We will continue to show negative reports without the – sign for now.

► Beacons: There is no new news on the 1296 beacon. The DK7LJ 10 GHz beacon is on and being heard well using the 7 W driver PA only. Additional reports are welcome.

► It is time, if you have not do so already to start making plans EME2022 Prague, which will take place in Aug 2022. It is less than a year away!

► Please keep the reports coming. We do not expect activity to slowdown in Oct with the ARRL Microwave Contest on 23/24 Oct. Look for K2UYH. We both will be looking for you off the Moon. 73, Al – K2UYH and Matej – OK1TEH.

**KL6M's 10 m dish with 902 feed and Mike in foreground**

**F5HRY's offset dish used with 18 W on 6 cm**

**OM4XA's 3 m dish used with 50 W on 1296**

**Secret behind OH2DG's BIG signal**