

## 432 AND ABOVE EME NEWS AUGUST/SEPTEMBER 2021 VOL 51 #7

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**CONDITION:** The Aug/Sept time period had some nice surprises. One of the nicest was the TX7EME dxpedition. Giulio gave out 82 DXCC QSOs on 1296 and caused quite a jump in the activity level. KA6U continued his operation state/grid operation on 432. CX2SC made his debut on 6 cm and FG8OJ is now QRV on 23 cm and increasing his power. Both the 13 cm and 6 cm microwave activity weekends were big flops with very little activity. [Why?]. The dam is about to break! On 25/26 Sept is ARI Autumn EME with opportunities for CW and digi QSOs on all EME bands. With delay of the ARRL (50 – 1296) EME contest until Nov, we are sure there will be plenty of activity. Then starting 27 Sept will be the SV5/HB9COG dxpedition on 23 cm thru 3 cm with 70 cm QRP operation 5 Oct. See Dan's report in this NL. KB7Q will put NB (DN82) on 70 cm and 23 cm on 1-3 Oct using both digital and CW. HS0ZOP is still QRV on 70 cm and should be on 23 cm soon.



Giulio at TX7EME on Rangiroa Atoll Polynesia

**CX2SC:** Ric <[cx2sc.base@gmail.com](mailto:cx2sc.base@gmail.com)> has ben active on 6 cm and 1296 this past month – I made the first QSO via EME in 6 cm Uruguay in Aug. I QSO'd OK1DFC using Q65D and then OK1KIR. I also copied K2UYH but he could not detect me. I want to thank OK1DFC, VE2UG and W1GHZ for their generosity and support to get me going on this new band. I only operate my station at my home on the weekend and on one band at a time. In Aug, I was QRV on 23 cm, 6 cm and 3 cm. In Sept, I was mostly on 6 cm, but did get on 1296 to work TX7EME.



F2TU a silent key – see FINAL section

**DL7APV:** Bernd [dl7apv@gmx.de](mailto:dl7apv@gmx.de) had many distractions during the summer – On 432, I added in Aug no initials and in Sept only 3 with JA1LHC (PM95) with 8x27 el yagis and 500 W, RZ3RZ (LO02) with 4x10 el yagis and 50 W and HB9EHD (JN47) with single 21 el yagi and 50 W – (all on JT mode?). Regarding my radio astronomy activity. I have received about 100 pulsars using a 2 MHz bandwidth SDR. I am now trying with an Airspy SDR with a 10 MHz bandwidth. The results are mixed as the QRM on 433 and below 429 is bad. Also, my bandwidth is limited by my antenna and phasing lines. In most cases the 10 MHz delivers better results, but not as much as expected.

**DL9KR:** Jan [bruinier@t-online.de](mailto:bruinier@t-online.de) celebrated at the end of Aug, 70 years as DL9KR but apparently has not slowed down; he writes – This summer I was relatively inactive, but worked UA0ALA for his initial #1105 to complete the first 70 cm CW WAZ after 43 years! WAZ EME does not differentiate between bands, it can be a mix of 2 m, 70 cm, etc. It can be applied for with at least 25 zones. I got mine

(#2 but first on 70 cm) in 2004 with 32 zones. Now I have all 40 zones thanks to HS0ZOP (zone 26) and UA0ALA (zone 18). [HB9Q achieved the first 70 cm WAZ but mixed mode]. I also added initials with OZ1SKY #1106 and SM4GGC #1107.

**G3LTF:** Peter [g3lft@btinternet.com](mailto:g3lft@btinternet.com) was active during the 6 cm AW, but was disappointed by the turnout -- During the 6 cm AW, I only worked OK1KIR on 28 Aug and heard K2UYH, but that was all. I was on 1296 CW and worked on 30 Aug IK2DDR and IK1FJI; **on 31 Aug TX7EME on CW for initial #506 and DXCC 79** - Guilio did an excellent job, I listened to his signal several times while he was there and it was a consistent (549-559); on 1 Sept CT1FGN, DL7YC and SM5DGX; on 2 Sept IK2DDR and DG5CST; on 3 Sept IK3MAC, G4CCH, N1AV #507; on 4 Sept IK1FJI SSB and KD5FZX #508 SSB; and on 5 Sept IK2DDR, ON5GS, DF3RU, XE1XA and K2UYH. There are a lot of stations now on 23 cm with ~2 m dishes and a few hundred watts who would be quite easy to work if they could switch their TX to CW. With a 2.4 m dish and current solar flux, they should see a Sun noise (SN) of 10-11 dB.



1.2 m dish used for testing by G3WDG – see below

**G3WDG:** Charlie [g3wdg1@gmail.com](mailto:g3wdg1@gmail.com) reports on reception of the DL0SHF 10 GHz and 24 GHz beacons with his 1.2 m dish – It is great to have the 10 GHz beacon on again, even at reduced power. I am coping it with a 1.2 m dish, and decode levels of (11DB to 12DB). Signals can be degraded by up to at least 10 dB and still achieve decodes, so it should be possible to receive the 3 cm beacon with antennas of less than 1.2 m easily. I also did some tests with the 24 GHz beacon running with its 4.5 W SSPA and Q65-60E. A number of '2.4m' class stations had decoded the 'QRP' beacon without difficulty. My objective was to see if it is possible to decode it with a smaller dish. The tests took place in early July; not the best time for 24 GHz with relatively high temperatures and humidity contributing to higher atmospheric loss. No results were obtained for the first two days, but on day 3 (7 July) decodes were finally obtained from an average of 5 periods. This corresponds,

with reasonably clear weather, to a calculated atmospheric attenuation of just over 1 dB at each end. The Moon was at apogee and Doppler spread 450 Hz. 6 wave files from 7 July are available at [https://drive.google.com/drive/folders/1WPq9a\\_Wu\\_e-wu\\_fW1IBOIPkWjBAGdaHI?usp=sharing](https://drive.google.com/drive/folders/1WPq9a_Wu_e-wu_fW1IBOIPkWjBAGdaHI?usp=sharing). The decode was obtained by playing back all the files from the start with Ftol=100 and RxFreq=800 Hz, using the 'Fast' decode setting. Using the 'Deep' decode setting, decoding is possible with 4 periods, when playing from the start. A decode from three periods can be obtained if playback is started from the second file in the set. Further tests have not yet been possible; but I hope to try again to see if single period decodes are possible with a 1.2 m dish, under conditions with a closer moon, lower spreading and lower atmospheric loss.

**IK1FJI:** Valter [valter\\_dls@yahoo.it](mailto:valter_dls@yahoo.it) sends his summer 23 cm report – There was not much activity in Aug due to very hot the weather and some holidays. I did install a new 220 volts line only for my TH327 power supply. It has less voltage drop and I have more power. **A highlight was QSOing TX77EME (O/539) on CW and also on JT65C (16DB/13DB) for a new DXCC and initial (#).** I also worked on CW I5MPK (569/579), SK0CT (569/559) (#), HB9Q (569/569), ON5GS (569/579), G3LTF (569/569), DG5CST (579/579) and G3LTF (45/55) on SSB, and on 5 Sept ON4GG (#) and HB9Q (56/56) on SSB! My station is a 3.2 m dish, TH327 PA and 0.3 dB NF LNA. I hope to see all of you in ARI test. I will be QRV only on 1296 CW/SSB.

**K4QF:** Ben [LoWeb@esp-inc.net](mailto:LoWeb@esp-inc.net) is working to put AL permanently on 23 cm EME – I “think” I have the kinks worked out of my receiving setup based on my Sun noise measurements (~10 dB) last week. I am now using one W2HRO's patch feeds with my 3.5 m. I still have to do some work on my SSPA, but hope to be QRV soon.

**K7ULS:** Mike [k7uls@yahoo.com](mailto:k7uls@yahoo.com) was on 432 again in Sept and worked with ease using Q65C DL7APV and NC11 (23DB) with a single 9 wl yagi mounted vertical and 300 W Gemini 70 amp.

**KB7Q:** Gene [geneshea@gmail.com](mailto:geneshea@gmail.com) has been QRV from his home on 23 cm, **but is also planning a dxpedition to NB** – I bumped my 23 cm initial (mixed) count to #73\*. I Worked in late Aug/early Sept TX7EME (28DB), PA0BAT (16DB), IK2DDR (19DB), IK1FJI (15DB), LA3EQ (25DB), DG5CST (7DB), SM5DGX (11DB), ON4AOI (15DB), KB2SA (24DB), OK1UGA (23DB), DL8FBD (23DB), W2HRO (22DB), CX2SC (21DB), K2UYH (13DB), DF2RU (19DB), G4CCH (15DB), ON4QQ (20DB), W3CJK (23DB), VE3KRP (22DB) and N0CTR (24DB). I upgraded the hybrid on my patch feed and pushed my SSPA up from 350 W to 450 W without any issues. **Please look for me from Nebraska (DN82) on 70 cm and 23 cm EME on 1-3 Oct. I can do both digital and CW. Details are at <http://kb7qgrid.blogspot.com/>.**

**KD5CHG:** Matthew [mnlanese@gmail.com](mailto:mnlanese@gmail.com) is returning to EME after 7 years of inactivity -- I would like to report my return to EME, this time on 23 cm. I have a small portable station with a 1.8 m dish and about 100 W out. All seems to

be working quite well. I enjoyed QSOs over the last month using JT with I1NDP (23DB), OK1KIR (18DB), SM6CKU (22DB), NC11 (21DB), G4CCH (21DB), UA3PTW (22DB) and K5DOG (24DB). I am still working things out and hope to have automatic Moon tracking soon for all weather operations as well as GPSDO.

**N1AV:** Jay [whereisjay@gmail.com](mailto:whereisjay@gmail.com) updates us on his HI dxpediton and also 902 plans -- I will NOT be going to Hawaii at the end of Sept. I am now working on dates for March. I plan to be QRV on 1296 and 902. We have confirmed the same location in March, which has excellent moonrise views. With the Governor's request for tourists NOT to come to HI; Covid cases are spiking on Oahu, and severe limitations on access to restaurants, it will not be the 25th anniversary trip my XYL and I would want. So, the trip is getting pushed off to March. We are hopeful this latest surge will be burnt out after the holidays. I will try to be there for the best moon conditions in the month. As far as 902 EME, I am shooting to have my home station (DM43) ready for the proposed 1-3 Oct AW. I will either be using my portable 2.4 m dish with a W2HRO feed, AGO preamp and 450-500 W; or, my second ~ 3 m dish here at my home station. I would love to work as many of you as possible.

**N9SD:** Scott [sdawley1@gmail.com](mailto:sdawley1@gmail.com) is setting up a small station for 432 EME and expects to be QRV in the next few weeks – I will be using a Cushcraft 13Bs yagi, hand-aimed with a 160 W mirage brick and W6PQL LNA. I've already decoded one station when I was testing the LNA and the new antenna, so I'm somewhat optimistic!

**NC11:** Frank [frank@NC11.COM](mailto:frank@NC11.COM) sends news on his summer operation -- My summer EME activity has been sporadic and I have only been on 1296. All QSO's were completed using Q65. I worked on 5 June G7TZZ, on 6 June G7TZZ, W2HRO and KB2SA, on 10 July PA3FXB, GM0PJD, AA4MD, N9JIM and DL1DWI, on 11 July IK2DDR, G7TZZ, ZS5Y and N6NU, on 14 July G7TZZ, UA9FAD, GM0PJD, W2HRO, LA3EQ and W2HRO on 31 July IK2DDR, on 1 Aug LA3EQ, ON4QQ, KD5CHG, KB2SA and N6NU, on 2 July N6NU, on 4 July UA9FAD and N6NU, on 5 July N0CTR, LA3EQ and N6NU on 7 July ZS5Y, LA3EQ, G7TZZ, DF2VJ, IK2DDR, LZ4OC, IK1FJI, DL1DWI, RA4HL, OK1UGA, ON5GS, SM5DGX, KB2SA, and KD5FZX, on 9 July LU8ENU, on 10 July ON4QQ, G4ALH, LA3EQ, G4DDK, VE3NXX, G7TZZ, SM5DGX (+2DB/+3DB) [1st positive reports seen!], N6NU and DJ3JJ, and on 12 Aug OK1UGA. I have fallen behind with both my LOTW and paper QSLs. I promise to be caught up in the coming weeks. I expect to be more active starting the end of Aug. The polarity readout on the 432 array has been repaired (faulty sensor), so I expect to be active on 70 cm band again starting in late Aug. Also, with the help of W1QA, we have updated to WSJT-X on the 432 computer and finally have the station working on Q65. Much of my free time this summer has been spent working on a new portable setup with W1QA. Everything is nearly complete and ready for operation on both 432 (4 x 12 el yagis with polarity rotation) and 1296 (2.4 m dish as in the past). Our plan had been to activate two or perhaps even three States

that are known to be needed by many, especially on 1296. Our only opportunity this fall will be late Oct. With the recent rapid rise in Covid spread everything is now very much in jeopardy. At this point I think the most likely scenario is that we activate West Virginia operating two passes on 1296 and two passes on 432. Our original plan was to move from WV to TN and then perhaps to SC but that would obviously increase our exposure tremendously. Depending on the situation in Oct, it is also possible we will need to postpone all dxpediton plans until travel is much safer. See FINAL for last minute info – the dxpediton has been delay.

**OK1DFC:** Zdenek [ok1dfc@seznam.cz](mailto:ok1dfc@seznam.cz) was sends info about his recent EME -- I haven't been very active the last few months because of health issues and new dish work. However, I did manage to make some very nice contacts. I am still QRV with only my 2.6 m dish on all bands 1296 thru 24 GHz. I spent a lot of time in Aug building a new 8 m dia offset dish. The central 4 m dia section is already installed on the mast. In the next few days, I will produce the 36 pieces of extension ribs for the central section. Another critical part is the feed holder, which forms a self-supporting structure so that the surface of the dish is not loaded and deformed by the weight of the feed - see [8m\\_offset \(ok1dfc.com\)](http://8m_offset.ok1dfc.com). I would very much like to complete construction by the end of Sept. Hopefully, the weather will be good. I QSO'd on 6 cm using Q65D K2UYH (3DB/9DB), IK0HWJ (3DB/12DB), CX2SC (22DB/32DB) in GF25mq for mixed initial #27\*, a new DXCC and the first OK-CX 6 cm QSO; on 3 cm using Q65D OK2AQ (5DB/13DB); and on 23 cm using Q65C TX7EME (16DB/15DB for mixed initial #428\* and DXCC 118, IK2DDR (13DB/11DB) #429\*, DL4DTU (10DB/11DB) and UA9FAD (15DB/9DB).



**OK1DFC dish used on all bands 1296 to 24 GHz**

**OK1KIR:** Vlada [vlada.masek@volny.cz](mailto:vlada.masek@volny.cz) and Tonda report on their EME activity in Aug – The 13 cm MVAW suffered from very low activity. On 31 July we finally made first QSO at 31 at 0644 with 4X1AJ using JT65C (26DB/13DB), and later worked with CW at 0758 K2UYH (569/569) and 0809 G3LTF (579/579). Unfortunately, that was all. At 0500, we measured a SN of 18 dB (SF=74) and a Moon noise (MN) of 0.8 dB. The next day was rainy and the 13 cm band was empty. During a pause in the rain, we changed bands to 23 cm where we worked using JT65C except when noted at 0801 KD5CHG (17DB/18DB) for digital initial {#426}, 0819

IW3HVB (8DB/6DB) - when Giulio was testing equipment for his TX7EME dxpedition, 0846 IK2DDR (559/559) CW, 0904 LA3EQ (449/549) CW, 0919 LA3EQ (8DB/5DB), 0934 G4ALH (17DB/13DB), 0958 IK2DDR using Q65C (8DB/3DB) {#427}, 0022 W3CJK (13DB/11DB) and 1124 N0CTR (10DB/4DB) {#428}. We QSO'd on 6 cm on 7 Aug at 1533 CX2SC (13DB/32DB) using Q65E for digital initial {#51} and GF field after Ric had worked OK1DFC, and again at 1543 using Q65D (23DB/18DB). CX2SC used a 1.9 m offset dish and 20 W from TWT. However, due to the strange (32DB) signal report on Ric side's (at mutual predicted max spread of 70 Hz), we repeated the QSO the next day with different sub-modes (at bit higher predicted max spread of 93 Hz) and we exchanged following signal reports at 1401 with Q65-60E (14DB/32DB), 1414 with Q65-30D (14DB/25DB) and 1428 Q65-60D (22DB/17DB) - almost identical reports on both days. On OK1KIR's side the 60E and 30D signals both with equal tone spacing and total bandwidth created similar reports of (13DB vs 14DB), while Q65-60D signal with half tone spacing and half bandwidth brought a lower signal report of (22DB vs 23DB). In contradiction, on CX2SC's side, a stronger OK1KIR signal (4.5 m dish & 65 W vs 1.9 m dish and 20 W) created a bit illogical reports of (32DB) on 60E vs (25DB) on 30D, while the 60D signal gave (17DB vs 18DB). Only the 60D signal reports (17DB & 18DB) and (22DB & 23DB) corresponded to the mutual RF powers. These findings led to the investigation of recorded messages and discussions with G3WDG and KA1GT, which resulted in the necessity of adding audio pass-band equalization, available in WSJTX as Reference Spectrum feature. Unequal SSB audio pass-band, typical for standard (analogue) transceivers, mainly when used for receiving wider message bandwidth (e.g. Q65-60E or Q65-30D), will not only result in false signal reports, but will also impact the reachable threshold decoding sensitivity of WSJTX, especially at MW bands with obviously low signal levels and high spreading, which can eliminate otherwise possible QSOs. The conclusion described above was confirmed later on 28 Aug during the 6 cm AW, when on both sides properly used the "Ref Spec" feature and sync tone 700 Hz. In QSOs with CX2SC, we exchanged signal reports at 0542 with Q65-60E (19DB/14DB), 0550 with Q65-60D (20DB/14DB) and 0604 with Q65-30D (19DB/14DB). It is evident that the signal reports are almost identical. On 8 Aug after the second 6 cm test with CX2SC, we switched to 23 cm, and from 1725 till 1820 tried unsuccessfully to complete a QSO with FG8OJ (26DB/11DB) using Q65C. Afterwards, we realized that being too close to Sun and also to ground, impacted our system sensitivity significantly. Furthermore, post-decoding of recorded wav files discovered the potential of several more decodes, which were ignored by the original decoding when a relatively too narrow Ftol sync range was set a bit off FG8OJ's invisible Q65C signal. This long unhappy test with Burt was at only 4 degs of elevation. It was followed with an easy QSO at 1824 N6NU (9DB/5DB) {#429}. The next day at Burt's MR on 9 Aug at 1215 gave a very easy QSO with FG8OJ (22DB/10DB) {#430} for the

first FG – OK QSO on 23 cm. Burt used a 1.9 m dish and only 8 W power because he is awaiting the arrival of PE1RKI 250 W SSPA. During the 6 cm MWAU on 8 Aug after the discussed above QSOs with CX2SC, we made only one CW QSO at 0705 with G3LTF (559/569). K2UYH was in troubles with his dish steering. Nothing else was heard during the whole 6 cm AW. For the second Moon orbit, we changed to 23 cm. This low turnout creates a question about the usefulness of such AWs. Almost the same situation occurred during the 13 cm AW on the end of July. On 23 cm we worked using CW on 28 Aug at 2224 VK4AFL (569/579); on 29 Aug using Q65C unless noted at 0548 4X1AJ (17DB/13DB) by crossband (XB 1296/1268), 0558 IK2TIF (17DB/5DB) {#431}, 0605 CE3VRT (11DB/14DB), 0611 KD5CHG (17DB/15DB), 0623 I7FNW (1DB/2DB) JT65C and 1015 TX7EME (9DB/8DB) JT65C {#432} as 1st FO-OK 23 cm QSO and BH field; and on 30 Aug at 1003 using JT65C VE7ZD (19DB/18DB) {#433} and 1211 using CW TX7EME (559/579) #490 as new CW DXCC. Giulio had a very good signal even at our elevation of only 4.5 degs with a 1 dB increase in ground noise. We would like to express sincere thanks for received QSL cards to HI8DL, HS0ZOP and VP8EME on 70 cm. However, we are still missing QSL cards from BD9BU on 70 cm (zone 23 for WAZ!), K5PJR (MO) and N4CNN (SC) for WAS on 23 cm, LU1CGB on 13 cm (1st LU-OK 13 cm QSO) and GW4DGU for new DXCC on 3 cm.

**OK2AQ:** Mirek [mirek@kasals.com](mailto:mirek@kasals.com) sends info on his recent EME -- During my holidays from 9 to 18 Aug, I had my 3 cm EME station in operation. The Moon was very low at this time and therefore activity was also low. I made a total of 9 QSOs with six stations IK6CAK (15DB/12DB), OK1DFC (14DB/7DB), F6BKB (14DB/10DB), F5VKQ (13DB/12DB), OE4WOG (18DB/15DB) - Wolfgang tried his QRP EME setup with 7 W at the feed of a 1.8 m dish. However, I was most happy to complete a CW QSO with Dominique, HB9BBD (579/M) for an initial. I spent time correcting and improving my station. I solve a problem with the control of my FT991A transceiver in conjunction with the WSJT-X during Q65 operation and Doppler shift compensation. Since using Q65 mode, the control has not worked properly unlike all other WSJT-X modes. In the end, it turned out that the cause was the low speed of the virtual serial port. I verified the method of measuring noise level using the program "Total Power" from IONAA with RTL SDR. My measurements have shown it to be as accurate as SpectraVue in the continuum mode, but RTL SDR allows measurements to be made at a higher bandwidth. I am copying the DL0SHF Beacon with 7 W of power. I believe that this will be the standard beacon mode in the future and that the 50 W power level will only be switched on upon request. With a power of 7 W, the beacon in the Q65-60E mode is very decodable even with a small antenna (for me 10DB with a 1.8 m offset dish).

**ON5GS:** Harry [on5gs@telenet.be](mailto:on5gs@telenet.be) writes about his recent experiences on 23 cm EME -- On 7 Aug I tried the new Q65C mode for the first time and worked NC1I, N6NU, KD5FZX, UA9FAD, KB2SA, OK1UGA and N9JIM. Installing and using it was easy after reading the manual.

Thanks to K1JT and his team for a nice new tool. I found the new ECHO mode to be really useful and working great to calibrate the dish after not having the ON0EME Beacon for a while. After getting back from QRL on Tuesday 10 Aug, I saw some activity on the HB9Q chat. **It was great to find Harry and Jan QRV once more from the Dwingeloo dish on 23 cm EME. In between some satellite rescue work, they were uplinking images of the Apollo missions to the lunar surface on SSTV (Martin2). Quite a number of people were watching and forwarding their images to the chat window; so, I installed MMSSTV and tried receiving them on 1296.120. The signal from PI9CAM is so powerful that even stations with less than 2 m dishes were able to read the text. It was quite spectacular!** 70 cm EME operation is in the making. I hope to get everything ready in the near future as hobby time permits. I have built a patch feed with both H+V pol from SM7FHZ and did some modifications at the dish to fit a QRO amplifier with tank for water cooling on the ground. [Beware of freezing in the winter].

**PA0PLY:** Jan [pa0ply@pa0ply.nl](mailto:pa0ply@pa0ply.nl) updates on his new QTH and present capabilities -- I dismantled my entire radio system back in April in advance of the relocation to a small village in the east of The Netherlands (JO32lr). My new Moon window is much better without the obstruction of a house to the south. I'm currently preparing to become QRV again on 3 cm as a first step. My dish is up and mechanically ready to go. I decided to use the dish on 70 cm at the new location; and have sold my yagis to PA3DOL. **My EME Directory/database has been updated – see <http://www.paoply.nl>.**

**PA3DZL:** Jac [pa3dzl@icloud.com](mailto:pa3dzl@icloud.com) sends some highlights of his recent EME operation -- I have not been very active off the Moon during the last few months; however, I did work on 13 Aug on 432 ON4AOI for mixed initial #293\*; on 14 Aug on 5760 HB9Q and CX2SC for DXCC 36 and mixed initial #81\* and also the first PA-CX QSO; on 29 Aug on 1296 N1AV, CE3VRT for mixed initial #413\* and DXCC 82, N6NU #414\*, and TX7EME #415\* and DXCC 83. I hope to have some more free time soon.

**PY2BS:** Bruce [bruce@zirok.com](mailto:bruce@zirok.com) has set up for 902 again – I installed the 33 cm system that I used for a while back in 2014; however, I found that QRM had much increased since 7 years ago. For the 4 Sept 902 tests, I had 200 W at my SSPA and some 150 W at the feed of my 5.1 m dish. I worked VE6TA (22DB/10DB) and copied K5DOG (3DB); but my SSPA had failed by then. It is not obvious what caused the failure. A 0.02 ohm resistor (sampling?) was burnt up. I plan to be back on 902 despite the increased noise as the test shows that QSOs are still possible. I have another, yet unmodified, SSPA; but must understand what happened to this one to prevent damaging the other amp. I was also on 6 and 3 cm during the past month and **worked CX2CS on 3 cm** but not on 6 cm because of a GPSDO lock problem.

**SV5/HB9COG:** HB9Q [dan@hb9q.ch](mailto:dan@hb9q.ch) has moved up the date of his Rhodes dxpedition to the end of Sept – Although the

Covid-19 situation is still difficult and changing every day, we believe we can do the operation in a safe way. Although the situation still isn't perfect, we will be on the island for 14 days (from 27 Sep to 11 Oct for some sightseeing/vacation and of course EME on 70 cm (QRP only), 23 cm, 9 cm, 6 cm and 3 cm (on all sub-bands). The house is on the southeast side of the island is booked, so are the flights from Zurich to Rhodes and back. Team members are HB9COG, HB9CRQ and Sue (Dan's YL). Our QTH is in KM36xa, directly at the beach. So, MR should be perfect! For MS we expect some 10 to 25° elevation due to houses nearby, some trees and the mountains at the horizon (we will only know exactly once we are there). We should have good enough moonset to work the US west coast. Our operation plan is to always TX 1<sup>st</sup> period and listen on echo unless on CFOM; on 28 Sept, 2045 to 0915 using Q65C on 2320.100 and 2304.100 during NA window, QSY will be announced on HB9Q logger, (2301.990 and 2400.100 on request by e-mail); on 29 Sept, 2140 to 2300 using Q65C on 3399.990 on request by email only, and on 30 Sept, 0300 to 1000 using Q65C on 3400.100; on 30 Sept, 2230 to 1100 (1 Oct) using Q65D CFOM on 5760.100; on 1 Oct 2330 to 1130 (2 Oct) using Q65D on 10368.100, (10450.100 on request only by e-mail, QSY will be announced on HB9Q logger); on 3 Oct 0030 to 1230 using JT65C on 1296.100; 4 Oct 0140 to 1300 using Q65C on 1296.100; and 5 Oct 0530 to 1300 using Q65B on 432.085. CW, although it is on the limit, we will work CW on 1296-10450 bands. However, only with big-guns and after the pile-up on Q65 are worked. Our equipment will be 1.5 m dish on all bands except 432. We will on 23 cm 50 W at circular pol (CP) feed, 13 cm 50 W at CP feed, 9 cm 50 W at CP feed, 6 cm 50 W at CP feed, and 3 cm 50 W at linear V-pol feed. On 432 we will have 50 W at a single 11 el FLA yagi. We'll have internet access. During our activities we'll be stand-by on the HB9Q band loggers. We also will check our e-mails several times a day. QSLs will only be direct including SAE to HB9Q, P.O.Box 39, CH-5737 Menziken. If you wish to sponsor our activity, you are welcome to do so by using PayPal [dan@hb9q.ch](mailto:dan@hb9q.ch) (please mention your call).

**TX7EME:** Giulio (IW3HVB) [iw3hvb@gmail.com](mailto:iw3hvb@gmail.com) sends an initial report on his dxpedition to Rangiroa Atoll in French Polynesia -- This Dxpedition has been quite a ride given the international and local COVID-19 situation. The whole trip and dxpedition have been in jeopardy a hundred times, but in the end everything went according to plans and worked out very well. The one exception is that we wanted to do it in 2020 not 2021. The logistics of a trip like this one are quite complicated, and a good knowledge of the ways to transfer stuff from one island to another is most important. Since air transport is very expensive and quite often there is no room on the planes to ship everything, I had to rely on a good old cargo ship to bring all the stuff from Tahiti to Rangiroa Atoll. I had a local guy collect everything at the dock. Air freight was available on my way back. We were pleased to end with a total of 100 QSOs and 82 initials of which 79 were by digital mode (JT65C or Q65C). The Q65 performed very well. We also worked 3 stations solely on CW and 9 on both CW and digital modes; one SSB QSO

with HB9Q too. 25 DXCCs were worked in 5 continents. Considering the small moon windows with EU, I am very happy with the outcome, which surpassed my expectations. The antenna performed as predicted with only some difficulties during the first night of operation when the wind was gusting at 25 to 30+ knots, and keeping it stable was a challenge. The power amplifier, home built on W6PQL design, proved to be a real workhorse. I kept it at 350/400 W on digital and pushed it to 500 W on CW. Mr. Murphy paid visit on the second moonrise with a dead 1st stage of the DDK LNA. Fortunately the spare one worked flawlessly until QRT. I have no idea why the LNA failed, but I'll try to get to the root of it. The constantly blowing wind from the ocean brings salt, lots of it. In the end, I had to wash every piece of aluminum, the galvanized mesh and all the screws under the shower to get rid of it and preventing everything to become badly oxidized (although not entirely successfully!). All and all I am truly satisfied with the results and I really want to thank all that tried to have QSO with me. It has been super fun. Now my mind is wandering on where to go next... Stay tuned. [More info can be found at [www.iw3hvb.it](http://www.iw3hvb.it)].

**VE3KRP:** Fast Eddie [eddie@tbaytel.net](mailto:eddie@tbaytel.net) sends his Sept report – This summer we have had much heat, very little rain and a lot of smoke from the forest fires burning around the district. On 23 cm I worked on 1 Sept using JT65C TX7EME for a mixed initial (#\*) and a new DXCC; on 4 Sept using Q65C IK1FJI, UA9FAD, W2HRO, G7TZZ (#\*), VE3NXX, ON4QQ, CX2SC, KB7Q and I7FNW; and on 5 Sept using Q65C DF2VJ, IK1FJI, IK2DDR (#\*), NC1I, IK3COJ and N0CTR (#\*).

**VE4MA:** Barry's [barryve4ma@gmail.com](mailto:barryve4ma@gmail.com) EME report for Sept – I have been preparing for a 902 EME AW. I was on for a preliminary test on 4 Sept. I copied PY2BS fine but he did not copy me. Something failed and my TX dropped to 140 W; so, Bruce did not see me. VE6TA had a good QSO with Bruce. [PY2BS had a PA failure while on]. K5DOG was also QRV and seeing weak echoes, but did not make it with Bruce. He also tried with KL6M, who arrived later, but had transmitter problems. Later VE6TA worked K5DOG who was having RX problems. My T/R Relay failed completely with a melted N connector center pin. My preamp survived preamp but my PA has problems and I will have to use a 250 W unit for the planned activity period on 2/3 Oct. I have recently changed to a PY2BS patch feed with polarity switching. My sun noise increased by 1 dB to 10.2 dB over the old "bent dual dipole" feed that I had used. This feed works very well with my 3 m 0.3 f/D dish. I also have been working on upgrading the 47 GHz EME rig with a new preamp and PLL based LO chain. I will be checking Sun noise in the next week before the sun gets too low in the sky. I am ready to look for new stations on 24 GHz, but conditions have been terrible this summer with high loss and spreading. My plans to winter in AZ are still on hold until the border opens and the COVID situation improves.

**VE6TA:** Grant [ve6ta@xplornet.com](mailto:ve6ta@xplornet.com) reports on a major improvement to his system -- Both VE6BGT and I decided to upgrade our Az drives to slewing gear drives this

summer. I haven't spent too much time operating, but did successfully remove my old prop pitch, mast and bearing. I then installed a new 9" slewing drive with low backlash, a sched 80 mast and a new top bearing, lubricate my elevation actuator, and finally installed weather proof JB's as an upgrade. VE6BGT did a great job fabricating the slewing gear support plates and mast clamps - real class A work. I was able to talk my neighbor into helping me getting the dish up and down, which was done in 3 days. I got on 902 the first weekend in Sept to test the drives out and everything worked pretty well. I managed to get PY2BS, and K5DOG in the log. I also tested a newly converted 902 400 W amp, and so far it has held up. I hope to be on 3 cm for the microwave portion of the ARRL EME Contest... We will see how well the slewing drive works then.

**W2HRO:** Paul [w2hro.fn20@gmail.com](mailto:w2hro.fn20@gmail.com) was active on both 432 and 1296 during Aug/Sept – I was able to add two new DXCCs on 23 cm in one day. On 31 Aug, TX7EME was an easy QSO for me. The Moon had a highly declination, so I had a clear view of my western Moon. As a surprise, CE3VRT was also QRV with a 1.8 m dish and another easy QSO and new DXCC. I believe he was on because of the dxpedition. CE3VRT (Chile) has also announced he will be QRV 432. I'll be looking for him there.

**WK9P:** Tim [tcherrone@yahoo.com](mailto:tcherrone@yahoo.com) is adding 3 cm to his 23 cm EME capability – On 31 July I worked IK2DDR on 1296. I was then down for a while due to a lightning strike that burnt out my elevation encoder line driver along with 3 chips on my VE3ALQ elevation board. KL6M helped me troubleshoot it and sent me the chips. I got that going to find out I also had a burnt resistor on the speed setting for my actuator. All is now repaired with no other damage. My new 10 GHz project is progressing well. A tilt over support post with home brew polar mount is in place with a modified AZ/EL motor. I have everything for automatic polar tracking put together. And now my 1.8 m dish has been installed on the mount and the tracking calibrated. I'm still waiting for the PA to arrive before assembling the gear to be placed on the rear of the dish. Waveguide will then run to a waveguide switch at the feedhorn with the LNA.



WK9P's new polar mounted 1.8 m dish for 3 cm

**K2UYH:** I (AI) [alkatz@tcnj.edu](mailto:alkatz@tcnj.edu) I was not as active in July because of the lack of contests and being away on holiday, but still made some good QSOs. I also took my dish out of service for almost 2 weeks while I covered the upper third of my dish with finer mesh (1/16" square hardware cloth). My idea is to feed this portion of the dish as an offset dish on 6 and 3 cm. I still need to make/get feeds for the higher ~0.9 f/D required. On 1 Aug, I was QRV for the 13 cm MWA, but was disappointed by the turnout and only worked using CW at 0755 OK1KIR (569/569) and 0815 G3LTF (569/569) CW XB. 4X1AJ was also around on XB, but only on JT. I heard his signal but was not set up to copy JT XB. I switched to 5760 wanting to try out the new mesh on 2 Aug and worked at 1120 OH2DG (559/559) CW. With my normal IMU septum feed elevated about 18 degs, it seemed to make a noticeable improvement. I worked on 6 cm using Q65D on 4 Aug at 0008 UN6PD (17DB/15DB) for mixed initial #71\* and DXCC 33 – we had been trying for at least a month; and on 7 Aug 1316 IK0HWJ (9DB/12DB), 1325 OK1DFC (9DB/2DB), 1424 partial CX2SC (?DB/-) – also tried E but no decodes. I was active during the 6 cm MWA, but made no contacts. I found very little activity and spent most of my time trying to optimize the position of my feed with the new mesh. I then switched to 1296 to work on 30 Aug at 1144 TX7EME (12DB/19DB) using JT65C for mixed initial #686\* and DXCC 120; on 4 Sept at 1412 KB7Q (17DB/18DB) Q65C, 1432 partial OK1UGA (14DB/10DB) - not completed, 1500 TX7EME (559/O) CW #435 and DXCC 59, 1514 OK1UGA (15DB/4DB) Q65C #687\*; and on 5 Sept 1412 I7FNM (7DB/9DB) Q65C #688\*, 1421 N0CTR (10DB/11DB) Q65C #689\*, 1428 W2HRO (8DB/12DB) Q65C, 1444 FG8OJ (26DB/11DB) Q65C #690\* and DXCC 121, 1644 G3LTF (569/579) CW, 1652 G4CCH (569/579) CW, 1718 VE7ZD (19DB/20DB) Q65C #691\*, 1754 N6NU (13DB/8DB) Q65C #692\*. Then back on 5760 to work after several earlier attempts on 12 Sept at 1915 CX2SC (21DB/20B) Q65D for #72\* and DXCC 34.

**NET/CHAT/LOGGER NEWS:** IK0HWJ is QRV on 6 and 3 cm. Gino can be reached for sked at [ik0hwj@tin.it](mailto:ik0hwj@tin.it). OK2DL on 5 Sept using Q65C QSO'd the smallest 23 cm EME he has ever worked; FG8OJ, who had a 1.9 m dish and 8W at the feed for a new DXCC. JA6AHB is looking for KH (Hawaii) on 432. Toshio will be especially looking for the NA1V KH6 dxpedition. Toshio can be reached at [ja6ahb@plala.to](mailto:ja6ahb@plala.to) and uses a 7 m dish and 500 W on digital and CW. K8ZR was not able to participate in the Sept 902 EME weekend. Tony hopes to be QRV in Oct. KL6M during the 902 EME weekend had power supply trouble and never did get output power, but did copy PY2BS very well on JT and CW. He also expects to be QRV in Oct with possibly 400 W. N8CQ has a dish feed for 902 RX and hopes to be QRV in the future. W4OP has repaired his 1296 SSPA and now should be up to a full kW. W7NMD is working on becoming QRV AR on 23 cm. He has a 10' TVRO dish and RFDesign septum feed. He eventually wants to use a larger offset stress dish. You can reach Palmer [pcbryne@valuzk.com](mailto:pcbryne@valuzk.com). OZ1SKY is working on adding 1296 EME and looking for an inexpensive dish. N6OVP is interested in 1296 CW skeds and plans to be QRV during

the ARI Contest. DL1SUZ is working to become QRV on 13 cm.

**FOR SALE: DU3T** has started production again of the XLNAs [10 GHz], while production of the KLNAs [24 GHz] is on hold while Ron reviews his measurement system calibration. PA3DZL has for sale some Narda power attenuators. Two for 6 GHz at 150 W, two for 12.4 GHz at 10 W and one for 12.4 GHz at 4 W. Email Jac for price/shipping at [pa3dzl@icloud.com](mailto:pa3dzl@icloud.com). DL1SUZ is looking for a septum feed for 13 cm. SM3BYA has for sale for 9 cm: 1) a VE4MA type feed (OK for an f/d ≈ 0.35). 2) a ≈ 0.46 dB NF LNA with ≈ 28 dB gain. Both feed and LNA built by WD5AGO. And 3) an SSPA composed of 4 phased Stealth Microwave SM3437 WIMAX amplifier blocks, complete with 12 V/30 A PSU, coaxial input and output combiners and cabling. Very high gain, + 3 dBm drive runs the PA into saturation at > 80 W Pout. One spare SM3437 amplifier is available. Gudmund also has a transverter, but it is not up for sale at this time, but if somebody is seriously interested in becoming QRV on 3.4 GHz EME, I may reconsider. Email [SM3BYA@wannberg.net](mailto:SM3BYA@wannberg.net) for more info. K3RK notes that Vienna Wireless <https://viennawireless.net/wp/> has some items of interest to EMEers. He references <https://viennawireless.net/wp/unbid-items/>, Item 1205, which is a Model MT-1000A W/ cover & LSK-1000, elevation motor. Bidding on the controller and the rotor unit. Bidding Price is \$2600 (M2 Price > \$4000). If interested contact Mike [magnotti1@gmail.com](mailto:magnotti1@gmail.com). SM4GGC has for sale a FUNcube Dongle pro+. He is asking EU120. If interested contact Stig at [stig.ake.larsson@gmail.com](mailto:stig.ake.larsson@gmail.com). LZ1DX is looking for info on improving the IC-9700, particularly on splitting the RX/ TX on 144 thru 1296. Ned also wants info on how to derive a separate control for his sequencer from microHAM-USB-III CAT sound card interface and DB15-IC8 cable. SA6BUN (DL1YMK) is looking for a WR90 WG twist. W2HRO has 1.8 m folding dishes (10 lbs) with 1296 circular pol feeds for sale. Larger dishes are also available along with LNAs, isolation relays and terminations. More info can be found at [www.Sub-Lunar.com](http://www.Sub-Lunar.com). Paul's goal is to offer specialized EME equipment and ultimately a turnkey station for 1296 EME. A video showing his folding dish and patch feed can be seen at <https://youtu.be/p66s1jF7760>. OK1TEH Matej [ok1tehlist@seznam.cz](mailto:ok1tehlist@seznam.cz) still offers for pick-up his 3 m solid center dish (f/D 0.35) with massive ribs and good surface up to 24 GHz. The same kind of dish was already used by OK1UWA for his successful 24 GHz EME operation. If there is serious interest, even more pieces of such a dish could be found via my friend OK1TP.

**TECH:** W4OP reminds us that when comparing Sun noise levels you should reference to the solar flux for purposes of comparison. Always make a note of the solar flux at the time of your measurement. The flux level can be found at <https://www.spaceweather.gc.ca/forecast-previous/solar-solaire/solarflux/sx-4a-en.php>.

**RADIOASTRONOMICAL CORNER by OK1TEH:** IONAA's Total Power software designed to allow RF Band monitoring and RF Noise measurements using a low cost RTL-SDR dongle discussed in the June NL has been now

published as a full article in Dubus 3/2021. The same issue includes a very interesting description of OM6AA's feed for deep dishes at 10 GHz. In the World news was an exciting new achievement by the ALMA Observatory. Using a new millimeter-wave (MMW) LNA, ALMA observed the Universe over a wide range of radio wavelengths within the MMW and sub-MMW (Terahertz) range of the electromagnetic (E&M) spectrum with the help of specialized receivers. ALMA's 66 antennas were previously equipped with eight different receivers, operating at wavelengths from 3.6 mm (ALMA Band 3) to 0.3 mm (ALMA Band 10). These new (Band 1) receivers are sensitive to radio waves between 6 and 8.5 mm, expanding the capability of their antennas to "see" more wavelengths from distant cosmic sources of E&M and light. More info can be found at <https://alma-telescope.jp/en/news/press/band1-202109-2>. It should be also noted that ALMA celebrated its 10th year since its first image. More about upcoming plans can be seen at <https://arxiv.org/ftp/arxiv/papers/2001/2001.11076.pdf>. And the best at the end, DB6NT & Kuhne company have for sale a long-time awaited KU LNC 8085 C PRO, down converter, which converts the 8.4 GHz frequency used for Deep Space probes' communication with Earth. More at [https://shop.kuhne-electronic.com/kuhne/en/shop/new/KU\\_LNC\\_8085\\_C\\_PRO\\_Down\\_Converter/?card=2089](https://shop.kuhne-electronic.com/kuhne/en/shop/new/KU_LNC_8085_C_PRO_Down_Converter/?card=2089). See <https://www.qsl.net/ct1dmk/dsn.html> info on Deep Space probe communications.

**FINAL:** We are very sad to announce that F2TU passed away on 27 July. Philippe was an EMEer *extraordinaire* until he suffered a catastrophic injuries while working on his dish. After the accident in 2012, his ability to function was greatly limited. He was one of the greats of EME from its early days; very active on the UHF and microwave bands, an experimenter and an excellent engineer with always a big signal on CW and SSB and a regular attendee at the conferences. He has been greatly missed since his awful accident. May our dear friend rest in peace; our condolences to his XYL, Marie Therese and family.

► Beacons: There is no new on the 1296 beacon. DK7LJ reports that the 10 GHz beacon is up again using the 7 W driver PA only; and is receiving many reception reports. Additional reports are welcome. G3WGD is working on rebuilding the 50 W PA. The 24 GHz beacon remains up and running. (See G3WDG's report).

► CORRECTION – GM4PMK reports that is not the first GM on 9 cm EME. Roger writes that GM4ISM was QRV in 2008. Details of Mark's 9 cm EME can be found on his website <http://dc2light.co.uk/9cm.htm#EME>.

► OK1DFC announces that the annual EME and MW seminar, organized by OK VHF club, will take place on 12-14 Nov. More information is at [https://linkprotect.cudasvc.com/url?a=https%3a%2f%2f%2f%2fwww.vhf.cz%2fseminar-2020%2f&c=E,1,9lpc9Hm-nfQrmV-6WZk1NA8syv9HdQzZGKf0dV0HKuvlRU1TFhn4IS7XahtRbi9L0vqgl\\_JZ0r711QAFOT364Ltx4m2ztdRy2g41qgkZk-6pyTPYb05J5ltCXQ.,&typo=1](https://linkprotect.cudasvc.com/url?a=https%3a%2f%2f%2f%2fwww.vhf.cz%2fseminar-2020%2f&c=E,1,9lpc9Hm-nfQrmV-6WZk1NA8syv9HdQzZGKf0dV0HKuvlRU1TFhn4IS7XahtRbi9L0vqgl_JZ0r711QAFOT364Ltx4m2ztdRy2g41qgkZk-6pyTPYb05J5ltCXQ.,&typo=1).

► Zdenek also reminds us to start thinking EME2022 Prague, which will taking place in Aug 2022. Please start making plans. It now is less than a year away!

► The annual SP Microwave and EME meeting, "Zieleneč", held on 20-22 Aug was a big success. Even though the meeting is held at a high location (700 m ASL), the temperatures were very nice with sunny weather. Although the presentations were good, the most interesting part [for OK1TEH] was to meet with old friends [ON5GS, DL7UDA, OE3WOG, HB9BBD, OM3BH, OM3CLS, OK1DFC and many others]. The meeting attracted well over 100 hams; much more than expected. A special feature was a visit to SP6JLW's QTH. Andrzej and Jacek demonstrated a new 1.8 m dish for 24 GHz EME. The dish is a Cassegrain fed Andrew design, originally used at 23 GHz. It will be operated with a 30 W TWTA and OE5JFL controller and HH12 sensors. The meeting ended Saturday evening with a live demonstration of 31 km optical QSO using red lasers. Signals were well over 59+40 dB! Pictures from the meeting can be found at [https://ok1teh.rajce.idnes.cz/20th\\_Technical\\_VHF\\_Meeting\\_Zieleneč\\_20-21.08.2021/](https://ok1teh.rajce.idnes.cz/20th_Technical_VHF_Meeting_Zieleneč_20-21.08.2021/).

► Last minute news from NC1I -- After much discussion W1QA and I have reluctantly decided to postpone our WV and TN dxpeditions planned for Oct. The Covid numbers in WB have skyrocketed. They have reached a level that we are no longer willing to take the risks. It is highly unlikely we will be able to activate these States before the spring. We will closely follow the pandemic trends and provide updates on our plans.

► With the low summer activity we decided to combine the Aug and Sept issues. This should not happen for the rest of 2020 with all the upcoming EME events. We both plan to be QRV for the ARI EME Contest. Then follows HB9Q's dxpedition to Rhodes, which will keep those of us on the microwave bands up every night for a week! KB7Q is next on from NB on 70 and 23 cm. Things will not slow down in Oct with the ARRL Microwave Contest on 23/24 Oct. Hoping to CU off the Moon soon. 73, AI – K2UYH and Matej – OK1TEH.



VE6TA's new AZ slewing gear drive being installed – see Grant's report