

432 AND ABOVE EME NEWS SEPTEMBER 2020 VOL 49 #9

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CONDITIONS: There were no contests this month and only a 222 dxpedition by KB7Q to WY. There was a good turnout for the microwave activity weekend (MVAW) organized by G3LTF. It was split between 9 cm on 15 Aug and 6 cm on 16 Aug. This newsletter (NL) is filled with MVAW reports. There are also a number of reports on 222 EME. I (with K1DS) put NJ back on 222 on 21 Aug after more than 20 years – see my report. KB7Q was QRV the following day. The picture will be very different in Sept with 2 major contests, the **ARRL's Microwave EME Contest weekend (13 cm & Up) on 12/13 Sept**, and the **ARI's Autumn Trophy EME Contest on 19/20 Sept**. [There is no formal band plan for MW Contest. Some stations will focus the first day on 3 cm followed by 6 cm and possibly 9 or 13 cm; and on the second day focus on 13 cm and 1.2 cm followed by 9 and 6 cm]. There will be no 70 cm CW activity time periods (ATPs) until Dec because of contest activity. There are also no dxpeditions in the next few months. Results of the PI9CAM EME SSTV Party are shown in their report later in this NL.

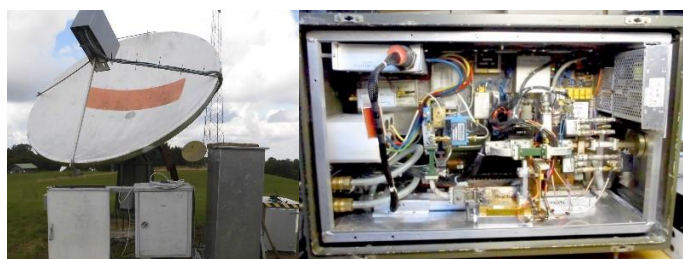
REPORTS:

CT1BYM: Miguel miguel.pelicano@gmail.com was active during 3 cm MVAW -- I am QRV on 3 and 1.2 cm EME. On 10 GHz I am using a 1.8 m dish and new PA 38 W; and have worked OE5V, OK1KIR, OK1DFC, PA0BAT, PA3DZL and K2UYH among others. On 24 GHz, I am just getting started.



Miguel's 3 cm feed... The new system is working well with a Moon noise of ~ 1.3 dB.

DK7LJ: Per per@per-dudek.de sends news that there is a new EME Beacon on the Moon -- After 2 years and a lot of frustration my second **EME Beacon/station for 24 GHz** is QRV. It is very similar to the 10 GHz beacon and uses a 3.7 m dish with 110 W at the feed, a Kuhne transverter and preamp. Permanent beacon operation will not be with the present TWTA, but with a transistor PA, which will be switchable between the SSPA and the TWTA. I am still looking for suitable SSPA. Please let me know if you have any suggestions. For now, if you need a beacon signal, please send an email; and if at all possible, I will run the beacon with the TWTA for a limited time period. 1.2 cm skeds are also very welcome, but be patient as my CW is very rusty.

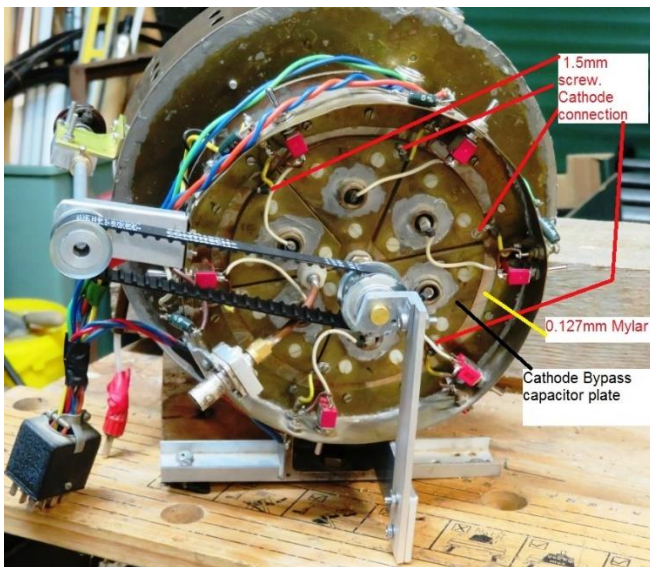


DL0SHF 24 GHz Beacon: 3.7 m dish & TX box

DL7APV: Bernd dl7apv@gmx.de reports on his recent EME results -- In the summer, as always, my 432 Moon activity was down a bit due to competition with outdoor activities. But, a few new ones still found the way into my log. I added initials in July with AC4TO (his 1st EME QSO) in EM70 with a 29 el yagi and 75 W, VK2WQ (his 1st EME QSO) QF65 with an18 el yagi and 65 W, WD6Y (his 1st EME QSO) DM03 with a single yagi and 50 W; and in Aug WA1FXK (his 1st EME QSO) FN23 with 2 x 15 el yagis and 80 W, GM0PJD (his 1st EME QSO on 432) IO85 with 3.6 m dish and 50 W, and SV8RV (his 1st EME QSO 432) KM07 with a 21 el Vpol yagi and 100 W. Beside EME, I did some pulsar hunting and detected 65 different pulsars – much TNX to OE5JFL for his help! My next project is to replace my old PAs with some smaller water-cooled PAs to minimize the noise and the occupied space. The big array is working fine; **I only have some problems with the US Digital encoder. Some of them have failures and stopped working. The reason is the LED, which when ages reduces in resistance (increasing the current). Adding extra series resistance did help for a while, but**

not for very long. If anyone knows the type of LED, please let me know. I tested some standard and UV LEDs with no success.

G3LTF: Peter g3lft@btinternet.com sends his Aug report - Following the DUBUS 23 cm contest, I spent a lot of time finding and fixing the problem in my 6 tube PA, see later. For the MWA, the weather was very kind, no wind or rain and so dish pointing was no problem. On 15 Aug on 9 cm I worked on CW SP6OPN, SM3BYA, G4CCH, OK1KIR, K2UYH and KL6M. I heard KD3UY (549) and very weakly, KN0WS when Carl was operating JT. The Sun noise was measured at 14.2 dB and Moon noise at 0.78 dB. On 16 Aug on 6 cm, I worked on CW G4NNS, OK1KIR, SM6CKU, OH2DG, DB6NT, SQ6OPG, G4LDR for initial #89, K2UYH, KL6M, and G4CCH. Sun noise was measured at 14.4 dB and Moon noise at 1.15 dB. On 22 Aug on 23 cm, I was delighted to work OM4XA on CW for #496 and DXCC 77. I hope that the 23 cm PA problems are now fixed, I believe the fundamental issue was an intermittent shorting of the cathode bias at one of the tubes due to a sharp edge on a 1.5 mm screw puncturing the mylar dielectric, when the PA had run warm for a while. There were two other associated problems with the bias supply that confused the search for the problem. I now see 700 W (350 W at the feed) and I hope this will hold up OK for the contest. I also took the opportunity to put in a belt drive so that I can tune the input cavity from the front panel, much easier, and safer, than reaching round the back. (see picture). I am working on a solid-state driver stage. I also plan long term to have a 200 W SSPA that can sit at the dish as a standby PA.



G3LTF 6 tube 23 cm PA cathode assembly

G4CCH: Howard howard@g4cch.com was active on 6 cm during the MWA – I easily completed on 17 Aug in post AW skeds with JA4BLC, JF3HUC and JA1WQF. During the MWA, the wind was moving the dish almost beyond the beamwidth of my dish; it was almost impossible to copy weak signals and my echoes at times. On the 17th, there was almost no wind, so much better conditions. I have to do something about the backlash on my azimuth drive. I

tried with G4LDR, but never heard him. Neil is now QRV on 6 cm. On 6 cm I am using my 5.4 m dish with 40 W at feed, a scaled N2UO feed, and G3WDG LNA.

HB9Q: Dan (HB9CRQ) dan@hb9q.ch updates us on the activity from his home station -- Since last Oct, we have added initials on 70 cm using JT65B with JR0WFFY, W7TZ, F1DUZ, PA9R, R9CQ, M0PNN, NY2NY, PJ2T, JH4ADK, YO2LSP, OH3DP, MJ/DH7FB, PA4VHF, RK3T, 2M0ETJ, DG5CST (new grid), XE2AT/p (in DL90, DL80, DL82, DL91, DL92, DL93, DL94 and DL83), IK2TIF, GW3TKH, WP4G, **Hi8DL for new DXCC167**, ZL3AAD, VK4FB, R3KK, G4IDR, UA4FKD, F5JDI, VK4ZC, W9VHF, LW2DAF, 9Y4D, IK2RHE, GW4LWD, KD2LGX, SQ9CYD, SM/DL8YHR and IK7UXW to bring us to mixed initial #1136*; on 23 cm using JT65C with OE3FVU, RA4HL, A21EME (also CW), UA6LCN, VE2UG, K6MG (CM87), WK9P, UA3RAW with a single 50 el yagi and 150W on the horizon, KW7MM, GX3EEZ, G4ALH, OZ1CTZ with 2 x 37 el yagi and 60 W, W2HRO (FN20), W2ZQ, SM5DGX, DG5CST (new grid), IZ4VSS, LU1HKO, SP2SQC, IK0ZYH with a single 36 el yagi and 180 W, DK2AN, DK1KW with a single 36 el yagi and 20 W, N1AV, WA7XX, W4NH, R1NW, OE6V (also CW), CX2SC, DL1DWI with a single 70 el yagi and 50 W, VK4FB, DK5AI, ON4LX, CT1BYM, HB9CRQ (JN46je, also CW), WA3QPX and OM4XA (also CW) to bring us to mixed initial #741*, WAS 45 and DXCC 125; on 13 cm using JT65C with A21EME (also CW), 4X1AJ, DK3SE, OE6V (also CW), HB9CRQ (JN46je, also CW), DL1EMA and F2CT to bring us to mixed initial #89*, WAS 19 and DXCC 67; on 9 cm using JT65C with **WA3RGQ in FL for WAS 9**, A21EME (also CW, DXCC 37), SM3BYA (CW), **OE6V (also CW) for DXCC 38**, VK4AFL (CW), HB9CRQ (JN46je, also CW) and **KN0WS in Min for WAS 10** to bring us to mixed initial #84*; on 6 cm using CW unless noted with VE6BGT, **A21EME for DXCC 41** (also QRA64D), **OE6V for DXCC 42** (also QRA64D), G4CCH, HB9CRQ (JN46je, also QRA64D) and **KN0WS in Min for new WAS** (QRA64D) to bring us to mixed initial #95*, on 3 cm using QRA64D with W3SZ, ZS1LS, RA3EME, F5VKQ, **A21EME for DXCC 39** (also CW), **CT1BYM for DXCC 40**, DL4DTU, **OE6V for DXCC 41** (also CW), HB9DUK, IK0HWJ, IK6CAK, S57NML, OK2ULQ, IW2FZR and HB9CRQ (JN46je, also CW) to bring us to mixed initial #185*. On 1296, we still need the following 6 states to complete WAS: AL, AR, KY, MS and WV. We can work easily stations running a single yagi (40-70 el) and 15 W or a 1.5 m dish and 10 W. Any help is very much welcome! We plan to be QRV during the ARRL EME MW Contest weekend; however, we will not participate in the contest. As always, we will be chasing new initials. Our QRV times will be 12 Sept from 0400 to 1440 and on 13 Sept from 0400 to 1530. On request (for a new initial), we can be QRV during our moonrise. Please send us your proposal to dan@hb9q.ch. We will be QRV on 13, 9, 6 and 3 cm, switching bands on a regular base. Please look for our actual band/frequency on the HB9Q loggers. Of course, we will also be QRV on 432 and 1296 (and 50 and 144). I have received the HB9CRQ QSLs from the printer and we have confirmed and sent out all QSLs received. If you have not received our cards, please let me know! Our QSL policy:

we only confirm received QSL cards (please include SAE). If you still need a QSL from one of our MW dxpeditions (3DA0MB for 23-3 cm only, ZS6EME for 6 & 3 cm only, EA6/HB9COG, HB0/HB9DBM, SV9/HB9CRQ, A21EME for 23-3 cm only, OE6V for 23-3 cm only, HB9CRQ in JN46je; please send your QSL including SAE to: HB9Q, P.O. box 133, CH-5737 Menziken.

JA4BLC: Yoshiro's ja4blc@web-sanin.co.jp Aug EME report -- I worked on 5760 CW random on 15 Aug UR5LX (O/O), on 16 Aug UR5LX (O/O), JA1WQF (559/569) and OK1KIR (569/569), and on 17 Aug G4CCH (559/559) on sked for initial #52.

K4QF: Ben LoWeb@esp-inc.net in AL is making progress on 23 cm, but still not quite QRV -- It's one step forward and two steps back! Last year using my HB 3.5 m dish with a HB feed, I was hearing some of the stronger CW stations with pretty good signals. I still had not gotten my tracking mechanism going for my polar mount. My next task was to design a tracking system, which I did, and this is working very well. However, it took a couple of months to build and get the bugs out. It's based on a stepper motor that is geared down to give 0.6 deg/step. I have timing circuits to control the time between steps and when to step. Then, some folks convinced me to go to an SM6FHZ circular feed. I built one. During the DUBUS contest, I was expecting good copy with the new feed, but I didn't hear anything. So, I am trouble shooting the problem. After the contest, I took the feed down to bring inside to trouble shoot, and it took me a week to recover for the chigger bites. I also killed two Copperhead snakes on the front porch in the process, so I really have to watch my step out there in the dark -- and in the daylight too.

K7ULS: Mike k7uls@yahoo.com reports on working ME on 222 EME to ME -- I worked K1WHS on the horizon. Dave was using his tropo station consisting of 4 x 22 el yagis and 1500 W. I was using my single 22 el LFA yagi and 750 W.

KNOWS: Carl carlhasbargen@q.com reports on his EME operation in THE Aug MVAW -- I was pleased to be QRV on 9 and 6 cm. I got up early on 15 Aug to try 9 cm using my backyard 1.8 m dish and 50 W Toshiba SSPA. Using JT65C, I worked K2UYH (16DB) and had initials with OK1KIR (16DB), G4CCH (16DB) and KL6M (19DB). These were my first EME QSOs the end of May. I was not able to see KD3UY despite spending some time trying. The next day, I was on 6 cm, but had RX problems! I was only able to QSO using QRA64D OK1KIR (19DB). G3LTF asked what my sun noise was? I found that it was only 2.4 dB; at which point I shut things down. Several days later I went up north to my EME QTH. I am trying to get an 8' mesh dish operational there for 9 through 3 cm. When I installed my same 6 cm gear onto that dish, the Sun noise was 7.8 dB (down to 6.3 dB when I inserted my isolation relay). I find myself wondering if I had a bad connector in the RX chain at my home site on 16 Aug. I am hoping, I can get things figured out and for the WX to cooperate for the Sept ARRL MW weekend. I would like to use my 16' dish on 13 cm and my new 8' dish for 9 cm, 6

cm and 3 cm over two days. I had equipment failures that kept me off the air last Sept! I hope not to have a repeat this year. I hope to work many of you during the ARRL weekends!

N5BF: Courtney courtney.duncan.n5bf@gmail.com is QRV again -- After having my antenna down for about six weeks, while extending my dish from 3.0 to 3.8 m (f/d from 0.45 to 0.36 as a result) and improving the 'interchangeability' of the feed mechanism. Preliminary of measurements of Sun noise is up from about 7 to about 9 dB. ON0EME signal level and echoes at apogee (and high spreading) are about the same as they were under optimum conditions (perigee, high declination, and low spreading) before, so I am expecting at least a 2 dB improvement. I am waiting for a 'good conditions' day later in the month to do the 'for the record' measurements, but what really counts is QSOs with stations that used to be "too weak." More on that next month, hopefully; and in the ARRL Contest.

NC1I: Frank brings us up to date on his recent Moon activities -- The last time I was QRV was during the DUBUS 23 cm event. I had planned on getting on for at least a few hours each day, but things just didn't work out. The first day, I tuned the band and heard many strong CW signals. I called and completed with I1NDP, but noticed that his signal dropped significantly in strength during the QSO. I then tuned the band again and the few signals I heard were much weaker than before. I was able to add DG5CST to the log. After this QSO, I checked my Sun noise and found that I was only measuring about 5 dB! I have had an intermittent RX problem on 23 cm for the last 18+ months. I thought I solved the issue, but obviously I did not. W1QA visited this past weekend and we did some additional troubleshooting. I now "believe" we found a problem with the control cable to the isolation relay at the septum feed. I will try and get that swapped out for the weekend of 12/13 Sept. Progress on the 432 rebuild has gone well and everything is just about ready to go back up. If I can schedule enough help and coordinate getting the crane here, I may be QRV again by early to mid-Oct. Due to my time spent on the 432 project, I have fallen behind with QSL duties, but will try and get caught up soon. I am looking for a couple of items to have for spares for upcoming (2021) US State dxpeditions -- see the FOR SALE section. I officially retired on 14 Aug and am looking forward to more time for EME once I get everything here back in good working order.

OK1KIR: Vlada vlada.masek@volny.cz and Tonda write on their Aug EME activity -- In the MVAW on 9 cm on 16 Aug, we lost our tracking computer and most of the Saturday moonpass. However, after repair (installed a new computer), we caught at 1100 KNOWS (15DB/16DB) using JT65C for digital initial {#38} in MN for a new a WAS state and EN field, 1106 G3LTF (569/579) CW, 1124 SM3BYA (549/549) CW, 1118 KD3UY (9DB/9DB) JT65C, 1242 K2UYH (1DB/2DB) JT65C, 1345 KL6M (579/579) CW, 1402 KL6M (1DB/O) JT65C for new digital DXCC, BP field

and new WAS state, and 1414 G4CCH (4DB/9DB) JT65C {#40}. We measured a Sun noise of 16 dB and a Moon noise of 0.9 dB. On Sun, 17 Aug, activity on 6 cm was good and brought a total of 19 QSOs. Using CW, we worked 14 stations. We QSO'd at 0218 JA1WQF (569/569), 0238 UR5LX (559/569), 0431 JA4BLC (569/569), 0559 RA3EME (569/559) for initial #114, 0606 G4NNS (559/569), 0619 SM6CKU (569/579), 0716 G3LTF (569/579), 0735 SQ6OPG (569/579), 0815 OH2DG (579/579), 0847 DB6NT (579/569), 1134 G4LDR (O/529) #115, 1210 K2UYH (559/569), 1218 IK2RTI (569/579) and 1334 KL6M (569/569). Heard were G4CCH. With digital we made 5 QSOs and added two more stations for the total of 16 stations worked on 6 cm digital (mainly QRA64D). QSO'd were at 0140 JA1WQF (10DB/8DB), at 0548 RA3EME (8DB/10DB) for digital initial {#49}, 1230 SM6CKU (14DB/15DB) {#50}, 1315 KN0WS (18DB/19DB) and 1410 OK1DFC (13DB/8DB). Late at night with minimal WiFi interference, we measured Moon noise \approx 2 dB, but later on during day only about 1dB. We were unable to measure Sun noise due to our terrible WiFi interference. We also ran an unsuccessful 24 GHz test with WA6PY on 21 Aug at very low elevation. Paul received his own weak echoes using a 3 m dish and 17 W; but on our side almost none of our own echoes were found due to excessive atmosphere attenuation.

PI9CAM: Jan (PA3FXB) jvm@netvisit.nl reports on the 26 July Moon Landing Anniversary EME SSTV Party organized by CAMRAS -- The Moon was rather low in the northern hemisphere, but close to perigee so that helped. We found a lot of interested stations and we had very nice results. Most of our operation was done on 23 cm but we also had requests to try 70 cm. Of course, 70 cm is much more difficult; yet we had surprisingly good results with UA3PTW there. As far as I know Dmitry is only the second station to successfully receive SSTV from us. The first was HB9Q years ago when we started testing EME SSTV. Because we found so much interest, we absolutely want to make this party an annual thing. We are also thinking about more EME SSTV sessions. It was big fun and surprising to see how good the results are, even with some relatively small stations!



SSTV Party examples (L to R): from SV1CAL on 23 cm, and from UA3PTW on 23 cm and on 70 cm

SM6CKU: Ben ben@sm6cku.se sends news on 5.7 GHz results -- During the MWAU I worked on 15 Aug DB6NT (579/579) on CW and (56/55) on SSB and SQ6OPG (568/579) CW, and on 16 Aug using CW OK1KIR, G4NNS, G3LTF, OH2DG, UR5LX, G4LDR for an initial (#) and K2UYH. OK1KIR was also worked on JT4F. Later, all of a sudden, I lost output power and had to QRT. It was very

hot. I don't yet know the cause of the problem. Generally, signals were good. I was using my 4 m dish and 40 W.

VE6TA: Grant ve6ta@xplornet.com (DO33gs) was on 222 EME during the weekend of 22/23 Aug -- I found good activity on this little used band. I worked using JT65B N0AKC, W4ZST for mixed initial #10*, K1OR #11*, KB7Q #12*, W5ZN #13* and W7MEM #14*. KB7Q was portable in Wyoming with a single yagi, so feel fortunate to have Gene in the log. K1OR, KB7Q, and W5ZN were new states for me on 222. I was using my 18' dish with 900 W with polarity rotation. Activity seems to be on the rise substantially with many stations chasing WAS. I plan to be on 10 GHz for the ARRL MW EME Contest.

WA3QXP: Paul wa3qpx@atlanticbb.net made his first contacts on 23 cm in Aug -- I used a 3.5 m TVRO dish, 250 W, DEMI preamp, transverter and Flex 6300 on JT65C. I have a OK1DFC septum feed, which optimized at different point than the dish manufacturer said. I used a DEMI weak signal source (LWSS) to peak on while sliding the septum in and out for best signal. I used my Iphone to remotely see the level on my Flex. I put the LWSS a 1/4 mile away in a field.

WA4ZST: Bob w4zst@windstream.net was active on 222 EME -- I got on for the weekend of 21/22 Aug for my first time on 222 EME. There had been a good bit of chatter about some stations getting on and an expedition to WY. I was very surprised to have managed to make 9 contacts in the two days. Nine grids, Eight states and one Province. N0AKC EN44 was first QSO'd (I've already gotten the card), followed by K2UYH, W5ZN, KL6M, VE6TA and K5QE on Friday. Then on Saturday, I added K7ULS, KB7Q and K1OR. Only try I didn't make was K1WHS who ran into his moonset before I could get in; but I did copy him well. The station here belongs to NX9O and is used by the Fourlanders (W4NH) for the VHF contests. We have added EME capability when operating from my QTH in EM84. The equipment is a Flex 1500, DEMI transverter, Lunar Link Amp/1kW, DEMI preamp and two 222XP30 yagis with Az/EI. I hope to make more QSOs in the future and plan to besides 2 and 222, on 432 for the ARRL EME Contest weekends.

WA6PY: Paul pchominski@maxlinear.com reports on 24 GHz and his 1296 QSO with FR5DN for a new DXCC -- I made a CW QSO on 1296 in the very limited window with Phil. Our window was even more limited than years ago, when we QSO'd on 432. I was forced to remove my 432 cross yagi, turn my 10 GHz dish to the north and cut bushes. Unfortunately, a new pine tree has grown up on the neighbor lot exactly in the direction of moonrise. At the beginning, my EL was 5 deg and Phil's was 3.6 deg. At the beginning, I still had half of the Moon behind that tree. We used 1 min sequences. Phil's signals came out of the noise with good (O) copy, although we had an additional 6 dB of ground noise. We finished the QSO quickly and still continue with 73, GL until Phil lost his Moon in the ocean. I am now setup for 24 GHz. I am using the same 3 m dish as used for 10 GHz. My TWTA delivers 18-20 W; Moon noise

is about 1.4 dB. I tried to copy echoes. The first time, I couldn't detect anything. W5LUA pointed out that this was due to the high libration 300 – 350 Hz during my test. The next time, I heard CW echoes when the libration was 50-80 Hz. I ran a sked with OK1KIR, but we didn't hear each other. That day, it was very hot and humid in my location, and EL was relatively low - about 15 deg. Moon noise that day was 0.9 – 1 dB instead of 1.4 dB, as before. I will keep 24 GHz on the dish for some time, but I don't expect big success during ARRL EME MW Contest, because libration on my side will be 300 – 350 Hz. On 16/17 Sept libration will be low and I will run few skeds.

WK9P: Tim тчerrone@yahoo.com is making great progress improving his 23 cm signal -- The tree trimming is done and looks good. I now can see the Moon from the eastern horizon to the Zenith in high declination. I'll have to see how lower dec goes, but I think I am all set now. My new TH327 PA is coming along. After some water jacket leaks and a blown rectifier, I finally have a much simpler single GS15B driver in place and tuned with the TH327. I may not knock your socks off, but I have 900 W in the house. I plan to be QRV for the ARRL EME Contest. Since both the driver and final PA's are newly up and running; I will leave them alone for a while. I am planning to work on the EL tracking next. With KL6M's help, I purchased an encoder. I have the TTL to RS233 interface ready, but need to sort the rest out yet.



WK9P's new TH327 1296 PA

K2UYH: I (Al) alkatz@tcnj.edu was again pretty active on EME in Aug – I had my 3 cm feed in place on 7 Aug using

QRA64D, but at 0440 copied nil on sked with ZS1LS, but worked on random at 0645 CT1BYM (17DB/14DB) for mixed initial #56* and DXCC 26, and on 8 Aug same at 0540 ZS1LS (nil) on QRA64D, but switched to JT4F to easily QSO at 0620 ZS1LS (17DB/18DB) #57* and DXCC 27 – [see OK1KIR's comments on QRA64 in the last NL]. I had a similar experience on 14 Aug trying to add New Zealand on 10 GHz. On 14 Aug at 1830 nil ZL3RC, but the next day we easily worked on 15 Aug at 1917 ZL3RC (15DB/17DB) for #58* and DXCC 28. In this case, QRA64D was used both days. The same day during the 9 cm MVAW, I QSO'd at 1048 KN0WS (14DB/16DB) on JT65C, 1110 G3LTF (569/589) CW, 1130 SM3BYA (559/579) CW, 1157 G4CCH (11DB/8DB) JT65C and 1237 OK1KIR (2DB/1DB) JT65C. I worked on 15 Aug during the 6 cm MVAW using CW at 1151 DB6NT (559/559), 1200 G3LTF (559/559), 1206 OK1KIR (569/559), 1233 SM6CKU (559/559), 1327 KL6M (559/559), 1340 G4NNS (559/559) and 1517 G4CCH (559/569). I also tried several times with G4LDR with nil results. Several stations asked me to go on 222 EME to provide NJ for WAS. I had not been on 222 EME for probably more than 20 years. It was 220 back then. I had given away my 220 tube PA, my converter used nuvistors, and could not find my old feed. It turned out that K1DS was in the area and had a 222 system he used in his rover. He was available on Friday 21 Aug and then returning to FL. Rick and I decided team up to provide NJ on 222 EME with my dish. I build a loop feed, suggested by KL6M. We set up Friday morning and almost immediately heard signals using JT65B. However, the 100 W SSPA we had proved a little anemic. I called K7ULS (19DB) trying every possible pol, but Mike could not decode us. (Mike had 750 W). We did work using JT65B on 21 Aug at 1750 N0AKC (16DB/30DB), 1839 W4ZXT (19DB/26DB), 2240 KL6M (16DB/O) and 2257 K5QE (13DB/24DB). We also had a partial with W5ZN. Joel was good copy, but was not able to decode us. At the end of the month, I put my 1296 linear feed in dish. And worked with JT65C on 23 Aug at 1914 DJ3JJ (22DB/12DB) and made two attempts with W6TOD who has 4 yagis but only about 8.5 W with only partial success. Todd copied me; I was never able to decode him although I did see some traces. I plan to be active during the ARRL MW Contest on 13 thru 3 cm and also for the ARI EME Contest in Sept.



222 feed mounted offset in rotator normally used for 432 and K1DS at operating position

NET/CHAT/LOGGER NEWS: G4NNS will be listening for the new 24 GHz beacon QRV when the Moon's elevation is clear of the trees and the WX is good. Brian also happy to take 24 GHz skeds, bcg4nns@gmail.com, with anyone

who would like to test with his 3.7 m Cassegrain dish 30W. He notes atmospheric losses at low elevation seem to be a big factor. **K1OR** in NH is QRV on 222 and recently added KL6M for his WAS 42 and DXCC 3. **KB7Q** ran a 222 EME dxpedition from WY on 22 Aug. **KL6M** worked during the MVAW on 9 cm using JT65C (CW is his preference) KD3UY and KN0WS for new ones. He was also QRV on 6 cm and 220. **W6TOD** has up graded to 4 x M² 23CM35 yagis but still has only about 8.5 W at his array. During a sked he decoded K2UYH on JT65C, but AI only saw some traces. Todd has a 250 W SSPA on order. **ZL3RC** came on 3 cm in Aug to give K2UYH a new DXCC. Roger also reports that **ZL2AQE** is considering coming back on EME on 3 cm. OK1DFC plans to be QRV in ARRL MWEME Contest with new 2.6 m offset dish on 3 and 1.2 cm.



W6TOD's 4 x M² yagi array for 1296

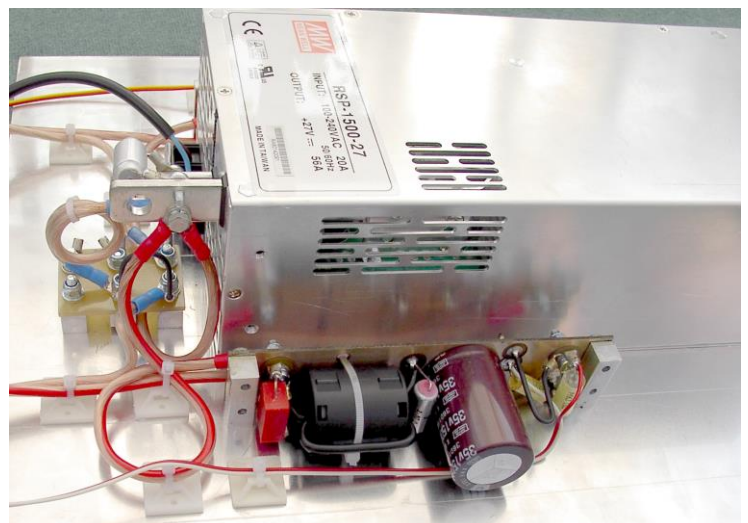
FOR SALE: PA2DW has for sale an Elisra 10 GHz 18 W SSPA with matching power supply. Dick is asking EU500. He also has a 90 cm Rhode & Schwarz (center) dish with waveguide support for EU100. If interested contact Dick at qtc@kpnmail.nl. **NC1I** is looking to purchase for use during upcoming (2021) US State dxpeditions a Kuhne TR 1296 H and/or a TR 432 H. They need to have a 28 MHz IF and have the 10 MHz REF input. **DK7LJ** is looking for 24 GHz SSPA to use with his beacon. If you know of a 1.2 cm SSPA for sale, please let Per per@per-dudek.de know. **OK1DFC** is needs a POSITAL inclinometer ACS-360-1-S101-VE2-5W. They are available from FRABA, but the deliver is in 42 weeks, which is too long for Zdenek's need. If you can lend him one, he can return in in about 42 weeks, as he has one on order. Contact Zdenek at ok1dfc@seznam.cz. **SU6BUN** needs a small SMA (f) directional coupler for 8 – 12 GHz with 6 dB coupling for a reasonable price. If you have something email Michael at sa6bun@gmail.com. **WX7M/EI5IE** has a 7.7 m (25'-3") Scientific Atlanta dish (good to 15 GHz) that he wants to dispose of. At 10 GHz the gain is over 50 dB. It is available to any ham will to taking it apart and hauling away. Pat also has the aluminum petals for a 30' dish that need to go as well. He is near Reno, NV and can be reached at gleacht@gmail.com.



7.7 m dish available from WX7M for the taking

TECH: 1) If you are interested in antenna modeling and simulation, EA1DDO/HK1H reports NEC-5 is available at <https://ipo.llnl.gov/technologies/software/nec-v50-numerical-electromagnetic-code>. 2) If you are having US Digital encoder problems, see DL7APV's report in this NL.

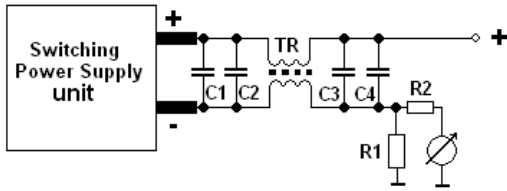
3) How to remove switching power supply noise: Some of our friends have asked how to eliminate/filter the noise produced by common Meanwell switching power supply units (SPSU) and other similar supplies. OK1VPZ uses the following solution with a Menwell RSP-1500-27 for OK1TEH's 70 cm SSPA. Interference from SPSUs come from very narrow spikes with a repeated frequency between 50 and 100 kHz. These spikes can be removed by capacitors with low loss on MHz bands and large inductors. In the ferrite ring used, the magnetic flux flows in opposition, so it doesn't overload the magnetic material. The inductance of the ring helps attenuate the spikes.



SPSU inside OK1TEH's 70 cm PA with filter

SIMPLE FILTER FOR SPSU IN PA

OK1VPZ 8/2020



C1, C2, C4 - Polyester roll film capacitor ~ 220nF to 2.2µF

C3 - electrolytic capacitor Low ESR abt. 4700µF

TR - ferrite ring for antijamming - as big as possible - both wires 2mm Cu 1 thread each - both DC currents are in opposition and DC magnetic stream in core is taken away

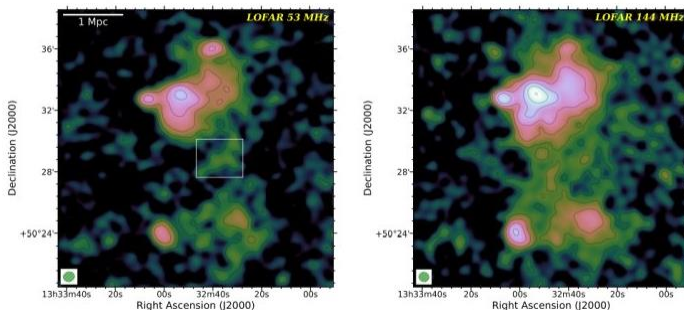
R1 low resistance resistor for DC current measure - max 0,2V loss

R2 for adjustment of measurement scale



RADIOASTRONOMY CORNER BY OK1TEH: Although we don't have any Radio Astronomy News this time, we would like to introduce OE2IGL's great web, where he discusses Sun noise measurement and the theory behind it. See <http://members.inode.at/576265/sunnoise.html>

Radio astronomy at 144. Have you heard about LOFAR? See <https://lofar-surveys.org/publications.html>. You probably answered YES, if you visited PI0CAM and Astron Labs during EME 2018. While there, you were shown how LOFAR antennas are built. During summer of 2020, the observation of a giant radio bridge connecting two clusters in Abell 1758 were announced. The team noted "Collisions between galaxy clusters dissipate enormous amounts of energy in the intra-cluster medium (ICM) through turbulence and shock. In this process, Mpc-scale diffuse synchrotron emission in form of radio halos and relics can form. However, little is known about the very early phase of the collision... LOFAR used deep radio observations from 53 MHz to 1.5 GHz to study the pre-merging galaxy clusters A1758N and A1758S that are about 2 Mpc apart. The bridge is clearly visible in the LOFAR image at 144 MHz and tentatively detected at 53 MHz." Galaxy clusters are about 6.5-million-light-year away from us -- vere nice 144 MHz DX!



Radio maps of the Galactic Clusters

More info can be found at: <https://academic.oup.com/mnras/advance-article-pdf/doi/10.1093/mnras/slaa142/33674818/slaa142.pdf>.

47 GHz NEWS: OK1DFC's progress on his 47 GHz station is at http://www.ok1dfc.com/eme/47ghz/47_ghz_page.htm.

JA1WQF together with JA8CMZ have finished a 47 GHz 11 W SSPA. They report a stable output power of 11 W. [OK1TEH predicts during Sept there will 47 GHz QSO with W5LUA.

CU8EME REMEMBERED: 30 Years ago (1990) was the great CU8EME dxpedition to the Azores. The 70 cm op's were F6HKA, F1EHN, F6EZV and F6CTW. They used 16 x 21 el yagi, 800 W RIW PA and 0.3 dB NF LNA to make 40 initials. More details can be found at https://f1ehn.pagesperso-orange.fr/pages_f6ksx/eme1990a.htm. [Seems like yesterday – TNX JJ, F1EHN].



CU8EME 432 array and operators

PROJECT DIANA: THE MEN WHO SHOT THE MOON: Matej received nice email from Cindy, W2AXO. She helped create a new website on Project Diana located at <https://www.projectdiana-eme.com>. Her father, E. King Stodola, (W2AXO, now held by her daughter) served as Scientific Director. Note the page entitled Firsthand Accounts <https://www.projectdiana-eme.com/firsthand-accounts.html>, which includes an audio recording of the moonshot. <http://www.k3pgp.org/Notebook/1946eme/wor1946moonshot.mp3>. The site also includes a blog, To the Moon and Back <https://www.projectdiana-eme.com/to-the-moon-and-back-blog>, which covers a wide range of topics including many entries relating to Project Diana, moonbounce, ham radio, etc. Many thanks Cindy for great work & web!!

FINAL: We regret to report that WA7TZY is an EME SK. Fred was active on 432 EME in the past, but not recently. [He was one of my (AI) early students and an incredibly talented engineer]. When he passed away, he had a phenomenal antenna farm the likes of which we could not have imagined – see <http://telewski.us>. It is worth seeing. May Fred RIP.



WA7TZY (L) with XYL WB7BST and W7ZOI (Wes) in front of collinear array used on 432 EME in 1975

▶ CORRECTION: In the last NL OK2AQ's call was incorrectly shown (OK2QA). Also, in Mirek's report the photo of ZL3RC was not taken during their QSO, as was implied; and the photo of the dish is of his new 1.8 m rather than his old 1.2 m dish.

▶ The big Arecibo had some extensive damage. About a 100' section of the 1000' dish was destroyed when one of the support cables holding up the 900 ton feed collapsed and hit the dish. A brief YouTube video showing info is at <https://www.youtube.com/watch?v=4V3VCt24tkE>. More info is at <https://edition.cnn.com/2020/08/12/us/arecibo-observatory-damaged-trnd-scn/index.html>. It sure looks like they will be QRT for a while. [TNX SM2CEW for passing this info on. Peter writes – I still remember the big signal they had on 70 cm CW some years ago. And I remember listening to their enormous pileup where stations never heard before on 70 cm EME could be easily identified. Which reminds me of the fact that people who transmit and are much easier to hear via the moon than the ones who only listen. So, let's CQ more when we've got our antennas pointed at the Moon].

▶ DK7LJ sends news that he has a second EME Beacon on the Moon for 1.2 cm. See Per's report near beginning of this NL.

▶ Some EMEers have had problems with the link to the HB9Q EME Loggers and Info Page. Please use: <https://logger.hb9q.ch>. This is the direct link to the Logger sign-in page.

▶ We would like to say thanks to all of our readers for sending us your reports. We also want to apologize for any mistakes that we may have made. Although sometimes (too often) we make errors and typos, please be assured that we do not want to spread misinformation or harm anyone. Often reports are edited to give a more complete picture or a clearer understanding of what took place. Sometimes, it is a matter of language. [If you want to write in different language than English, it is OK; please don't be shy]. Most important, thanks for keeping the activity going on the EME bands! Have a wonderful autumn, stay safe and healthy. We hope to work you in the ARI and ARRL EME Contests. 73, AI – K2UYH and Matej – OK1TEH.