432 AND ABOVE EME NEWS
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CONDITIONS: I expected this newsletter (NL) to be short with little to report, but you can see this was not the case. The 3 cm microwave activity weekend (MWAW) on 30/31 July drew a large turnout. OK1KIR reports more than thirty 10 GHz QSOs! W5LUA's 3 cm demonstration at the 50th CSVHF Conference in MN during the MWAW helped generate activity with a new state on 3 cm. Although there was no other dxpedition activity during the past month, new stations on 432 became QRV from China (BG6LQV, BH4PVP and others), and EW1AA showed up on 23 and 13 cm. EW1AA is the first 13 cm activity from Belarus and the first 23 cm activity since the EV5M dxpedition in 2008. This month SP/OK5EME will be QRV on the MW EME bands from 12-15 Aug. There is little other dxpedition activity scheduled until Oct when S9YY will be on 432 from Sao Tome & Principe and XT2AFT will be on 70, 23 and 13 cm (+ 2 m) from Burkina Faso. KB7Q/7 will also be QRV on 70 cm from NV in Oct. See reports on these dxpeditions in this NL. There was no recent 70 cm CW Activity Time Period (ATP). The next ATP is on 28 Aug from 0200 to 0400 and 1000 to 1200. Because of the EME Contests there will not be another 70 cm ATP until Dec. The 13 cm MWAW will be on 17/18 Sept. The following weekend, 24/25 Sept, will be the ARRL Microwave (MW) EME Contest (bands 2300 and up). This same weekend is also the autumn part of the ARI's EME Trophy Contest. This contests covers all EME bands (thu 10 GHz) and modes. It counts CW/SSB and digi QSOs as separate contacts. It is unfortunate that it conflicts with the ARRL MW EME Contest, although I see no reason why MW QSOs cannot be used in both contests. The OK1KIR group is trying to find a date for a 24 GHz MWAW – see the end of this NL.

The big news this month is the 17th International EME Conference in Venice on 19/20/21 Aug. It is just about here. IW3HVB reminds attendees that there are still a few seats on the tours available. There may also be opportunities for last minute registration; if you are still thinking to come see http://www.eme2016.org/index.php/registration/.

The OK1KIR dish used in 3 cm MWAW for > 30 QSOs

4X1KS: Mark israelsteel@gmail.com is QRV on 432, but needs to improve his system – I have a long yagi, 100 W Mirage Brick that I cannot run at full power on JT, and an ARR preamp into TS790a, but have not been very successful off the Moon. The 790 has worked very well for me on satellite. The brick is located only 3' from the feedpoint with the preamp after the amplifier. [Try putting the preamp before the amp as the relays in some of the brick amps can be quite lossy]. My antenna is suspect because it has been slightly abused, so I will take a good look at it. I will away much of Aug, but will try again when I return in Sept.

AC0RA: Wyatt wyattdirks@msn.com put Iowa on 432 EME again. He operates primarily as a *rover* during ARRL VHF/UHF contests. He was QRV for contesting from EN41bw during the weekend of 6/7 Aug. He used only a 15 el yagi and 100 W brick and QSO'd OK1DFC and possibly others. [TNX to OK1DFC for forwarding this report].

BG6LQV: Jianglei 254350@qq.com is now QRV on 432 along with several others from China – Many tall buildings around my house block my east and south sky. I can't see the Moon at less than 30 degs el. I learned about EME from BD4SY – many thanks to Zhu. I have 4x13 el DK7ZB's yagis and have now made several EME QSOs on 432.

DK7LJ: Per per@per-dudek.de reports problems with the 3 cm beacon this past month -- I am sorry to say the output of the beacon is unstable between 2 and 25 W. If it becomes worse, I may have to switch off the beacon for a while because there is no time for repairs at this moment. [See the end of the OK1KIR report. I have not received any other additional news since this message at the end of July].

EW1AA: Sergej ew1aaminsk@gmail.com is now QRV on 23 and 13 cm with excellent results – My equipment is all HB. I have a 1.5 m dish with 80 W on 13 cm and 150 W on 23 cm. At present, I can only operate on 2320, but am working on a synthesizer for the 2304. I have a license to operate in this band (TX/RX). It will be ready in Sept before the 13 cm MWAW.

G3LTF: Peter's g3ltf@btinternet.com July report -- Not a lot of EME activity here as lots of other things going on at this time of year. I did work on 13 cm on 30 July ZS6EME for initial #127 on SSB with a fine signal. The next day I added IK5QLO (559/559) #128 on CW. I was only on for Sunday of the 3 cm MWAW and still only listening. Since the DUBUS 3 cm CW contest, I have improved the system and now see 1 dB of Moon noise. I copied OZ1LPR, OK1KIR, DB6NT and HB9Q; all with good signals. I could just copy SA6BUN, IZ1BPN and SM6CKU. I have had a tree taken down, which will improve my window on 3 cm, but I do have to look thru the tropo tower. I am now in the process of turning a "lash up" into a proper working system. I'm amazed how well the polar mount tracks with just a regular pulse every minute on the HA drive.

G3WGD: Charlie charlie@sucklingfamily.free-online.co.uk was QRV for the 3 cm MWAW on 30/31 July but found things a bit of a mess here today – My transverter blew its final stage (17 dBm to 36 dBm) the night before in a long test with VK7MO trying out a new digital mode. To QRV for the MWAW, I bypassed it and added an external amplifier without enough gain, so I was limited to only 20 W out of the normally 100 W PA. Also I was on H pol, which as it turned out didn't matter as we were at 45 deg to each other anyway. When I looked at my dish after QSOing K2UYH, it was about 30% blocked with greenery, so not a bad result at all. I had fun anyway as it is always nice to make QSOs.

I1NDP: Nando i1ndp.nando@gmail.com sends a warning of potential QRM on 1296 -- Not much news, except to alert you to a potential new intruder on the 23 cm band. I have noticed for a couple of months a fast increase of my noise floor that lasts for a fraction of a second. I recently dedicated some time to trying to define it better. The signal is so fast that it can be seen only with a memory hold monitor, and only with the antenna pointing at the space. It changes in time and position and repeats every 2 minutes (more or less). I was able to record the signal with my dish at 50° of el in the north eastern direction. It is about 2 MHz in bandwidth with an evident raise of the noise floor spanning many MHz, and what I assume are 2 communication channels 1.2 MHz apart. At lower bandwidth, there is only a fast change of the background noise, which can easily go unnoticed. I suspect the source is one of the new

Galileo (GPS) satellites. To my knowledge there are presently 6 of these satellites active. The Galileo system foresee (among others) a transmission channel 40 MHz wide and spanning from 1260 to 1300 MHz with a spread spectrum transmission hosting CDMA channels for 30 satellites once the constellation is completed. The purpose of the channels are to illuminate the earth with the navigation data. I am not an expert. If you have more knowledge, can you confirmation or hopefully deny my guess.

IK5QLO: Andrea ik5qlo@gmail.com is now QRV on 2320 as well as 1296 – On 13 cm, I am using my 2.4 m dish with 100 W at the feed. I can receive weak but constant echoes. I can also receive on 2400 MHz for JAs and 2304 for the USA. In my first test on 31 July, I worked on CW JA4BLC (O/O) XB for initial #1, G3LTF (559/559) #2, OZ4MM (559/559) #3 and IK3COJ (O/O) #4. The QSOs with Yoshiro and Stig made 13 cm the 4th band we have QSO on EME, after 144, 432 and 1296. I still have a lot of thing to fix, but hope to be ready for the ARRL MW Contest in Sept.

JA4BLC: Yoshiro ja4blc@web-sanin.co.jp reports on his recent EME activity – I worked on 5760 on 18 July JA6CZD (559/559) and JA6XED (559/459) #41 – this was Hisao's 1st EME QSO on 6 cm! I QSO'd on 10 GHz on 24-28 July JA6CZD (559/569), JA1WQF (569/569), JA8ERE (449/559) and partial with JF3HUC (M/-). During 10 GHz MWAW, I worked JA1WQF (559/559), JA6CZD (559/569) and OK1KIR (569/559). Heard were DL7YC (569), SP6JLW (579) and OH2DG (569) on 10,368. After the weekend on 2 Aug, I worked JF3HUC (O/449), JA1WQF (559/559) and on 3 Aug JF3HUC (O/549) and JA6CZD (559/569). Four of the JA 3 cm stations are using circular feeds and one is still using linear. I feel it's time to use circular as the standard on 3 cm. On 2400/2320 XB, I worked on 31 July IK5QLO (O/O) for initial #67. Congrats to Andrea on his 1st ever EME on 13 cm. He had a good signal from a 2 m solid dish and 80 W SSPA.

K4MSG: Paul Phbjr@aol.com in FM19ee sends an up date on his 70 EME plans -- Due to low activity level of large stations on 432 EME (somewhat due to mass migration to 23 cm and up), I have decided that my only hope for achieving 70 cm WAC (still missing Africa) and improving my initial QSO and grid locator totals is to successfully QSO not-so-large 70 cm EME stations, especially 4-yagi stations running less than 1 kW. To this end, a station upgrade is in progress. The upgrade consists of installing a WA2ODO 70 cm LNA (0.25 dB NF) at my dual-LFA array and the assembly of a 500 W amplifier based on the W6PQL's SSPA RF deck. The design phase (mostly control, switching, etc.) is essentially complete and a majority of the necessary components are either on hand or on order. I hope to have it up and running by the ARRL Sept VHF QSO Party (or sooner).

KB7Q/7: Gene geneshea@gmail.com plans to in Nevada on 70 cm EME from South of Jackpot, NV (DN21pw) on 17 Oct – I will operate on 432.088 (listen +/- 1 kHz) using JT65B first sequence, but will respond to CW calls as well. Operation will be Field Day style again - generator power, very quiet QTH. I will use on 432 2 x 9 wl yagis and 500 W. If you are closing in on Worked All States and need Nevada be sure to let me know. It's my motivation! [He will be on 2 m EME the 2 days earlier]. More details can be found at http://kb7qgrid.blogspot.com and http://portableeme.blogspot.com.

LA3EQ: Jan j-lustru@online.no (JO28xj) in Norway is QRV on 1296 -- I worked with JT65C or CW in May DK3WG, G4CCH, PA3FBX, NC1I, UA4HTS, PA3DZL, JA6HAB, OK2DL, OK1KIR, UA9YLU, OK1YK, IK5VLS, PA3CGS, SP5GDM, IK3COJ, RE3EC, OH2DG, OK1DFC, PY2BS, PA0BAT, ES5PC, G4CCH, IK2MMB, G3LTF, UA9YLU, ES6FX, and YL2GD, in June DJ2DY, YO3DDZ, SP5GDM, F1PYR, VA1EME, K5DOG, SP5GDM, IK5VLS, I5YDI, GW3XYW, PA3FBX, YO2BCT, G4YTL, PA3CQI, G3TLF, DF3RU, VK5FA, VK4CDI, DK3WG, I1NDP and I7FNW, and July K5DOG, K2UYH, I1NDP, W3HMS, VE3KRP, DF3RU, G4EZP, SM7FWZ, OZ4MM, I0NAA, F5EJZ, VA6EME and OK2DL. My init count is now 53. My setup consists of a 1.9 m mesh dish from RF ham, square Septum feed, 140 W SSPA mounted on the backside of the dish and G4DDK VLNA. I also use TS-2000X and IC-970H for RX and a Spid ras/HD rotator. The EME beacon ON0EME on 1296.000 is copied here at -12 dB level and greatly appreciated.

N2MO: Martin (W2RWJ) mflynn@n2mo.org sends news about progress on upgrading the EME demonstration facilities at the New Jersey Info Age Science Center that operate the 60' Project Dianna dish. They have added larger monitors and better time displays to the operating console. They also now have a GPS disciplined Rubidium master clock. Please stay tuned for news of future EME operating events.

New console for control of N2MO at 60' Diana dish

N4PZ: Steve <n4pz@live.com> picked up K5SO's TH327 1296 amplifier in April but does not yet have it on the air -- It's a converted UHF TV translator. I expect to have it working very soon. I remain QRV on 2304/2320 with a Spectrian amp to my 4.9 m dish.

NC1I: Frank frank@NC1I.COM reports on his recent EME activity -- I had limited time for EME in July, but did work on 1296 on 30 July at 0900 LA3EQ (19DB/8DB), 0908 F6EJZ (17DB/14DB), 0924 R4YM (25DB/16DB), 0947 I0NAA (12DB/7DB) for 1296 JT initial {#128} and overall initial #219*, 0957 G4YTL (13DB/16DB), 1010 PA3CQE (12DB/7DB), 1032 IZ5TEP (24DB/14DB) {#129} and #220*, 1102 RA3AUB (8DB/2DB) and 1134 EW1AA (26DB/23DB) {#130} and #221*, and on 31 July at 1114 DF3RU (7DB/5DB), 1121 DK3WG (13DB/6DB), 1200 PY2BS (7DB/5DB), 1215 IK5EHI (20DB/11DB), 1241 K5DOG (18DB/10DB), 1259 LA3EQ (17DB/10DB), and 1317 OE5JFL (5DB/5DB). W1QA has been coming to my home most weekends to assist with getting the 432 station back on the air. We have made much progress and still hope to make it back on sometime in Jan. I hope everyone has a great time at the 2016 EME conference!

OK1DFC: Zdenek ok1dfc@seznam.cz is only missing 4 states to complete 432 WAS – I am missing NV, LA, MS and AL, but expects to complete with KB7Q/7 in NV in Oct. He will be happy to try with any single yagi station with 50 W or greater. [See also the SP/OK5EME report].

OK1IL: Ivan ivaknn@gmail.com has completed his first day on 1296 EME -- After more than half a year building my station, I called my first CQ using JT65C to work IK3VLS (20DB/O), followed by DF2VJ (24DB/O), PY2BS (10DB/O), LA3EQ (26DB/O), UA9YLU (17DB), LU8ENU (25DB/O), UA4HTS (11DB/O), I1NDP (10DB/O), G4YTL (21DB/O), DK3WG (24DB/O), I5YDI (19DB), G4CCH (9DB/O), II3EME (14DB/O) and KD3UY (27DB/O). TNX for all the QSOs – real pileup! I plan to be also QRV on CW soon. I need to become familiar with Doppler and hearing my own echoes. I have a 3 m mesh dish from RFhamdesign and 800 W SSPA from BEKO installed in waterproof military transport box on the mast behind my dish with a short length of LDF4 to the feed to give nearly full power into a OK1DFC septum. I was afraid that I might be another crocodile station with 800 W, but to my satisfaction the reports given and received were not too different. I am looking forward to work all many initials on 23 cm, but I do not plan to abandon 2 m EME. [TNX OK1DFC for forwarding this report].

OK1KIR: Vlada and Tonda vlada.masek@volny.cz report on EME in second part of July – On 23 cm we worked using JT65C on 24 July at 0540 F5EJZ (16DB/13DB) for digital initial {#247} and 0658 IZ1TEP (19DB/10DB) {#248}, and on 29 July at 1023 EW1AA (23DB/19DB) {#249}. On 13 cm we QSO'd on 29 July at 0408 ZS6EME (55/52) on SSB for initial #148 and 0416 ZS5EME (8DB/9DB) on JT65C for digital initial {#40}, and on 30 July at 0931 EW1AA (27DB/28DB) {#41} and the 1st EU-OK QSO on 13 cm. On 6 cm we contacted on 29 July at 0306 UA3TCF (16DB/13DB) using JT65C for digital initial {#23} and 0325 UA3TCF (O/O) CW for initial #91. On 3 cm we worked on 29 July using JT4F at 1242 W5LUA (12DB/13DB) portable in MN at the CSVHF

Conference for digital initial {#100} as new US state and repeated on 30 July at 1202 (16DB/13DB). During the 3 cm MWAW we worked on Saturday 30 July using CW at 0346 UN6PD (M/O) for initial #109, 0425 DL7YC (569/569), 0442 JA6CZD (569/569), 0449 JA4BLC (559/569), 0525 SP6JLW (589/579), 0606 OH2DG (559/569), 0629 PA3DZL (569/579), 0648 OH2AXH (559/559), 0708 G4NNS (559/569), 0744 HB9Q (569/559), 0823 DF1SR (O/O), 0835 OZ1LPR (589/579), 0906 IW2FZR (549/559), 1208 OK2AQ (O/O), 1307 SA6BUN (559/559) #110 and 1336 WA6PY (559/569), and on Sun 31 July at 0747 SP6JLW (54/55) on SSB, 0814 SM6CKU (559/569), 0913 IZ2DJP (549/579), 0924 DB6NT (569/569) and 0936 DB6NT (54/55) on SSB for the total of 21 CW/SSB QSOs. Heard was IK2RTI, and we were received by VK4CDI (549), PE1LWT (529) and G3LTF (559). We missed PA7JB and were forced to QRT about 1000. We appreciate the remarkable activity on 3 cm and effort of G3LTF in initiating this AW. During 3 cm AW we also worked using JT4F on Saturday 30 July at 0108 VK7MO (13DB/17DB), 0114 VK7MHZ (13DB/18DB), 0120 VK7ZMS (13DB/17DB), 0128 VK7ZBX (14DB/17DB), 0134 VK7BEN (12DB/17DB), 0140 VK7MA (13DB/17DB), 0146 VK7HRS (13DB/17DB), 0311 JA1WQF (12DB/8DB), 0330 UN6PD (14DB/14DB), 1159 OK2AQ (13DB/8DB), 1222 W5LUA (14DB/14DB) [already reported], 1240 WA3LBI (12DB/7DB), 1248 K2UYH (12DB/18DB) and 1349 G3WDG (12DB/16DB), and on Sunday 31 July at 0436 OK1DFC (14DB/13DB) and 0526 OK2AQ (14DB/8DB). On Saturday the DL0SHF beacon was heard at -11 dB (on WSJT10), but on Sunday disappeared. [See OK1KIR's proposal for a 24 GHz MWAW at the end of this NL].

OK1TEH: Matej ok1teh@seznam.cz sends news on his single yagi efforts on 432 -- I succeeded in QSOing on 70 cm KN0WS (28DB/26DB) using JT65B. Carl used a 6 m dish with full EL/AZ manual tracking, a ringfeed (a modification of OM6AA's feed described by OK1CA) and only about 300 W during our QSO because of overheating. He is my mixed initial #107 on 70 cm worked with my single 23 el DK7ZB yagi (5.7 m long) and my 20th state for WAS. I hope to CU all in Venice.

OK2AQ: Mirek mirek@kasals.com wrote -- The last EME activity weekend on 3 cm as well as the whole previous week were accompanied by varying weather with strong storms and rain. Thus, our EME activity was affected too. During this week I had worked eight QSOs by JT4F and one QSO on CW. Worth mentioning is a QSO with G3WDG where we tested his new portable setup with a 4' dish. The mode was JT4F, Doppler compensation method CFOM and exchanging reports (11DB/21DB). Charlie used a 100 W PA in the feed point with two TGA2312 GaN modules. During the weekend, I had worked JT4F with OZ1LPR, WA3LBI, OK1KIR, G3WDG, HB9Q and CW with OK1KIR.

ON5RR: Marc moonbouncer@skynet.be writes that he had a mini EME Conference at his QTH and recent activity – 25 July was a glorious day, an ideal moment for a small BBQ, and an opportunity to gather several local microwave EME operators and their XYLs. Geert (PA3CSG), Jac (PA3DZL), Michel (ON7EH), Gerard (ON6BG) and Marc (ON5RR) showed up. Geert and Jac are well known to the EME community; Michel and Gerard are highly valued members of the ON5RR EME team. The intension was to gather more EMEers around the table, but unfortunately they were not available. Firing up the BBQ is similar to starting up a new PA. You "tune for maximum smoke" up to an acceptable level – Hi! Of course, there were numerous technical discussions, hints and ideas exchanged, while having a bite and a drink, after having said grace. One of the main discussion points was the recently developed Sun/Moon noise indication meter with an AD8307 and Arduino technology; the Arduino-based antenna tracker (accuracy < 0.1 degree), amplifiers, antennas and enhancements taken place over the years on the several microwave setups. Also other non-EME related discussions such as low band DXing, mainly 160 m, were discussed. What also struck the party was the following funny story: A moonbouncer moved into a new neighborhood and after setting up his dish and station, he becomes active in a contest. After some hours of activity, the EME guy walks outside to have a look at his antenna and the Moon. Suddenly, a neighbor pops up and asks the so often heard- question: "What are you doing with such a large antenna?" The operator starts explaining the well-known story: "I am a radio ham and I make radio transmissions trying to contact fellow radio amateurs while pointing the antenna to the Moon". The neighbor interrupts him and says: "That is really stupid! There is nobody living on the Moon!" The EME operator, who is always in for a good joke, looks up to the moon and replies: "You really think so? The light is still on!" Activity wise at ON5RR, during the last couple of months, the WX prevented a lot of EME activity. A 2.4 m dish has been put up for 6 cm, but operation during 6 cm contest was rained out. Our 6 m dish continues in operation on 23 and 13 cm. We are accepting skeds for the months of Aug and Sept and plan to be active the last weekend of Sept on 13 cm in the ARRL MW Contest! [How about the 13 cm MWAW on 17/18 Sept?]. Please email for skeds.

Mini EME Conference at ON5RR QTH

OZ4MM: Stig vestergaard@os.dk sends news of his recent EME efforts – I worked on 23 cm on 29 July LA3EQ (449/559) on CW and F5EJZ and EW1AA on JT65C. During D44TVD dxpedition, I had an issue with receiving. I was only copying big guns here. Finally on Sunday, I found time to do some trouble shooting, but no real fault was found. However, Sun and Moon noise were back to normal. I worked on CW IK5QLO with a great signal. Others were heard too. I am very sorry to report that I can't find time to attend the EME conference, but hope to do better for the next conference. I wish all of you a great conference and wish I could join you.

PA3DZL: Jac pa3dzl@ziggo.nl reports on his 10 GHz EME activity during the MWAW – I had a very nice time on 10 GHz. Thanks to G3LTF for organizing the MWAWS. My operating time was limited because of family commitments and was not able to be QRV during the VK-JA window and only for a very short during the NA window. The strongest signals were from SP6JLW, OZ1LPR and DL7YC. On Friday I copied W5LUA/0 in EN43sb (16DB) and on Saturday (14DB) with JT4F, but no QSO. I worked using CW on Saturday OK1KIR (569/579), DL7YC (579/579), G4NNS (559/559), OH2DG (559/559), SP6JLW (569/589), OH2AXH (559/559), HB9Q (549/559), PA7JB (559/559) for initial #37 and OZ1LPR (549/579), and on Sunday DL7YC (559/569), SM6CKU (559/559) #38 and SA6BUN (559/559) #39 from JO78cp. I also heard on JT4F OK1DFC (17DB), and on CW K2UYH (559), DF1SR (449) and IZ2DJP (539). My rig was a 3.7 m solid Andrew dish with f/d 0.34, vert pol, 65 W @ feed and 0.65 dB NF preamp.

PA7JB: John pa7jb@ziggo.nl had a nice weekend on 10 GHz during MWAW – Initially I had some problems with finding the Moon. But after playing with my dish, I could see 15 dB of sunnoise and 1.7 dB of moonnoise. I worked using CW on Saturday OZ1LPR, OH2AHX for an initial (#), HB9Q (#), DB6NT (#), OH2DG, PA3DZL (#), DF1SR (#) and WA6PY (#). For me the weekend was more then complete! It was especially nice to work DB6NT because of his help providing microwave equipment to al us lunatics! On Sunday I added SA6BUN (#) and G3WDG (#). I made 10 QSOs on CW and 8 were initials. My station is a 2.4 m offset dish, RA3AQ feed, 50 W (RW1127 TWTA), and a DL3BPC preamp.

PE1LWT: Jurgen moon-net@mailman.pe1itr.com was an SWL during the 3 cm MWAW -- I finally found some free time to do some initial RX testing of my 3 cm system – I copied SP6JLW, OZ1LPR, OH2AHX, OK1KIR, WA3LBI, DB6NT, SA6BUN, PA3DZL, HB9Q, SM6CKU and IZ2DJP. I even heard some SSB. I have to do Moon/Sun noise measurements. I do hear moonnoise. The tracking seems OK, but I feel I can better optimize the RX by adjusting the feed position.

S9YY: Peter (DL1RPL) peter@dl1rpl.de will be on Sao Tome & Principe (JJ30) from 8 to 23 Oct. He will be joining a German HF-expedition to provide EME on 144 and 432. The dates for 70 cm operation are still not yet known. They will use 2 x EF7017 yagis and HB 400 W SSPA. More information will appear on the www.dl1rpl.de when available. They will use the HB9Q reflector when on 432.

SM6CKU: Ben ben@sm6cku.se was QRV on 3 cm during the recent MWAW -- After more than a year of no actvity on EME, I finally was on again after changing my old IF rig to a KX3. Thanks to SM6PGP who built an interface, which made it possible. I put up the 10 GHz ODU and heard a number of stations on Saturday. I worked WA6PY, for my first US station on 10 GHz. On Sunday I worked more stations including four more initials with PA3DZL, HB9Q, DB6NT and SA6BUN. I am still using my 4 m dish with circular polarization and only 15-18 W at the feed. Tuesday after the AW, I drove up to SA6BUN and checked out Michael's set up. I also had a nice lunch -.TNX Monica! Next time I will be on 6 cm but first we go to Venice.

SP/OK5EME: Zdenek (OK1DFC) ok1dfc@seznam.cz will be QRV on the MW bands during EME and MW Seminar in Poland (JO80kg) on 12 to 15 Aug – I am expecting to have an Internet connection and upload info/coordinate details on the HB9Q reflector. I can change bands in 20 min, but plan to be QRV on Friday on 10 GHz from moonrise till moonset, on Saturday on 5.7 GHz from moonrise till moonset. If there is interest, I can switch to 9 cm. If nobody asks, I will stay on 6 cm. After moonset, I will wrap up and drive home Sunday morning. I was originally expecting to be QRV during Sunday on 3.4 GHz, but I now need to return home earlier than planned. Since I was QRV only 3400 last year, I have already worked many of the 9 cm stations. If anybody is interested in 3400, please e-mail.

UA3TCF: Alex ua3tcf@mail.ru is now on 5.6 GHz EME -- My first attempt to listen on the Moon was on 10 GHz in the winter of 2012 with my tropo setup and a 3 m dish. The first stations heard were F1PYR, F2TU, UR7D and LX1DB. My sunnoise on 10 GHz was 9.6 dB and moonnoise about 0.4 dB. My second attempt was on 5.6 GHz this July. I now am using on 6 cm a 3 m mesh dish with f/d of 0.38, WD5AGO feed, DB6NT MKU 57G3 transverter with GPS lock and a 12 W SSPA. I measured 13 dB of sunnoise, 4.5 dB CS/G and 0.6 dB moonnoise. My AZ control uses a SuperJack V-Box II 24" actuator; elevation control is by wrench, Hi. I optically find the Moon with a monocular. I QSO'd on 6 cm on 25 July OZ1LPR (14DB/16DB) on JT4F, 26 July UA3PTW (13DB/15DB) on JT4F and (O/O) on CW and SM6FHZ (O/O) on CW, and on 29 July OK1KIR (13DB/16DB) on JT4F and (O/O) CW, HB9Q (14DB/12DB) JT4F and (569/539) CW. On 23 cm, I use a 1.8 m dish extended to 2.2 m by mesh with f/d of 0.32, septum OK1DFC feed, 100 W at feed and 0.6 dB NF LNA. I am now building a feed box for my 3 m dish to use on 3 cm band with linear Vert pol feed, 20 W SSPA and 0.7 dB NF LNA. My next band will be 13 cm with my 2.2 m dish. [TNX to RA4SD for forwarding this report].

UA3TCF 3 m dish used on 3 and 6 cm

UA4AAV: Victor ua4aav@mail.ru has made his first QSO on 6 cm EME – I worked during the DUBUS Contest on 2 July on 5.7 GHz using on random CW HB9Q (579/539), and with JT4F UA4HTS (12DB/15DB), UA3PTW (13DB/14DB) and OK1KIR (13DB/13DB). My current setup is a 2.5 m dish, 15 W amplifier and VK5DJ dish controller. I measure 7.7~8.0 dB of sunnoise and 0.3~0.4 dB moonnoise. On 1296 I use a 4.5 m dish. [TNX to RA4SD for forwarding this report].

UA4AAV 4.5 and 2.5 m dishes used on 23 and 6 cm

W5LUA/0: Al w5lua@sbcglobal.net before and during the MWAW provided a 3 cm EME Demo at the 50 th Central States VHF Society Conference in Minnesota (EN34sb) – I plan to be QRV on both Friday and Saturday from about 1100 to 1400. The system is a 1 m offset fed dish measured 7.7 dB of sunnoise and 5.25 dB of ground to cold sky. RF power is supplied by a G3WDG GaN PA and driver. I have only pushed it to 40 W at the feed, but it seems to work nicely. I have both CW and JT4F on one Win 7 laptop and a second XP laptop can do Doppler frequency correction with the K5GW program. I have a CW sked with K5GW on Saturday at 1300 on 10368.050, tentative skeds with WA3LBI and G3WDG on JT-4F. [I have not received a final report, but know that Al was successful making some QSOs].

WA3LBI: Jim WA3LBI@me.com (FN20ji) reports on his 3 cm EME activity during the MWAW -- I certailnly need more practice with my station as I am a builder more than
an operator. There were certainly plenty of signals! Doppler is still a challenge and I need to study it more to respond better to random CQs. I heard and visualized (with waterfall and spectrum monitors) many CW stations. Since my ears and CW skills are poor (plus the Doppler), I have avoided trying CW for now. I did work W5LUA/0 with his very small station. This was my main objective. I hope to see more activity on 3 cm as it is my main EME band. I have a new TWTA and hope to mount it on the antenna soon. My present station consists of a 2.4 m dish, 300 W TWTA feeding 30 m of elliptical wave guide, a Kuhne xverter and LNA.

WA6PY: Paul's pchominski@maxlinear.com report on the 3 cm MWAW -- I was QRV on 3 July on 3 cm. I could be active one day because of work responsibilities. I QSO'd DL7YC, IK2RTI, PA7JB, G4NNS, SP6JLW, OK1KIR and SM6CKU. Heard with very strong were K5GW and OZ1LPR. Prior to the AW, I discovered that old Motorola linear PSU supplying my 10 GHz transverter and TWTA was starting to fail. I've repaired this PSU a few times in the past, but this time I decided to totally rebuild regulators. The only section left are big rectifiers and power transistors on an external heatsink. The original regulator was unnecessary complicated. This power supply has been located below the 10 GHz dish for last 12 years and was exposed very often to high ambient temperatures. I plan to be QRV in Sept for 13 cm MWAW and the ARRL MW EME Contest.

XT2AFT: Hermann (DL2NUD) will be operating from Burkina Faso in IK92 from 14 to 24 Oct on 2 thru 13 cm. I have no new information since the report in the last NL, but all seems on schedule.

ZS1LS: Allan allan@rfdesign.co.za has been QRV on 1296 for at least a year. He writes to point out that the dish picture on page 5 of the last NL

(July 2016) does not show ZS6EME's dish, but his dish. His is only 2 m. Allan plans to be more active on 23 cm in the future.

ZS6EME: Alex zs6eme@linkrf.ch is now QRV on 13 cm in a BIG way -- After struggling with a plethora of problems during the last 3 weeks, I finally have my 13 cm station working well. I am using a 3.6 m dish with 220 W at the feed. Because my last CW QSO was 28 years ago, I am focusing only on SSB and JT65C QSOs. I promise CW will come in the next month or weeks. [I do not have a list of John's QSOs, but I know he has worked many stations in EU on 13 cm including G3LTF and OK1KIR on SSB. At present he does not have a window to NA. He plans to fix this problem by doing some tree surgery. Alex believes he made the first SSB and digital 13 cm QSOs from South Africa with HB9Q on 29 July - and possibly even Africa. I am reasonably certain he is correct as ZS6AXT was very active on 13 cm, but only operated on CW]. I am currently QRV only on 13 cm. I have nothing yet implemented for 9, 6 and 3 cm, but they are coming. I QSL 100%. Please send your ZS6AXT cards to HB9Q. I will be away on holiday (Venice EME Conference) until mid-Sept. You can send requests for skeds to me via email.

ZS6EME's 3.6 m dish with 13 cm feed

K2UYH: I alkatz@tcnj.edu had several problems this month. They started on 432 on 26 July during a QSO at 1453 JS3CQT (15DB/25DB) using JT65B for mixed initial #907*. We had been searching for a time where we had mutual Moon window. We should be able to work easily on CW, but Hiro was not copying me well and I ran out of Moon time. My TX power was also down to about 500 W. During the 3 cm MWAW, I planned to test a new GaN 50 W SSPA. But, due to limited drive I was only able to get 30 W from it. When I pointed at the Moon, my moonnoise was much lower than in the past, only about 0.5 dB. Although there were some strong signals such SP6JWL must stations were very difficult to copy, and my 30 W SSPA did not seem to be working as well as my TWTA. I decided to try WSJT V1.7 with full Doppler correction. I was able to QSO with JT4F on 30 July at 1252 OK1KIR (12DB/18DB) and 1400 G3WDG (19DB/17DB). I also tried with OK2AQ without success. The next day, I switched back to my TWTA but did not do much better. I found CW copy very difficult. At one point I thought I had DL1YMK responding to my call and replied with DL1YMK? And received Os in response, but it was not Michael. I did QSO on 31 July at 1252 OZ1LPR (559/549) – very nice sig and 1407 HB9Q (O/O) for initial #19 and DXCC 16. Later in the week, I switched to 13 cm and worked on 3 Aug at 1704 PA3DZL (569/559) XB, on 5 Aug at 1836 G4DDK (20DB/22DB) on JT65C for mixed initial #87*, and on 6 Aug at 1730 IK5QLO (O/O) CW XB #88*. I was able to complete these QSOs despite a serious drift problem. My xverter is not locking to my GPS reference. The reference works fine on the other MW bands, and I even tried an alternate reference. I also tried several times with ZS6EME XB on JT65C without success. There was no window between us due to tree blockage at both ends. Alex would lose the Moon every try before I had it. On 1296 using JT65C, I worked on 7 Aug at 1750 EW1AA (26DB/24DB) for mixed initial #530*. I will be at the EME Conference in Venice, and when I return plan to be QRV for the 13 cm MWAW and the following weekend for the ARRL MW EME Contest. Hopefully I will have my reference problem fixed by then.

NET/REFLECTOR NEWS: **G4BAO** is QRV from JO02cq on 23 and 13 cm using a 1.9 m dish on either JT65C or CW. John has 220 W with a OK1DFC Septum and 0.35 dB NF VLNA23. **JA6XED** is now QRV on 6 cm with a 5 m mesh dish and GaN-HEMT 100 W SSPA. **S50X** has an idea to develop a new EME contest/game for stations on 1296 to promote more EME activity. He is thinking of scheduling it on 10/11 or 17/18 Dec. If you are interested in helping to formulte this new EME activity, please email Silvo at s50x@sgn.net. **VY2WM** from PEI is working to get on 432 EME.

FOR SALE: **N4PZ's** big and beautiful DL9EBL 1296 cavity is still available for very low cost/free, but whoever gets it must swear to use it! **LA8LF** has his NEC dish for sale. It comes with a 23 cm VE4MA circular feed and the original feed for 3 cm - see www.LA8LF.com. It is pick up only. If interested contact Anders anders@la8lf.com or tel 0047 - 944 38 712. **G4DDK** will bring for sale to the Venice EME Conference VLNAs and 2 m kits and pre-ordered ready-built preamps, together with a range of WA5VJB PCB products. Sam's email is sam@g4ddk.com. Let him know if you need anything. **G4HUP** will also be in Venice trading as hupRF. At the conference, Dave will have a full range of his items available. Products can also be ordered in advance for collection at the event. You can view Dave's products at http://hupRF.com. **K6PF** has a long list of items of interest to EMEers. For the list and more information contact Bob at k6pf@sbcglobal.net.

EME 35 & 25 YEARS AGO BY PETER, G3LTF: 35 years ago, in July 1981 there were two NLs covering the second contest weekend. High activity on 432 was reported with several new calls appearing, but 1296 did not produce many contacts, 35 years ago as we were still struggling to get really low noise figures. Dragan, YU2RGC (now 9A5AA) arrived on 1296 and OK1KIR reported for the first time with a polar mounted 4 m dish extended to 5.5 m, 800 W on 432 with 2x GI7B and 150 W on 1296 from a single GI7B. In the contest, Jan, DL9KR scored 63 x 28. There are drawings for a QRO PA for 432 designed by K2CBA using the 7213 tetrode. (I used this as the basis for my PA, which uses the DOD006/DOD007and works FB). G3WDG contributed a graph relating system noise temperature to the measured cold sky to ground ratio, which proved very useful for a number of years before computer modeling appeared. 25 years ago in June 1991, the big news was WA9FWD's first QSOs made on 1296 with a 4 yagi array. The system was 4 x 45 element loop yagis, 300 W from 2x7289s via 20' of 0.5" Heliax; the RX side produced 6 dB of sunnoise. John worked WB0TEM and WD5AGO. Also notable was 9 stations reporting from Russia and Jan, DL9KR up to initial #436! There were over 50 skeds with the GJ/F6KSX dxpedition.

THE QUESTION LINEAR VS CIRCULAR ON 10 GHz: I thought this question was pretty much settled in favor of circular. However, there is a group that feels that their our advantages to staying with linear. One of the reasons is the loss inherent in a circular feed. VE4MA has both linear and circular feeds. He reports although not far apart, his linear feed was slightly better. His circular feed does employ an additional WG switch and waveguide used in the circular setup here, so the lower performance may be justified reasonable. G3WGD has found similar results. The JA MW EME operators are testing circular vs. linear polarization on 3 cm. JA6CZD (2.4 m Offset dish) measured the sun/moonnoise on both polarizations. His sunnoise is 14.6 dB on circular and 16 dB on linearer. Likewise moonnoise is 1.6 dB to 1.8 dB between circular and linear. JA1WQF (2.4 m Cassegrain) and JA4BLC (3 m Cassegrain) see a similar pattern: linear is better. All three are using septum feeds made by PE1RKI. Linear has the problem of cross pol degradation, which can more than make up for the small differences observed.

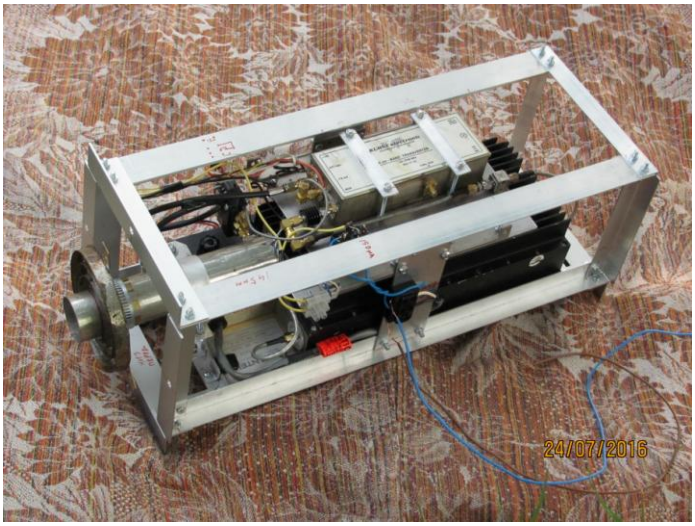
FINAL: I am sad to report that another well known EMEer, VE7CLD is a Silent Key. He was among the select group to first make QSOs on 24 GHz EME. VE7XDT writes -- I had the privilage in 2002 to operate his 24 GHz station in Vancouver. Gunter was on the Az/El control and I was doing the CW TX/RX. I recall the Doppler was about 50-80 KHz and definitely no tone. He was using a second receiver listening to make sure we were on the Moon. I had to stop TX every 30 sec TX, so he could make sure we were pointed at the Moon. Our 16' Andrews solid dish was very narrow. He was running 100 W at the dish. VE4MA was our first contact. The event was broadcasted live on the local ATV repeater. I believe NASA was also listening to the QSO. The following weekend we worked W5LUA and RW3BP, which made Gunter very happy! He was a very dedicated EMEer. He introduced me to the Moon and inspired me to go on 2 m EME. RIP my friend.

The OK1KIR group is trying to find an appropriate date for a 24 GHz WAW. Last year's 24 Ghz MWAW was very successful. They propose dates in autumn of either 15/16 Oct or 12/13 Nov. Unfortunately these date conflict with planned dxpeditions to S9 on 70 cm and XT2AFT on 4 bands. They note that in the MW part of ARRL EME contest (17/18 Sept) there is lack of time needed for 24 GHz operation, and therefore almost nobody wants to replace lower bands equipment for 24 GHz. This situation is similar to the 10/24 GHz part of the DUBUS EME Contest, where 24 GHz would require a separate term. OK1KIR is asking for others with 24 GHz rigs for comments or proposals.

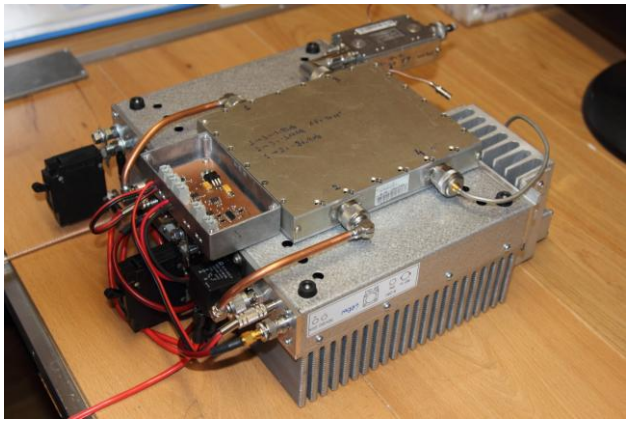
Corrections: There are two from last month. 1) SP6MLK sp6mlk@wp.pl clarifies that there are two EME and MW meetings in Poland! The Third EME and MW meeting took place in the small village of Gajow on the Czech-Polish border on 9, 10 and 11 June. SP6MLK and SP6GWN head the organizing committee; see http://ra-ukf.iq24.pl/default.asp?grupa=228229&temat=440344. The other meeting is the Congress Technical VHF on 12 in Stara Morawa, also known as the EME and MW Seminar on 12 to 15 Aug – see SP/OK5EME report. 2) Please note that the dish shown on page 5 of the last NL is not ZS6EME's dish, but belongs to ZS1LS. See ZS1LS's report and ZS6EME's actual dish, shown by his report in this NL.

The Swedish 432 & UP EME meeting – with the XVII International EME Conference in Venice this month, planning for 2017 is well underway. This meeting will be held in Scandic West on 19-21 May, 2017. The meeting's focus is on CW EME and related technology for the 70 cm and higher bands. Speakers are being sought. G3LTF, PA2DW, SM6FHZ, HB9BBD and DL6SH are already on the list of speakers.

This is the pre-EME Conference issue I promised last month. We (Sally and I) are looking forward to seeing our friends in Venice. I am planning to be on the Moon a few times before we leave. Please keep the reports and tech info coming. 73, Al – K2UYH



UA3TCF's 3 cm feed box



ES5PC's 1 kW SSPA

FREQUENCY BASICS: I know that there are many new comers to EME that read this NL. Although there is a lot of information in the NL, there is much that those of us who have operated EME for many years assume everybody knows. Here is some basic operating frequency information.

On 432 and 1296: CW activity is from about 005 to 040. 020 is an informal CW calling frequency; JT65B is used on 432 and JT65C is used on the higher bands. On 6 cm and above JT4F is starting to be used. JT activity is from about 050 to 100 with 070 the most common CQ calling frequency on both bands. Some stations like 090.

It get more complicated on the higher bands. There are different frequencies on 13 cm for much of EU, JA and VK... Yes, we work crossband around 2304.1 to 2320.1 for EU, 2304.1 to 2420.1 for JA. 100 is the CW calling frequency for CW no matter the sub-band and activity usually with +/- 25 kHz from it. There is no JT calling freq. It tends to be above 100. Until recently CW dominated on these bands and still is the primary mode.

On 9 cm all EME is around 3400.1, most on CW, usually with +/- 20 kHz. There is no JT calling freq.

On 6 cm all EME is around 5760.1, most on CW, usually with +/- 20 kHz. There is no JT calling freq. Besides JT65C, JT4F is also used and becoming more popular.

On 3 cm all EME, it gets more complicated again. US/EU is around 10,368.1, most on CW, usually with +/- 20 kHz. There is no JT calling freq. Digital operation is mainly using JT4F. The JA are around 10,450.1.

On the higher bands you need to understand Doppler. It can be greater than 30 kHz on 3 cm.

This info should be enough to get a nw comer to EME started.

SIGNAL REPORTS BY G3LTF: I was looking back in the old 432 EME News recently to find out when the NL stopped publishing any sked lists at contest times (It was 1990 actually, although there were only a few in the previous year) and I came across when it was that the present EME reporting system used on 432 and above began. It was suggested in the March 1980 issue by Al, K2UYH basically because although TMO was then almost always used for initial QSOs for a CW operator it gets a bit boring to just send OOO and people were finding the full, standard, R1-5 and S1-9 unsuitable for EME and so Al suggested the following.

Readability R1 Unreadable, copy <5%, R2 Barely readable 5-25%, R3 Readable with considerable difficulty 25-75%, R4 Readable with practically no difficulty 75-95%, R5 Pefectly readable >95%. Strength S1 Barely perceptible, S2 Very Weak, S3 Weak, S4 Fair, S5 Good, S6 Very Good.

Al equated a 339 report to an "O" and the average eme signal at K2UYH at that time to a 349. He also said " There seems to be no need for S reports above 6 ". But remember that 99% of UHF activity was on at that time, only a few were on 1296.

The idea seems to have held up pretty well, very few of my contacts are TMO these days, the scale has expanded up to S9 (meaning "I read you in the kitchen") and I'd say the average QSO is now 559.