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CONDITIONS: I had planned to get this Newsletter (NL) emailed to you before the ARRL's Microwave (MW) EME Contest, but I did not quite make it. The contest was really great, but news and reports will be in the next NL. We do have reports in this NL on the 3 cm activity weekend (AW) that took place on 8/9 Sept. There were also two primarily 1296 dxpeditions this past month. Hermann (DL2NUD) and Peter DJ4TC successfully put the Channel Islands, GU and GJ, on 23 and 70 cm EME. They were successful despite problems with their TS2000X. I hope to have their full story for the next NL. Bodo's SV9/DF8DX dxpedition to Crete was also a winner – see his preliminary report later in this NL. Coming up is the first leg of the ARRL EME Contest (50 to 1296 MHz) on 3/4 Nov.



Combination 70/23 cm long yagi used for MN/DJ4TC and /DL2NUD with 1296 150 W SSPA on Jersey and Guernsey Island

F2TU: Philippe f2tu.philippe@orange.fr sends his summary on recent microwave EME − On 1296 I worked on 16 Sept I1NDP (56/56), TM8POR (55/52) and HB9BBD (55/57) all on SSB for FSSE's EME demonstration. I QSO'd on 5760 on 10 July G4CCH (559/559), TM8POR (559/559) and (44/52) on SSB for initial #56, ESSPC (569/569), VE4MA (554/559), W5LUA (559/559) and WD5AGO (539/559), on 11 July TM8PB (52/52) on SSB again, G4DDK (O/O) #57, K2UYH (559/559) #58, K5GW (569/569), on 9 Aug VE6TA (O/O) #59, and on 16 Sept ON5RR (559/559) #60. On 2300, I contacted on 21 July YO2BCT (549/559) for initial #135, DXCC 39 and first YO-F QSO, F1PYR (43/52) on SSB, OH2DG (53/53) on SSB, DL1YMK/A (53/55) on SSB and G4BAO (54/54) also on SSB. On 10 GHz I worked on 14/15 July I4BER (55/55), on 4 Aug SP6JLW (O/O) for initial #74, on 11 Aug K5GW (54/44) on SSB #75, F1PYR (549/539), IK2RTI (559/559), SP6JLW (O/O), SP7JSG (51/54) on SSB and LX1DB (559/559). I will be QRV on 13, 6 and 3 cm for ARRL MW Contest.

G3LTF: Peter g3ltf@btinternet.com was listening during the 3 cm AW -- On 10 GHz, I did manage to get a 2.4 m solid offset dish working and heard some very weak signals from K5JL and OK1KIR. When calibrating the mount, I made some Sun and Moon noise measurements that showed I am about 3 dB down in dish gain. Physical measurements revealed that the two halves of the dish are misaligned by about 0.4", which is giving a significant beam broadening. I am making some additional backframe supports to hopefully correct this error. I am also working on a new feed and preamp. On 9 Sept, I was on 432 and worked SM6FHZ, DF3RU, VE6TA and SM2CEW. I missed completing with DG1KJG due to a HV fuse blowing. Faraday was a sharp 90 degs on EU signals, but rotable pol can deal with this. On NA station there was considerable spreading. I called K5QE with no reply many times. His signal was about 15 dB/noise in 500 HZ with about the same power as I run. I must confess I don't understand how he can QSO 13 stations on JT and not even see a signal that is stronger than most of them.

HB9BBD: Dominique dfaessler@bluewin.ch is now operational again on 23 cm after successfully relocating his 10 m dish and shack -- After 8 months of silence, my first QSO was on random SSB with F2TU. The ON0EME beacon makes the S-meter jump, and it seems that my receiving is slightly improved compared to the previous location. The good news is that my westerly window is now limited at 15 deg elevation. It used to be limited at about 45 degs. I am looking forward to many random CW and SSB QSOs in the coming months. I did my failures to fix after not using the station for such a long period. I had no heater current in my TH308 driver. Changing the tube did not help, so I dismantled the cavity and found that a screw in the heater AC line was not making a connection as some oxidation had occurred. Yes, I am still using tube amplifiers and will keep doing so as long as they do the job. Since my return, I had QSOs with F2TU (57/55), F5SE/p (56/55) SSB, I1NDP (599/599), W4AF (559/579) for an initial (#), G4CCH (599/599), VE3TA (559/579), IK1MTZ (579/579) (#), I1NDP (59/59) SSB, SM4FWZ (589/589), ON7UN (59/59) SSB, N4PZ (589/589), SP7LHV (529/559) (#).

<u>JA1WQF:</u> is now on 10450. On 16 Sept he heard VK3NX (M) on 10368 – better than in past tests, but did not copy any of the JAs on 10450. [TNX JA4BLC for forwarding this report.]

JA4BLC: Yoshiro ja4blc@web-sanin.co.jp reports on Cambridge and his recent activity – The EME Conference was great fun! I enjoyed the Cambridge my after conference visits to G4NNS and G3LTF. Thanks so much to the organizers for an excellent job. I worked on 10450 on 29 July JA6CZD (559/549) for my #6 initial and the 1st JA-JA 3 cm EME QSO, on 16 Sept VK3NX (O/M) XB (10368/10450) #7 and the1st ever VK-JA. Two hours later I tried a sked on 2320/2424 with F5JWF without success. I later heard F5JWF (559) for an hour and my own echo (559) but nil from Philippe. I am planning to be on 5760 and 13 cm in ARRL Microwave EME Contest and if there are any requests on 10 GHz on Sunday. I will be on 2424.040-060 in EU window and listening from 2320.040-060 to separate those calling and to avoid QRM.

<u>JA6CZD</u>: Shichiro was on 3 cm in Sept. On 14 Sept he had a partial with F2CT. Guy heard JA6CZD during two periods, but could not complete before Guy had to leave for work. He did QSO on 16 Sept VK3NX (559/559) on random for an initial (#),[TNX JA4BLC for forwarding this report.]

N4PZ: Steve n4pz@live.com was active on 23 cm CW throughout Sept -- I worked I1MPK (55/55) on SSB, UA4HTS (449/529), KL6M (559/559), DJ3FI (549/549), N2UO (589/589), OZ4MM (589/589) and JA6AHB (569/579). Toshio was the only JA/VK I worked despite an effort to be on during their window. I will continue to promote more activity between JA/VK/ZL and NA. Please join me. I use the HB9Q logger to alert them when we are on

K5GW: Gerald TexasRF@aol.com is now QRV on 3 cm in a big way --After several years hunting and testing surplus TWTs, I finally have a working 3 cm system. The TWT is a Thomson TH3759A designed for 14 - 15 GHz and 300 W output power. Thanks to information from K2RIW, a waveguide output matcher was added to allow out of band operation at full power. Dick predicted tube damage without making such a correction. In my case the solution was implemented with a single screw tuner located in the first piece of waveguide connected to the TWT. It was made in such a manner that the screw location along the guide could be adjusted 0.25" for needed phase angle and the screw penetration is adjusted for the needed magnitude correction. The tuner was adjusted while measuring the reverse return loss looking into the TWT output with the tube cold. The adjustment was somewhat critical, but a return loss of 30 dB was quickly found. Use of a spectrum analyzer as a signal detector made the job possible. With the coupler losses plus return loss, there was not enough signal to use an HP432A power meter as an indicator. A power supply similar to the one written up in the 2010 EME Conference Proceedings was built and tested with dummy loads for the collector and cathode voltages. The tube delivers the full rated 300 W at 10.368 GHz and is very stable in use. The helix voltage is adjusted with a small Variac and no voltage regulation has been found necessary. If the line voltage changes it is a simple matter of adjusting the helix voltage slightly to keep the helix current near 2 to 3 mA key up. The antenna is the same homebrew .42 f/d 6.9 m dish as used on the lower frequency bands. It has enough surface irregularities that it plays like a 3 to 3.5 m dish. The feed is a horizontally polarized IMU dual mode feed. This feed was selected to purposely under illuminate the reflector to hopefully increase the beamwidth enough to make aiming a little less critical. Sun noise runs about 15.5 to 16 dB and Moon noise about 2 dB. CS/G noise measures 5.5 dB. The twt is mounted on a 4"x20" heatsink surrounded by a 4"x4" air plenum that is forced air cooled with a 135 cfm blower. The entire assembly along with filament transformer is mounted inside the feed support, allowing a total waveguide length of about three feet for connection to the waveguide switch. There is a poly carbonate rain shield enclosing the feed support to protect the electronics from rain. The TWT is left in place outside permanently. High voltage is fed to the cathode and collector by a pair of RG213 coax cables from the power supply in the shack. A vacuum relay inside the power supply opens the cathode circuit for standby. To give the waveguide switch enough time to switch, a 250 millisecond delay circuit was added to the vacuum relay PTT. Initial tests have been very rewarding. My first QSO was 29 May with W5LUA (569/579). The next was 11 Aug when I worked F2TU (559/569), OZ1FF (O/O), LX1DB (579/589) and (57/58) on SSB. Then during the 3 cm AW on 8 Sept, I added OK1KIR (569/579), UZ5DZ (559/569), IK2RTI (569/579), G4NNS (559/579), OK1CA (559/579), PA0BAT (559/579), SV3AAF (O/O), OH2DG (569/579), WA6PY (559/579) and a partial with K2UYH (569/579).

K5QE: Marshall k5qe@k5qe.com was active during the ARRLs Sept VHF Contest on 8/9 Sept looking for 432 EME QSOs as contest contacts and achieved his best results -- I worked JA6AHB (PM53) - very strong on JT65C on his Saturday setting Moon, I1NDP (JN45) JT65C, OK3WG (J072) JT65C, OK1TEH (J070) JT65C, PE1RDP (J021) JT65C, SM2CEW (KP15) CW - very difficult copy, SM6FHZ (J057) CW, DL8GP (JN39) JT65C, DL7APV (J062) JT65C, SM2A (KP04) JT65C, OZ4MM (J055) JT65C, DF3RU (JN59) JT65C, K3MF (FM19) JT65C and DF2VJ (JN39). I had hoped to work a lot more, even though the conditions seemed poor. I made a special effort to look for CW this time, but only made 2 QSOs. I guess 70 cm is just a difficult band.

OK1CA: Franta strihavka@upcmail.cz sends news on his results during the 10 GHz AW -- I worked 13 stations: K5GW for initial #51, OK1KIR, G4NNS, UZ5DZ #52, OH2DG, PA0BAT #53, WA6PY, K2UYH #54, IK2RTI, SP7JSG, 9A5AA #55 and DXCC 22, VE4MA and G3WDG. There was good activity on both Saturday and Sunday, and good weather here too.

OK1KIR: Vlada and Tonda vladimir.masek@volny.cz send an overview of their group's summer EME activity and results during the recent 3 cm AW -On 6 cm: We worked on 9 July at 0224 TM8PB (549/559) for initial #58 and 0646 K2UYH (559/O) #59, and on 12 July at 0714 G4DDK (M/O) #60, 0805 G3LQR (O/O), 0836 G4NNS (559/559). Our newly extended dish with fine mesh (6.1 m and f/D=0.31), reported on in the last NL, provided a G/CS of $5.1~dB,\,Sun~18.8~dB~(SF~165)$ and Moon ${\sim}1.4~dB.$ The -3 dB beamwidth was measured at ~0.85° (without any correction from the 0.5° Sun noise source). 9 cm: We worked on 14/15 July AW at 1045 K5GW (579/579), 1052 K2UYH (559/559), 1101 DL1YMK (559/549), 1107 G3LTF (559/559), 1127 ES5PC (559/569), 1137 VE6TA (549/559), 1200 WW2R (549/559) and 1225 OZ6OL (559/559), and on Sunday at 0454 G4CCH (549/549) for initial #44, 0524 LZ1DX (549/559), 0619 DL7YC (559/559), 0631 OH2DG (559/569), 0956 SP6GWN (549/O) #45 and DXCC 25, 1025 W5LUA (569/569) and 1145 WA6PY (O/O) - problem with transverter solved by a cooling fan then (549/569). In total we worked 15 stations for a very good AW! The extended dish provided a G/CS ~5.1 dB, Sun ~19.1 dB (SF 148), Moon ~0.9 dB and beamwidth ~1.05°. After our return from the EME conference on 20 Aug, we provided test signals on 10 and 24 GHz for an EME demonstration for visitors at G4NNS (see http://www.youtube.com/user/sm6cku?feature=results_main). Unfortunately our transverters at dish's focus became over heated by the Sun (our local temperature was a record of 40.4°C!) and we lost TX power and RX sensitivity on both 24 and 10 GHz. On 24 GHz we copied Brian (O) but lost TX power when responding. Fortunately on 10 GHz the degradation was slower, and we completed a QSO (559/569). Moon noise was 2.7 dB and G/CS 5.2 dB. The 3 cm AW after an empty band on Friday night brought very good activity on Saturday and Sunday, but there was no indication of JA stations. We were RX/TX, even on 10450 in search of them. We QSO'd on 8 Sept at 0554 UZ5DZ (549/559) for initial #69, 0600 K5GW (579/569) #70 0608 G4NNS (559/559), 0655 OK1CA (549/569), 0708 SV3AAF O/O, 0724 OH2DG (549/449), 0735 PA0BAT (549/559), 0803 WA6PY (549/559), 0823 K2UYH (559/O) #71 and NJ and 0956 G3WDG (549/549). Moon noise was 2.9 dB, G/CS 5.6 dB and Sun noise 18 dB at SF 128. We added on 9 Sept at 0510 IK2RTI (569/569), 0522 F1PYR (559/559), 0622 UZ5DZ (559/559) -2nd QSO, 0633 SP6JLW (O/O) #72 and 0644 SP7JSG (549/559). In total we worked 14 stations! Furthermore we had a partial with 9A5AA (O) and heard VE4MA (559) as we once more lost TX power due to the oscillator chain overheating. We hope that JA guys will show up in ARRL EME Contest. We also were on 13 cm on 15 July but failed in a sked with YO2BCT (suddenly lost LNA due to a switching problem that has been located and fixed). We finally QSO'd on 9 Sept at 0408 YO2BCT (549/559) for initial #118 and new DXCC 44. Our Moon noise was 0.6 dB and G/CS 5.6 dB. Many TNX to all for the nice QSOs. We hope to CU in the MW part of ARRL EME Contest. Regrettably the second Moon pass conflicts with the EU IARU UHF/MW Contest and QRM from strong tropo stations can be expected.

ONOEME: Walter (ON4BCB) and Eddy (ON7UN) on4bcb@gmail.com sends news that the 23 cm EME beacon continues to perform well. The latest reception report can be found at http://www.youtube.com/watch?v=DLaGycsIgzo&feature=plcp. There is an interesting screen shot made by SM7GVF with only a 67 el Wimo yagi.

ONSTA: Eric eric.vanoffelen@skynet.be reports on his activity on 13 cm during the two last moon passes of the ARI contest -- The nice thing about 13 cm EME is that you don't need a large dish and high power to have fun, even when degradation is as severe as it was this weekend. Activity was a bit lower than last year, maybe because of being so close to the ARRL MW contest. I made a total of 12 random QSOs and was very happy to add two initials with DF3RU for #60 and IZ2DJP #61. I also heard IK3COJ in QSO with some other stations, but I did not catch him. PA3DZL was unusually strong and F2TU was excellent copy on SSB. I was using my 3.6 m mesh dish with about 150 W at feed.

PA0PLY: Jan pa0ply@pa0ply.nl reports on his 432 operation on

JT the 28/29 Sept -- Conditions were very poor with lot of QSB. But, I did work SM5DIC for initial #58, S51SO #59, RA3LE #60 and VK4CDI #61 -- not bad for a day's activity. I am also working on my 10 GHz station. I want to upgrade my TX. While looking for another driver unit, I came across the website of PA3GIE, http://www.gie-tv.com/3cm/3cm-pa.html. Rob specializes in ATV, but produces nice SSPAs, which might be of interest to EMEers. They have a 25 W SSPA (200 mW drive is required) that is worth investigating.

<u>PI9CAM:</u> Jan (PA0PLY) sends news on the dish restoration -- I believe many EMEers are looking forward to seeing the 25 m PI9CAM dish back in operational. All the renovation work is being executed by professionals at moving along at full speed. We expect be in operation again near the end of 2012.



Above you see an impression on the "big boy laying on his back" $\overline{\text{PI9CAM}}$ dish)

Once the station is operational again, we still need to find funds to maintain and service the entire station. Think of just the cost of preventive maintenance for the coated surfaces; the cost for oil in the gearboxes, etc, return every year. Our promotion group has thus launched a campaign to allow those interested in supporting PI9CAM to become owners of a part of the dish. The idea is to sell the so called "Mushroom Heads" on which the reflector panels of the dish surface are installed. There are 273 Mushroom Heads to sell and every sold head will be indicated on a 3D model on the Camras web site, www.camras.nl. The cost for each Head will be Euro 10/month with a minimum of one year. If you are interested in supporting PI9CAM, please contact Frans (PE1RXJ) at email: frans.de.jong@camras.nl. More pictures can be found at https://picasaweb.google.com/DwingelooRadiotelescoop.

SM2BYA: Gudmund sm2bya@telia.com writes that 2300-2400 MHz is no longer an amateur radio band in SM -- The revised list of license exempt frequency bands (including amateur radio bands) issued by the Swedish P&T went into effect on 1 Oct, 2012. Our 13 cm allocation is now officially only 2400-2450 MHz with a general power limit of 100 mW. Individuals having high-power permits for 2304 and/or 2320 can continue to operate in those band segments until the permits elapse, which will happen on 31 Dec 31. I will make use of mine in the ARRL MW Contest. I am now expanding my 3 m solid dish to 3.8 m, using chicken wire. Not perfect, but should at least serve as a ground screen, reducing ground noise pickup and improving my RX performance on 2320. On 13 cm, I now have 210 W at feed.

<u>VE4MA:</u> Barry <u>ve4ma@shaw.ca</u> reports on his 3 cm AW activity – I was only on for the second day of the 3 cm activity weekend. I did not finish the waveguide work to make my 2.4 m offset dish operational on 3 cm until Saturday. I had checked my Sun noise at 15.9 dB and Moon noise about 1.8 dB. I only worked 4 stations and signals seemed weak (near apogee) but my signals were as strong as anyone I heard. I worked UZ5DZ for an initial (#), OK1CA, WA6PY and one more. I am in Nigeria now and reporting from memory. I should be back in VE4 in time for the ARRL Microwave Contest in the EU/ early NA window only. I have no western window. Please note I have no western window and can only operated during my EU and early NA Moon window.

<u>SV9/DF8DX</u>: Bodo (x-DL3OCH) <u>df8dx@gmx.de</u> had another successful dxpedition as part of a family vacation with his wife to the Island of Crete. Using his IC7000 and transverter with a single 59 el yagi QSO'd OK1KIR, I1NDP, HB9Q, PA3CSG, OK2DL, G4CCH, DJ9YW, JA6AHB, OK1CS, UA3PTW and K2UYH. I believe all QSOs were on JT65C, although he had signal here that could have provided a CW contact. I hope to have a more detailed report in the next NL.

VK3NX: Charlie ibnkarim1@bigpond.com discusses his EME contest plans -- I always find it a "chore" and not a pleasure changing bands in the middle of the night. I have a "complicated" multiband setup, but it does only take about 30 min to go from finishing on one band to being up and running on another. Although I have created "checklists", I am always hesitant and worried about a couple of issues: 1) I will forget to incorrectly connect cables with the feed box, transverters and amps all being separate, and 2) I don't really fancy falling off the ladder from 2.5 m high in the middle of the night. I am working towards a better "platform" to make things safer when doing feed changes and I plan to build a small "housing" permanently fixed under the dish, air conditioned and ventilated and permanently setup ALL the amps with their associated P/S, so I at least don't have to carry and cart things out in the middle of the night. I have a mixture of TWTAs and SSPAs needing different voltages. I have been active during the last few weeks on 3 cm. I have completed my 10450 GHz transverter, so I can now work the JAs. I have succeeded in working on 16 Sept JA4BLC (M/O) and JA6CZD (559/559). We worked X-band with me on 10368 and RX on 10450. Afterwards, I also tested my 10450 TX and was receiving echoes, but approx 2-3 dB down on 10450 compared with 10368. I should be able to work the JAs direct on 10450 in the future as we also have that band allocation in VK. I do believe, however, that my TWTA and the feed matching is working better at 10368, so plan to continue operations in that part of the band. All in all, fantastic fun with my first VK-JA on $10\ \text{GHz}$ and also $2\ \text{initials}$. My setup on $10\ \text{GHz}$ is a 3.7 m dish with an LNA of 0.7 dB and ~80 W at the feed linear polarization. I wish we would all move to circular.... but that is another topic! Skeds are always welcome!

WD5AGO: Tommy wd5ago@hotmail.com reports on his 6 cm AW activity in Aug -- Over the summer, I had several bugs to work out on getting back on 6 cm. It seems to be always a chore. In June, I worked SV1BTR #16 and K5GW #17. I then took the system down only to put it back up 5 days later to prepare for TM8PB. We made improvements in power (solid 30 W at feed) and RX with my 3.1 m dish. Echoes were better, and I measured 13.3 dB of Sun noise with SFU 160 and 0.6 dB of Moon noise. I worked for the final 6 cm activity of the season: TM8PB for initial #18 (weak on SSB), F2TU, F1PYR #19, DL7YC #20, VE4MA #21, LX1DB, K2UYH #22, K5GW, PA7JB #23, and PA3DZL #24. CWNR CT and PY a week earlier. I will install my 13 cm system for the ARRL MW EME Contest, and after will move to 23 cm for Nov/Dec with a new system, and maybe throw in a little 70 cm in a group effort. I hope to catch some of the EME group at MUD in CA in mid Oct.

K2UYH: I a.katz@ieee.org good luck during Oct. During the 3 cm AW, I was only able to be QRV the first day on 8 Sept and QSO'd at 0825 OK1KIR (O/O) 0830 for initial #3, 0845 K5GW (579/569) – never received final R's even though Gerald had the strongest 3 cm I ever heard off the Moon and 0936 OK1CA (O/O) #4. There was heavy rain the next day and I did not dare set up the TWTA outside. On 9 Sept I did work on 70 cm at 1602 7J1ADS (24dB/22DB) on JT65B 1635 for mixed initial #841* and 1700 VE6TA (559/559). During this period I called many CQs looking for stations operating the ARRL VHF Contest on EME. I QSO'd on 1296 with my linear

feed, on 15 Sept at 1320 YO8RHI (24DB/22DB) JT65C for mixed initial #419*, on 16 Sept at 1405 IK5VLS (14DB/12DB) JT65C #420*, 1440 IK1MTZ (559/559) CW and 1545 N4QH (14DB/24DB) JT65C and partial CW- never received my Rs, on 3 Oct at 0330 OK1KIR (O/O) JT65C - quick test Vlad, 0350 OK1CS (12DB/7DB) JT65C -also quick test, 0414 RW3TY (17DB/17DB) JT65C #421*, 0422 RD3DA (10DB/6DB) JT65C, 0606 MJ/DJ4TC (26DB/27DB) JT65C Isle of Jersey #422* and DXCC 82*, on 4 Oct 0414 OK1CS (12DB/9DB) JT65C, 0430 SV9/DF8DX (21DB/20DB JT65C #423* and DXCC 83* - Bodo on Crete, and 8 Oct at 1050 MU/DL4NUD (23DB/25DB) JT65C #424* and DXCC 84 - TNX Pete and Hermann. I was also QRV as part of the K1JT ARRL EME Contest group during the 6/7 Oct weekend. I will report on these results in the next NL.

NETNEWS: SM2CEW was active on 432 in Sept and worked K5GW and others. **VESKKZ** is listening on 23 cm EME. **K5JL's** tornado damage feed being repaired and Jay hopes to be back on the Moon soon on 1296. **YO8RHI** is QRV on 23 cm EME with 4 x 35 el yagis and 55 W, but is working on a 200 W SSPA and an improved VLNA. Look for Adi in the ARRL EME Contest.

FOR SALE: See PAOPLY's report for info on 3 cm 25 SSPAs.



25 W 10 GHz SSPA

FINAL: Although I do not have a tech section in this NL, look at K5GW report, which has some excellent information on high power TWTAs for 3 cm.

See also PI9CAM report on seeking support for the big dish's renovation.

I expect to get one more NL out before the ARRL EME Contest on $\frac{3}{4}$ Nov. I shall be looking for you off the Moon in the interm. 73, Al – K2UYH



Some of the EME CW operators at EME2012