

432 AND ABOVE EME NEWS July 2017 VOL 46 #6

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CONDITIONS: In May, the **6 cm DUBUS EME Contest** had bad libration the first day that made CW copy very difficult but improved the second day. Activity was good with **OK1KIR leading the pack with a score of 37x34** despite WiFi QRM. In June, in the **3 cm Up Dubus EME Contest** **OK1KIR was also at the top with a total 32x28, but SP6JLW was reported to have the strongest signal.** Several stations tried their first EME QSO on 10 GHz with tropo setups as did HB9BBD, which resulted in increased activity. The **3rd ARI EME Italian EME Trophy** was also in May and brought out considerable activity, particularly on JT, but conflicted with the 6 cm contest. The Trophy offered extra points for CW QSOs and allowed stations to work on both JT and CW as separate contest QSOs. It is reported that many EME old timers were attracted back on CW as a result of these new rules. The next leg is on **16-17 Sept** – see <http://www.eme2008.org/ari-eme/Trophy%202017%20Rules.pdf>. Dxpedition wise things have been pretty quiet except for OK1DFC's operation as SP6MLK, and will remain quiet until Oct when there will be activity from Morocco – see OK1DFC's report in this Newsletter (NL) and and Swaziland (3DA0MB – more next NL). There are no contests in July/Aug, but there is the **70 cm CW Activity Time Period (ATP) on 23 July from 0500 – 0700 and 1430 – 1630, and the 9 cm Microwave Activity Weekend (MVAW) on 12/13 Aug. The ARRL Microwave EME Contest is on 9/10 Sept.**

9A5AA: Dragan dragan9a5aa@gmail.com reports on his 3 cm contest results -- **During Dubus 3 cm contest** I worked OZ1LPR, IK2RTI, OK1KIR, PA0BAT, ES5PC, SP6JLW, HB9Q, WA6PY and HB9BHU for a total of **9x9**. I heard DB6NT, DL7YC, DF2DG, OK1CA, G3WDG, YO2BCT, DL0EF and VE4MA. On Saturday I could hear my echo all the time, but on Sunday I heard nil, possibly due to cloudy weather. I am using a 2.4 m offset dish with the original chaparral feed and WG switch. My TWTA is 28 W. For RX I have an AD6IW 0.6 dB NF LNA with an SMA/WG transition.

DJ3FI: Hubert htdj3fi@t-online.de is setting up for 3 cm EME -- I have 28 W at feed and good preamp with a waveguide input, but my dish seems to be out of parabolic shape. The dish is 2.8 m, but I have only 8 dB of sunnoise. It should be 4 dB more, and shows no sharp focus point. Despite the poor results, **I plan to try for some QSOs during the Dubus 3 cm contest.** [We have not yet received Hubert's contest report. He is selling a very nice circular pol feed for 3 cm – see FOR SALE].

DK3WG: Jürgen dk3wg@web.de sends news that during the past month he had JT65B initial QSOs on 70 cm with PA0BAT, DK0TE, UA0AET (1 x 32 el yagi and GS35B PA) and VK2MAX (1 x 30 el yagi and 100 W), and on 23 cm using JT65C with DK3SE, G4DML, DK0TE, JA8SZW and ON7FLY, and on CW with JA8IAD for CW initial #200 and SV3AAF.

G3LTF: Peter's pkb100@btinternet.com writes there is a lot to cover this month including the 6 and 3 cm Dubus contest weekends -- On the May weekend, most of the time the weather was good and the promised storms missed us. **I worked in the 6 cm contest**, all on random CW, on 27 May DF3RU, UA3PTW, JF3HUC, JA4BLC, OK1KIR, OF2DG, HB9Q, OZ1LPR, HB9SV, OK1CA, SQ6OPG, SM6CKU, OH2AXH, ES5PC, JA6AHB for an initial #69, LX1DB, OF1LRY, SP2HMR #70, IK3COJ, PY2BS, VE4MA, WA9FWD, K2UYH, WA6PY, VE6TA and KL6M, and on 28 May VK3NX, JA1WQF, SP6GWN, G4NNS, SM6PGP and LX1DB on SSB for a total of **31x29**. On Saturday the libration made even strong signals difficult to read for some reason. Got-a-ways were HB9BCD, disappeared without a report; 9A5AA heard once very weakly in QSO; and IK2RTI heard twice in QSO. Moonnoise measured 1.5 dB and

Sunnoise (on Sunday) was 14.8 dB. After the contest, on 29 May still on 6 cm, I worked G4DDK #71 with nice signals. Activity during the 6 cm MVAW on 17/18 June was not high; mainly I think because of the unsocial hours and low declination. (It was a poor choice by me, but good AW weekends have been hard to find this year). On 17 June, I worked PA3DZL and IK3COJ, and on 18 June SM6PGP, IK3COJ and PA3DZL again. I could not find LZ1DX at all. On 22 June on 13 cm, I worked DJ5AR for initial #134 with a good signal from 75 W to a linear feed in a 3 m dish. Back to 6 cm on 26 June, I was pleased to work G4BAO #72 with a tiny but readable signal after several previous tries. **During the 3 cm contest weekend**, I fitted my new SM6FHZ design feed to my 2.4 m offset dish with an improved modified LNB. After some adjustment of feed position, I achieved 12.75 dB of sunnoise (SF=74) and a moonnoise of 1.2 dB and CS/G noise of 4.4 dB. I copied the following stations over the weekend: PA0BAT, SP6JLW, HB9Q, ES5PC, OF2DG, HB9BHU, OK1KIR, OZ1LPR, IK2RTI, OK1CA, DL7YC, YO2BCT, DL0EF and VE4MA and I could see OK1DFC on JT. I'm quite pleased with my results. I now believe that I have a working antenna system from a dish brought from a scrap yard, and will press on with the tracking and TX side of the system.



G3LTF's 2.4 m offset dish with SM6FHZ feed on polar mount

G4BAO John john@g4bao.com writes about his participation in the **Dubus 6 cm contest** -- I operated on 6 cm using just 16 W to a 1.9 m dish with an SM6FHZ septum feed (kindly loaned to me by G3LTF). On RX I had a single stage 0.9 dB LNA based on a "Franco" LNB board -

see RSGB RadCom "GHz Bands" column July 2014 for details. I had 7.5 dB of sunnoise and 0.25 dB of moonnoise. On CW, I worked OK1KIR, HB9Q and DF3RU for a total of 3. Got-a-ways on CW were OK1CA, OF2DG, ES5PC and PY2BS; all identified calling CQ. I need more power and am working on it! On JT4F, I worked HB9Q, OK1KIR, OK1CA, UA3PTW, OZ1LPR and PY2BS. It was a good start to my 6 cm project. I'm still in the experimental stage with 6 cm. [Please note that in the last month's NL, we incorrectly listed John as having worked SM6CKU on 6 cm – this is not the case].

G4DDK: Sam jewell@btinternet.com is working on his 3 cm EME system too – Similar to G3LTF, I also made some changes to my 3 cm station during the **Dubus contest 10 GHz weekend**. I used an SM6FHZ feed with linear pol to my 2.3 m prime focus dish. There was a noticeable improvement over the commercial Chaparral feed that I had been using. I was able to quickly change over the feeds to do an A/B comparison. The sunnoise was improved to 12.2 dB from 10.8 dB and moonnoise from 0.7 to 1.0 dB. CS/G noise with the FHZ feed was 5.2 dB. I now need to improve tracking and find a way to incorporate the SSPA. I was so busy making measurements that I didn't really bother to check who the stations were that kept popping up. I only identified HB9Q and OZ1LPR! I felt this was a successful improvement and I feel encouraged. I hope to be fully operational later this year.

G4DZU: Doug doug.parker@btinternet.com sends his words regarding 3 cm – As others, I made a special effort to get my station working on **10 GHz RX for the DUBUS Contest weekend**. I am using a Channel Master/Andrews 2.4 m offset dish with an F1OPA preamp. This gives 1.1 dB of moonnoise and 14.1 dB of sunnoise. Heard on CW were OK1KIR, OZ1LPR, HB9Q, IK2RTI, SP6JLW, PA0BAT, DL7YC and DB6NT. Detected were WA3LBI and G3WDG on JT4F, but had trouble with WSJTX and couldn't decode them. I resolved a mechanical problem with the dishes autotrak, and am aiming to have a 15 W PA installed at the feed.

G4NNS: Brian brian-coleman@tiscali.co.uk reports on 9 and 6 cm EME activity using the 32 m "Goonhilly Down" dish on 29/30 June, [too late for notice in this NL]. He wrote -- Sorry for the short notice, but other work at the dish has priority. The time was limited to about one hour from our moonrise at 1100 to 1200. I was on the HB9Q logger. We were able to establish that the feeds work OK. On 3400 had return loss (RL) of only 8 dB, but with an extra circulator for protection all worked fine and we received (59) SSB echoes with 50 W. On 5760 we had a QSO with OK1KIR. We hope to get access to this dish for two full days sometime between now and Sept, after which it will be converted for a deep space application. The EME tests could be around 25/26 Aug. [Brian's complete story of these EME tests and plans is near end of this NL].

HB9BBD Dominique dfaessler@bluewin.ch writes about his first 3 cm EME QSO -- On 26 June I worked my **first 3 cm EME QSO** with OZ1LPR during the **Dubus Contest**. After calling SP6JLW for more than 30 minutes with no QRZs, I decided to call the second strongest station, OZ1LPR. It took a while, about 4 minutes to get a QRZ, and another 15 minutes to complete the QSO on CW, of course. Then highly motivated, I called SP6JLW again for a long time. Andrej finally sent QRZ and we patiently completed after about 20 minutes for #2. I had easy copy with no chat room arrangement or Internet stuff, just real EME using CW. SP6JLW was received at 12 dB and OZ1PLR at 10 dB with respect to my noise. I used my small rooftop tropo system consisting of a 1 m offset dish with CP feed, 50 W and a homebrew LNA with a 0.65 dB NF. The fact that I can work CP to lin with only a 1 m dish seems a very strong endorsement for the use of CP by all on 3 cm. I ended the contest with 2 frantic QSOs, - probably the most exciting I ever had!



HB9BBD's small dish (1 m) 3 cm EME system

HB9Q: Dan (HB9CRQ) dan@hb9q.ch updates us on his group's very impressive activity during the past 3 months -- In April we worked initials on 1296 with G4CDN, ON7FLY, N4QWZ, UA9FA and UA1CCU, and on 2320 with ON4AOL. During the **Dubus 9 cm contest**, we worked **28 stations**. Initials (all on CW) were with OK1CS, OK1KKD, LZ1DX for DXCC 28 and VE4MA. In May we added initials on 1296 with G4HSK on JT65C - single 67 el yagi and 8 W on random, G4DML, OZ2ND, DK0TE and DL7UDA, on 2320 with DJ5AR and WA3RGQ to bring us to mixed initial #158*, on 3400 with OZ5G, and on 3 cm with N4EME. **During the Dubus 6 cm contest**, we worked **36 stations**. Initials (all CW) were with YO2BCT for DXCC 27, SP2HMR, HB9BCD, G4BAO, LZ1DX for DXCC 28, 9A5AA for DXCC 29 and G4DDK to bring us to mixed initial #64*. In June we worked initials on 9 cm with G4NNS/p and DK0SB using CW and SSB to bring us to mixed initial #63*. We also worked Zdenek using his 6 cm dxpedition station at SP6MLK using JT4F, SSB and CW #65*. On 1296, we added G4LDR and IU0BTM to bring us to mixed initial #593*. **During the Dubus 10 GHz contest**, we worked **28 stations**. Initials (all CW) were JA8ERE, SV3AAF for DXCC 28, SP3XBO, JA8IAD and G4BAO for mixed initial #91*. We are very keen to work new initials, especially QRP stations, on all bands. Please look for us on the HB9Q loggers (we are always looking there when QRV) or e-mail skeds. On 1296 we need the following states to complete WAS: AL, AR, DE, KY, MS, MT, NE, NV, OR, SD, UT, WV and WY. We can work easily stations running 1 yagi or 1.5 m dish with as little as 10 W. Any help is very much welcome!

IK5VLS: Gabriele ik5vls1961@gmail.com is very active on 23 cm and writes about his reception of the ON0EME 23 cm beacon, which he has documented on youtube -- The link for my RX video of the beacon can be found at <https://www.youtube.com/watch?v=c75kPDCDbOo>. My station is a 4 m dish, G4DDK VLNA, DBNT transverter and Flex 1500.

JA4BLC: Yoshiro ja4blc@web-sanin.co.jp operated in both the recent **6 and 3 cm Dubus contests** -- On 27/28 May, I **joined the 6 cm CW fun** and worked JA8IAD, JA8ERE, JA6AHB, JA1WQF, JF3HUC, OK1KIR, ES5PC, UA3PTW, SQ6OPG, DF3RU, OK1CA, G3LTF, HB9Q, SM6CKU, OZ1LPR, VE6TA for initial #45, VK3NX and KL6M for a **score of 18x16**. I was surprised to hear KL6M calling at his elevation of 2 degs. Then on 24/25 June I **joined the 3 cm CW fun** and worked ES5PC, OZ1LPR, PA3DZL, HB9Q, OK1KIR, PA3DZL (dupe), IK2RTI, OK1CA, WA6PY, OK1KIR (dupe), SP6JLW for initial #38, G3WDG, OF2DG, YO2BCT, JA1WQF and PA0BAT for a **score of 14x13**. I can listen on 10368 or 10450 and made most of these QSOs cross band (XB).

JA1WQF: Mitsuo ja1wqf@d5.dion.ne.jp was active in both the 6 and 3 cm contests -- **In the 3 cm CW Dubus contest**, on 24/25 June, he worked OK1KIR, PA3DZL, OZ1LPR, OK1CA, HB9Q, JA8IAD, YO2BCT, OK1DFC (JT), G3WDG, PA0BAT and JA4BLC for a **score of 10x8**. he also QSO'd on JT4F OK1DFC. Unfortunately his RX suffered from the heating of his LNA by the Sun on Saturday. [TNX to JA4BLC for forwarding this report. We do not have any information on Mitsuo's results in the 6 cm contest].

JA8ERE: Mikio sgl01011@nifty.ne.jp joined in the CW operation during the **Dubus 3 cm EME Contest** and was QRV on 24/25 June, but suffered on Sunday from rain and wind. He QSO'd only OK1KIR, SP6JLW, OZ1LPR and HB9Q for a **score of 4x4**. [TNX to JA4BLC for forwarding this report].

JA8IAD: Michi ana11142@yahoo.co.jp was active **during the Dubus 3 cm EME Contest** on 24/25 June. He had WX problems with rain and wind on Sunday. He contacted 3 stations OK1CA, JA1WQF and HB9Q for a **total of 3x3**. [TNX to JA4BLC for forwarding this report].

JF3HUC: Yoshi jf3huc@mbox.kyoto-inet.or.jp was not QRV in the **DUBUS 3 cm CW Contest** because of equipment trouble. [TNX to JA4BLC for forwarding this report].

K5QE: Marshall k5qe@k5qe.com operated ARRL June VHF Contest on 10/11 June on 432 EME using JT65B or CW. He notes the new rules for assistance are extremely liberal. Basically you can do just about anything except for posting contact information. This means that you cannot post "Thank you" after a contact, because it confirms that the contact is complete. His moon widow was from 0230 on Sunday 11 to 1730 on 11 June. He planned to operate on 432.080 second sequence with 16 x 28 el M2 yagis (hor pol) with a 1 kW PA and LNA. [Unfortunately Marshall never reported on his contest results].

KA1GT: Bob ka1gt@hotmail.com reports his 432 system is now operational with motorized EI, Az and polarization control – I just checked everything out and it's working, but I have a bad local RF noise problems that make me pretty deaf in some directions. Echos are visible at 500 W out (2 x 28 el yagis), but not as strong as they should be. I won't be on the air much over the summer due to trips and poor Moon visibility from first to last quarter due to low elevation obstructions. I am starting to plan a 1296 system with small dish in the hope of lower noise and to position the dish for better moon visibility.

KL6M: Mike melum@alaska.net was **QRV during the Dubus 6 cm Contest**, but sends no details and writes about his interest in 222 EME - I have almost finished a new 1.5 kW SSPA for 222 EME. So far I have 5 initials on this band using an old 350 W PA. And QRV on all the band from 432 through 5760, and am thinking about 3 cm but probably not this year.

KNOWS: Carl carlhasbargen@q.com sends information on his activity and particularly on 70 cm in the ARI contest -- I worked on a few EME projects in the spring while the snow melted. I finally have my Spectrian SSPA modified and working for 13 cm with about 180 W out. It is mounted in a plastic case along with its power supplies that can be transported to my dish. The 13 cm septum feed has been mounted on the dish all winter and waiting. I also have modified a Toshiba amplifier to put out over 60 watts for 9 cm and have fabricated a 9 cm septum feed to slip into my existing 23 cm septum on my 4.8 m dish. My hope is to be QRV for the ARRL MW Contest in Sept. I have NOT had as much success trying to get my Arduino-encoder setup to work for rotating my polar axis with more precision. It works fine on my dining room table, but not on my dish! I put the mesh back on my 6 m dish early in May, but we had 3" of snow that day and for a while I wondered if I was being premature. The coaxial cables had to be replaced because the container at the bottom of the cables used to keep water out had filled with water! I have just returned from my first on the Moon activity for 2017. Traffic for our Memorial Day holiday cost me an extra 1.5 hours of travel. It had been raining just about every day for 2 weeks and I almost got stuck in the mud on my property. **I had planned to do 70 cm for the whole ARI contest but had a family conflict on Sunday.** So, I was only active during the first moon pass. It was cloudy finally without rain after 2 weeks! I completed using JT65B with UT5DL (19DB), DL8DAU (23DB), DL7APV (5DB), SP1JNY (26DB), NC1I (6DB), K5DOG (18DB), HB9Q (6DB), VK4EME (21DB) and VK4CDI (27DB), plus Initials with DL8FBD (20DB), LZ1OA (15DB), DD0NM (19DB), F8DO (28DB), EB5EEO (17DB), EA5CJ (11DB), KF8MY (26DB) and DK5SO (29DB). Three of these were with 2 yagi stations and one had only 120 W - very satisfying! I have previously worked single yagi stations, but their power was in the 800-1000 W range. There were some others who I felt that I should have been able to work. Got-a-ways included OK1TEH (19DB) from his single yagi, but I could not get him to see me. My linear amplifier puts out up to 400 W on a cold night, but thermal protections seems to shut it down if I go over 250-300 on a warm day - the case on this moonpass. I also heard RA9CHL (21DB). I had planned to have a minimal presence on the HB9Q site to best comply with the ARI contest rules of only announcing my call sign and frequency, but temptation was too great. I can only do about 10 days of EME per year and split that up among several bands, and thus hate to make it even harder to get QSOs. When I saw folks on the site that I had not worked before, I appealed to them. Thus, I can only submit check log to the ARI. Interestingly, I did not see any Italian stations. I did have a very nice invitation from DL9KR to try CW. I now can now switch to CW, and I gave it a try. Last Nov, I had practiced my CW at a rate of 11 WPM, but over the winter, I had not practiced and it showed! I missed much of what was sent to me, but Jan's signal was the best CW I have heard so far and he was patient, so we completed what is now my 4th CW EME contact and my first one on 70 cm. So far, each of my CW successes was an operator seeing me on the HB9Q, while I was operating JT and asking if I wanted to try CW. So I guess, I am like the shy lady at the dance - I need to be invited by someone who is a better dancer and can be patient with me. I am trading work shifts to be active for the three ARRL contest weekends in the fall. I am also looking for several dates during the summer that I can use for skeds. Please let me know if you need Minn.

N4BH: Pat pat@n4bh.com is now QRV on 432 with 2 x 9 WL yagis and 300 W – The new array is working well with full AZ/EL pointing. I have also acquired a 2 m dish and mounting hardware to put a small 1296 station on the air. I need a transverter and preamp. I have 40 W amp and hope to be in operation in the next month.

N5BF: Courtney courtney.duncan.n5bf@gmail.com sends his June 23 cm EME and **ARI Contest report** – My rate of accumulating new stations has slowed a bit, but I've gone after several, some successfully, with e-mail schedule requests. Initials since my last report are LU1CGB for #70 and Argentina, EA3HMJ #71 Spain, DC9UP #76, SM7FWZ #77, I5YDI #78, EW1AA #79 on his 1.8 m balcony dish for Belarus and F5EJZ #80 for France - finally! **In the Italian ARI EME Contest**, I worked IK5VLS #72, OK1YK #73, PI9CAM #74, and IZ1AEM #75. All contact were on JT65C; however after the PI9CAM (4 dB) contact, we worked on SSB for my first SSB EME QSO. DJ5YL was at the microphone. I am beginning to appreciate the "west coast of the US" problem where my moonrise is after the prime EU operating time when many stations go QRT... And many of the stations to my west (VK/ZL/JA) are focused on EU to their west, and not QRV during my prime operating time. After some near misses on CW, I've begun to think about the possibility of trying a very slow CW mode where information would be read directly off of a waterfall rather than audibly. This could be seen as a variant on QRSS, but would not necessarily require any special software, just a patient operating approach. Is there a history of any such attempts on 23 cm EME? [The quick answer is yes, but it has not become popular]. I may just call CQ at 0.6 WPM some time and see if I get any responses.

NC1I: Frank frank@NC1I.COM has his big 432 array fully functional again and writes -- The 432 polarity system has been repaired and the entire 432 system is working well. The following stations were worked since my last report. All QSO's were using WSJT unless otherwise noted. I QSO'd on 432, on 27 May **[ARI Contest]** YL2GD, UT5DL, EA5CJ, F8DO, SP1JNY, OK2AQ, RA9CHL, G3LGR, KN0WS, UT6UG, DK5SO, DL8DAU, KF8MY, UWS81GT, OK6TW, DL6YBF, K5DOG, RD3FD, OK1TEH, PI9CAM (55/55 SSB), R1NW (2x26 el yagis & 200 W on horizon only), K3GNC and OZ9PZ (1x29 el yagis & 300 W on horizon only), on 28 May VK4EME, F8DO, DL8DAU, YL2FZ, G4YTL, LZ1OA, OZ6OL (559/569 CW), SM2CEW (589/589 CW), RV3IG (1x14 el yagis & 30 W!!), I1NDP, DG0KW, N1DH, DL8DAU and G4RGK, on 29 May F8DO, on 30 May N7NW and VK4EME, on 1 June DK0TE and PA3DZL, on 2 June G3LGR, DL7APV, GW3XWY and DD0NM, on 3 June YL2FZ and N0IRS, on 4 June KF8MY, on 17 June G3LGR, EB5EEO, UT6UG and DK3WG, on 29 June R1NW, on 30 June G3LGR and PA2V, and on 30 June UT6UG and G4YTL; for a total of 58 QSO's from 27 May to 30 June. I did spend some time on 1296. I QSO'd on 1296 on 29 May PI9CAM (57/58 SSB), on 1 June DK0TE, IK5VLS, LA3EQ and DK3SE, on 2 June DF2GB and DF2GB (539/549 CW), on 3 June G4E2P, and on 29 June LA3EQ, WA2FGK and N5BF. **W1QA and I continue to work on activating NH on 1296, but have not yet found a suitable site. We still hope to be QRV in the late summer or fall and will keep you posted.** I'm also a bit behind with QSLs, but promise to get to them out in the next few weeks.



NC1I fully functioning 48 FO yagi array - KA1QFE in bucket

OK1CA: Franta [stihavka\(x\)upcmail.cz](mailto:stihavka(x)upcmail.cz) was be QRV during both the European Dubus EME Contests for 6 and 10 cm EME – **During the 6 cm CW weekend** on 26/27 May signals were nearly unreadable. On Saturday, I made 26 QSOs and initials with UN6PD and PY2BS; and on Sunday added another 6 QSOs and initials with YO2BCT, LZ1DX and JA6AHB to bring me to #72. **My total was 32x30.** I also worked using JT4F JA1WQF, PY2BS and LZ1DX for digital (#7). The activity from JA with 6 stations QRV was very good. The conditions the next month **during the 3 cm contest** on 24/25 June were much better. I QSO'd on 23 June using JT4F OK2AQ and PA3DZL. I started in European Dubus Contest and found the output from my SSPA was way down due to a defective SMA/WR90 adapter. I lost two hours, but worked 19 during the first moonpass including an initial with OK1DFC for #80. I continued on Sunday and added another 6 QSOs and 2 initials with JA8IAD #81 and UR5LX #82. My Contest **score was 26x23.** There were good conditions with small signal spread. Both days I had very warm WX, but with strong wind, so I had no problem with cooling my RIG situated at the focus of my dish - Hi.

OK1DFC: Zdenek ok1dfc@seznam.cz reports on his **EME activity on 6 cm during SP meeting in Gajow**, and later from his home on 3 cm -- I want to give a big thanks to SP6MLK for his great hospitality and a well organized conference. I was also very happy to see after a very long time well known EMEer OE9ERC and many other friends. At the meeting I setup my portable 6 cm system, which is now in its final form. Thanks to OE5JFL and ON4BCB for their upgrades to the tracking system, to ON7UN for his help with the 1.8 m dish, and to many others for their assistance. The station gave ~ 10 dB of sunnoise - exactly as predicted by the VK3UM calculator. The CS/G noise = 5.4 dB. Our echoes were visible on a spectrum waterfall at -4 dB and very weak but hearable. TNX also to OK1KIR and HB9Q, whose signals were copied even with the poor moon conditions. **I QSOed as SP6MLK (JO80em) with HB9Q using JT4F (16DB/16DB), on SSB (52/54) and on CW (539/559), and OK1KIR using JT4F (14DB/12DB) and on CW (339/449). During the 3 cm Dubus Contest**, I tested from my QTH, the 10 GHz gear to be used for my EME dxpedition to CN2R in Oct. I used a 180 cm dish and 30 W SSPA at the feed with a 0.65 dB LNA at the feed. **We worked 20 stations, but with 14x13 on CW.** Everything was working well, including the converter for the JA band. I had just one problem with the elevation readout that I have to fix, but it is a very small project. QSO'd were HB9Q (O/O) on JT4F, OK1KIR (O/O) on JT4F, SP6JLW (O/O) for CW initial #3, OZ1LPR (599/529) #4, HB9Q (O/429) #5, YO3DZZ (O/429) #6, PA0BAT (O/O) #7, DB6NT (559/529) #8, PA3DZL (O/O) #9, OK1CA (559/539) #10, JA1WQF (14DB/16DB) JT4F for digital initial (#7), YO2BCT (579/549) #11, G3WGD (559/429) #12, G3WGD (14DB/17DB) JT4F, HB9BHU (O/O) #13, DL7YC (O/529) #14, EA3HMJ (14DB/17DB) JT4F (#8), WA3LBI (15DB/17DB) JT4F (#9), VE4MA (O/429) #15, WA6PY (O/O) #16. I also copied OF2DG and K2UYH. Regarding the CP vs LP question, I support staying with LP for now. Feed dimensions and accuracy are so critical on 3 cm that LP seems the best choice. **Plans for my 7 band EME DX expedition to Morocco (CN2R) are progressing well and can be followed up on my web page at http://www.ok1dfc.com/peditions/morocco/cn_2017.htm. I hope to work you all from Africa.**

OK1KIR: Vlada vlada.masek@volny.cz reports on his club's EME activity from the end of May until the end of June and says that it was busy and quite demanding, but an exciting time -- After installing 6 cm gear, we worked on 26 May at 1544 SQ6OPG (569/579) using CW, at 1608 G4BAO (15DB/14DB) on JT4F for digital initial (#29), and 1634 on CW G4BAO (O/O) for initial #96. John was weak, but fortunately our dish was beaming away from our 5.6 WiFi interference. **In the 6 cm part of the Dubus Contest**, we worked on 27 May using CW at 0509 UA3PTW (559/559) at only 2 deg el, 0544 SQ5OPG (569/579), 0556 JA8IAD (569/569), 0611 OK1CA (569/579), 0621 JA4BLC (569/569), 0631 JA1WQF (559/569), 0642 ES5PC (569/579), 0646 HB9Q (589/559), 0701 OF2DG (569/569), 0713 JF3HUC (569/559), 0743 OZ1LPR (569/569), 0756 G3LTF (569/579), 0812 HB9SV (568/589), 0837 YO2BCT (559/559), 0909 JA6AHB (559/569), 0914 S59DCD (559/569), 0926 DF3RU (569/579) - partial, 1012 UN6PD (O/O), 1034 SM6CKU (569/569), 1118 LX1DB (579/579), 1136 IK2RTI (569/569), 1238 OF1RLY (559/559), 1345 PY2BS (559/559) #97, 1409 SP6GWN (549/559), 1428 WA9FWD (549/559), 1440 IZ2DJP (O/559), 1506 VE4MA (559/559), 1517 K2UYH (569/569), 1621 LZ1DX (O/O) for initial #98 and first LZ-OK on 6 cm, 1659 WA6PY (559/559), 1712 VE6TA (559/579), 1810 SM6PGP (559/569) and 1820 KL6M (559/559) for 32 QSOs, and on 28 May at 0622 VK3NX (559/569), 0636 JA8ERE (579/579), 0901 9A5AA (559/569), 0928 G4NNS (569/579) and 1649 DF3RU (559/559) for 5 more QSOs and **a total of 37x34.** Only heard

were SP2HMR and SM6FHZ. Out of the contest we worked using JT4F on 27 May at 0854 JA6AHB (12DB/15DB) and 1647 G4BAO (16DB/16DB), and on 28 May at 1522 LZ1DX (15DB/14DB) for digital initial (#30) and again 1608 G4BAO (17DB/13DB). Moonnoise was 1.8 dB when the dish was out of our quite obvious WiFi interference. We were also on 13 cm for a short time to work on 29 May using JT65C at 1846 WA3RGQ (12DB/12DB) for digital initial (#49) and FL as our 20th US state and at 1908 DJ5AR (15DB/9DB) (#50) and using CW worked at 1918 DJ5AR (O/O) for initial #160. We returned to 6 cm to work on 9 June at with the Moon at its lowest declination and apogee, with a big spread and terrible local WiFi interference using JT4F at 2202 SP6MLK (11DB/14DB) (#31) and using CW at 2212 SP6MLK (549/339) #99. We then switched to 3 cm to work on 11 June using JT4F at 0212 W3CCX (11DB/15DB) in the ARRL VHF contest for digital initial (#106). **In 3 cm part of the Dubus Contest** using CW we worked on 24 June at 0401 OF2DG (559/559), 0427 JA8IAD (559/569) for initial #114, 0438 JA1WQF (559/579), 0446 JA8ERE (569/579), 0512 ES5PC (559/569), 0520 HB9Q (579/559), 0548 YO2BCT (569/559), 0613 SP6JLW (579/579), 0624 OK2AQ (O/O), 0637 UR5LX (O/O) #115, 0710 IK2RTI (569/579), 0722 JA4BLC (569/579), 0738 HB9BHU (559/569), 0745 YO3DDZ (559/579), 0759 OK1DFC (O/O), 0827 OK1CA (559/579), 0842 OZ1LPR (579/589), 0848 PA3DZL (569/569), 0901 HB9SV (559/589), 0918 IW2FZR (O/559), 0932 SV3AAF (O/O), 0952 DB6NT (569/559), 1002 DL6ABC (559/559), 1016 PA0BAT (569/569), 1236 9A5AA (549/559), 1354 DL7YC (559/559), 1415 K2UYH (559/569), 1535 WA6PY (569/579) and at 1706 G3WGD (569/579) for 29 stations, and on 25 June at 0509 JA4BLC (559/569) DUP, 0909 IZ2DJP (549/579), 1130 DL0EF (559/339) and 1730 VE4MA (559/569) **for a contest total of 32x28.** Out of the contest we worked using JT4F on 24 June at 1656 OK2AQ (16DB/15DB) and 1734 WA3LBI (13DB/17DB). On 25 June we switched to 24 GHz and spent 4 hours (1300 until 1700) looking for random QSOs but only worked at 1330 IK2RTI (O/O) at a time of big spreading. Later at about 1630 the spreading went below tens of Hz, resulting in nice narrow "ringing" echoes, but no one was there. We missed LX1DB, who was QRV on 24 GHz after 1730. Many stations canceled their participation due to rain. **During the whole Dubus Contest we worked 396x219 for an overall score of 8,672,400 points!** On 29 June G4NNS organized a short (one hour) test from the 32 m dish at Goonhilly. Originally it was planned for 9 cm, but for some problems caused a change to 6 cm. We worked at 1205 G4NNS/p (589/579) #100 and at 1209 G4LOH/p (589/579) – same station with nice strong signals. We were on 1296 on 30 June using JT65C and lin.pol to worked at 1132 ZL3RC (20DB/19DB) for digital initial (#268) in RE66FL. The distance of 18213 km extends our 34 year old OK ODX on 23 cm. [See ZL3RC report for more info]. Our QSO just utilized only 14 min of our mutual window (moonrise at 7 deg at OK1KIR and ended at 4 deg at ZL3RC). Later on 30 June we added at 1241 G4DML (15DB/14DB) (#269), 1321 UA9FA (29DB/19DB) (#270) and 1333 G4CDN (25DB/11DB) (#271). All these QSOs were made with our linear rotatable feed.

OK1TEH: I (Matej) [ok1teh\(x\)seznam.cz](mailto:ok1teh(x)seznam.cz) was **QRV during the ARI EME contest for a short time on 70 cm** with my single 23 el yagi. I worked using JT65B NC1I (15DB/12DB), HB9Q (16DB/19DB), VK4EME (28DB/10DB), G4RGK (26DB/22DB), I1NDP (18DB/19DB) and DL7APV (24DB/16DB). I was especially happy to QSO with VK4EME because Allan has only 100 W. This was only our second EME QSO. It was a pity that I wasn't able to finish a QSO with KNOWS. We have worked before, but this time I wasn't able to decode him.

PA3DZL: Jac [pa3dzl\(x\)ziggo.nl](mailto:pa3dzl(x)ziggo.nl) was **not able to be QRV during the 6 cm Dubus EME Contest** but made it on for the **3 cm event -- During 10 GHz contest**, I was QRV using my 3.7 m, f/d 0.34 solid Andrew dish with 110 W PA at a V pol feed and 0.5 dB NF LNA. Stations worked were JA1WQF, JA4BLC, JA8IAD for initial #50, JA4BLC DUP, SP6JLW, HB9Q, OK1KIR, OF2DG, OZ1LPR, OK1CA, HB9SV, HB9BHU #51, OK1DFC #52, ES5PC, IK2RTI, YO2BCT, PA0BAT, DL7YC, K2UYH #53, WA6PY, G3WGD and VE4MA. Heard were DL0EF, YO3DDZ, OK2AQ and JA8ERE. I made 22 QSOs with 21 different stations **for a score of 21x17** and 4 initials. I worked JA4BLC twice. The strongest signal over the weekend was SP6JLW! It was very easy to identify them on my waterfall – no need to tune. The next stations with great signals were OZ1LPR, YO2BCT, JA4BLC and G3WGD. The smallest station I worked was OK1DFC running a 1.8 m dish and 30 W - great job Zdenek. I was also happy to worked K2UYH for our 7th band EME QSO! Our first EME QSO was on 432 in 1987... and now 30 years later on 3 cm.

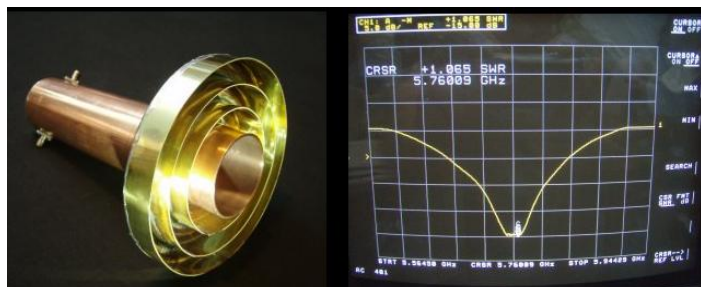
PY2BS: Bruce bruce@zirok.com had only limited time **during the Dubus 6 cm Contest** – I QSO'd all using CW on 27 May DF3RU for an

initial (#), OF2DG, SM6FHZ (#), OZ1LPR, OK1KIR, SM6CKU (#), SQ6OPG, UA3PTW (#) and the first UA-PY on 6 cm, G3LTF, OK1CA (#) and ES5PC (#). I then moved to 3 cm to worked on CW SA6BUN (DL1YMK's at his Swedish QTH) and IK2RTI, followed by N4EME (WA3LBI's station) using JT4F. I had to close down early due to family commitments. [Bruce did return on Sunday, 28 June, but did not send a report. I know he spent most of his time on JT4F because of poor conditions that made CW copy difficult. **I do not believe he was QRV in June for the 3 cm Dubus Contest**].

SA6BUN/DL1YMK: Michael dl1ymk@aol.com is now QRV from his QTH in Sweden as SA6BUN on 10 GHz -- After 3 years of preparation, using a 3 m dish extracted from SM6CKU, I am finally in operation. On 27 May using the "very compact feed unit" - presented at the Örebro conference, during 4 hours of testing, I made 5 random contacts with IK2RTI, HB9Q, PY2BS, DF1OI and N4EME. All with very good signals, although sometimes chopped up by libration. The circumstances were really not the best for a first test on 3 cm with the 6 cm Dubus contest going at the same time. The feed was placed at the theoretical focus; nothing has been improved thus far, but my own echoes were quite impressive. Nevertheless there seems room for improvement. The system consists of two HB SSPA's (each at 46.4 dBm), combined by a coaxial 90° hybrid, delivering 75 W into a V lin feedhorn (beautifully made by PA7JB). The feedhorn can easily be exchanged for a CP feed, if required. The system has full JA-capability, thanks to an oscillator IC courtesy of JA4BLC. The WG LNA made by DL3BPC has a 0.56 dB NF and 28 dB gain.

SM2CEW: Peter sm2cew@telia.com was **QRV during the 3 cm Dubus Contest** weekend but had problems; he also reports on the June 70 cm CW ATP -- I seem to have an issue with my 3 cm system, especially the transmit side. **I made only one CW QSO** with OZ1LPR. Furthermore my TX drift is a good indicator that I need to assemble the OXCO kit laying on a shelf and install it in my transverter. Besides OZ1LPR, I heard SP6JLW, IK2RTI, PA0BAT, OK1KIR, YO2BCT, PA3DZL, OF2DG, DL7YC, DL0EF, HB9Q, WA6PY, VE4MA and G3WDG. Heavy rain on Sunday did not help either. My moonnoise dropped considerably. I am using a 2.4 m dish, and the label on my amplifier says 19 W output. I am not sure if that is correct, as I have no means right now of measuring power on 3 cm. Moonnoise was peaking at 1.2 dB on Saturday when it was not raining. My preamp NF was measured by HB9BBD to be 0.9 dB. During the ARI contest some weeks ago I listened briefly on 3 cm and heard SA6BUN, N4EME and PY2BS. I have plenty of room for improvements and am working to get there. If it was easy we would not do CW EME! **I was QRV on 18 June for the 70 cm ATP but I heard no stations. However, my echoes were very strong. I will be QRV during the coming 70 cm CW ATP on 23 July** and hope more of you will be on the Moon.

SM6CKU: Ben ben@sm6cku.se sent a **report on the 6 cm Dubus Contest** -- All together **I worked 25 stations** on 6 cm this weekend using a 4 m dish and 45 W. Seven were initials: OF1LRY, PY2BS, IZ2DJP, VE4MA, WA6PY, JA1WQF and JF3BUC. Heard but not worked were OH1AXH, HB9BCD, JA6AHB and SP2HMR. If anyone wants to sked, let me know by email and I will try to be available if possible.



SP2HMR's 6 cm feed based on WD5AGO design

SP2HMR: Marcel m@e.pl made his **first 6 cm EME QSO during the Dubus Contest** -- I had a head start with a working transverter and TWTA, but needed a CP feed for my dish. After some study, I decided to build a WD5AGO feed. Preparation of the material (copper and brass pipe and plate) took me 2 weeks. Finally, I was able to solder all the components together and start testing. In the meantime, I was also building a G4NNS's noise meter. During the first measurement, I had 11 dB of sunnoise. I also saw moonnoise, but the value on my S meter was

too small to read accurately. [There are many programs that will enable you to accurately read small values of noise with your computer. Among these is the noise mode in WSJT]. I started operation on Saturday 27 May at 1130. My first QSO was HB9Q, followed by DF3RU and ES5PC. The next day I worked G3LTF and called with no reply OF2DG, OK1KIR, SQ6OPG, UA3PTW, OZ1LPR, OF1LRY and SM6CKU. All were good copy. [Where did you set your TX Doppler]? Many thanks to all who helped me achieve this milestone. Special thanks to SP6GWN, JDF1SR and SQ2NNN. I operated fully random on CW, which is certainly more difficult, but very enjoyable and rewarding. [TNX to OK1TEH for translating].

SQ6OPG: Paul (SQ6OPG) sp6jlw@wp.pl is part of the Klodzka EME group (SP6JLW, SP6OPN and SQ6OPG) and **operated the Dubus 6 cm EME contest** under his call -- We logged OK1KIR, JA8IAD for an initial (#), UA3PTW, ES5PC, HB9Q, JA4BLC, HB9SV (#), G3LTF, OF2DG, OZ1LPR, OH2AXH, OK1CA, OF1LRY, DF3RU, LX1DB, IK2RTI, SM6CKU, PY2BS (#), VE4MA, IZ2DJP (#), WA9FWD (#), K2UYH, WA6PY, VE6TA, KL6M (#) and new DXCC, VK3NX, JA1WQF, JA8ERE (#), YO2BCT (#) and new DXCC, G4NNS, 9A5AA (#) and new DXCC and SM6PGP (#) **for a total score of 32x28**. During the contest we tried our new 6 cm 75 W SSPA, which is composed of 8 combined Alcatel PAs. We were carefully watching this SSPA's behaviour for any possible problems. The weather was very hot (28 deg C) and we had to stop operation to install better cooling fans. We will do a presentation on this SSPA's construction at the SHF/EME Meeting PK UKF Morawa 2017 on 18-20 Aug - JO80kg64LV near to the OK/SP border - hotelmorawa.pl. [TNX to OK1TEH for translating].



SP6JLW's (SQ6OPG) new 75 W ALCATEL PA for 6 cm EME

SP6JLW: Andrew's (SP6JLW) sp6jlw@wp.pl Klodzka EME group (SP6JLW, SP6OPN and SQ6OPG) operated the **Dubus 3 cm EME contest** -- We had a very successful start with results that were about the same as last year, but we didn't hear any F or UA stations. We also finished a 10450 MHz converter for JA subband, and new magnetic screens helped our NERA (DRO) oscillator to run properly. During the contest we completed the first SP-JA and SP-9A QSOs on 3 cm. We were also very happy to make a QRP QSO with HB9BBD, who worked with a 1 m offset dish, CP, 50 W and a 0.65dB NF LNA. The QSO took about 30 minutes, but we made it! We also heard some weak stations who called us, but with signals too weak to copy - sorry. The station was running flawlessly and we enjoyed really good weather. QSO'd were OF2DG, JA8ERE for an initial (#), HB9Q, ES5PC, YO2BCT, OK2AQ (#), OK1KIR, HB9SV, OZ1LPR, YO3DDZ, HB9BHU, OK1DFC (#), PA3DZL, DL6ABC, IW2FZR, IK2RTI, PA0BAT, 9A5AA (#), DL7YC, OK1CA, K2UYH, IZ2DJP, WA6PY, G3WDG, JA4BLC (#), UR5LX, DB6NT, SV3AAF, WA3LBI (#), OZ1LPR (DUP on SSB), VE4MA and HB9BBD (#) **for a score of 31x26**. [TNX to OK1TEH for translating].

UA3PTW: Dmitry ua3ptw@inbox.ru during the past month reports adding new stations on 432 using JT65B with JH7LOC, BX4AP, DK0TE and R1NW, on 1296 using JT65C with UA1CCU, G4DML, DK0TE and ZL3RC, on 2304 using JT65C with DJ5AR, ON4AOI and KD3UY, on 5760 using CW with PY2BS, WA9FWD, SM3PGP, IZ2DJP and SP6GWN, and using JT4F with JA6AHB, G4BAO and LZ1DX. [TNX DK3WG for forwarding this report].

UR5LX: Sergey ur5lx@uy0ll.ampr.org is QRV on 3 cm with a 2.4 m offset dish and 20 W – **During the 3 cm Dubus contest** I worked on CW OZ1LPR, HB9Q, OK1KIR, YO3DDZ, OZ1LPR, ES5PC, PA0BAT, HB9BHU, SP6JLW, OK1CA, DB6NT, DL7YC, PA3DZL and LX1DB **for a total of 14x12**. [TNX DK3WG for forwarding this report].

VE3KRP: Fast Eddie eddie@tbaytel.net despite much wet WX was active on 1296 -- I did manage to work on 23 cm using JT65C **during the ARI Contest** on 27 May DF2GB for a digital initial {#}, I0NAA {#}, UA9FA {#}, I0IAA/5 {#}, IK5VLS, SV1CAL, GM4PMK and IK2MMB, and on 25 June DF2GB, IK5EHI, IK5YDI, F5EJZ and PA2DW. I am also interested in CW QSOs – just email.

VE6TA: Grant ve6ta@xplornet.com sends his **5760 Dubus Contest results** – I worked WA9FWD prior to the contest for an initial {#}. During the contest I QSO K2UYH, HB9Q, G3LTF, ES5PC, OK1KIR, SQ6OPG, WA6PY, OK1CA, VE4MA, UA3PTW, OF2DG, KL6M, JF3HUC, JA1WQF, JA8ERE, JA4BLC {#}, OZ1LPR and LX1DB **for a total of 18x17** during the contest.

W3CCX: Rick (K1DS) rick1ds@hotmail.com was active on EME with W3CCX club's ARRL June VHF Contest effort on 23 and 3 cm. The Packrats club operated on Mt. Pocono in PA using my 23 cm and WA3LBI's 3 cm portable EME stations for 1 moonpass of 10 June. Moon conditions were the worst possible, but this was a demonstration of EME capability. Thanks to some skeds, we were able to QSO PY2BS on both 23 cm CW (559/549) and 10 GHz JT4, and OK1KIR on 10 GHz. The 23 cm ON0EME beacon was loud and clear and easily visible on the waterfall for the limited period of mutual moon. Both stations were able to demonstrate audible and visual echoes for those who were observing the EME activity. Hopefully we will stimulate more club members to get on the Moon.



W3CCX 1296 contest station. L-R K1DS, NE2U and W3SZ

WA6PY: Paul pchominski@maxlinear.com QRV in Dubus Contests on 6 and 3 cm -- **I QSO'd on 5760** DF3RU, ES5PC, G3LTF, HB9Q, JA1WQF, JA8ERE, JA8IAD, JF3HUC, K2UYH, KL6M, OF2DG, OF1LRY, OK1CA, OK1KIR, OZ1LPR, PY2BS, SM6CKU, SM6PGP, SQ6OPG, UA3PTW, VE4MA, VE6TA and VK3NX **for a total of 23x20**. On 28 May at 1812 and again at 1858, I was called by a weak station. I should be able copy but due to the very bad libration, I was never able to get the callsign. In such cases, I need longer transmissions, 1 - 1.5 minutes with just the callsign of the calling station. I know my own callsign very well. If I call QRZ, I don't need additional letters of my callsign. During that weekend libration was very bad at my location. Strong signals were sometimes very difficult to copy. In the past even during apogee signals were stronger and easier to copy. After the contest, I QSO'd WA9FWD with very good signals. During the contest I was testing a new SSPA designed by SM6PGP. I've received a lot of help and advice from Hannes and Ingolf (SM6FHZ) when I build this SSPA. It is a very good design. I was running SSPA at under 40 V and getting a very stable 80 W out. **During 3 cm contest**, I QSO'd 9A5AA, DL7YC, ES5PC, HB9BHU, HB9Q, HB9SV, JA4BLC, OK1CA, OK1DFC, OK1KIR, OZ1LPR, PA0BAT, PA3DZL, SP6JLW and VE4MA **for a total of 15x11**. This time I was visited by Mr. Murphy. When started, I was struggling with finding the Moon to the west due to a sudden shift of my EL readout by 4 deg and its close proximity to the Sun. I am using MAB-25 absolute encoders. I had this problem before. I will have to find out what's wrong. Finally when I was able to find the Moon, I heard and QSO'd JA4BLC.

The next day, I heard very strong signals from G3WDG calling someone. When I tried to call Charlie, my TWT PSU started to trip off. It was 102 deg F (39 deg C) outside and in my shack 45 deg C! I had little more than 1 hour of the EU window left. Due to the extensive heat, I decided to go QRT instead of debugging the system. When I started to operate the contest, the sequencer in my transverter didn't switch to TX. I found a faulty SMD 1206 resistor and another cold soldering on the sequencer board, but this took good 30 minutes. My 10 GHz transverter was built in 1995 and was for many years mounted outside on the dish. The only modification I made, many years ago, was to replace the xtal oscillator chain with a PLL with TCXO and DRO based VCO. I think that it is time to get it on my bench and carefully check it for potential problems before the ARRL EME MW Contest.



WA6PY's new 6 cm SSPA mounted at dish

WA9FWD John jstefl@wi.rr.com was really looking forward to the **6 cm Dubus Contest weekend** -- I started off working VE6TA on random before the contest began for initial #19. On Saturday I started off working OK1KIR, OF2DG #20, SQ6OPG #21, UA3PTW #22, G3LTF, ES5PC, and then I had a very difficult time working HB9Q. I also lost my echoes at this time. I pulled the equipment from the dish and found that my driver amp had gone bad. I replaced it just before the start of my Asian window. I had good echoes again and called CQ a few times. I then heard JA8ERE calling CQ with a big signal. I called him several times with no result. I had lost my echoes again! I pulled the equipment from the dish again and found that the replacement driver amp had gone bad. I gave up for the day and installed my last driver amp. When I put the equipment back in the dish, I realized that I had lost my preamp while doing all the testing and changing. I installed a lower quality preamp and worked on 29 May SM6CKU and WA6PY #23 for **a total of 9x9**. It was a very disappointing contest for me, but I did at least I managed 5 initials. My higher power has worked out well. I am now also operational on 3 cm, and am looking forward to the next DUBUS contest weekend. My equipment includes my 3.7 m dish, a Kuhne preamp and transverter, a PE1RKI CP feed and a 25 W SSPA all mounted at the feed. I am interested in skeds with any interested party. In June I worked HB9Q for #1 on 3 cm.



WA9FWD's 3 cm feed and SSPA/LNA

ZL3RC: Roger el.liz.roger@ext.canterbury.ac.nz is a new station on 1296 EME in RE66fl. He is using a 4 x 60 el yagi array at a fixed 6 deg el to clear ground noise. Roger is working on adding elevation steering. This far he has worked OK1KIR – [TNX OK1KIR for forwarding this info].



ZL3RC 23 cm 4 x 60 el yagi array

K2UYH: I (Al) alkatz@tcnj.edu found conditions terrible during the first day of the **Dubus 6 cm Contest**. The librations made CW copy very difficult. I worked on 27 May at 1518 OK1KIR (569/569), 1530 SQ6OPG (569/569), 1555 ES5PC (569/559), 1604 OF2DG (569/569), 1608 G3LTF (569/569), 1638 SM6CKU (569/559), 1647 VE4MA (559/559), 1706 OK1CA (559/559), 1742 HB9Q (569/569), 1839 KL6M (559/559), 1841 UA3PTW (559/559), 1906 SP6GWN (O/?) lost, 2316 JA8ERE (559/559) and 2343 JA8IAD (559/-), and on 28 May at 0002 JF3HUC (559/549), 0025 JF3HUC (559/559) DUP – again to be sure, 0027 JA1WQF (559/559), 0039 VK3NX (559/549), 0106 WA6PY (569/569), 1602 OF1LRY (559/559) for initial #50, 1619 DF3RU (559/559), 1634 G4NNS (559/559), 1646 SP6OPN (O/O) and 1712 SM6PGP (559/559) lost. I had to quite early and thought it was complete, but it apparently was not. Copy was much better the second day, but I could not stay around to take advantage of the better conditions. I ended with a **score of 20x19** that was down from the recent past. On 30 May I QSO'd on 2304 at 1800 DJ5AR (559/669) XB for his 1st CW QSO and initial #89, 1840 ON4AOI (559/559) #90 and 1852 IK5QLO (559/559). I was on 3 cm on 23 June for the first time in almost a year and worked at 2200 VK7MO (13DB/18DB) using JT4F for mixed initial #23*, DXCC 18* and my next to last continent for 10 GHz WAC. **In the Dubus 3 cm Contest** I worked on 24 June at 1415 OK1KIR (559/559), 1426 OF2DG (559/559), 1435 OK1CA (559/559) and 1446 SP6JLW (559/559), and on 25 June at 1500 PA3DZL (559/559) #21, 1507 G3WDG (559/559) #22 (on CW), 1517 PA0BAT (559/559), 1523 HB9SV (559/559) #23, 1550 HB9BHU (559/559) #24 and 1709 OZ9LPR (569/559) **for a total of 10x8**. I tried with the JAs during both my moonpasses of the contest but heard nil. Projects in the works include a higher power SSPA for 2304 and an improved RX for the JA 10450 band. I was in Hawaii for a conference and had the opportunity to visit that some of the radio telescopes at the top of Mauna Kea including one that operated at 1.3 THz – very impressive!

NET AND REFLECTOR NEWS: **RV3IG** is QRV on 432 and recently added using JT65B NC1I and I1NDP. [TNX DK3WG for this info]. **UR3EE** is also active on 70 cm with JT65B and QSO'd using JT65B RN6MA, I1NDP and LZ1DX. [TNX DK3WG for this info]. **DK7LJ** (DK0SHF) reports the 10 GHz beacon was off the air for several days due to a PA problem and that he was not at home to make repairs. **LZ1DX** was QRV during the **3 cm Dubus Contest** used his 5 m dish and 30-40 W. **WA3RGG** is QRV on 13 cm from FL with a 3 m dish and 180 W. **ON5GS** has a new 6 m dish for 23 cm and EME on the higher bands. Dirk is interested in skeds for 23 and 13 cm. **VE4MA** was active in both the **6** and **3 cm Dubus Contests**. **WA2FGK** announced that he completed WAC on 432 this past month.

FOR SALE: **SM4IVE** has for sale a never been used 9 cm EME band Transverter 144 to 3.4 GHz with OXCO for EU250 or \$290. Also 2 x 30 W DF1SR designed SSPAs that are nicely built and never used for EU120 or \$140 each. Contact Lars at sm4ive@telia.com. **WA2FGK** has for sale a 432 8939 PA capable of 1.9 kW output. He also has available 4 x 33 el (24") FO yagis. If interested email Herb at wa2fgk@yahoo.com. **W5LUA** has a 28' Kennedy dish for sale. There are 8 sections and most have

had major hail damage but the frame work is in good condition. It will probably need to be re-meshed. If interested contact Al at w5lua@sbcglobal.net. **DJ3FI** has excellent CP 3 cm septum feeds for sale. If interested contact Hubert at htdj3fi@t-online.de. **DK3NG** is looking for TH308 in NOS condition. Contact Jo at jrgroegeer@ewetel.net.

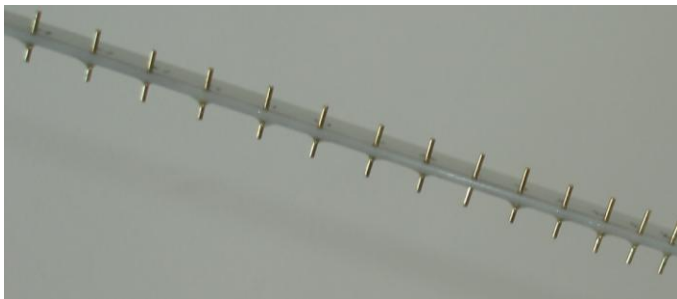


ON5GS's new 6 m dish

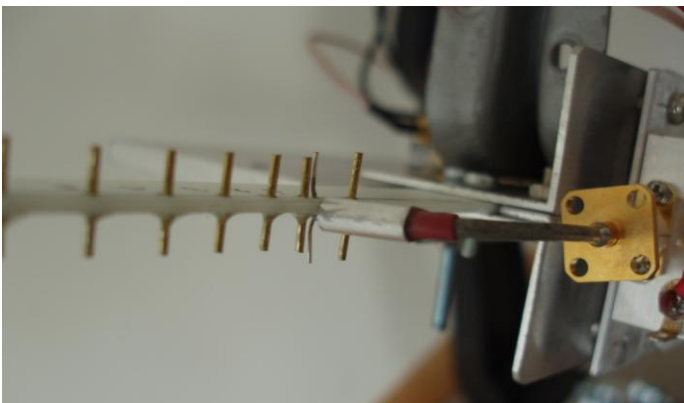
Goonhilly Earth Station Visit by G4NNS: Goonhilly Down is the location of one of the UK's main satellite communications earth stations with more than 20 dish antennas ranging in size up to 32 m. The antennas are designated with numbers, such as GHY1, their first large (26 m) antenna also known as "Arthur" and GHY6, which at 32 m is their largest dish and is known as "Merlin". As long distance communications moved from satellite to fibre, some of the larger antennas have become redundant and new uses for them are being sought. Goonhilly Down is located on the Lizard peninsular in SW England at Lat 50.0503N Longitude 5.1835 W. Maidenhead Locator IO70JB. G8GTZ of the British Amateur Television Club (BATC) had been working with Goonhilly Earth Station Ltd to provide TV links from the International Space Station with feeds provided to enable schools to link with the ISS for educational purposes. It was through this relationship that Noel was invited by Goonhilly Earth Station Limited to carry out some EME tests using GHY6, the 32 m dish. Noel recruited G4NNS and G8GKQ to assist with the tests. The dish is of the Cassegrain type with a beam waveguide feed system consisting of "mirrors" providing the signal path from the static control room beneath the dish to the feed point at the back of the dish to illuminate the Cassegrain sub-reflector. This is a very convenient system as it means that all the RF equipment and the feeds for various bands along with their polarizers for LH and RH CP are located at ground level and are static as the dish rotates and elevates. GHY6 has four sets of feeds at the base, one for 3.6 to 4.2 GHz, another for 5.8 to 6.4 GHz and Ku band at 10.7 to 11.7 and 14.0 to 14.5 GHz. All feeds are provided with left and right HCP, and the system was designed to use the 4 GHz band for receive and the 6 GHz band for transmit. Our objective for this visit was to test the practicality of using the C band feed system at 3.4 GHz. We knew that there would be a lot of work to do and limited time on site, so we didn't want to raise expectations of the EME community in terms of our availability to make many contacts. DH2VA, using the Bochum dish and HB9Q, using his 10 m dish had kindly agreed to assist us with our tests and thus had QSOs. Goonhilly Earth Station staff had kindly arranged access to the C band WG11A inputs for RHC and LHC CP and had used a network analyser to check return loss for us. Unfortunately the return loss increased sharply at 3400 and was measured at 8.4 dB on that frequency! We decided to proceed anyway as there was no realistic chance to make changes to the feed. We inserted a 3.4GHz circulator in the transmit RHC feed and measured around 4 of our 50 W being reflected back down. But at least the PA was being protected by the circulator. We also checked isolation to the Receive LHC port and found another 4 of our 50 W appearing there! So we took deep breaths and hoped that our isolation relay and sequencer would protect the LNA. Goonhilly Earth Station Ltd had done a great job in getting the 32 m dish tracking the Sun and the Moon for us and we

started by checking Sun noise. We were seeing around 20 dB cold sky to Sun Y factor with a Solar Flux of 104; slightly less than that predicted by the VK3UM software but not too bad and easily accounted for by the less than optimal feed characteristics. We waited with bated breath for moonrise, and saw about 2 dB of moonnoise and soon heard our first echoes at very good strength. We exchanged (59) reports both ways with HB9Q on both CW and SSB. We also had good quality NBFM echoes. I'm sorry we could not stay on longer, but after the 200 mile drive and equipment set up, we were all too tired to continue after 2130 local time and needed to get to our hotel. On day two and after QSOs with HB9Q and DH2VA, all on SSB, we concentrated on TV echo tests, which had been the main purpose of our visit. Due to the low observed strength of the returns, only amplitude modulated fast-scan TV was attempted. The carrier and the first 15,625 Hz sidebands were visible on an SDR waterfall display, but no pictures were resolved. Although largely unsuccessful much was learnt. Meanwhile Goonhilly Earth Station staff had kindly provided us with access to the WG14 feeds, which enabled us to run a quick echo test on 5.7 GHz after our 3.4 GHz tests were completed. We had good echoes on CW and SSB, but curiously the NBFM echoes were not good with a ripping paper effect resulting from libration. As these tests were carried out after all others, we were again running out of time, so were unable to make any contacts on this band.

3 cm EME with a single yagi by VK7MO: Rex sent the following article about his reception of the DL0SHF 10 GHz EME beacon with a yagi – G3WDG and I have shown that it is possible to receive the DL0SHF beacon on a 20 dBi horn; this led to thinking that it might be possible to receive it on a single yagi. VK5DJ's program for DL6WU yagi design shows that it is potentially possible to achieve a gain of 20 dBi with a 40 cm long yagi at 10 GHz. However, given that 10 GHz is well outside the normal design parameters for a DL6WU yagi and the likelihood of construction errors, I settled on a 80 cm 72 el yagi. This yagi should have 2.4 dB in reserve for errors. The yagi was constructed on a 1.5x15 mm rectangular fiber glass batten (as used on sailing boats) so as to avoid the need for boom corrections. The elements were 1 mm brass and around 10 mm long. The driven element is a split dipole combined with a half wave sleeve choke.



1 mm elements on 1.5x15 mm fibre-glass boom



A split dipole driven el & half wave sleeve balun feeds the preamp

The following is an example of decodes at a time of low spreading (30 Hz) and low Lunar degradation (0.2 dB). The DL0SHF beacon runs 40 W to an 8 m dish and was running the QRA64-D mode.

0642	-27	2.4	998	:* CQ DL0SHF JO54	9
0644	-23	2.5	998	.*	
0646	-25	1.9	1001	:	
0648	-28	2.5	996	:* CQ DL0SHF JO54	11
0650	-26	2.3	995	:* CQ DL0SHF JO54	11
0652	-26	2.5	1003	:* CQ DL0SHF JO54	11

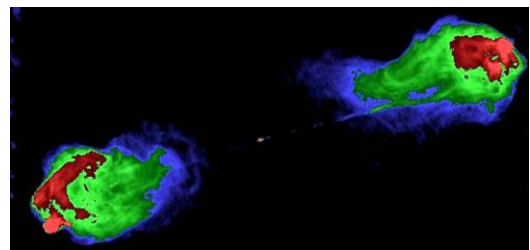
This result is better than the 20 dBi horn by around 1 dB and suggests that the yagi is performing to within 1 or 2 dB of 22.4 dBi as calculated by the VK5DJ program. It was necessary to guy the fiber-glass boom and provide a means of tracking the Moon.



VK7MO's 3 cm yagi vert pol & used Guys to keep the boom in line

While a horn of 20 or 25 dBi is much easier to construct this "just for fun project" shows that it is possible to receive the DL0SHF beacon via EME on a single yagi. It is possible to build a DL6WU yagi at 10 GHz using the VK5DJ program that is within a dB or so of the calculated gain. Ref: [1] EME on Small Aperture Horns, VK7MO, and, G3WDG, DUBUS 2/2017, [2] Yagi Calculator for the design of DL6WU yagis for VHF/UHF, by John Drew VK5DJ. <http://www.vk5dj.com/yagi.html>.

RADIO ASTRONOMY by OK1TEH: At the end of May the scientific world was surprised by the news about the well known radio source **Cygnus A** - 3C405. This radio source was first discovered by Grote Reber in 1939 and was one of the first objects that were identified with an optical source.



This object is about 850 million LY far and it's believed that it contains a super massive black hole. This very strong radio source was last studied by a big radio telescope in 1996. In May 2017 Daniel and Rick Perly analyzed a new picture taken by Very Large Array (VLA) in NM on 5 GHz (public.nrao.edu). They were surprised to find something strange. Near to galactic center was a new bright object, which hadn't been observed before - (his picture is on the right). The question was: What happen during last 20 years? His team checked data from the Hubble and Keck. They found a weak infrared object. It was first thought



to be a group of stars, but combining the date from VLA, they concluded that it should be second super-massive black hole only 1500 LY far from the first one, which is insatiably sucking up the surrounding material. If this is s true, it's one of the closest pair of super-massive black holes. For more info: <https://www.youtube.com/embed/xuOK5-4JVZk>. You can detect Cygnus A – its flux versus frequency is shown below -

Band (MHz)	Jansky (Jy)	dB(W/m ² /Hz)
144	11200,6	-219,5
432	4815,8	-223,2
1296	1718,1	-227,6
2320	898,5	-230,5
3400	535,9	-232,3
5760	280,8	-235,5
10368	132,4	-238,8
24048	51,4	-242,9

Its noise flux is bigger on lower frequencies and thus easier to detect. It would be interesting if any EMEer observed a change in the Cygnus A noise characteristics. More info about Cygnus A see http://ci.r-e-f.org/proceedings/2012/cj2012_10_f5se_Radio_Sources_Frc_new_55.pdf. For more info on radio astronomy in general and receiving Cynus A see the online radio-astronomer book by F5VLB at <http://www.astrosurf.com/luxorion/Documents/amateur-radioastronomy-f5vlb-jm-polard.pdf>.

EME 35 & 25 YEARS AGO BY PETER, G3LTF: 35 years ago in May-June/July 1982 reports on the second leg of the ARRL Contest were of lower 432 activity than in 1981, but an increase on 1296. Top scores were 59x27 on 432 and 12x11 on 1296. W5LUA was operational on 4 bands, 2 m to 13 cm with a total score of 47x40 - multiband EME contesting was getting underway. W1JR completed a 9 band WAS 160 m to 432. The DLs lost 2304, but got 2320 in exchange; the UK and some other Europeans followed soon after. In the tech section there was a 13 cm preamp with a 1.2 dB NF and 13 dB gain from DC8UG that used a MGF1400. In the June NL GW3XYW became operational on 1296 and ZL3AAD was fully operational with his 20' dish reporting 18.5 dB of sunnoise on 432 and copying several signals on 1296. In the technical section DL7YC described a unique yagi array of 8 x 21 el DL6WU yagis in a 3.8 m diameter ring formation, with in the centre space, a 2 m diameter stress dish with a 1-10 GHz feed horn. Performance was 13.5 dB of sunnoise at SF190 (432), 3.5 dB Cygnus and 3.8 dB CS/G noise. **25 Years ago in May-June 1992**, despite a massive solar flare just before the sked weekend causing rapid changes in Faraday rotation, large numbers of contacts were reported. OE9ERC appeared on 432 and worked 40 stations in his first weekend and another 30 on 1296. The NL had over 40 reports and everyone was getting ready for the second Thorn conference with 64 registrants. SM2CEW reported excellent performance from the VK3UM tracking board. KG6UH/DU1 appeared on 432, but Louis had problems and only a few QSOs were made. An ES dxpedition, ES0SM, was planned for June. Activity on 13 cm was pretty minimal with few options available for PAs; the OZ9CR 2 x 3CX100A5 design was quite hard to build and get going, but there wasn't much else. VE4MA described a 3400 CP feed horn with screw polarizer and was "ready for EME on this band."

FINAL: The ARRL Contest is only 2 months away! **The MW weekend, 2.3 GHz up is 9/10 Sept. The 50 to 1296 weekends are 7/8 Oct and 4/5 Nov.** To quote G3LTF "It's really hard to find suitable dates this year..." We know this year's dates are not the best, but hopefully we will all have a great time. To avoid some of the same problem in the future, preliminary 2018 ARRL EME Contest dates have already been proposed: *Weekend #1 29-30 Sept, 2018 for 2,3 GHz & Up, Weekend #2 27-28 Oct, 2018 for 50 to 1296 MHz, and Weekend #3 24-25 Nov, 2018 for 50 to 1296 MHz.*

The ARI fall EME Trophy Contest will also be in Sept of the 16th and 17th and offers new rules to increase CW participation - see <http://www.eme2008.org/ari-eme/Trophy%202017%20Rules.pdf>.

There is one remaining MVAW for 9 cm on 12/13 Aug. We hope to CU on. Peter is looking for suggestions for 2018 dates.

EME 2018 - Jan, PA3FXB announced that the website for 2018 International EME meeting is already up and running! See: www.eme2018.nl. It is not too early to start making your plans for next summer.

Congratulations to OK1KIR. They report an overall score in the Dubus EME contest of 396x219, which is 8 672 400 points!

Please keep the news and tech reports coming. We still have some tech material on reserve but can use more. I (K2UYH) am planning to attend

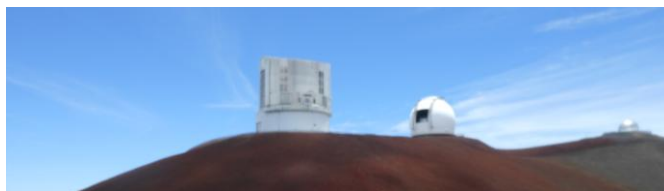
and see many EMEers at the Central States VHF Conference in Albuquerque, NM on 27-30 July. We also will be hoping to CU off the Moon. 73, AI - K2UYH and Matej - OK1TEH



1.3 THz JCM Dish on Mauna Kea, Hi



1.3 THz JCM Dish surface control



Dishes on Mauna Kea, Hi