432 AND ABOVE EME NEWS
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CONDITIONS: Following the final weekend of the ARRL EME Contest, Dec was no way as intense EME-wise as Nov. The dxpedition season seemed to end abruptly with the end of the contest. The next announced dxpeditions are not until April (T88/DF8DX) and May (6W/PE1LL), see reports below. RL22OG, using a special callsign to celebrating the 22nd Winter Olympics did become QRV – see Mikhail's report in this newsletter (NL). There is now an EME Beacon on 10 GHz, which definitely resulted in an increase in 3 cm activity in Dec. See the DL0SHF's report for more details. Sadly there are no reports of activity during the Dec 70 cm CW activity time period (ATP) except for NC1I, who called CQ repeatedly with no response. The next ATP is 19 Jan from 0330 to 0530 and 2030 to 2230. Let's try to keep CW healthy on 70 cm. The weekend (WE) of 18/19 Jan is also the ARRL Tropo Contest weekend with NA stations trying to increase their grid count using EME – see K5QE's report. Also coming up at the end of Jan is the annual EME SSB Funtests. The 70 cm SSB contest is from 2200 Friday 31 Jan to 2200 1 Feb, and the 23 cm SSB contest is from 2200 Saturday 1 Feb to 2200 2 Feb. (The rules were in the last NL). The DUBUS 70 cm CW EME Contest is early this year, only one week after the SSB contest on 8/9 Feb! I now have more information on high scores from the ARRL Contest on 1296. The top dog is I1NDP with 99x43 for 425,700 points. Congratulations to Nando, who operated only CW and has submitted his log (no reflector use). He barely beat out OE5JFL, who had more QSOs (101x42) but less multipliers. All top 23 cm scores were CW only!

DL0SHF's 10 GHz EME beacon 7.8 m dish

6W/PE1L: Rene hasperrene@gmail.com sends news that he and Eltje (PA3CEE) will activate Senegal in west Africa (locator IK14jp) on 432 and 1296. Their focus will be as usual on 144 EME, but they will have the single yagis systems that have worked so well for the higher bands in the past. I do not yet have any specific days for 432 and 1296, but they will be operating from 9 May to 24 May.

CS5RAD/CR7AFN: Carlos carlos.gorjao@netcabo.pt is now QRV on 1296 EME with a modest station -- I want to thank DL6SH (11DB), ON5TA (19DB) and I5YDI (19DB) for answering my JT65C CQs and the start a new world of ham radio fun. I am operating a small station with 80 W at the feed and a 3.3 m dish. I am hoping for many more 23 cm EME QSOs.

DL0SHF: Per (DK7LJ) dudek@per-dudek.de writes that his group is experimenting with running an EME beacon on 3 cm. They are trying to be on whenever they have a Moon window (locator JO54cg) with 50 W to a 7.8 m dish. At special test times they can increase their power to 600 W. The TX frequency is 10368.025 with a 20 sec on period and a 40 sec off period each minute. The beacon has been copies by stations using very small dishes (< 1 m). Per has quite an antenna farm with 5 dishes around his house. All dishes are solid and rated to a minimum of 15 GHz. All his equipment can be controlled remotely via the Internet. He has a 9 m dish on 23 cm with a 2 kW SSPA that he will upgrade very soon to 4 kW; a 6 m dish for 13 cm with a 1 kW SSPA; a 7.2 m dish on 8 GHz for listen only space projects, another 7.2 m dish on 10 GHz with a 50 W SSPA and a 600 W (TWTA) that he is using for the test beacon; and a 3.7 m dish on 24 GHz with 30 W (TWTA). There is also a 60 m tower with two 2.4 m dishes for tropo operation. Most of his QSOs are worked under his club call (DL0SHF) by other operators such as DL6LAU because Per is not much of a CW operator. He is mainly interested in the technical side of EME. The station has for 6 years been an official ground station for the NASA Stereo Project. His group is also involved in radio astronomy - for more info see http://sat-sh.lernnetz.de/.

DL0SHF's 3 cm operating position and beacon control

DL1YMK: Michael (and Monika) dl1ymk@aol.com reports that QSLs have been sent to the fine stations that have sent cards for their MJ/SA6BUN and MJ/DL1YMK 6 band dxpedition by direct mail. They will only respond to received QSLs as has been their practice in the past. They send their thanks for all the many nice comments of appreciation received and for the 'postage support' that was added to a lot of the received cards.

DL6SH: Slawek dl6sh@online.de after being absent from the Moon for 2 years is back in operation with a new dish – My dish is a 8 m with an 0.3 f/d. I am presently QRV on only 23 cm, but other bands are planned. The dish is a stretched 6 m mesh dish from OK1. Lot of hams and non ham friends helped me build the dish, my thanks to them.

DL6SH's new 8 m dish, now on 23 cm

EA3XU: Benjamin EA3XU@ure.es is now QRV on EME on three bands, 13 cm, 6 cm and 3 cm – I am using a 1.5 m offset dish on all bands with on 13 cm 150 W and G4DDK LNA, on 6 cm 30 W and a KUHNE LNA, and on 3 cm 17 W and a KUHNE LNA plus converter for 10450. I also have for 1.2 cm 3 W and I4TTZ LNA. I have a synthetizer PTS-160 oscillator and Rubidium 10 MHz reference. QSO'd on 13 cm are OK1DFC, OK1KIR, OH2DG and HB9Q all on JT65C; on 6 cm OK1KIR on JT65C and W5LUA on JT4F; and on 3 cm OK1KIR on JT65C and JT4F, LX1DB on CW, G3WDG on JT4F (3 times) and W5LUA on JT4F. I am interested in skeds with more stations.

EA3XU's 1.5 m dish used on 13, 6 and 3 cm

ES5PC: Viljo vallik@telia.com will be conducting a special *cultural* moonbounce demonstration on 13 cm EME starting at 1940 on 17 Jan. The actual event is part of the EBU Art's Birthday – see www.MIMProject.org. "MIMProject artists will perform live at the Estonian Public Broadcasting studio in Tallinn. The music will be transmitted to the Moon using Viljo's (ES5PC) station near Tartu, Estonia, through one of the most powerful S-band transmitters in radio amateur field today. The signal reflecting from the surface of the moon will arrive back to Earth precisely 2.7 seconds later. After traveling over 768,800 km Earth to Moon roundtrip, it will be recovered by radio amateurs across the world and sent back to the studio in Tallinn, where it will be added to the live performance. The final result is airing live on 23 radio stations in 21 countries." Viljo plans to send special QSL cards to all participants.

F1PYR: André <andre_f1pyr@yahoo.fr> is back on 24 GHz in a big way – I made my first QSO with LX1DB back in 2012. Since that time I have increased my power. After some months preparation, I was able to get 20 W to my 3.5 m dish on 1.25 cm… And it was a great pleasure to see and hear my own echoes. I QSO'd on 9 Jan JA6CZD (O/O) on CW, on 10 Jan G3WDG on JT, and on 11 Jan W5LUA on CW and JT. I am interested in skeds by email for 24 GHz and also for 13 cm (2320/RX 2304), 6 cm, 3 cm and soon 23 cm.

F1PYR 24 GHz feed box and 3.5 m dish – see end of NL

F6DRO: Dom f6dro@wanadoo.fr reports copy of the DL0SHF 3 cm beacon with a 1 m dish -– I copied the beacon signal at low power and with the Moon near apogee. I'm anxious to try again when it is on high power as 10 dB more would be nice. In the past I have worked IQ4DF (random), OK1KIR (random), LX1DB (sked), and F2TU (sked). While my system performs very well - (I get almost the same Sun and Moon noise as reported by stations with dishes of almost twice the dia of mine.) When the elevation is low as it was when I coipied DL0SHF, the G/T is not very good, and the 50 W beacon was only 1 to 2 dB above noise.

F5SE: Franck kozton@free.fr sends his final results for the ARRL EME contest – I operated on 1296 and only on CW, and ended with 88x38. New stations added during the second leg were W7JM for initial #147, I5YDI #148, UA4HTS #149, TI2AEB #150, N8CQ #151 and W1AIM #152. The QSO with W1AIM was very difficult. His signals were extremely faint on my side, peaking only 3 to 5 dB above noise on my SDR. Heard and called with no success were UA4AAV, SV2CAL, WA2FGK, SP6GWN (got a QRZ). During this contest activity was good and sustained in EU, but once more rather low from the USA and average in Canada. In my previous NL report, I quoted some significant signal enhancement, but this time, a significant decrease of signals was observed. Now this degradation appears permanent and confirmed by Sun noise and "hot/cold" measurements. I first thought it could be due to the preamp (humidity?), but after removing the preamp from the horn and proper checking, everything was OK - at least on the work bench. So, some more investigation needs to be carried out at the horn level. I now have a kW SSPA, but before using it, control and safety circuitry still has to be designed and constructed. I'm also working on the OK1DFC-RA3AQ septum feed. It should be finished before the end of the year, but still some more mechanics work is needed for proper installation at the dish's focal point.

G3LTF: Peter g3ltf@btinternet.com although not yet QRV is making progress since his dish disaster -- At Christmas time, we were without electricity for about 3 days due to a big storm that took out some power lines and also left floods that hampered dish repairs. Fortunately it was fairly mild and with a big log fire we kept fairly warm and we could cook on our camping stove and the barbecue. Our biggest problem was water as our pump is electric powered. I'm making good progress on the dish repairs. All of the ribs were checked in the original jig and the 8 that were damaged in some way were repaired. Damage was, in all cases, to the back stays rather than the curved face so that made things easier. An EME friend very kindly made me a new, much stronger, Hour Angle (HA) axis from solid steel and I replaced to two old HA bearings with new sealed units. The complete HA axis assembly was then hoisted into position with pulley blocks. Next the HA gear train and drive was reassembled and then the declination axis components and finally the hub was winched up on top. I have started to fit the ribs and so far have 6 in place. I have a new alignment tool, which I believe will give me a higher accuracy than before; the ribs should be within about 2-3 mm. I bought a complete new set of stainless steel nuts,

bolts, etc., and plan to use a finer, slightly lighter mesh for the centre 2.4 m dia. I can't say when it will be finished; it depends very much on the weather.

G3LTF working on repair of his 18' dish

G3WGD: Charlie charlie@sucklingfamily.free-online.co.uk sends news on his 10 GHz EME tests with VK7MO during his recent dxpedition -- Our first QSO with Rex on his recent DXpedition was on 23 Nov and the last one was on 30 Dec. We managed QSOs with him from 14 different locations with a 100% success rate. The equipment used by Rex was 45 W to a 77 cm dish. We were running a new homebuilt 50 W SSPA into our 3 m dish, and a 0.9 dB NF WDG004 preamp. Horizontal polarization was used on our end to be compatible with Rex's setup. The operating mode used for all EME activity was JT4F. This mode was used to great effect on 28 Nov during a demonstration of 10 GHz EME by VK7MO at the VHF Group of Western Australia in Perth. After working VK7MO on sked, members of the group worked us using Rex's equipment under their own callsigns during the following 45 mins. (VK6KZ, VK6KW, VK6LV, VK6ZLT and VK6ZAF all completed QSOs with us**.)** None of these callsigns were known to us beforehand, or announced on the HB9Q logger, or existed in the callsign database! JT4's ability to send plain text messages up to 13 characters in length under very weak signal conditions was used a few times during the expedition. On one occasion Rex used it to send his location. Moon elevation was very low at G3WDG at the time (about 2 degs), and the added ground noise and local hedge blockage reduced signal level so that averaging 2 frames was needed to decode the signal: 094800 5 -16 1.9 57 42 *; 095000 3 -17 1.8 59 46 *; and finally 095000 1 2/2 COCKLEBIDDY 1 0. Rex received the following "texts" from us shortly afterwards during the same QSO: 095700 7 -14 2.4 -103 48 * WHAT LOC 6DIG 1 0 C; 100100 8 -13 2.5 -98 50 * SKED TMRW OK 1 0 B; and 100300 7 -13 2.4 -103 48 * TNX SAFE TRIP 1 0 C. Operators at G3WDG were G4KGC and G3WDG.

HB9BBD: Dominique dfaessler@bluewin.ch is working on added 3 cm EME. He will start with a 1.2 m Andrew dish, 47 W into a circular pol antenna and a 0.8 dB NF LNA. He plans to have all operating in April/March on the rooftop of his home QTH. Dominique says he is "Moving away up from computer polluted bands."

I1NDP: Nando i1ndp.nando@gmail.com fills us in on his final ARRL Contest results. He also expresses frustration in trying to submit his logs. Nando sent his logs to 4 different addresses before he received a receipt. He participated on only 23 cm single mode CW, and was only for 2 Moon passes as he missed the third due to a failure of the relay protecting his LNA, but even had a spectacular score. He ended with 99x43 for 425,700 points, which is the highest score reported to the NL. Interestingly his QSO count was the same as last year.

IW5BHY: Andrea a.dellimmagine@gmail.com is a new station on 23 cm EME – I am using a 2 m solid dish with f/d of 0.37 on a polar mount with a square septum feed, 250 W SSPA at feed and G4DDK 0.32 dB NF LNA. I have good echoes. Using the WSJT echo mode, my average quality factor is around 4/5 with peaks up to 9. I made my first QSO on 3 Jan with RL22OG and have now worked initial #17 including small stations as IK5QLO and SV1CAL. My activity has mainly been on JT65C, but I plan to also be active on CW.

IZ1BPN: Stephano's iz1bpn@libero.it group (IZ1BPN and IK1MTZ operated the contest together) has one of the higher scores on 1296 for the ARRL Contest with 89x41. They used an 8 m dish with 450 W at the feed. Stations QSO'd on 26 Oct SM4IVE, VK3UM, OK1CS, DL3EBJ, RA3AUB, DJ8FR, SV1BTR, OE5JFL, PA3FXB, JA8ERE, G3LTF, JA8IAD, I1NDP, DL6SH, UA3PTW, LZ2US, RN3A, EA3UM, SD3F, YO2BCT, SP7DCS, SP6JLW, DF3RU, G4CCH, F5SE/P, RD3BA, OK1CA, 9A5AA, DL0SHF, IW2FZR, IK3COJ, SV3AAF, NA4N, N2UO, K1DS, K5GW, UA4AAV, W6YX, HB9BCD, WD5AGO, VA7MM, K1JT, DJ3FI, I5YDI and IK5VLS, PA3DZL, on 27 Oct OK2DL, JA4BLC, VK5MC, CT1DMK, LZ1DX, SP6ITF, OZ6OL, JH1KRC, OK2ULQ, JA6AHB, SM3JQU, HB9Q, OZ4MM, PI9CM, OH1LRY, IK5QLO, SM7FWZ, UA4HTS, LU1C, VE4MA, W8ZN, VE4SA, HB9SV, WA8RJF and on 16 Nov WA6PY, W7JM, VE3KRP, N0OY, N3AR, TI2AEB, PA2DW, ON5TA, W3HMS, IK6EIW, SM7SJR, DF1SR, ON7UN, N8CQ and NC1I, and on 17 Nov N4PZ, W1AIM, VE6TA and K6JEY.

IW5BHY's 2 m dish used on 23 cm

JA4BLC: Yoshiro ja4blc@web-sanin.co.jp was active on 3 cm in Dec -- I worked on 14 Dec IK2RTI (559/559) both ways on 10450 for initial #17. I also heard on several different days the DL0SHF beacon with good quality. It had an especially very low Doppler smear of 20 Hz on 5 Jan.

JA6CZD: Shichirou ja6czd(x)mx35.tiki.ne.jp was active on 24 GHz for the New Year. He worked on 5 Jan G3WDG (O/O) an initial (#), on 6 Jan LX1DB, and on 9 Jan F1PYR. Shichirou also heard PA0BAT and VK3NX on 24 GHz. [TNX JA4BLC for relaying this report.]

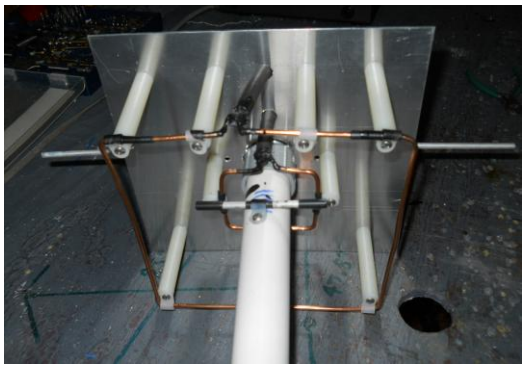
K1DS: Rick rick1ds@hotmail.com is completing assembly of a 432 500 W SSPA from W6PQL to replace the 180 W TE amplifier he used in the ARRL EME Contest. Hopefully this will give his signal the boost to be heard by more of you when the weather improves in the spring and he can set up his portable station again.

K5QE: Marshall k5qe@k5qe.com want that ARRL tropo conmtest count EME QSOs and that he will be active on 432 EME for the ARRL January contest -- We will be operating on 432.070 whenever the moon is above our horizon. Our moonrise is 0215 on 19 Jan. We love to get the "rare" grids on 432, so just stop by and give us a call. We will call CQ whenever we can. (We will also be on 2 m EME on 144.142.)

K5SO: Joe k5so@valornet.com reports he is fabricating and assembling two AZ/EL mounts (from scratch!) for a 14' dish and a 15' dish in order to use them in combination with his 28' Kennedy dish as a 3-dish interferometer to operate at 1.420 GHz for radio astronomy observations of neutral hydrogen in the universe using both the new Orion board and/or a 3-Mercury board HPSDR rig for data acquisition

KL7UW: Ed kl7uw@acsalaska.net hoped to be QRV again on 23 cm by the time you read this NL -- Since last month the WX has improved with warmer temps (-3 to 0°C in AK), so I am re-install the 1296 LNA/relay box on the feed and will be looking for 1296 QSOs during the higher elevation days/WEs. I currently have 50 W but may have a 150 W W6PQL module running soon.

N4QH: Lyle lylen4qh@aol.com is very excited about the performance of the dishes and feeds that he is producing – I now have a 432/1296 feed for my 8' dish, linear polarization. The calculated gain on 432 is 16 dBd and on 1296 26 dBd. It works great on 1296 EME. I have just started EME on 432, but it is a killer on terrestrial! I wish I had more time to get on EME. About 2 weekends ago, the condx seemed excellent. My 8' dish is very easy to make, weighs only 17 lbs and is cheap. The wind load is basically nothing as the mesh I use is what is called 8 by 8. It is 26 gauge aluminum wire in a pattern of 64 grids per inch, passing much of the wind (~85%). However, my 8' and 12' dish are probably only good to 5 GHz because I only use 12 pedals. My 16' foot dish uses 18 pedals, but I do not have the space to accommodate such a structure as I am an apartment dweller.



N4QH's dual band 432/1296 feed

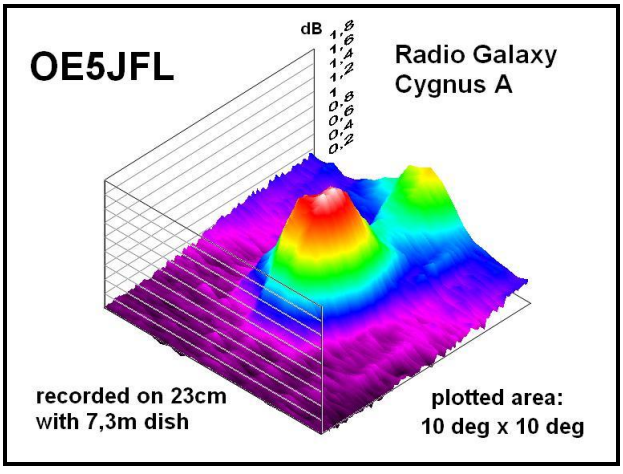
N6OVP: Dave n6ovp@pacbell.net is looking for 1296 QSOs -- I have 500 W in the shack and maybe 350 W at my 10' dish. I have heard a few stations but have not worked anyone yet. The trouble is I have to have a high moon to do so. I will be moving the dish shortly so I can work EU.

N8CQ: Gary gabercr@nc.rr.com fill us in on his ARRL contest results -- I was QRV for a limited time on 1296 during the EME contest. I had issues with the hydraulics, which limited my operating time. In 5 hours spread over two days, I worked 27 stations – all initials as this was my first time on 1296 with the 9.8 m dish. Stations worked were K1JT (579/549), VK3UM (599/569), K5GW (599/569), WD5AGO (569/579), WA8RJF (559/559), W6YX (559/559), N2UO (559/559), I1NDP (599/549), IZ1BPN (599/559), OZ4MM (599/569), DL6SH (559/569), OZ6OL (579/569), SP6JLW (599/569), DJ8FR (569/559), OE5JFL (599/579), G4CCH (559/559), SP7DCS (599/579), DF1SR (559/559), SD3F (599/559), LZ2US (599/559), DL3EBJ (559/559), F5SE/P (559/529), OK1CS (579/569), SV3AAF (559/549), SV1BTR (559/559), RA3AUB (559/559) and VE6TA (579/569). I was running a 120 W brick as my TH327 PA is still not completed. Since the contest, I have added a hydraulic accumulator and a larger reservoir to handle the long run up to the elevation jack. In the Spring, I will add more counterbalance to the dish.

N8CQ working at the feed of 9.8 m dish in NC

NC1I: Frank frank@NC1I.COM Dec report follows -- On 8 Dec we experienced our first ice storm of the season. It was not severe but the dish had more than 1/4" (6 mm) ice on it, which was obviously enough to keep us off the Moon. W1QA came over on 11 Dec and "de-iced" the dish. This was accomplished by connecting 150' (45 m) of garden hose to the hot water supply normally used for the household washing machine and spraying the dish for about 3 hours. While this was successful everything below the dish ended up coated with even more ice. It did allow us to be operational for the weekend of 14/15 Dec. It was not until a few days later that the temperature rose above the freezing point so Bob's efforts paid off. We have made some progress with our receiving capabilities, but it seems we still have a way to go. We are seeing modest improvement after adding some attenuation between gain stages and finding the proper IPO setting on the FTDX5000. The following stations were worked on 1296, on 14 Dec on CW: at 2220 PI9CAM (569/579) - heard noticeably louder just a short while later after we discovered our AZ calibration was off by 1.5 degs, 2245 I5YDI (O/529), 2254 VE3KRP 529/559), 2300 DG5CST (559/579), and 2320 DJ3FI (O/539). W1QA then put the station on JT65C and added at 2340 IK5EHI (17DB/O) and at 2346 K5DOG (24DB/O), (15 Dec) 0012 VE3KRP (21DB/8DB), 0016 PA2DW (21DB/O), 0027 PY1UNU (24DB/O) and 0110 K/VE4MA (21DB/O). We also QSO'd on 21 Dec at 0405 UA3PTW (559/579), 0631 IK3COJ (549/559) and 0641 SM2CEW (549/569), and on 22 Dec at 0451 RD3RA (539/579), 0506 UA4HTS (539/569), 0513 DL6SH (559/569), 0532 ON5TA (O/O), 0543 DF3RU (559/559) and 0615 DL6SH CW to SSB (53/579). On the WE of 14/15 Dec I called CQ on 432 CW for many hours and never heard anything other than my own echoes, which were peaking S9. If the WX cooperates we will be active again on both 23 cm and 70 cm in Jan; most likely on CW and WSJT. In addition to the weekend activity, I can often be available for CW during the week (other than my normal work hours of 1130 – 2230).

OE5JFL: Hannes oe5jfl@aon.at sends his near number one ARRL contest results, [his score is the highest number of reported QSOs, but was topped by only 1,500 out of 425,700 points by I1NPD.] -- In the second part I added 26 stations, so all together I worked 101x42 on 23 cm, all CW. I QSO'd VK3UM, SM4IVE, G3LTF, SV1BTR, G4CCH, SP6JLW, IZ1BPN, JA4BLC, OK1CA, SP7DCS, OK1CS, I1NDP, DL0SHF, F5SE/p, LZ2US, RA3AUB, DL6SH, SD3F, DF3RU, RN3A for initial #326, IK3COJ, DJ8FR, UA3PTW, 9A5AA, YO2BCT, RD3BA #327,SV3AAF,UA4AAV #328, DL3EBJ,IW2FZR, DJ3FI, IK5VLS, K5GW, OH1LRY #329, K1JT, N4PZ, W6YX, N2UO, WD5AGO, WA6PY, NA4N, I5YDI, VE4MA, LU1C #330, PA3DZL, SM3JQU, WA8RJF #331, VA7MM, VE6BGT #333, DL1YMK, CT1DMK, OK2DL, SP6ITF #334, VK2JDS #335, UA4HTS, OK2ULQ #336, HB9Q, OZ6OL, LZ1DX, JH1KRC, VK5MC, JA6AHB, OZ4MM, PI9CM #337, IK5QLO, K1DS #338, IZ2DJP #349, SM7FWZ, HB9BCD, VE3KRP, HB9SV, WA2FGK #340, PI9CAM, VE6TA,VE4SA #341, PA3FXB, N0OY, EA3UM, ON5TA, TI2AEB #342, VE4MA/W7 #343, K5AZU,PA2DW #344, W5LUA, NC1I #345, JA4LJB, PA3CSG, F5JWF, SP6GWN #346, SM7SJR #347, IK6EIW, DF1SR, N8CQ #348, W1AIM #349, K6JEY #350, JH3EAO, LX1DB, SP3XBO #351, IK2MMB, G4CBW #352 and YL2GD #353. Heard were JA8ERE, JA8IAD, PE1LWT, HB9BBD, OK1KIR, W3HMS, W8ZN, W7JM, W7UPF and ON7UN. One QSO was made with the help of the logger. Because of this violation of the rules I will not send my log to ARRL. Just before the contest I installed a wireless bridge between my home and my remote controlled station, which is a 3 km distance. This change gave better audio, as the normal Internet connection gave interruptions every now and then. Beside my EME work, I played a little bit scanning the sky around Cygnus A. The result is a nice 3D-plot of the radio galaxy in an area of 10 degs x 10 degs [shown below].



3D-plot of the radio galaxy by OE5JFL

OK1CS: Emil emil.ok1cs@gmail.com reports on his 2013 1296 activity – I am QRV with a 4.5 m mesh dish and 400 W at an N2UO feed. In 2013 I made 332 EME QSOs with 216 on CW, 67 on JT65C and 49 on SSB. I started on moonbounce in Sept 2011 and now have a total of 769 QSOs and am up to CW/SSB initial #155 (124 CW and 31 SSB) and digital initial {#82}. I also have 44* DXCC entities by all modes (35 on CW, 34 on JT65C and 18 on SSB). In 2014, I plan to become QRV also on 9 cm EME.

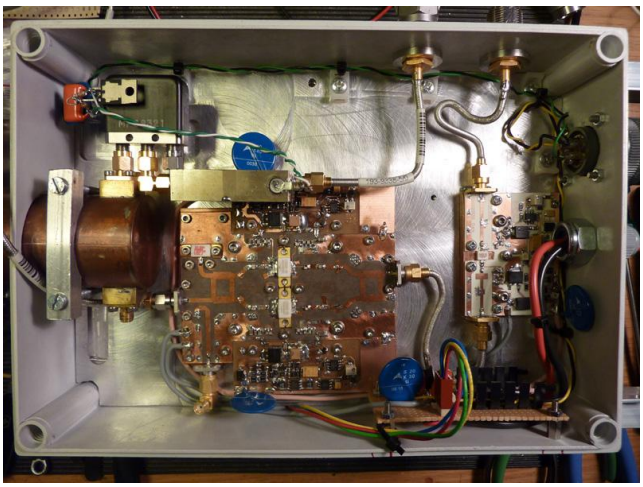
OK1KIR: Vlad and Tonda's vladimir.masek@volny.cz Dec EME report follows – We had only a small amount of Christmas time activity, mainly on 10 GHz thanks to VK7MO. Rex was again travelling with his portable EME station through the new squares on the AU continent. On 10368 using JT4F we worked on 29 Dec at 0440 VK7MO (QF31) (15DB/15DB) for digital initial {#35}, 0515 G3WDG (14DB/15DB) and 0533 G4KGC (14DB/13DB), and on 30 Dec at 0602 VK7MO (15DB/16DB) in another grid for {#36} and from 0641 till 0720 a JT4 modes test with G3WDG. Spread predicted was 65 ~ 75 Hz during the test with JT4G down to B mode. No decode was reached on JT4B (tone spacing 8.75 Hz), while modes JT4G (tone spacing 315 Hz) to JT4C (tone spacing only 17.5 Hz!) decoded (without DS) at about the same sensitivity with similar "backup" of about 10 dB. Actually, G3WDG (3 m dish) could decrease his RF power from 50 W to only about 5 W or to an equivalent dish size of less than 1 m for similar results at OK1KIR (4.5 m dish). Subsequent post-processing showed a low dependence on Min W settings from A up to one step below the particular mode with the optimum at two steps below for wide tone spacing modes (modes G,F,E) and one step below for narrow spaced tones (modes D,C). All the above was experienced at the given (full) mutual spreading of about 70 Hz, decreased slightly by the narrow HPBWs of the large dishes used (TX: 3 m/ RX: 4.5 m), which are similar to the Moon's solid angle. Moon noise was measured at 3 dB at 50 deg el (on 30 Dec).

ON0EME: Walter (ON4BCB) on4bcb@gmail.com report for their beacon team that the beacon is up and running; all has been OK and that they have not received no new reports. They do want to congratulate the DL0SHF team on their 10 GHz beacon success and hope that it will give a big boost to 3 cm activity!

PA3DZL: Jac pa3dzl@planet.nl sends info on his recent 23 cm QSOs – I worked using JT65C or CW on 13 Dec I5YDI for mixed initial #194*, SM7SJR, OE5JFL and PA3FXB, on 14 Dec I5YDI, IK5VLS, UA9YLU #195*, YO2BCT, DG5SCT #196*, JA6AHB, SM2CEW, DL6SH, EA3EMG #197* and PY1UNU #198*, on 4 Jan UA9YLU, RL22JT, UA9FEM #199*, IK5QLO, IW5BHY #200* and RL22CW #201*, and on 5 Jan DL6SH, UA4LCF #202*, SM7FWZ, DL6SH and RL22OG.

RL22OG: Mikhail (RA3AUB) ra3aub@mail.ru send news that his club will be celebrating the 22nd Winter Olympic Games in Sochi by providing EME QSOs using special Olympic call signs: RL22OG for the "Radio Lunar 22nd Olympic Games" and two additions call signs for the main lunar sports: RL22CW and RL22JT. The EME period of activity will be from 1 Jan to 31 March. [What about RL22SSB for the EME SSB Contests?]

SM6FHZ: Ingolf ingolf.fhz@gmail.comI recently upgrade his 6 cm RF-head (feed box). He tried it out in the dish on 30 Dec and was pleased to work PY1KK (559/559) for a new continent, new DXCC and the first PY - SM QSO on 6 cm. [See information on Ingolf's new 3 cm feed designs at the end of this NL.]



SM6FHZ's 6 cm feed box

SV1BTR: Jimmy jimmyv@hol.gr sends the following correction to his Dec report -- It wrongly writes: "In this mixed mode contest, it seems pointless for me to be QRV again on 2 m and 70 cm as long as the rules do not change to an entirely separate by mode contest. I have requested this change since 2002." This statement does not reflect my view, which I posted on the reflectors. Instead it should read: "In this mixed mode ARRL EME contest, it seems pointless for me to be QRV again as long as the rules do not change to an entirely separate by mode, contest. The CW EME community has been requesting this change since 2002 but was purposely ignored." [I apologize for altering Jimmy's views. This was not my intention. I often edit reports to make them clearer. Sometimes I make a mistake/misinterpretation as in this case.] On another note, unfortunately I cannot carry on the task of choosing the 70 cm due to my work load and personal constraints, but ATPs will continue to be posted at SM2CEW's webpage, http://www.sm2cew.com/dubus-aw-70.html.

T88/DF8DX: Bodo (DF8DX) df8dx@gmx.de has announced that he plans to be QRV from Palau (PJ77fi) on 23 cm EME in early April -- I will be in Palau on vacation and will take 23 cm EME equipment (100 W and 59 el yagi). My exact callsign and schedule will be announced later. I will try to focus my EME activity on the 8 and 9 April.

VE3KRP: Eddie eddie@tbaytel.net writes about his Dec/Jan -- Activity here has been nil due to the extreme cold weather. I also had my elevation jackscrew fail. Functionality has been restored by replacing it. This was not a fun job in the cold and snow! I was able to QRV on 23 cm on 11/12 Jan and worked on the 11th PA3DZL for a JT initial {#} and IK5VLS on JT, and on the 12th DL6SH also on JT.

VE6TA: Grant ve6ta@xplornet.com is now QRV on 33 cm EME – I made good progress once I sorted out my problems with my 300 W Motorola amp and some transverter issues. I fabricated a dual dipole feed for 902; as a similar design works very well with my 0.45 dish on 432. I heard good echoes as soon as I placed the feed in my 5.5 m dish with about 250 W in the shack and 190 W at the feed. On 4 Jan I worked W5LUA for initial #1 on 33 cm. Our polarization was not aligned as this was a daytime sked and the QSO was a bit of a challenge. Al and I worked again after sunset and signals were much stronger this time. Al was then a good (549) on random. I tried a sked with VE4MA in W7 land the next day, but only detected traces of Barry with his 5' offset dish and 150 W. Lastly, WA8RJF and I arranged a sked 13 Jan and worked quite quickly for my initial #2. It is nice to have EME band number 9 under my belt now. I am looking forward to working others who may take up the challenge and get on this under-utilized band. 902 certainly has some similarities to 432 as far as polarity smearing, but much less power is needed to make a QSO than on 70 cm.

VE6TA's 902 dual dipole feed

W6SZ: Rein rein0zn@ix.netcom.com is monitoring the DL0SHF beacon with a very simple system -- I managed to detect the DL0SHF beacon with a very simple receiving package. Amazing enough, using WSJT moon tracking data, the signal appeared right away when the moon appeared here above the trees. The signal lasted only 20 seconds but then 40 seconds later, it returned - by the book! I use a simple 10 GHz RX here that I use for scouting signals on 10 GHz

terrestrial as member of the San Bernardino Microwave Society. It consists of a RTL Dongle IF block tuned to 618 MHz as IF. The front-end is a PLL LNB, not modified, running with 9.750 GHz LO. Both items can be acquired for about USD25 on eBay and other places. The antenna is a standard 18 inch satellite offset dish. The antenna has some elevation control and the feed (LNB) can be rotated for polarity control. Every variable was manually operated. At times I measured the beacon as high as 15 dB above the noise using HDSDR as DSP software. The beacon was running in the 500 W output mode during these observations. Pictures of the setup and receiver can be found at http://www.nitehawk.com/w6sz/10ghz-beac_1.jpg to..._5.jpg.

WB2BYP: John storyavenue@hotmail.com has completed the elevations mods to his 28' dish -- The good news is that I am able to follow the Moon down much further than I have been able before. I am now looking forward to being able to work low declination as well as high. I have a new hydraulic cylinder in the dish mount, which allows look angles closer to the horizon. It was made by Kanamak Hydraulics in KS, and has a 60" throw vs. the old 40" throw cylinder. If anyone is curious for images or info let me know.

WA6PY: Paul pchomins@san.rr.com sends his final results for the ARRL EME Contest –- I end on 432 with 11x9, on 1296 with 54x32, on 2304 with 16x16, 3400 7x7 and on 10 GHz with 6x6. (I was also on 144 with a 5x5 score.) This year my window was shorter than during previous years, and the contest days coincide with close to apogee. In Dec I added on 10 GHz OZ1LPR - small dish station during apogee with quite good signal, on 2.3 GHz SM6CKU and on 6 cm PY1KK. I'm planning to get on 10.45 GHz for JA, and also to finish my 24 GHz TWT modification.

K2UYH: I a.katz@ieee.org was QRT most of the Dec because of the cable disaster reported on in the last NL. We have a warm weekend right before Christmas and I was able with the help of two friends to replace the damaged 7/8" Heliax run to the feed of my dish with a new 7/8" cable. My system still need a little more work to be fully back to what it was before, but I am QRV again. I made my first QSOs on 1296 on 25 Dec at 0829 DL6SH (13DB/3DB) JT65C, 0836 IK5EHI (16DB/O) JT65C and 0850 DL6SH (559/569) CW. I was active again on 1296 on 1 Jan at 1550 K5DOG (17DB/12DB) JT65C for my 1st QSO of the New Year and then we switched to 432 at 1620 K5DOG (20DB/27DB) JT65B for my first 432 QSO of 2014. I worked on 11 Jan on 23 cm at 2250 IK3VLS (449/559) and 2258 G4CCH (579/589), and on 432 at 2338 I5CTE (9DB/20DB) JT65B and 2349 LU8ENU (18DB/22DB) for mixed initial #863*, and on 13 Jan on 1296 at 0034 K5DOG (16DB/12DB) JT65C.

NETNEWS: **IW2FZR** has added 10 GHz EME and is looking for sked. You can contact Dario at dario.fzr@gmail.com. **M0DTS** reports he is able to copy the DL0SHF 3 cm beacon with a 1 m offset dish and a unmodified Octagon PLL sat LNB and Realtek SDR. **SM6CKU** has received a 6 months renewal of his 13 cm high power license. **W1AIM** is considering setting up for 902 from VT with his 16' dish. **VE5KKZ, WB7QBS, OZ1HNE** have been checking into the informal 20 m EME Net. **VE4MA/W7** (another net regular in sunny AZ) is ready for 902 EME.

FOR SALE: **DL6LAU** has for sale two Kuhne Electronic Type KU 233 EMEP 13 cm 150 W PAs with heatsink and 12 V – 40 A DC Meanwell PS for EUR 400 each plus shipping, and a TH308 cavity for 23 cm with good TH308 tube for EUR 300 plus shipping. If interested contact Carsten at dl6lau@appello.de. **ON4BCB** has a TH308 cavity PA with tube and G3SEK board that is fully working. If interested make an offer email to Walter at on4bcb@gmail.com. N4PZ has for sale I a couple of TV power amplifiers that will convert to 1296 using TH-327s. (The K5SO website has the mods for putting them on 1296.) I also have about 12 TH-327s. All are pulls and condition unknown, but some have to be ok. If interested contact Steve at n4pz@live.com. **N4HQ** now has feeds for both 1296 and 432 available for sale – see his report in this NL for more details and a picture. If interested in purchasing dishes and/or feeds contact Lyle at lylen4qh@aol.com.

GALILEO INTERFERENCE ON 23 CM EME QUESTION: **Hans (PA0EHG)** h.v.alphen@planet.nl writes that some time ago there was much discussion on expected interference from the Galileo satellites. Many were afraid that 23 cm would become useless for weak signal communications and in IARU region 1 a fallback frequency for narrow band activity was reserved in case of too strong interference. I understand that there are now 4 Galileo satellites in use, and am curious if anyone has encountered any interference from them. With my tropo station I never noticed anything, but my antenna is only a 2.5 m dish aiming to the horizon. My question to the EME group is: Has anyone encountered interference on 23 cm, which is caused by the Galileo satellites? If you encountered interference, what did you notice, and how strong was it? I would like to gather some information on this, so if you have info please let me know. **Mike (JH1KRC)** jh1krc@syd.odn.ne.jp responded that the Japanese government launched and is now testing a global positioning satellite named MICHIBIKI, meaning "guidance", which provide quite exact measuring down to centimeter order in scale. We have to thank JA government that it is operated on 23 cm, fully covering the JA amateur band. Thus far there has been no report of the interference by amateurs, but the measuring experiment used a 23 cm amateur repeater site. JARL technical stuff tells us that the satellites might cause no interference to amateur radio because the satellite down-link uses SS (spread spectrum) modulation. Still many JA amateurs are worry that we might have to stop using this precious band in near future.

EMECALC VER 9.08 REVISION: Doug tikaluna@bigpond.com reports that he has re-instated the ability to vary the SFU (solar flux unit) independently of down-loading Learmonth data. I have also revised the polynomial to provide a more accurate (than previously) result. Given the current higher SFU and often the presence of solar bursts, you may find it interesting, (should you have the ability), to view simultaneously both 70 and 23 cm Sun noise. You will find often the two do not always coincide. Accordingly, although Sun noise can be a good indicator of receive performance, it has its limitations (especially at these high Sun activity times) and again, if you have the capability, Moon noise or stellar noise sources are the best option for accurate measurements.
A temperature calibrated termination is yet another option that may be considered using the Y factor facility in the program.

JT DXPEDITION CALLSIGN QUESTION: Bodo (DF8DX) df8dx@gmx.de sends the following answer to a question on extended callsigns raised by VE4MA, but which should be of interest to other stations operating portable -- For WSJT, if VE4MA/W7 operates from the US, the only accepted call sign by WSJT is K/VE4MA. Regarding CEPT regulations, the prefix of the visited country should be first, followed by the originating callsign. However, I know that it is not really clear and in the US it's actually correct to use the call that Barry used. If I use my US call from Alaska, the correct call is KT3Q/KL7. If I would operate under CEPT regulations with my German callsign, I would have to use KL7/DF8DX. The only suffixes that are supported by WSJT are /0 /1 /2 .../9 /P and /A. This means that /W7 will be treated as random text. However, you can add your own suffix as a valid add-on. Go to the WSJT directory and open the text file "prefixes.txt". Here you can add the W7 as a Add-on DXCC prefix. Now the text message format 1 will look like: K2UYH W7/VE4MA. The W7 will replace the grid locator. I think VE4MA/W7 will not be a valid callsign for WSJT, but W7/VE4MA will work if W7 is added to the prefix list. However, everyone will have to do that in order to get good decodes.

TECHNICAL: Ingolf (SM6FHZ) ingolf.fhz@gmail.com has updated his "A Novel 5 Step Septum Feed Suite" presentation from The Swedish 2013 EME meeting, which can be found at http://www.2ingandlin.se/A%20novel%205%20step%20septum%20feed%20suite_C.pdf. The additions include a 3 cm 5 step septum feed for high f/D's (0.45 to 0.6). The performance of this 3 cm feed is comparable to the W2IMU/N2UO Dual Mode feeds, but for the 10 GHz EME bands (10368 and 10450 MHz). Also, one of the 3 cm septum feeds for deep dishes have been further optimized and improved with respect to isolation. I have also implementing inch size tubing for the SM6FHZ 10 GHz Septum Feeds. The result (including all crucial dimensions) are published in at http://www.2ingandlin.se/A%20novel%205%20step%20septum%20feed%20suite_D.pdf. An animation of the E- and H-fields during a full RF-cycle for the above 10 GHz feeds is available as well. It is very instructive for understanding the function of a septum for generating circular polarization - http://www.2ingandlin.se/W_G_field_animation.pps.

SM6HZF's dish with 1296 feed

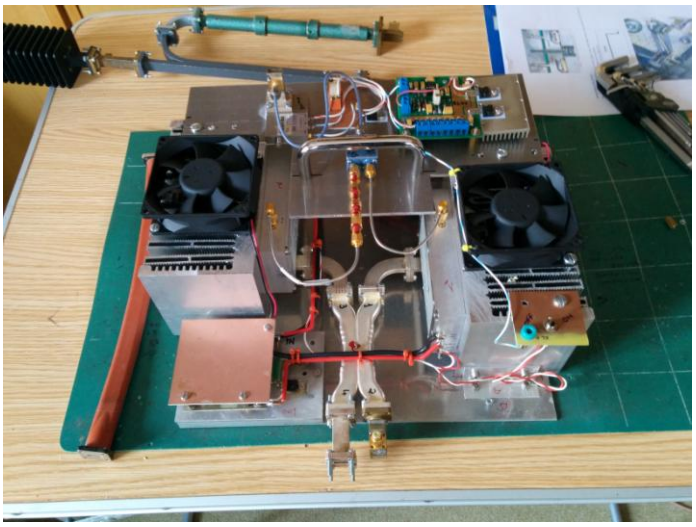
FINAL: In this issue I have DL7APV's famous Moon Calendar with the ARRL EME Contest dates and ATPs added. I suspect there may be some changes, but 2014 is just not a *great* EME year. There are no outstanding EME weeks and consequently no activity weekends (AWs) are shown on the calendar. The posted the dates/times for 70 cm CW ATP are 19 Jan 0330-0530 and 2030-2230, none in Feb and March, 6 April 1030-1230 and 1930-2130, 25 May 0230-0430 and 1100-1300, 22 June 0200-0400 and 1000-1200, 19/20 July 2330-0130 and 20 July 0830-1030, 16/17 Aug 2230-0030 and 17 Aug 0730-0930, none in Sept, Oct and Nov, and 7 Dec 0230-0430 and 1800-2000.

The EME2014 Brittany – 16th International EME Conference official web site is at http://www.eme2014.fr. Registrations will start around January 17th. We apologize for the inconvenience.

Reminder, if you are participating in the ARI's 2013 WORLD WIDE E.M.E. MARATHON, it is time to get your logs in to Enrico (I5WBE) i5wbe@i5wbe.it. The deadline for the receipt of logs is 31 Jan. The ARI Marathon is a cumulative QSO contest that takes place over a full year. The same station cannot be worked more than once per day, but it can be worked again in the following days. Now is the time to start accumulating EME QSOs for the 2014 contest. The full rules can be found at www.eme2008.org/ari-eme/contest.html.

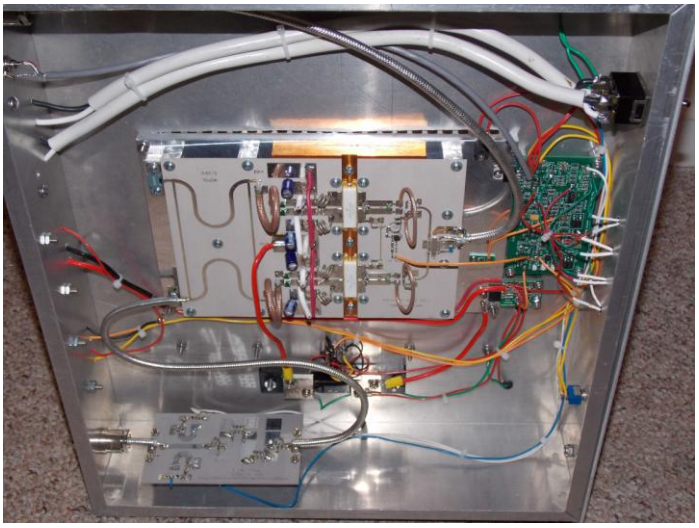
Microwave Update 2014 (MUD) will be held in Rochester, NY on 24-26 Oct. A tour of the Antique Wireless Museum (AWA) is planned for 23 Oct. The location is The Marriott Inn Airport, 1890 Ridge Road West, Rochester, NY 14615. Additional details will be on the WEB site.

It is great to be QRV again. Unfortunately, I cannot be on for the ATP because of a business trip. I hope to see many of you during the EME SSB Contest. I know the DEC is not good, but it seemed more important to have the Moon close than low declination for an EME SSB contest. At least the local operating times should encourage participation. PSE keep the reports and tech info coming! 73, Al – K2UYH

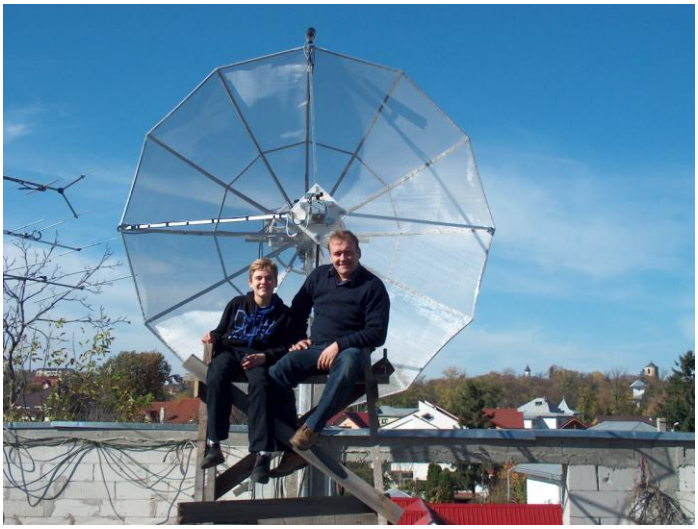


Inside details of F1PYR's 24 GHz feed box.

Another view of DL0SHF's 10 GHz EME beacon 7.8 m dish



K2DH's new 1kW 70 cm SSPA



YO8RHI with dish used on 13 cm

Lunar Weekend Calendar for 2014 (by DL7APV)

Sat/Sun	Dec/deg	Loss (dB)	Offset Sun°	Temp	Libration	Contest/Meeting Dates	Comments
Jan 04/05	-5,8	-0,4	-50	25	8		Day (AM)
Jan 11/13	+18,7	-2,0	-133	35	6		Night
Jan 18/19	+7,5	-2,2	148	20	8	ARRL VHF Tropo 70 cm ATP 19 Jan 0330-0530 and 2030-2230	Night
Jan 25/26	-17,6	-0,8	69	40	3		Day (PM)
Feb 01 /02	-3,3	-0,3	-30	25	10	**SSB Cont Sat 70 & Sun 13**	Sun close
Feb 08/09	+19,1	-2,1	-115	40	5	**DUBUS 70 cm CW Cont**	Day (AM)
Feb 15/16	+4,7	-2,1	167	20	8		Night
Feb 22/23	-18,5	-0,9	86	45	1		Day (PM)
Mar 01 /02	-0,8	-0,4	-10	25	10	Eu VHF/UHF Tropo	Sun noise
Mar 08/09	+19,1	-2,0	-96	40	4	**DUBUS 13 cm CW Cont**	Day (AM
Mar 15/16	+1,9	-1,9	-173	20	7		Night
Mar 22/23	-18,9	-0,9	103	80	2		Day (PM)
Mar 29/30	+1,9	-0,6	9	25	9		Sun noise
Apr 05/06	+18,7	-2,0	-77	45	3	**DUBUS 6 cm CW Cont** 70 cm ATP 6 April 1030-1230 and 1930-2130	Day (AM)
Apr 12/13	-0,9	-1,8	-154	20	6	**ARI contest "new modes"**	Night
Apr 19/20	-18,8	-0,7	119	180	3		Night
Apr 26/27	+4,9	-0,9	28	25	8		Sun close
May 03 /04	+18,2	-2,0	-58	40	4	**DUBUS 9 cm CW Cont** Eu VHF/UHF Tropo	Day (AM)
May 10/11	-3,4	-1,6	-134	25	5		Night
May 17/18	-18,2	-0,5	136	140	4	Dayton Hamvention	Night
May 24/25	+7,9	-1,1	46	25	5	**DUBUS 3 cm & Up CW Cont** 70 cm ATP 25 May 0230-0430 and 1100-1300	Day (PM)
June 00 /01	17,3	-2,1	-39	35	4	**DUBUS 23 cm CW Cont**	Day (AM)
June 07/08	-5,8	-1,6	-114	30	4	EU 23&up Tropo	Day (AM)
June 14/15	-17,1	-0,3	153	70	4	ARRL VHF Tropo	Night
June 21/22	+10,7	-1,3	64	30	3	70 cm ATP 22 June 0200-0400 and 1000-1200	Day (PM)
June 28/29	+16,1	-2,2	-20	25	4	Ham Radio (DL)	Sun close
July 05/06	-8,1	-1,6	-94	30	4	Eu VHF/UHF Tropo	Day (AM)
July 12/13	-15,7	-0,1	172	40	4		Night
July 19/20	+13,1	-1,3	81	35	1	19/20 July 2330-0130 and 20 July 0830-1030	Day (PM)
July 26/27	+14,4	-2,3	-1	20	4		Sun noise
Aug 02/03	-10,4	-1,7	-75	30	5	ARRL UHF Tropo	Day (AM)
Aug 09/10	-13,9	**-0,0**	-169	30	3		Night
Aug 16/17	+14,9	-1,3	99	35	2	**DUBUS 70 cm Digi Cont** 70 cm ATP 16/17 Aug 2230-0030 and Aug 17 0730-0930	Day (PM)
Aug 23/24	+12,3	-2,3	18	**15**	4	**EME conf 25-26 !!**	Sun close
Aug 30/31	-12,6	-1,6	-57	35	6		Day (AM)
Sept 06/07	-11,9	**-0,1**	-150	35	2	Eu VHF Tropo	Night
Sept 13/14	+16,3	-1,2	118	30	4	ARRL VHF Tropo	Day (PM)
Sept 20/21	+10,0	-2,2	37	20	4	Weinheim (DL)	Day (PM)
Sept 27/28	-14,7	-1,5	-39	35	7		Day (AM)
Oct 04/05	-9,4	-0,3	-131	30	1	Eu UHF Tropo	Night
Oct 11/12	+17,3	-1,2	137	35	5	**ARRL MW EME Contest**	Night
Oct 18/19	+7,6	-2,2	56	20	3		Day (PM)
Oct 25/26	-16,4	-1,3	-22	40	7		Sun close
Nov 01/ 02	-6,4	-0,6	-114	25	2	Eu VHF CW Tropo	Day (AM)
Nov 08/09	+18,1	-1,3	157	40	6	**ARRL EME Contest (I)**	Night
Nov 15/16	+5,3	-2,2	76	20	4		Day (PM)
Nov 22/23	-17,6	-1,0	-4	45	8		Sun noise
Nov 29/30	-3,2	-0,7	-97	25	4		Day (AM)
Dec 06/07	+18,6	-1,5	176	45	7	**ARRL EME Contest (2)**	Night
Dec 13/14	+3,1	-2,2	96	20	5		Day (PM)
Dec 20/21	-18,3	-0,8	15	60	7		Sun close
Dec 27/28	0,0	-0,7	-79	25	6		Day (AM)