432 AND ABOVE EME NEWS
FEBUARY 2013 VOL 41 #2

EDITOR: AL KATZ, K2UYH; DEPT. ELECTRICAL/COMPUTER ENGINEERING, THE COLLEGE OF NEW JERSEY, PO BOX 7718 EWING, NJ 08628, TEL (W 609-584-8424) OR (H 609-443-3184), FAX (609-631-0177), E-MAIL a.katz@ieee.org
NETNEWS EDITOR (BASED REFLECTOR NEWS) REIN, W6SZ pa0zn@arrl.net WITH HELP OF N4PZ AND WB2BYP
INITIAL LIST G4RGK, DAVID DIBLEY, E-MAIL zen70432(x)zen.co.uk, AT: http://www.zen70432.zen.co.uk/Initials/index.html
EME NETS: 14.345, 1500 SATURDAY AND SUNDAY, NET CONTROL: STEVE GROSS, N4PZ n4pz@live.com
ON0EME EME BEACON, 1296.000 IS QRV WHEN MOON >10°, SEND RX REPORTS TO WALTER (ON4BCB) on4bcb@gmail.com
NL EMAIL DISTRIBUTION and EMAIL LIST CORD: WARREN, W2WD wbutler@ieee.org [TXT OR PDF OR "ON WEB" NOTICE]
THE NL WEB VERSION IS PRODUCED BY REIN, W6SZ AND AVAILABLE AT http://www.nitehawk.com/rasmit/em70cm.html

CONDITIONS: Without any contests, the past few weeks were a bit slower, but far from quiet as documented in this newsletter (NL). The first JA to USA 24 GHz QSO has to be one of the high points of the month – see W5LUA's report. VK7MO also tried 24 GHz JT tests – see his report. RW3BP reports on his 78 GHz EME efforts. The 1296 EME Beacon was out of service for a few days at the end of Dec. It is now back in operation – see ON0EME report in this NL. The Dec 432 CW Activity Time Period (ATP) could have had a better turnout. WX did not cooperate in EU and conditions were poor (90 deg shift in optimum pol between TX and RX.) The next ATP is 20 Jan 1300-1500 and 2100-2300. Please try to be QRV for it! This weekend will also be a ARRL VHF/UHF/Microwave Contest weekend with NA stations looking for EME as well as tropo QSOs. In Feb is the annual EME SSB Fun Event – see the rules below. The 432 SSB contest corresponds to the Feb ATP (17 Feb 1200-1400 and 1930-2130), and will probably be focused more on SSB QSOs than CW. All the 2013 ATPs are listed in the FINAL section of this NL. The only 70 cm & Up dxpedition activity on the horizon is 9G5EME, and that is only for one day for 70 and 23 cm respectively. But starting in March, there will be a Dubus EME Contest every month (with 2 in May) through June!

23/70 CM EME SSB CONTESTS RULES: These events are intended to be fun. You do not need to transmit on SSB to participate. CW to SSB and vice verse exchanges are encouraged and count for points. (Only one QSO between stations is allowed, i.e., you cannot work a station SSB to SSB and SSB to CW for extra points). The 23 cm contest runs on Saturday 16 Feb from 0000 to 2400, and the 70 cm contest is on Sunday 17 Feb from 0000 and to 2400. These are two separate contests. Everyone one should have one Moon pass with operation moving from NA to Asia/VK, Asia/VK to EU, and finally EU to NA during each contest. Scoring is contact points x number of two letter Grid Sectors (IO, JM, FN, EM ...) worked. SSB to SSB contacts count as 2 points. SSB to CW (or CW to SSB) count as 1 point. The exchange is your Sector (IO, JM, etc.). Only the 2 sector letters need to be sent and copied by EME. The exchange of signal reports and/or 4 character grids is optional and not required. Operation may be by single or multiple operators from one location. No distinction for scoring will be made. Assisted operation is not encouraged. All skeds/operational announcements should be made prior to the start of the contest. Logs should be sent to the 432 and Up EME NL by email to a.katz@ieee.org ASAP after the end of the contests. (All logs for contest awards should have been received within the month following the contest). The top scoring station on each band will receive an attractively framed certificate that will be presented at the next International EME Conference (F2014).

9G5EME: Rene (PE1L) reports that the Atletico team (himself, PA3CEE and PE9DX) will activate Ghana (IJ95gb) in April – Our main activity will be on 144, but as usual, we will have one day for 432, and now a day also for 1296 to get some big guns in the log. The setup on 70 cm will be a 23 el yagi, DK7ZB design (built by DK3WG), SSB preamp (TNX LZ1DX) and a 100 W brick at the antenna. The 23 cm setup is on order and will be similar. 1296 operation is tentatively planned for 19 April and 432 for 21 April.

DL7APV: Bernd dl7apv@gmx.de could not be on for the Dec 70 cm CW ATP -- We had ice rain and elements and feedline were near double in size from normal. My VSWR (HI!) was infinity. I hope to be QRV for the Jan ATP.

G3LTF: Peter g3ltf@btinternet.com reports on his Dec-Jan EME – I do not have much activity to report. The WX here has been difficult for EME with strong winds and rain. I did get on 23 cm on 20 Dec and worked SM7SJR, IW2FZR and ON5TA. On 22 Dec, I was on for the 70 cm ATP but on QRP with my old K2RIW PA. I worked DL9KR, OZ60L, SM4IVE, DG1KJG, K2UYH and G4RGK. CWNR were PA3DZL and N4GJV. Conditions were not good. It was difficult to find the right polarization for replying. I have now repaired my regular 432 PA. I changed the finger stock on the screen grid and it now seems to be more efficient, and will hopefully return to its previous reliability. With the best conditions now occurring at low declinations, I have done some work on the dish mount to reduce obstruction from the hour-angle motor cover, and I can now track at –13 degs declination, which gives me a few more days per month of Moon coverage. I am still limited by tree blockage on my Moon rise and my window to VK is getting to be very short now. I have also cleaned up my 6 cm signal with a new 3 section filter and fitted a few more intermediate ribs to the dish, but poor WX has restricted outside work. I plan to be on for the next 70 cm ATP on 20 Jan, WX permitting.

G4BOA: John john@g4bao.com is now QRV on 13 cm and looking for skeds -- I have only a 1.9 m dish, but with 180 W to the feed and about a 0.3 dB NF LNA. With this set up I am getting solid echoes. I've looked at the predictions (VK3UM's EME Calc) and it looks like I have an excess of around 4 dB of tree noise until the Moon is high. I am interested in skeds and would like to make my first QSO.

G4RGK: Dave zen70432@zen.co.uk reports on his 432 activity during the 22/23 Dec AW. The 22 Dec CW ATP was very poorly attended, as have all the ATPs during 2012. By contrast there still seems to be lots of activity and new stations available on JT. I worked on 22 Dec at 1430 YL2OK (27DB/O) on JT65B, 1433 DL9KR (559/559), 1530 SM4IVE (559/529), 1550 JE1TNL (22DB/27DB) JT65B, 1830 DL5FN (13DB/14DB) JT65B, 1910 SM7GVF (23DB/O) JT65B, 1916 SM5DIC (18DB/18DB) JT65B, 1927 RU4HU (27DB/25DB) JT65BG, 1937 DL7APV (7DB/9DB) JT65B, 2014 K0CIY (20DB/9DB) JT65B, 2126 UX0FF (25DB/O) JT65B, 2128 K2UYH (559/449), 2148 DG1KJG (549/549), 2201 G3LTF (449/449) and 2208 N4GJV (449/449) for a total of 15. It is a shame we can't get more the JT guys to appear on the CW end once in a while. An analysis of my 432 log for 2012 shows a total of 117 QSOs with only 41 of these on CW. How many will still be there in 2013? I had no activity on 23 cm, as I have little motivation to operate outdoors as presently necessary with my 1296 station.

IK5EHI: Alessandro tesconi@tiscalinet.it is now QRV on 23 cm. See IK5QLO's report for information on his station. He worked on 6 Jan using JT65C I1NDP for his first EME QSO digital initial {#1}, DF3RU {#2} and IK5QLO {#3}. Alessandro is interested in skeds, and although not much of a CW operator, he is willing to try CW.

IK5EHI's 2.1 m dish – 3rd 23 cm EME station from Lucca!

IK5QLO: Andrea ik5qlo@gmail.com now has 3 stations QRV on 23 cm from his hometown of Lucca thanks to his promotion of EME! The stations are: IK5QLO, Andrea (himself), JN53fu with a 2.4 m dish and 300 W; IK5VLS, Gabriele, JN53gu with a 4 m dish and 250 W; and now IK5EHI, Alessandro, JN53cx with a 2.1 m dish and 180W (soon to be 250 W). He writes – It is very nice to have friends and neighbors to share my passion, ideas and help our wonderful hobby. This past year, I could spend only a limited amount of time on the Moon during both ARRL contest weekends. I ended on 1296 with 22 QSOs (JT and CW). I also QSO'd on 23 Dec PA3FXB, G5WQ and W3HMS on JT65C and NO0Y for an initial (#), N4PZ, G4CCH and I1NDP on CW, and on 6 Jan ON5TA (#) on CW and IK5EHI (#) on JT65C.

IW2FZR: Dario dario.fzr@gmail.com has added 3 cm to him EME bands. He is running a 4 m dish and 15 W, and is looking for stations to test with. [I am quite sure he has now made his first QSO.]

K5QE: Marshall k5qe@k5qe.com reminds us that his group will be QRV on 70 cm EME during the Jan ARRL VHF contest -- We will be active in the Jan ARRL VHF contest on 432 EME. Moonrise times are truly horrible for us, but we will be on 432 EME on 19/20 Jan. The contest begins at 1900 on Saturday and 0400 on Monday morning. We plan to be QRV for both days, but on Saturday, we probably will only have time to respond to others calling CQ. This is because we will need to work rovers and fixed stations on Saturday. Most of our 432 EME activity will probably be on Sunday, 20 Jan after our moonrise at 1845 to 2400, which is a time that is often pretty slow as far as the contest is concerned. We will call CQ and look for other stations on 432.070 taking Second Sequence, but we will do Search & Pounce if we see a station calling CQ elsewhere. In addition, we have a CW schedule at 2200, so if there are any CW stations that want to try to work us, try tailgating that schedule. At other times, if we find a station calling us on CW on 432.070, we will try very hard to work them on CW right on .070. Thanks in advance to those that come up and try to work us in the contest. Your grids are always "rare" grids from here. We really do appreciate getting those grids into the log.

K6JEY: Doug drzarkof56@yahoo.com writes to let us know he is still QRV -- Just a note to let you know we are still on the air. I will be on 23 cm as much as possible this year with my 10' dish on both CW and JT modes.

N4GJV: Ron qstdemb@yahoo.com sends his Jan EME activity report -- My participation in the 2 hour Jan 432 CW ATP was reduced to one hour due to my copying error - (my tracking data was for the wrong date!). I listened to white noise for 45+ minutes before I discovered and corrected the problem. After the correction, my success rate improved significantly, and I was extremely happy to then hear and contact DL9KR (humongous signal!), G4RGK, DG1KJG and K2UYH. G3LTF was heard, but unfortunately, was a "got-away". I believe that G3LTF's suggestion for improving CW activity during the ARRL EME contests is an excellent idea. (Peter proposed allowing 2 QSOs per station, one digital and one CW). I also strongly endorse the limiting digital QSOs to above 144.08/432.05/1296.05 and CW QSOs to below these frequencies. It is a well thought out and an essential addition. I hope that the ARRL rule makers will adopt this plan.

N4PZ: Steve n4pz@live.com discusses his activity, initial QSO count and other EME related matters -- I have been active just about nightly on 1296.020 CW this past month, and managed to add initials with W3HMS, SM7SRJ, N0OY, ON5TA and VE3KRP. I often check the HB9Q logger and ask stations present to try CW. No JT here yet, but I have worked almost every JT station that I've convinced to give CW a try. I note that my initial count is listed as 78. [I believe this # is for 1296 from G4RGK's list.] I have not taken the time to count them for a year, but I'll bet they are up over 200 now. I'll count them up and update you. Wait until then. Also I am getting the 3846 KHz EME gang up and running every night again by constant badgering – Hi! Last night we had about 9 guys chattering away on a variety of subjects from JT to N4QH's dish kits. Lyle (N4QH) participates nightly. I continue with the EME net on Saturday and Sunday at 1500 on 14.345 MHz with a delayed start of 10-20 minutes on Sunday due to the VARO net overlap at 1500.

NC1I: Frank frank@nc1i.com bring us up to date on his efforts -- Since late fall, W1QA and I have been trying to activate the station, but have run into several delays including our busy schedules. Back in Dec, we noticed a receive problem that first appeared to be a bad preamp (no gain) at the feed. Unfortunately, both Bob and I have bad knees that have pretty much put an end to our tower climbing, so any projects on the tower require outside assistance. To get to the preamp requires climbing the 40' tower and then up the mount. The mount is very sturdy, but it does require a fair amount of agility to get to the top of it and access the preamp box. When we were finally able to get someone to climb and remove the preamp, we found that water had leaked into the box. We ended up removing and cleaning the relay and putting in a new preamp. Most frustratingly, this did not fix the problem. Despite the poor receive performance, Bob was still able to work on 22 Dec at 2242 SM5DIC (22DB/10DB), 2311 K5DOG (22DB/22DB) and 2340 UX0FF (25DB/16DB). On 6 Jan, we got back to troubleshooting. We first checked the 7/8" air feedline used for receive, and it measured fine. We then pulled the entire preamp box and receive flex-line (FSJ4-50B) down off the tower and checked every component. We ended up finding a bad bulkhead/jumper connector on the receive line (post preamp). Since we had the box down we decided to replace all 3 bulkheads and the relay. We also took steps to hopefully prevent future water penetration. Replacing the components in the box fixed our receive problem, but we are now hearing a lot of garbage on the band that had not been there in the past. We believe the culprit is a faulty electric fence system on a nearby farm. We are hearing an S9 arcing type noise at random time intervals ranging from every couple of seconds to every 10 or 15 seconds. We are experiencing this interference from 1.8 MHz through 70 cm! It won't keep us off the Moon, but it is at the very least extremely aggravating. We will try and confirm the source and work to resolve the problem. We plan on being active the weekend of 19/20 Jan during the ARRL VHF contest. Bob will operate WSJT and I will activate the station on CW. Activity levels on each mode will dictate where we spend our time. Please keep in mind the contest exchange is grid squares. We have upgraded some of the 70 cm equipment in the shack. We are now using a Yaesu FTDX5000MP and a Kuhne TR 432 H transverter PLL locked with a G3RUH GPS disciplined 10 MHz Oscillator. If everything works as expected, we will make a serious effort to be far more active, especially if we can resolve the interference problem.

OK1KIR: Vlada & Tonda vladimir.masek@volny.cz send their latest EME news – We worked on 29 Dec on 10368 at 1926 IW2FZR (549/549) for initial #74, on 5 Jan on 3400 at 0110 VK4CDI (O/O) for initial #47 and QG field - the Moon noise was 1.7 dB and G/CS 5.7 dB, 16 Jan on 1296 at 0948 VK4CDI (O/O) CW #349 and VK2MER (20DB/18DB) on JT65C for digital initial {#136} - Moon noise was 1.0 dB and G/CS 7.5 dB, and on 14/15 Jan on 24 GHz a one-way WSJT threshold test with VK7MO during low Moon libration. Rex employed a sophisticated automatic compensation of Doppler frequency with a separate computer, but was receiving on only a 47 cm dish. Unfortunately no signal was detected on our waterfall display. During the tests OK1KIR measured G/CS over 3.1 dB, Moon noise 2.15/1.4dB (far from/close to Moon) at low Moon (12 deg EL). During snowfall (!) the same night, the Moon noise was 2.1/1.55 dB (far/close) at 16 deg EL.

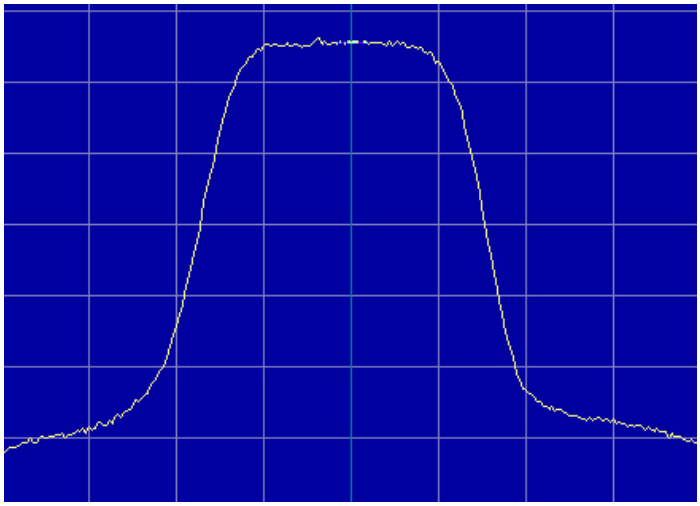
ON0EME: Eddy ejespers@telenet.be reports the 1296 EME Beacon was out of service for a few days near the end of Dec -- We got a message that ON0EME was not reflecting off the Moon. (Eric ON5TA could hear it directly, but not reflected off the Moon.) Checking the telemetry, we found the antenna was pointing at 288° AZ and 10° EL; this is the position where it stopped last moon cycle. The beacon was transmitting nominal power, but the antenna was not track the Moon. After trying to reset the software, power cycling the beacon, it became clear that the antenna was not rotating. The problem was likely the 24 VDC motor power supply as there was no telemetry on this voltage. [The team went to the beacon the following morning to make repairs. It is now back in service.

ON5TA: Eric eric.vanoffelen@skynet.be was active on 1296 in end Dec/beginning Jan -- Very good conditions right now, allowing small stations to contact each other. Worked IK5QLO, who uses a 2.4 m dish, with nice copy here on CW. I am looking for initials and can be found on HB9Q logger. My station on 23 cm is 3.6 m mesh dish with about 200 W at feed. With this setup, I hear good CW echoes.

PA3DZL: Jac PA3DZL@planet.nl reports on his multi-band EME in Dec/beginning of Jan – On 432, I QSO'd on 1 Dec SM4IVE, OH2PO, G4RGK, S51ZO, LZ1OA, LZ1DX, PA0PLY, PE1RDP and YO2LAM for mixed initial #208*, OH2PO and OH6UW #209* and grid square (GS) 302, on 2 Dec PA2CHR #210* (new QTH), K1JT, K7XQ, DF3RU, DL9KR and SV1BTR, and 18 Dec YL2OK and K5DOG #211* and GS 303 (new QTH), on 21 Dec YL2OK, on 22 Dec DL7APV, on 23 Dec DF3RU and 23 Dec DL9KR, and on 6 Jan UX0FF #212* and GS 304. On 23 cm, I worked on 1 Dec EA1RJ, IK3COJ, PA3FXB, OK2DL, VK3UM, UA4HTS for mixed mode initial #177*, G5WQ and OK1YK, on 2 Dec SM7SJR #178* and GS 202 and SP7DCS, on 15 Dec I1NDP, ZS5Y and TI2AEB #179, GS 203 and DXCC 51*, on 22 Dec PA3FXB, and on 29 Dec PA3FXB and JA6AHB. And on 9 cm, I worked 2 Jan OZ6OL for my 1st QSO with my new SSPA.

RW3BP: Sergei rw3bp@yandex.ru continues working toward 78 GHz EME -- In Dec, we had a few days with low temperatures (-20 to -25°C) giving oxygen absorption, but very small water vapor absorption in the atmosphere. I thus decided to conduct some RX tests on 77.5 GHz. In contrast to the 47 GHz band

with mainly oxygen absorption, I can see a significant improvement on 77.5 GHz in the winter time. Sun noise was 5.3 dB (SFI = 107) at only 10 deg of elevation. In August, the same result was achieved at 24 deg of elevation. Moon noise was 0.62 dB at 30 deg with no improvement at higher elevation. These RX tests show that under these conditions, the limit is the NF of my LNA, and not atmospheric absorption. My RX system consists of my 2.4 m offset dish illuminated by a DMH feed (scaled 13 cm DMH feed by RA3AQ, without septum of course). The beamwidth is about 0.12 deg. For RX is 2 CHA1077 LNAs followed by an OE9PMJ filter and a diode mixer. The supposed NF is about 5~6 dB. The LO is 76800 MHz (OCXO 100 MHz multiplied by 768). The first IF is 700 MHz. A spectrum analyzer with a 1 MHz RBW and RMS detector was used for the noise measurements.



77.5 GHz Sun noise measured by RW3BP – note Sergei can see the edges of the Sun with only a 2.4 m offset dish.

SM6CKU: Ben ben@sm6cku.se has received the renewal of his 13 cm license until 30 June 30. I am now QRV on 13 cm and have worked PA3DZL thus far. I am available for skeds; however, from SW to NW I need an elevation of minimum of 25 degs. Most of these trees will come down later this winter.

SM4IVE: Lars sm4ive@telia.com comments on the 70 cm Dec ATP -- I was active for a short period and worked OZ6OL, DG1KJG, G3LTF and G4RGK. I could not be on for latter (NA part) because of heavy wind and snow. I kept the dish in the Birdbath position. I was also on 23 cm for a short time and worked I1NDP on SSB, ON5TA, SM7FWZ and N0OY on CW.

SM7SJR: Bjorn sm7sjr@gmail.com is now QRV on 1296 EME along with 6 m, 2 m and 70 cm –- My rig on 1296 is currently a 5 m 0.47 f/d mesh dish with VE4MA feed horn, PE1RKI 250 W SSPA to ~12 m of 7/8", G4DDK LNA and TS2000X. I recently added 4 new ones, PA3FXB, S59DCD, K2UYH and N4PZ to bring my initials to #28. All are on CW. K2UYH had a booming signal! I also RX'd K2UYH on JT at (12DB). On 70 cm I am at initial #5, but am not active for the moment.

SV1BTR: Jimmy vitorakis@intralot.com writes -- Not much to report other than that I am getting ready for TX/RX moonbounce tests on 3 cm. I hope to have my system finalized by late summer. I recently visited the EME QTH of my close friend of 20 year, SV3AAF to admire his work on his 4 m dish and homebrew EME gear. Petros has multiple feeds for 23, 13, 6 and 3 cm. He is very keen on the microwaves and the last time I was there, he was QRV on only 2 m and 70 cm. So he has made a lot of progress, adding 4 more EME bands since the last time I was there in 2009! SV3AAF lives on a beautiful piece of land in the Greek valley of oranges. We enjoyed making Moon echoes on several bands, and also had some football fun and family related activity.

VE3KRP: Eddie eddie@tbaytel.net remains active on 23 cm despite the winter WX –I worked on 22 Dec I1NDP, PA3FXB for initial #78, G4CCH and VE6TA, and on 28 Dec N4PZ, N0OY and S59DCD #79. All QSOs were on CW. The dish was pretty stiff from the cold, but hung in there. Weather permitting, I will be around on 23 cm CW looking for QSOs.

VE4MA: Barry ve4ma@shaw.ca sends an updated version of his Dec report -- I am in sunny and Warm Arizona for the winter. I am playing with small dish EME and have already set up for 23 cm, but expect to put AZ on 9 cm and 6 cm with high power (>200 W). I have been using 3 panels from a 10 ft dish to make a 5 ft offset dish using a dual dipole circular feed for 23 cm and large 1.8 WL IMU feeds from my 2.4 m offset dish at home. I can only setup and operated temporarily, and then must take it down after the weekend... But at least I can get on. On 23 cm I was seeing 7.25 dB of Sun with a G4DDK preamp (very low noise ± who cares dB). I was seeing 10 dB (linear pol) with the same feed in my 8' (2.4 m) dish at home. There is a 0.25 dB loss in Sun noise with going to circular. So it seems like the 5' is working FB, but small for 23 cm. During the Dec EME contest weekend, I had a mental malfunction with SDR frequency calibration (100 kHz off), so did not hear anything. On the second night, I did find HB9BBD and OK1DFC who stayed on 23 cm late enough for me to find. I had only 150 W and did not get any reply. I now have the power up to 175 W and will have 20 ft of 7/8 in Heliax instead 25 ft of 1/2 in Heliax. Work also continues on the 3.4 and 5.7 setups. Hopefully I will be on 5.7 this month with 50 W, more later once I get a big TWT married to a HVPS.

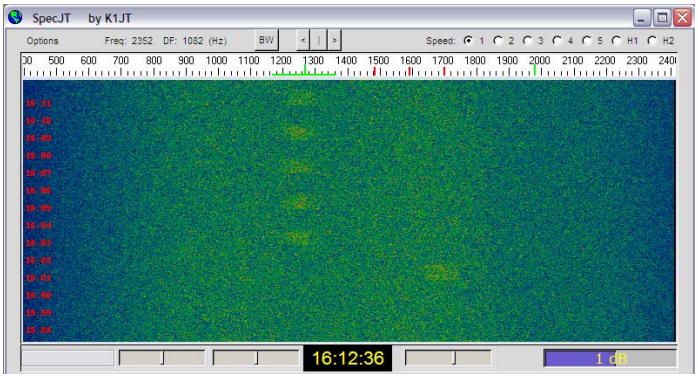
VE5KKZ: Kees kaperk@sasktel.net continues to listen on 23 cm EME and is planning to TX soon. He has a 10' dish with a VE4MA feedhorn in operation. On TX he has only a 16 W driver working. But, he wants to get more power going soon. Kees is seeking information on using digital levels to measure elevation. [It is in one of the past NLs].

VE5KKZ's 10' dish for 1296 – It has been pretty cold lately.

VK4CDI: Phil vk4cdi@gmail.com on his recent activity – Since my last report I added only one initial on 70 cm with UX0FF on JT65B, none on 23 cm, but was very pleased to QSO on 9 cm with only about 15 W OK1KIR.

VK7MO: Rex rmoncur@bigpond.net.au reports on his 24 GHz EME tests using JT with W5LUA -- Single tones were readily observed and the tests produced a number of valid syncs on both JT65C and JT4E&F. This is very encouraging for 24 GHz with a small portable station and a 47 cm dish. As has been the case on 10 GHz automatic Doppler correction was the key. No decodes were achieved even though the signal levels were such that in comparison with 10 GHz, and similar spreading, decoding would be expected. The tests were one way only with W5LUA transmitting with his 100 W and 2.4 m dish and VK7MO receiving with his small dish. During the Jan tests, Al started with a 1700 Hz, 73 tone, but then moved to 1270 Hz of which 5 show up spaced at one minute periods. Spreading was around 100 Hz, which is close to that calculated. Al moved to sending messages, which gave no decodes, but a total of 5 good syncs over 22 attempts in around 45 mins were received. The best was at -31 dB. VK7MO attempted to decode these using Deep Search averaging in various combinations, but could not get a decode. This is somewhat surprising as on 10 GHz we generally get decodes at -31 dB with similar spreading and sometimes get decodes at -32 dB even without averaging. It seemed when looking at Al's single tones on the waterfall that they were much more evenly spread than on 10 GHz and thus that there is less peaking on 24 GHz than 10 GHz. We suspect that this peaking is the reason that JT65c can decode signals with wide spreading and tone spacing's of 10.8 Hz. The lack of peaking could well explain the difficulty in decoding at 24 GHz. The reason for this difference in peaking can possibly be explained from the fact that 10 GHz tends to give more specular energy from the centre of the Moon while 24 GHz tends give more even energy across the face of the Moon. From EME Calc, our equipment gives a basic S/N of -13.6 dB on the WSJT scale at VK7MO. Adding estimated absorption of 1.3 dB at VK7MO and 0.5 dB at W5LUA gives a S/N of -16.7 dB (includes absorption noise). Adding linear spreading losses of 16.4 dB gives -33.1 dB. This is consistent with the measured signal levels that peaked at -31 dB, but were below -32 dB for most of the time. On 10 GHz, we typically add 3 dB for peaking of the spreading, but this may not be the case on 24 GHz. If as it seems, 24 GHz does not have the peaking that is required to decode JT65C, then another approach is to use one of the JT4 modes. The lower sensitivity will tend to be compensated by the fact that these wider bin-width modes (eg. JT4E and JT4F) will not suffer spreading loss, if we choose the mode to match the spreading. While we should not make too much of these initial test results, a

rough comparison is as follows: JT65 syncs 22%, JT4F 18% and JT4E 30%. One advantage of the JT4 modes is that they did give valid DTs and DFs up to around 70% of the time, which is encouraging, but no decodes were achieved on any of the modes. To summarize, the difficulty of decoding JT65C at 24 GHz might be explained by the lack of peaking of the spreading spectrum, which in turn is explained by the reduced specular reflection at 24 GHz. However, peaking should not be a problem with the wider bin-width JT4 modes, which also did not decode at the expected level. Clearly there is more interesting work to do to understand the reasons for non-decoding and propose solutions.



W5LUA's 24 GHz signal as received by VK7MO on a 0.47 m dish. Al started with a 1700 Hz (73 tone) but then moved to 1270 Hz, of which 5 show up spaced at one minute periods. Spreading is around 100 Hz which is close to that calculated.

W5LUA: Al <w5lua@sbcglobal.net> completed the first NA to Asia 24 GHz QSO in Jan -- On 2 Jan at 1430, I worked JA6CZD on 24 GHz EME. This QSO was a first between Japan and US. We had about an hour of common window between us where we each had 15 to 20 degrees of moon elevation. JA6CZD uses a 2.4 m offset fed dish with a 30 W SSPA. W5LUA uses a 2.4 m offset fed dish and a Travelling Wave Tube amplifier mounted on the feed support providing 100 W at the feed of the dish. NF at both stations was under 2 dB. JA6CZD copied me (559) and I gave Shichirou a (449). Both of us run linear polarity and we must compensate for the 70 degrees of spatial offset between our 2 locations. JA6CZD was using horizontal pol and I was vertically polarized. I use a W2IMU type feedhorn with an additional conical flare section added to improve the receive performance while Shichirou uses an expanded W2IMU feedhorn. Since the 24 GHz band is close to the 23 GHz moisture absorption region, it is also desirable to have low humidity and dew point. Dew point at my place was slightly below freezing, which did help signal levels by minimizing absorption. JA6CZD has previously worked DF1OI and OK1KIR in Europe. Shichirou is my 12th initial on 24 GHz in 12 years. Back on 7 Nov, I also worked IK2RTI for an initial on 24 GHz. Gianfranco uses a 2.7 m offset fed dish and 35 W at the feed. VK7MO, provided some excitement on 10 GHz EME by going out portable over the Australian countryside from mid Nov to mid Dec. Rex is using a 0.7 m dish and 50 W at the feed. I am also running 50 W to my 5 m dish on 10 GHz. What made it possible with such a small dish is that we were using JT65C. Rex was doing automatic Doppler correction. All I had to do was to TX and RX on 10368.225 and Rex provided the Doppler correction on his TX signal such that there was no need to correct frequency at my end. I worked Rex in a total of 11 grids. VK7MO and I also tried 1 way JT65C and JT4E tests on 24048. Rex was able to see my JT65C sync pulse, but never decoded anything on both modes. Rex was only running a 47 cm dish (18.5") offset fed dish, which to me was quite spectacular to say the least. I also worked JA1WQF for a new initial on 10 GHz back in Nov. In December on 5760, I was able to work SP6GWN, G3WDG and G4KGC. During the Nov and Dec EME Contest weekends I was able to work the following stations on 1296, SP6JLW, I1NDP, OK1CA, HB9BBD, SD3F, G4CCH, HB9Q, UA4HTS, PA3FXB, I2MBC, IK5VLS, OK1DFC, K1JY, WA6PY, SM6FHZ, SV1BTR, ZS5Y, SQ7DQX, UA5Y, W1AIM, WA8RJF, VK2JDS, VK2DVZ, TI2AEB, N4QH, N2UO, SP7DCS, PY2BS, OZ4MM, S59DCD, W6YX, IK1MTZ, WD5AGO, OK1CS, IZ1BPN, OK1KIR, G3LTF, K5GW, VE6BGT and F5SE/P.

W9FWD: John Jstefl@wi.rr.com writes he has not been too active lately, but that has made some improvements to his station – I have completed a new PA for 2304. I combined a pair of Spectrian amps and mounted them on a 7" high rack panel. I can push them to 500 W, but 400 seems plenty for now. I have my 3400 feed in place and am waiting for KL6M to get operational. He is very close he tells me. It will be great to have a new state represented there. I am making some progress on my 600 W W6PQL SSPA for 1296. I am anxious to get back on that band again. It has been quite a while since I made a QSO there.

WD5AGO: Tommy thomas.henderson@tulsacc.edu plans to operate the 23 cm SSB EME Contest and asks about a QRP class -- Would it be possible to have a low ERP and a high ERP Category for the SSB Party in Feb, say for 10' dish and 300 W or less? [This contest is more for fun that a real competition. I feel the rules should as simple as possible. I realize that only a ***big gun*** can be the **Top Fun Maker**, but that is what the award is for. It is for giving the most "*fun*" to smaller stations by giving them the opportunity to make SSB EME QSOs.] We will be operating again with a Horn for that contest. This time though the horn will be 16' long (25 dBi), same as a 5' to 6' dish. I am combining this week two of my amps for 500 W (total 5 dB stronger signal than the last time we worked on SSB, 8ft and 300 W). I hope to generate some interest here at the school as SSB is easier to understand than CW. The next project after the SSB contest will be to learn how to start WSJT and keep the school system going with digital.

K2UYH: I a.katz@ieee.org was QRV for the 432 CW ATP on 23 Dec and QSO'd at 2115 DG1KJG (449/559) with the Moon still in the trees, 2125 G4RGK (449/559) - pol 90 degs RX to TX, 2140 G3LTF (449/449), 2148 DL9KR (599/579) - huge signal and 2235 N4GJV (559/559). I also called CQ for an extra NA to VK/JA ATP for almost 2 hours (0430-0630) at my moonset, but never heard a signal except for my own echoes. Before the ATP, I worked at 2049 K0CIY (22DB/17DB) on JT65B for mixed initial #846*. I also worked on 28 Dec on1296 at 0049 SM7SJR (559/559) for CW initial #340 (mixed #428*), 0057 S59DCD (559/579) and 0147 W3HMS (13DB/11DB) JT65C, and on 432 at 0430 UX0FF (26DB/O) JT65B at 2 degs – partial as Moon set before Rs were received, on 29 Dec on 432 at 0245 UX0FF (20DB/18DB) JT65B #847*, 0325 UX0FF (O/O) CW for Nikolay's CW #729, on 3440 at 1000 VK4CDI nil – good echoes, and on 432 1105 VK4EME (17DB/12DB) JT65B, 1113 JA6AHB (7DB/8DB) JT65B and 1138 7J1ADS (24DB/20DB) JT65C #848*, on 30 Dec on 3440 at 1100 VK4CDI nil again, and on 1 Jan on 432 at 0658 SK5AA (14DB/O) JT65B [same station as SM5DIC] for my first QSO of 2013. Unfortunately, I will not be able to be QRV for the Jan 70 cm ATP because of business travel, but plan to be QRV for the SSB contests.

NETNEWS: **WB2BYP's** dish is full of snow and presently unusable. **NA4N** has 3.4 GHz EME in the pipeline. **W4AF** active on 23 cm CW has a 500 W SSPA on his bench. **K2DH** is putting a 12' dish on 1296. Dave is also working on 10 GHz EME. **VE4SA** reports copying the ON0EME EME beacon. He has a very limited window because of trees. **R3BM** is working on 23 cm EME. He is presently QRV on 144 EME. **AK4QJ** is building a 500 W SSPA for 1296. He currently has 75 W, and reports copying N4PZ on 1296. **WB7QBS** has successfully combined his two 432 bricks and is seeing 200 W output. **KJ7OG** is working on a 500 W SSPA for 1296.

FOR SALE: **DL0SHF** has 300-600 W 10 GHz TWTAs available! 20 OMs have already expressed interest in buying one. About 35 are expected to be available for sale. He has been using the same TWTA for years. They are converting the TWTAs for use on 3 cm ham band. The first units are ready for shipping, so if you are in a hurry, send an email to Per (DK7LJ) per@per-dudek.de. More details can be found at http://filmserver. dummyhost.de/MoonEME/10%20ghz%20twt/. **LZ2US** has for sale QRO 23 cm TH327 amplifiers, complete units plug & play, ready for use, more info on request. I would like to express thank you and my gratitude to HB9BBD who provided them (as well as many other RF parts for free), and his effort to take out the amplifiers from their racks. Also, to SV1BTR for his help to facilitate amps and gear from Dominique. For more info contact Marko at lz2us@dir.bg. **W4OP** has an array of 4 brand new M Squared 432EME-12 rear mount yagis, phasing harnesses and a K2RIW 4X power divider for sale. I also have a stacking frame made from Extren square fiberglass that would allow polarity rotation. I also have a 70 cm RX converter for sale. Contact Dale if interested at parinc1@frontier.com. **N4QH** is busy building dish kits and has a backlog of orders. Lyle has from 8 to 16 foot kits available – see the Jan NL. He is also selling septum horn feeds for 1296. Contact Lyle at lylen4qh@aol.com.

FINAL: There is only *fair* news from F2TU. F5SE reports that Philippe is still at the Nancy hospital and under "tight control" by the medical staff. His wife, Marie-Thérèse spends all her time with him. Philippe seems to feel better now and should start rehabilitation soon. All the tubing connected to him has been replaced with a single tube, through which he is fed. According to Philippe's brother, he can now speak without too much difficulty, but not do much more.

The 2013 70 cm ATP date and times are 20 Jan 1300-1500 and 2100-2300, 17 Feb 1200-1400 and 1930-2130, none in March because of 70 cm EME Contest, 21 April 1430-1630 and 2230-0030, 19 May 1300-1500 and 2130-2330, 29 Jun 2330-0130 and 30 June 0800-1000, 27 July 2200-0000 and 28 July

0630-0830, 24 Aug 2100-2300 and 25 Aug 0530-0730, none is Sept, Oct and Nov because of ARRL EME Contest, and 15 Dec 0000-0200 and 1700-1900.

iPhone users, K2YY (W6YX group) writes that his son has created an EME app for the iphone. It is integrated with the compass in the iPhone 5, and displays the azimuth heading for the Moon, as well as the elevation. In other words, it will allow you to point the iPhone at the moon, even if there is no visibility. John says "W6YX could have used it on 432 during the contest!" At the moment, it is only for the iPhone (no Android version). Anyone interested in it should contact John at johnhill5000@gmail.com.

I5WBE asked me to remind you of the ARI's 2013 World Wide EME Marathon. This is a cumulative contest based on the sum of all your EME QSOs during the year. It covers EME on bands from 144 through 2300. The same station cannot be worked more than once per day, but it can be worked again in the following days. QSOs are 2-way EME CW/SSB and digital mode QSOs. CW/SSB and digital are separate award categories. Scoring is 100 points per QSO multiplied by the total number of DXCC countries + 1. For example: 20 QSOs and 5 DXCC countries + 1 = 12000 points. The competition is by band and mode. There is also a QRP category. Separate awards will be given for each category.

The Swedish EME 432 & UP meeting is coming up on 25/26 May. It is time to decide if you can join the fun. The very last day to register is 2 April. All the information and payment details are on the webpage: http://sm4ive.com/ ememeetingmay. htm. Remember to bring your LNAs as there will be very accurate NF measurements. If anyone has technical stuff that they would like to share, there are some free slots in the program.

Please keep the reports and technical info coming. I hope to catch you off the Moon, but will be away on the 19/20 Jan. 73, Al – K2UYH