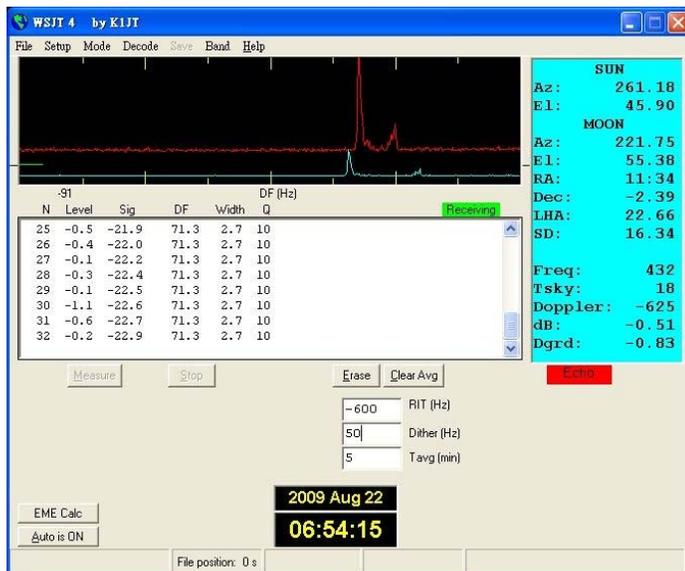


## 432 AND ABOVE EME NEWS OCTOBER 2009 VOL 37 #10

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**CONDITIONS:** Considering this past month should have been an intermission before the ARRL EME Contest, there is quite a bit to report. The ARI EME Contest, although not well publicized, drew a good turn out particularly on 10 GHz where it also served as 10 GHz activity weekend (AW) – TNX W5LUA and G4NNS for the efforts to organize the 3 cm activity. The mystery XXX/DL1YMK dxpedition is taking place as this newsletter (NL) in being written and will continue during the first part of ARRL EME Contest (10/11 Oct). Michael and Monica have already made many QSOs on 23, 13 and 9 cm. Rather than spoil the fun, I will hold off reporting until the next NL. There is still a possibility of 432 EME operation from Mongolia during the Oct part of ARRL EME Contest and just after. Unfortunately it does not look like they will be able to take the 432 equipment, but this is not definite. K7YO says he will QRV on 70 cm if at all possible. Let's hope so - W7EME has only sent out information on 144. There is news about 70 and 23 cm operation from C9 by W7GJ in Dec. I will have more info as it develops.

**BX1AD:** Edward [bx1ad73@gmail.com](mailto:bx1ad73@gmail.com) reports that he has improved his 432 EME system and interested in skeds -- I have installed new longer yagis and have increased my power to 200 W with a borrowed SSPA. I worked DL7APV on 22 Aug using JT65b. It took about 40 min to the finish QSO.



**BX1AD's echoes as view with JT echo mode and new array – almost 10 dB better than last year – see end of NL.**

**DF9CY:** Christoph's [mail01@df9cy.de](mailto:mail01@df9cy.de) is planning to become more active on EME -- Many things have happened through the years... I am now QRV on 2 m EME with a single yagi. I also have two short DK7ZB yagis for 70 cm and copied HB9Q easily a while ago. I had planned to put up 6 x 21 YU7EF yagis for 70 cm, but life planned other things with me. I am still recovering from a heart attack I had on 1 Jan this year and things have to go more slowly now. Eventually I can add two more antennas for 70cm or build two longer yagis. I have not decided yet. In the moment I have about 400 W available from a SSPA, which I can put close to the antenna. This should be good enough for CW QSOs with stronger stations or many WSJT contacts.

**DP1POL:** Felix [dp1pol@agcw.de](mailto:dp1pol@agcw.de) sends some bad news – A cable was broken when the antenna was moved for moon tracking at a temperature of -40° C, and there was a switching problem in the TR relay due to icing. I have replaced all the cables and relocated the relay to a well protected and heated location, but I am sorry to say that my SSPA seems to have suffered severely when the

switching problem was encountered. I can only run low power now, and I strongly doubt that I will be able to fix the problem in Antarctica. I am thus sorry to say that I am not able to accept any further sked requests for the time being. In the worst case, this means that all skeds have to be postponed until my next expedition. I regularly travel to Antarctica as part of my job. If there is any news, I will let you know. TNX for all your interest. I really appreciate all the support and kind words that I have received.

**F2TU:** Philippe [f2tu.philippe@orange.fr](mailto:f2tu.philippe@orange.fr) reports on his recent activity including Apollo 40 23 cm SSB QSOs – I worked on 7 July on 432 E77DX for DXCC 47 and initial #259, on 1296 E77DX for DXCC 52 and initial #328, PY2BS #329, 5N0EME for DXCC 53 and #330, and on 2304 PY2BS for DXCC 30 and initial #87, E77DX DXCC 31 and #88 and LZ1DX. I QSO'd on 21 Aug on 13 cm DF9QX and F5KUG, and on 13 Sept SP6OPN #89 and W6L #90 [Any info on this station]? On 5.7 GHz I worked on 15/16 Aug 14 stations including 2 SSB contacts and initials with HB9SV for DXCC 18 and #29, G3LTF #30 and PA0EHG DXCC 19 and #31. I QSO'd on 10 GHz on 23 Aug IQ4DF (43/53) on SSB, 12/13 Sept in the ARI Contest OK1KIR (559/549), F5JWF (53/559), W5LUA (59/559), G4NNS (529/539), IQ4DF (559/56), WA6PY (539/559), DF9QX (559/529), ES5PC (O/O), RK3WWF (539/529) for initial #51, VE4MA (O/O), ON5TA (559/559), partial JA6CZD (crossband 10368/10450) and copied IK2RTI and WC8COA but the Moon was in the trees, and on 17 Sept LX1DB (579/579) and partial F6DRO (T/O) - Moon too low and 1 dB noise from the trees. F6DRO has a 1 m dish with 40 W out! On 24 Sept, I celebrated 50 years since my ham radio license - hi.

**F6DRO:** Dom [Dominique.DEHAYS@enac.fr](mailto:Dominique.DEHAYS@enac.fr) is now QRV on 3 cm EME -- I had the great pleasure to work my 1st EME QSO during ARI Contest on Sunday 4 Oct. I QSO'd on random IQ4DF. I was then called by OK1KIR for QSO #2. I was using my 1 m offset tropo dish and my HB transverter, which is designed to be used on EME only by adding a twist on the wave guide output. My power is 40 W. I noticed that my Sun noise is a little bit lower with this rig than with my other system (8.5 dB vs. 10 dB). I do not understand why. The preamps and WG input are the same, only the horn is different. Maybe the clouds which were present when I made the measurement can explain the difference. I plan to switch to a better antenna and add automatic tracking in the future.

**G3LTF:** Peter [g3lft@btinternet.com](mailto:g3lft@btinternet.com) reports on Sept EME -- I was active on 3 bands over the weekend of 12/13 Sept. On 432 I worked SP6JLW, 1INDP, DG1KJG, N4GJV, K2UYH, ES5PC, W8TXT, FR5DN, and DF3RU. On Saturday the polarization was good and sharp, but on Sunday it was more spread and conditions on 432 were definitely down. On 1296 I worked K8EB, OH2DG, SM6FHZ, LZ1DX, LA9NEA, K2UYH, VA7MM, LZ2US, HB9SV, G4CCH, IK2RTI, OZ6OL, SV1BTR, N2UO, RW6AG for initial #310, SP7DCS, K1RQG, W4OP, SM2CEW, VE3KRP and AL7RT. I heard IK3COJ and HB9MOON. On 13 Sept I went on 2320 and was pleased to find some new ones there: SP6GWN, ES5PC, LZ1DX, SP6OPN for initial #76, WA8RJF, WD5AGO and RK3WWF #77.

**G4RGK:** Dave [g4rgk@btinternet.com](mailto:g4rgk@btinternet.com) is now QRV again on 23 cm with a reconstructed 3.8 m stress dish -- During the Sept AW I worked Y08BCF, DF3RU, PY2BS, UA9UHN, HB9HAL, JA6AHB, OK1KIR, ES5PC PA3FBX and JA1WQF on JT65c and in the ARI contest G4CCH, SV1BTR, OH2DG, IZ1BPN, LZ2US, SM6FHZ, OK1DFC, K1RQG, K2UYH, W4OP, SM2CEW and UA3PTW. I will not on for the first weekend of contest, as I will be away from home that weekend.

**IK5OLO:** Andrea [andrea@isaacasimov.it](mailto:andrea@isaacasimov.it) reports on the ARI EME Contest in Sept -- My first attempt at 23 cm EME contest operation on QRP ended as I expected. I added experience on this new band and enjoyed it. My station consists of a solid 2.4 m dish with a septum feed and 30 W TX power. I was disappointed to discover that after 10 years my EME CW skills were rusty. In the beginning, the 23 cm libration chopped up characters and caused me to be unable to decode anything. I almost panicked, hi! But later in the morning my

hearing improved and I was able to decode the stronger stations even if I lost many. Heard and called were JA4BLC, DF3RU, ON4BCB, SV1BTR (very strong – called many times), IZ1BPN and HB9? Eventually I was lucky and QSO'd OK1DFC for my initial #3\* and my 1st on 23 cm CW EME. I did not copy any stateside stations, but my window ended at 270°. I hope to increase my ERP soon.

**JA4BLC:** Yoshiro [ja4blc@web-sanin.co.jp](mailto:ja4blc@web-sanin.co.jp) writes on his Sept activity – During the ARI EME Contest I had a little time to QRV and worked on 1296 LZ1DX for an initial (#), OZ6OL, LZ2US, JA6AHB and DF3RU. On 20 Sept, I worked on 5760 JA8ERE (O/M) for initial #12 and JA6CZD (549/539). JA8ERE also worked JA6CZD (M/O).

**JA6CZD:** Shichiro [ja6czd@mx35.tiki.ne.jp](mailto:ja6czd@mx35.tiki.ne.jp) reports that on 14 Sept he completed the first JA 10 GHz EME QSO with OK1KIR (O/O) on crossband (10450/10368). Shichiro used his 5 m dish (the center, 3 m, is covered with 2.5 mm mesh and the outer with 6 mm mesh), a septum circular feed, Kuhne preamp and 50 W SSPA at the feed. JA6CZD on 10450 was heard by F2TU and W5LUA on 13 Sept. JA6CZD has since improved his 3 cm system and is now hearing his own echoes. He is getting 11 dB of Sun noise, 4 dB CS/G noise and 0.9 dB Moon noise. His feed is now a W2IMU with linear pol and easily settable to any angle. Shichiro worked on 5 Oct F2TU (449/529). He wishes to try skeds with other 3 cm stations. His TX freq is 10,450 and RX at 10,368 and/or 10,450. [TNX JA4BLC for forwarding this report. Yosiro listened to the QSO with OK1KIR (449) and JA6CZD (T) with linear pol.

**JA6XED:** Hisao [ja6xed@kumin.ne.jp](mailto:ja6xed@kumin.ne.jp) is testing a new 1296 PA using an LD7531. With 2,000 V at 600 mA (-11 V bias) he is getting 500 W out with 28 W input. Look for Hisao during the EME Contest.

**JH1KRC:** Mike [jh1krc@syd.odn.ne.jp](mailto:jh1krc@syd.odn.ne.jp) reports that he is arranging a 5.7 GHz HPA for use at 8J1AXA. He is still not sure that EME operation will be allowed on this band because of possible interference to the JAXA ground station about 160 m away. The HPA was designed and built up by JH1EFA and tested by JA4BLC. It uses TIM 5964-60 GaAs FETs, which could produce up to 80 W output. We used it at 40 W max.

**K1RQG:** Joe [k1rqg@aol.com](mailto:k1rqg@aol.com) reports on his Sept activity -- I was on briefly for the ARI contest on 23 cm and worked about 20 stations. A new one on CW random was UA3PTW. The previous week I heard YO8BCF calling CQ on JT and I called him on CW many times with no response, however, I did call CQ and he answered me on CW with a nice (559) signal with QSB to (569). I also worked N4PZ for his first 23 cm EME contact.

**K5SO:** Joe [k5so@valornet.com](mailto:k5so@valornet.com) was QRV on 23 cm on 3 Oct and worked 7 stations K1RQG, K5JL, W4OP, VE6TA, VE3KRP, LA9NEA and WW2R. He is still working on his dish expansion project. Joe has 4 of the 6 structural supports for the new petals done and mounted on the dish.

**K8EB:** Erv [mrdxc@sbcbglobal.net](mailto:mrdxc@sbcbglobal.net) was QRV for the Sept AW and ARI contest weekend on 1296 -- I was only on for a short time on 6 Sept and worked YO8BCF on JT65C, and on 12 Sept after moonrise worked on CW SM2CEW, LZ2US, VA7MM, OZ6OL, IK3COJ, K2UYH, LA9NEA, G4CCH, SM6FZH, OE5JFL, G3LTF, LZ1DX, LZ1BPN and ES5PC. I also added on 12 Sept PA3FZH [?], RD3DA and UA3PTW on JT65c. I am interested in 1296 skeds on JT and CW.

**KL7HFQ:** Roger was hoping to get on 432 for the Italian Contest but did not really make it -- The night before high SWR developed on transmit. I found a bad N connector at the antenna and fixed it, but heard nil. I found that the receive line at the preamp wasn't making contact and that one of the dc lines to the preamp relays and preamps had come loose. Finally my sun noise was high, my transmit SWR was low and the relays keyed properly, and I was able to be QRV the last two hours of the contest. Unfortunately I only heard parts of a JA call sign. Hopefully I will have better luck in the ARRL Contest.

**LA9NEA:** Viggo [la9nea@online.no](mailto:la9nea@online.no) was active on 1296 during the 12 /13 Sept AW – I worked on Saturday 12 Sept LZ1DX (559/579) for an initial (#), IZ1BPN (559/539), G3LTF (569/569), LZ2US (569/559), SP7DCS (549/549), ES5PC (559/559), PA3FXB (18DB) on JT65c, SM6FZH (559/559), K8EB (559/559) and SV1BTR (569/569), and on Sunday 13 Sept ON4BCB (559/559), ON7UN (579/559), UT5JCW (559/559), OH2DG (559/559), G4CCH (569/569), SV3AAF (559/569), IK3COJ (549/539) and W4OP (559/589) (#). At 0755 on Sunday a very weak station answered my CQ on 1296.015 – does anyone know who this was? PSE mail me. On 2/3 Oct I worked UA3PTW (549/569) (#), K1RQG (579/589), K5SO (569/589), K5JL (569/579), W4OP (559/569), VE6TA (569/569) and VE3KRP (O/O) – good copy. I

also heard WW2R (549). I will be on during the first part of the 1296 ARRL EME contest.

**N4GJV:** Ron [qstdemb@yahoo.com](mailto:qstdemb@yahoo.com) was QRV on 432 in Sept and used a unique strategy to overcome Faraday -- Many thanks to the ARI for sponsoring the contest and the activity that the contest spawned! Thanks also to 1INDP, W8TXT, FR5DN, SV1BTR, G3LTF, DG1KJG, K2UYH, J11NNJ, DF3RU, and JA9BOH for the FB EME QSOs. ES5PC and DJ7GK were heard well and called, without success. Conditions seemed to be very good, when polarity alignment was favorable. At times, my own echoes were at the best level noted since last winter. However, QSOs were often difficult or impossible to complete with fixed polarity European stations due to non reciprocal polarization alignment. This problem was overcome to achieve a QSO with DG1KJG by using my azimuth rotator to effectively achieve polarity rotation at the zenith crossing of the moon. The moon's elevation was 80 degrees, at the time, which is within about two degrees of the maximum ever encountered at my QTH. The beamwidth of my small antenna system is relatively wide and thus the improved polarization alignment attained by offsetting the azimuth rotator more than compensated for the azimuth offset required to achieve it. I had never attempted to use this tactic previously, while in the transmit mode and was pleasantly surprised when it actually worked! I am now looking forward to the activity that will hopefully be spawned by the ARRL EME Contest.

**N4PZ:** Steve [n4pz@juno.com](mailto:n4pz@juno.com) is now QRV on 23 cm with a 10' dish on a polar mount and 1.3 kW out. Thus far he has worked K1RQG twice and K5JL. He thanks WD5AGO for the preamp repair.



**N6VMO is QRV on 23 cm with 10' TVRO dish and 300 W**

**OK1DFC:** Zdenek [ok1dfc@seznam.cz](mailto:ok1dfc@seznam.cz) reports on MAP65-IQ -- Thanks to OK1VAO from OK1KIR, I am now running MAP65 in one PC together with SDR14. I had nice test with HB9MOON. With 1.6 W output they received my signals with WSJT at -21 dB and with MAP65 at -23 dB. It certainly appears that with 10 m dishes on both sides only mW are required for digi EME QSOs. With 10 W out I have readable echoes by speaker.

**OK1KIR:** Tonda (OK1DAI), Vlada (OK1DAK) and Jan (OK1VAO) [vladimir.masek@volny.cz](mailto:vladimir.masek@volny.cz) report on their group's Sept EME activity -- The 3 cm AW was managed by W5LUA/G4NNS in parallel with ARI CW/SSB contest on the 12/13 Sept weekend. Very good activity resulted at OK1KIR in 16 QSOs with 15 different stations as follows: On 12 Sept at 0602 IQ4DF (569/569), 0652 G4NNS (539/539), 0705 F2TU (549/559), 0710 W5LUA (569/569), 0726 F5JWF (549/579), 0748 DF9QX (559/549), 0823 WA6PY (559/569), 0832 VE4MA (549/559) for initial #45 and EN field, 0842 RK3WWF (549/559) #46 - 2 m dish and 50 W TWTA, 0949 IK2RTI (539/559), 1007 ES5PC (549/569), 1044 WC8VOA (549/529) - with wrong vertical pol) and 1143 WC8VOA again with H pol (569/569) - jumped 4 S units at Jim, and on 13 Sept in sked partial JA6CZD (O/-) - both on 10450.100 RX/TX, 0338 ON5TA (549/559) - very good signal from Eric with new PA and 1314 F6DRO (M/O) #47 - 1 m offset dish and 40 W. Heard were SP3DRT (M) - sorry no QSO as call sign decoded too late and OZ1FF heard us - nil on our side. The Moon noise was 2.6 -2.7 dB

on both 10368/10450. On 14 Sept in sked at 0010 QSO'd JA6CZD (449/O) crossband 10450.100/10368.100 #48, PM field, 20th DXCC and 4th continent. During the QSO, JA4BLC heard us 449 on 10368.100 MHz and some bits of JA6CZD signal too at 10450.100 MHz. Moon noise was abt. 0.4-0.5dB at JA6CZD and 1.1-1.2 dB at JA4BLC. Later at 0800 nil in sked with LZ1DX with Ned's 5.4 m mesh dish and nil when Ned moved to 2 m solid dish. Seems Ned has good sun noise, but trouble to hold narrow beam on the Moon. We measured sun noise at 17.5 dB (SF 69) in light rain. On 22 Aug on 1296 we worked at 1559 DP1POL (21DB/19DB) JT initial {#45} as the first QSO OK - Antarctica, continent 7, 1B field, 1629 W7UPF (O/O), on 23 Aug DF3RU (O/O), {#46}, and on 7 Sept at 1922 YO8BCF (15DB/18DB) JT {#47} and new DXCC, 1935 VK2JDS (13DB/13DB) {#48}, 2015 VK4CDI (16DB/14DB) {#49}, 2035 PEIHNG (17DB/ 19DB), 2101 G4RGK (O/O) and 2147 OE3JSA (28DB/22DB) {#50}. On CW we worked on 7 Sept at 1955 VK2JDS (539/549) #281. More info available on [www.ok1kir.cz](http://www.ok1kir.cz).

**OK1TEH:** Matej [ok1teh@seznam.cz](mailto:ok1teh@seznam.cz) added a new DXCC on 432 with his single yagi station -- On 25 Aug I finally worked on JT65b ZS6WAB for initial #29\* and a DXCC. Willem was peeking (22DB) speaker copy but had difficult copy with my 500 W. It was about our 10th test in the last 2 years! I also QSO'd OH2DG (23DB) #30\*. After JT65, we tried CW and I heard him quite well (M), but he did not copy me. I have updated my EME gallery, see [http://ok1teh.nagano.cz/eme\\_log432.htm#gal](http://ok1teh.nagano.cz/eme_log432.htm#gal).

**ON5TA:** Eric [fb812248@skynet.be](mailto:fb812248@skynet.be) reports of his 10 GHz activity -- I have installed a small 3 cm TWTA on the back of my 2.3 m offset dish and replaced the coax antenna relay with a waveguide switch plus W/G preamp. I now have 1.3 dB of Moon noise and about 13.4 dB of Sun noise. On 12 Sept I worked F2TU, OK1KIR, F5JWF for an initial (#), IQ4DF, W5LUA (#), VE4MA (#) and ES5PC (#). I believe these last 2 QSOs were the first 3 cm QSOs between ON and VE and between ON and ES. I also heard WA6PY and DL2LAC.

**OZ4MM:** Stig [vestergaard@os.dk](mailto:vestergaard@os.dk) missed the EME activity in Sept because he was very busy upgrading his EME setup -- I have installed a new elevation system with frequency inverter on both elevation and azimuth 3 phase motor drive. In the dish a better feed support has been build. On 432 my old dual dipole feed has been completely changed to a new version based on VK3UM's feed. The 2 two-way combiners are attached directly to the V/H relay with 60 cm of 1/2" hardline to the dipoles to cut down losses. All the connectors are 7/16 in the 432 feed. Also a new RX line has been added and some other minor modifications. I planned to test the system in the ARI contest, but was not ready. I should be QRV in Oct, but will miss most of the first part of the ARRL contest due to QRL, but hope to join in at least for a few hours. Sorry to say I am behind in QSLs, but will catch up as the QRL level drops in the next months. I will of course 100% post to all who has send to cards.

**PI9CAM:** Jan (PA0PLY) [pa0ply@pa0ply.nl](mailto:pa0ply@pa0ply.nl) sends news from his group -- After our successful 3 mW QSO, it became a bit quiet due to testing programs running on the Radio Astronomy EMBRACE antenna field close to our dish. Currently we are preparing to become active on 13, 9 and 6 cm during the ARRL 7/8 Nov weekend. Using our big dish it will be possible for small stations to give EME a try on these bands. I will send station details once everything is settled.

**SM2CEW:** Peter [sm2cew@telia.com](mailto:sm2cew@telia.com) is working on a 13 cm SSPA and is changing to a switching power supply. He has put in a polar mount for a smaller dish (10 or 12") with the goal to be QRV on 5.7 GHz and then 10 GHz. He did find the problem in his FT-736R, it was a bad trimmer cap, so all is well now.

**SM6FHZ:** Ingolf [ingolf.fhz@gmail.com](mailto:ingolf.fhz@gmail.com) was QRV on 23 cm in Sept for the ARI Contest -- I worked on 12/13 Sept LZ1DX, ES5PC, SV1BTR for an initial (#), SP7DCS, IZ1BPN, G3LTF, K9EB, K2UYH, LZ2US, G4CCH, LA9NEA, VA7MM (#), K1RQG, OZ6OL, SM2CEW, ON4BCB, OH2BG, EA2LU (#), OK1DFC, DF3RU, W4OP (#), IK3COJ and G4RGK (#). I had great fun with all the good activity and a number of new stations. I chased IK2RTI across the band on 12 Sept, but could not get his attention. I also missed a few Italian stations that are QRV on 23 cm EME. On 13 Sept at 0805 I got an answer on my CQ on 1296.023 by a station I could not identify. I only got fragments. The station eventually gave up after 3 or 4 QRZ's. I would very much like to know who it was and have another try as I am sure we could make with a bit more persistence. I have optimized the focal point of my 70 cm feed (full wave loop on a one lambda circular reflector, XE1XA design) with the aid of solar noise. I still have horizontal polarization so I am now working on polarization rotation. I get 11.4 dB of solar noise (SFI=72) and 1.8 dB of Cygnus A with Leo as cold reference. VK3UM EME calc says 12.3 dB solar noise, so I am quite close now. Cold sky to ground is 4 dB, a little less than expected. It may be explained by my limited down tilt of 4 deg that means that half of the main beam is actually above the horizon. I plan to be on 23 cm in the first leg of the ARRL contest on 10/11 Oct.

**SP7DCS:** Chris [sp7dcs@o2.pl](mailto:sp7dcs@o2.pl) thanks the ARI and all participants for the good fun -- This year I entered on 3 bands: 2 m, 70 cm and 23 cm. I operated CW and only unassisted. 70 cm was a big disappointment. A day before contests I finished all repairs and all seemed to be working. Unfortunately during my first Moon pass RX stopped working. I was able to repaired it before second pass and was full of hope, but when checking the band from time to Time, I only heard I1NDP calling CQ. I worked Nando for my only QSO. I don't know if it was low activity, bad condx or something still wrong with my setup? 23 cm was good fun. And my increased power really helped. Activity was much lower then in DUBUS contest or the ARRL contest, but on 23 cm even low activity means a lot of signals on the band. On 23 cm I finished with 21 contacts (+ 1 dupe). QSO'd were LZ1DX for initial #74, JA6AHB, SV1BTR #75, ES5PC, SM6FHZ, IZ1BPN, OH2DG, HB9MOON, LA9NEA, K2UYH, DF3RU, SV1BTR (dup), OZ6OL, LZ2US, UT5JCW, OK1DFC, ON4BCB, G4CCH, SV3AAF, SM2CEW, G3LTF and W4OP#76. My final multiband score was 56 (+1 dupe), which made me *really satisfied* considering the activity. On 70 cm I used 4 x 25 el hor pol yagis and a 400 W SSPA. On 23 cm I used a 3 m dish with RA3AQ feed and a 400 W SSPA. A new tool in my shack was an SDR-RX that I was using for the first time. It was prepared by my friend Rafal, SQ4AVS. For now I am monitoring the 9 MHz stage in my IC-746. As a result I see 15 kHz of the band on a Winrad screen with a center frequency as selected in TRX. It is very helpful.

**SV1BTR:** Jimmy [jimmyv@hol.gr](mailto:jimmyv@hol.gr) reports on his ARI EME Contest activity -- After 15 months of contest absence, it was great fun, good practice and as always a learning experience to be QRV in ARI CW EME Contest. A big *Thank You* to the organizers and all participating stations. If there was a multiband entry section in the competition, more stations would be attracted to be present, on different bands. I worked on random 75 QSOs with 10 on 70 cm and 29 on 23 cm. On 70 cm I QSO'd I1NDP, N4GJV, DL7APV, DG1KJG, JJ1NNJ, DF3RU, JA9BOH, DL7UDA, YO2IS and FR5DN. On 23 cm I worked LZ1DX, PA3DZL, SP7DCS, SM6FHZ, IZ1BPN, ES5PC, RW6AG, LZ2US, HB9SV, K2RTI, K2UYH, G4CCH, N2UO, G3LTF, LA9NEA, VA7MM, IK3COJ, OZ6OL, DF3RU, SP7DCS (dup), OK1DFC, G4RGK, W4OP, LZ2US (dup), ON4BCB, SV3AAF, EA2LU, SP7DCS (dup) and K1RQG. On 70 cm I now am running 12 x 15 el H and 12 x 15 el V 4.84 wl yagis and on 23/13cm a 4.9 m dish.



**SV1BTR's 5 m dish is back in operation after Jimmy's Aug disaster**

**UA3PTW:** Dmitrij [ua3ptw@inbox.ru](mailto:ua3ptw@inbox.ru) is now QRV on both 70 and 23 cm. During Sept he added 432 JT65b QSOs with JD1BNF, RW9USA, G4ZFF and ES5PC. On 23 cm he is using a 3.7 m dish and 50 W and had QSOs with RD4DA on JT, HB9HAL on JT and CW (579/419), LZ1DX on JT, PY2BS on JT, K8EB on JT, DJ9YW on JT, LZ2US CW (O/O), G4CCH CW (579/439) and K1RQG CW (589/419).

**VE3KRP:** Eddie [eddie@tbaytel.net](mailto:eddie@tbaytel.net) was QRV on 23 cm in Sept and worked the first weekend K1RQG and K5JL with good signals from both, and heard NA4N. During the IRA Contest on 12/13 Sept he worked LZ2US, G4CCH, SM2CEW, W4OP, K2UYH, K1RQG, K2DH and G3LTF. On 3/4 Oct he QSO'd K1RQG, K5JL, W4OP, K5SO and LA9NEA. He heard VE6TA but missed WW2R.



**YO8BCF's 4.9 m dish with OM6A multi-ring feed**

**W4OP:** Dale [parinc@verizon.net](mailto:parinc@verizon.net) had a lot of fun on 23 cm during Sept ARI Contest – I QSO'd on 12 Sept LA9NEA, SV1BTR, LZ2US, DF3RU, IZ1BPN, SM6FZH, IK3COJ, EA2LU, G4CCH, IK2RTI, ON4BCB, K1RQG, VE3KRP, K2UYH, SM2CEW, SP7DCS, G3LTF, G4RGK, AL7RT and K2DH. We worked everyone heard except for a couple of PA's and I believe a DL. In the beginning of Oct I added 7 more stations: K1RQG, K5JL, K5SO, VE6TA, VE3KRP, LA9NEA and WW2R. I received a QSL from IK2RTI for my initial 23 cm EME contact. IK2RTI was running 4.8 m dish and 500 W with dual helix feed.

**WA3OPX:** Paul [wa3qpx@atlanticbb.net](mailto:wa3qpx@atlanticbb.net) is setting up for 70 and 23 cm EME. He presently has on 432 2 x M2 432-9w1 28 el yagis and 1.5 kW, and on 1296 2 x 55 el loop yagis and 100 W. All are presently on the horizon, but Paul is putting four of the 432 9 w1 yagis on a 20 foot pipe tower which is already in the ground with az el rotators. He is interested in setting up skeds to test his system.

**WA6PY:** Paul's [pchominski@maxlinear.com](mailto:pchominski@maxlinear.com) Sept report – I was QRV in ARI XVI Contest on 10 GHz on 12/13 Sept and QSO'd IQ4DF, W5LUA, F2TU, OK1KIR, G4NNS, F5JWF, DF9QX, VE4MA and RK3WWF. The first day RK3WWF called me on my CQ, but I lost him due to the QRM from other stations calling Alex, probably without listening to what was going on. This is bad HAM SPIRIT. The next day I found RK3WWF calling CQ and we made very easy QSO. Thanks to perigee, signals were good and with low spreading. I am planning to be in the ARRL contest.

**WA9FWD:** John [jstefl@wi.rr.com](mailto:jstefl@wi.rr.com) has been making improvements and checking feedline issues -- I replaced the preamp feedline. I am hoping to be on 23 cm EME for the first weekend of the ARRL EME Contest and then 9 and 13 cm for microwave weekend in Nov.

**WD5AGO:** Tommy [wd5ago@hotmail.com](mailto:wd5ago@hotmail.com) was back on 13 cm with new dish for the Sept ARI Contest/AW -- Other than a few wiring and water problems the dish worked fine with 12.2 dB of Sun and 0.3 dB of Moon noise. Signals were noticeable stronger with the 1' increase. I did design up another super scalar for a 0.4 f/d. The dish is 0.38 f/d. We used a special call W6L, Route 66 week, which our club is participating in and made 5 QSOs.

**YO2IS:** Szigy [yo2is@wa7v.ampr.org](mailto:yo2is@wa7v.ampr.org) writes about his move -- After moving to another apartment in the same house, I am happy to announce that my EME rigs are in good shape. I decided to take part in the ARI EME CW contest and QSO'd I1NDP (569) twice - fine signal, DF3RU and SV1BTR, all on random CW on 432. I heard SP6JLW, JJ1NNJ and DL7UDA (solid) during his QSO with DF3RU. On 7th Sept I celebrated two decades since my first 70 cm. EME QSO (on random CW) with SM4IVE and SM4DHN. I was using a single 4X150A (in fact a CV9785) in a W2GN's satellite PA. All my cables come into the shack through an open window... That's how I operated in the ARI contest! I have to do some repair work on my 23 cm dish. The Al foil on the resin support needs to be replaced. I hope to have it ready for the ARRL EME Contest part I. I have finally got my much awaited "reward", the 2009 ARRL-EME

participation award. It was my 19th in row! I will be looking for you all during the contest.

**YO8BCF:** Emil [yo8bcf@yahoo.com](mailto:yo8bcf@yahoo.com) is now QRV on 1296 EME CW and JT -- I have 4.9 m, 0.3 f/d, Orbitron Sat dish, OK1DFC septum feed with home made OM6AA multi-collar rings. My power is only 44 W at the feed from a KJ6KO SSPA. On RX I have a 36 dB 0.4 dB NF preamplifier (OK1DFC ATF54143 preamp followed by a cable TV 900-2400 MHZ amp. Tracking is automatic (F1EHN soft and hard). My rig is TS2000X. On TX I use 5 m of SCF12-50J (at dish), 25 m LDF 5-50 (under ground) to station and at station 2 m SCF12-50J. I use 7/16 DIN and N connectors. From the TS2000X, I send on TX 8 W. At SSPA I have 5 W in and 55 W out and 44 W at feed. On RX I have 5 m RG58U follow by 27 m LMR 400 low loss coax. I have worked the follow stations thus far: PA0BAT, HB9HAL, ES6RQ, RD3DA, JA6AHB, OZ4MM, DJ9YW, DF3RU, G4RGK, PY2BS, G4CCH, K8EB, PA3DZL, K2UYH, K1RQG (CW), VK2JDS, OK1KIR and ES5PC. I am working on a 2 X G17b PA to become QRO. I am now very interested in skeds with ZS or other African station to be first YO to have WAC on 23 cm.

**K2UYH:** I [a.katz@ieec.org](mailto:a.katz@ieec.org) caught during the pre AW on 6 Sept on 1296 at 0250 YO8BCF (14DB/13DB) on JT65C and later at 0305 YO8BCF (449/559) on CW for initial #301 and #358\*. During the ARI Contest and AW I added on 12 Sept on 1296 CW at 0756 SP7DCS (559/559), 0804 LX1DB (559/579), 0810 LZ7US (559/579), 0817 ESSPC (559/579), 0822 SM6HFZ (559/569), 0830 LZ1DX (559/559), 0840 G3LTF (559/569), 0845 VA7MM (559/579), 0900 N2UO (559/559), 0913 SV1BTR (579/579), 0926 IK2RTI (559/589), 0836 K8EB (559/559), 0941 G4CCH (569/589), 0952 OZ6OL (559/569), 1010 IK3COJ (559/569) and 1015 PA3FXB (559/559), then on 432 CW at 1045 I1NDP (559/559), 1056 SP6JLW (559/559), 1102 G3LTF (559/559), 1110 ESSPC (559/559), 1155 DG1KJG (559/559), 1209 N4GJV (559/559) and 1633 JJ1NNJ (O/O) - through almost 100% tree blockage, and 13 Sept on 432 at 0843 ZS6WAB (7DB/O) JT65B (no 73) for mixed initial #769\*, 0923 K3MF (121DB/O) JT65B, 0934 K3MF (559/559) on CW, 0950 OH4LA (23DB/O) JT65B, 1012 DL7APV (6DB/O) JT65B, 1018 DL7APV (569/569) on CW, then on 1296 CW at 1123 VE3KRP (559/569), 1134 G4RGK (559/569), 1140 W4OP (559/569), 1145 DF2RU (569/559), 1200 partial UA3PTW (449/-) CW -- by the time I figured out the call it was too late, 1213 SM2CEW (569/579) CW and 1227 K1RQG (579/589) CW. I was having VSWR trouble with my TX feed line and it broke at the end of this QSO and put me out of business for the rest of the weekend. I have been using the same 7/8" Helix line, which is pulled along the ground around my rotatable tower for 36 years! It has one splice and the shield at the splice opened. It is now repaired and back in operation. I will be again operating the ARRL EME Contest teamed with K1JT. Look for me using the call K1JT during the contest.

**NETNEWS BY G4RGK: K4EME** will be on during the Oct ARRL Contest weekend on 432. **WA7CJO** has a new e-mail address [wa7cjo@jellico.com](mailto:wa7cjo@jellico.com). Jim plans to be QRV during the Nov Microwave EME Contest weekend. **KORZ** plans to be QRV in Oct on 432 for the EME Contest. **K4KIY** (KY) is preparing to mount his dish. **WB2BYP** working with locals to get the big 28" dish up. John is looking for specs for his tower section (Rohn 84) regarding wind loading etc. John needs this information to present to locals for approval. **SM4IVE's** dish mounting ring is being galvanized. He reports progress been slow, but in the right direction. **M0EME** plans to be on 432 in Oct for the contest on both CW and JT. **VE6TA** was active 2/3 Oct and worked 4 stations. Grant is currently helping out VE4MA to get VE6BGT up and running on the moon for a new one. **K0YW** has finished painting, etc of his portable mount and is now working on mounting it to trailer for portable operation. **LA8LF** will QRV on 23 cm for the Oct EME contest weekend. Anders reports copying N4PZ (579) and K1RQG (589). **VE4MA** is working on new 13 cm feed. **W9IIX** hopes to be QRV in Oct on 1296 for the ARRL EME Contest. **UA4AOL** completed a 432 2 yagi to 2 yagis 432 QSO with EA3XU. **RW9USA** worked on 70 cm using JT65b DL7APV and UA3PTW. **W7MEM** will be QRV on 432 during the Oct contest weekend. **G4ALH** has been refurbishing his 432 antennas and also wants to get on 23 cm soon. **IW2FZR** had problems with his elevation system and could not be active in the ARI contest.

**FOR SALE: VE1ALQ** wants to announce that contrary to the announcement in the last NL, he has NO dish feeds available for sale – [Sorry Darrell]. **DF9CY** has a 432 MHz PA with YL1050 originally built by DK1UV. It has a Rohde & Schwarz power supply and is very rugged (and heavy of course). For more information see <<http://www.df9cy.de> Sale section>. [Christoph can not use the PA because the magnetic fields of the transformers affect his heart pace maker]. Contact Christoph at [mail01@df9cy.de](mailto:mail01@df9cy.de). **WB7UNU** has for sale a 50' dish (16 ribs, each in 3 sections, so it is possible to make it a 33' dish if 50' is too much. It is the big brother to the one shown on the cover of the 1985 ARRL Handbook. I had fabricated a steel AZ/El mount as it came without one. Anyone interested please e-mail Lynn at [lhurd@pacifier.com](mailto:lhurd@pacifier.com). He has pictures and more details. It

is not set up and has been broken down for easy transport. It must go soon, so it is priced at \$2500. He is located in Tigard, OR and tel is 503-624-1999. **W7MEM** is still looking for a feed for his 23 cm dish. **WA9FWD** has for sale about 25 power supplies that are ideal for SSPAs. There are several types with voltage at either 24 or 28 V, and currents from 100 to 130 Amps. The weight varies greatly. If interested, e-mail John at [Jstefl@wi.rr.com](mailto:Jstefl@wi.rr.com). K0YW is still looking for 12' dish for portable operation. JH1KRC is looking for a high power isolator (40 W) for use at 9 cm. Contact Mike at [jh1krc@syd.odn.ne.jp](mailto:jh1krc@syd.odn.ne.jp).

**TECHNICAL – JT ECHO MODE:** No matter what your interest in digital modes, the JT echo mode is a useful tool for evaluating your system. It is only available in the older versions of JT (WSJT4). It is not clear why K1JT did not include it in his later versions as it can be a very useful tool to diagnose small EME systems that cannot otherwise see their echoes. Single yagi, low power (10's of watts) should be able to detect echoes with the Echo Mode. It is particularly useful on 23 cm and above where Faraday rotation is negligible and even at 70 cm at night when Faraday is usually small enough to give repeatable levels that can be used to compare system performance over time. At microwave frequencies, it is not as affected by drift as at the regular JT modes. In the Echo mode WSJT transmits a pure tone for 2 seconds, waits for 0.5 second until the signal is about to return from the moon, receives and records this signal for 2 seconds, computes its spectrum, averages for as many periods as desired, reports the results, and keeps repeating this process. Program output includes measured amplitudes (blue trace) as well as the averaged measured spectrum of return echoes (red trace). The displayed spectrum can reveal the spread of the signal caused by libration fading. Through the use of the averaging process and the spectrum display (red trace) one can detect average echoes at low as -38 dB on the WSJT scale ~ > 10 db more sensitive than JT. Version 4.9.8 of WSJT, which includes the echo mode, can be downloaded at: <http://pulsar.princeton.edu/~joe/K1JT/Download.htm>. WSJT provides one with the ability to average the echoes for any period and typically at 1296 MHz an average of 50 readings gives results that are consistent to within plus or minus 1 dB. WSJT measures echoes in bins of about 0.66 Hz bandwidth but the signal can be spread due to libration over one or two bins at 144 MHz up to ten bins at 1296 MHz. As WSJT reports the echo level in the peak bin this can dramatically underestimate the echo energy if it is spread over many bins – by as much as 10 dB at 1296 MHz. To help overcome this problem WSJT provide a “W” reading which represents the approximate width of the signal in Hz and thus gives an indication of the number of bins over which it is spread. For example if the W is 6.6 Hz then most of the signal is spread over ten 0.66 Hz bins. If all the energy was equally spread between these bins the reported power would be one tenth of the actual and thus down by 10 dB. Now in practice the energy is not spread equally but more in a bell curve shape with more energy inside the closer bins but still some energy in the bins outside the reported W reading. However tests show that the W does give a reasonable indication of the average spread of the signal and thus

can be used to calculate the actual average echo level. The correction one should add in dB to the reported signal level for various values of reported W is as follows: W 0.7 = 0.0 dB, W 1.3 = 3.0 dB, W 2.0 = 4.8 dB, W 2.7 = 6.0 dB, W 3.3 = 7.0 dB, W 4.0 = 7.8 dB, W 4.7 = 8.5 dB, W 5.3 = 9.0 dB, W 6.0 = 9.5 dB, W 6.7 = 10.0 dB, W 7.3 = 10.4 dB, W 8.0 = 10.8 dB, W 8.7 = 11.1 dB, W 9.3 = 11.5 dB and W 10.0 = 11.8 dB. Knowing a corrected echo, one can compare this level with the expected system performance. The Echo Mode provides a calculator to estimate the expected echo level. The calculator gives the estimated echoes with reference to the noise in both a 2.5 KHz and 50 Hz bandwidth. It should be noted that the echoes are measured on the WSJT scale, which applies to a nominal SSB passband of 2.5 KHz. Tests show that at 1296 MHz are within 2 or 3 dB of the measured results.

**FINAL:** The big news this month is the ARRL EME Contest. Next month (7/8 Nov) will be the Microwave part and then in 5/6 Dec back to the 6 m thru 23 cm bands.

Please keep the reports and technical info coming. Also pictures are very much appreciated.

I will be looking for all of you off the Moon during the contest under the call K1JT. GL and 73, Al – K2UYH



**K1RS's new portable EME system under test. Look for Rick on 1296 EME soon.**