# 432 AND ABOVE EME NEWS
# JANUARY 2007 VOL 35 #1

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**CONDITIONS:** After all the contest activity, the Dec skeds seemed anti-climatic. Activity was spread across the bands with reports for 70, 23 and 3 cm, and on both the activity weekend (AW) and the post AW weekend. Conditions were not exceptional with no reports of either especially good or bad propagation. There is a second Dec AW scheduled for 30th/31st, but the next 70 cm CW activity time period (ATP) is on 6 Jan from 2000 to 2200 and on 7 Jan from 0600 to 0800. The Jan AW is on the 27th/28th and also is the weekend of the 2007 1296 EME SSB Contest – see the following rules. The Bahamas will be on 432 and 1296 EME on 4/6 Jan – see the C6ARI dxpedition news below.

**1296 EME SSB CONTEST RULES:** This contest is to be *fun* event. You do not need to transmit on SSB to participate. CW to SSB exchanges are encouraged and count for points. The contest starts on 27 Jan at 1000 and end on 28 Jan at 1000. Everyone one should have one common moon pass with operation moving from VK/Asia to Eur to NA and back to VK/Asia. Operation is on 23 cm only. Scoring is contact points times 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. 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 arrangements 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. The top scoring station will receive an attractively framed certificate that will be presented at the next EME Conference. [Hint: There has been considerable discuss on the low talk power of the TS-2000X on 1296 SSB. A simple fix appeared in the Technical section of the March 2006 NL. In addition I found that the speech processing if anything make the situation worse, but that adjustment of the TX voice equalization to emphasize low frequencies significantly increases the average talk power].

**C6ARI DXPEDITION:** Bodo dl3och@gmx.de should be on his way to the Bahamas by the time you receive this. I shipped 5 boxes of equipment to Key Largo, FL where Bodo plans to do some system testing on 30/31 Dec and then set sail for EL93tr. Operation from Bahamas will be on 1296 on 4/5 Jan on and on 432 on 6/7 Jan. The latest skeds information is shown at the end of this NL. On 23 cm he will have a 7' stress dish and about 200 W. On 70 cm he will have a 21' yagi and about 100 W. Please note that Bodo will always TX first. He will always give a sked priority and will NOT do a QSO with someone else on the sked frequency before a sked QSO is complete. You may call after a sked QSO, if he is done early. Also note that he will send "73" (the shorthand message in JT65) only once. If you are heard in the speaker during a JT65C/B QSO, he will switch to CW once the QSO is done to give stations the chance to work him on JT65 and CW. On CW, he will always TX first in 2.5 minute periods. Please give everybody a fair chance to work C6ARI. The latest dxpedition information can be found on www.qslnet.de/c6ari

**PROJECT BIG-DISH 2007:** KDDI, a Japanese Telecom company has formally signed to an agreement with some twenty JA EME amateurs and JARL that will allow KDDI's 32 m Cassegrain dish in QM06 to be used for amateur experimentation and moonbounce. Their antenna is called IBA-4. This stands for the 4th antenna of Ibaraki Satellite Communication's Center. It is fully rotatable and elevates up to 90 degrees with automatic moon tracking. The biggest problem is that its sub-reflector cannot remove and is 2.9 m in diameter. It is located about 9 m in front of the main reflector. Thus any EME use of the dish will have to incorporate the sub-reflector into the antenna system. EME operation is planned on the usual EME frequencies, 144, 432, 1296 and 5760 MHz bands, on CW, SSB, and JT65 except on 5.7G. A special EME license will be approved for this special occasion for full legal high output power. Some special callsign representing the EME activities will be issued for this event. Operation is planned during late Feb to early March in 2007. Further details will follow when they are known. You can contact Mike, JH1KRC at jh1krc@syd.odn.ne.jp.

**DL5FN:** Dieter dl5fn@t-online.de is a relatively new station on 70 cm EME -- I was QRV on 70 cm EME until 2000. After an intermission of 6 years I made a fresh start in Sept 2006 with new equipment. I am now running new 8 x 28 el horiz pol yagis (9 WL from M²) with my "old" GS23B PA giving 1 kW at the feed-point, a new LNA with NE334S01 (23 db gain and 0.2 dB NF) and TS870 and TR432H-Transverter (DB6NT). New initials are FR5DN, NC1I, HB9Q, RW1AW, UA3PTW, VK3UM and KL6M. And I also worked again my neighbor, DL9KR with his stupendous (579) signal. I'm retired with no limitation in elevation and azimuth, so I normally have lots of time for skeds.

DL5FN's 8 x 9 WL M² yagi array for 70 cm EME

**DL7AFB:** Bodo Bodo.Woyde@web.de after many years is QRV again on 70 cm – Since my initial activity, I have improved my station's noise performance from about 1 dB NF (3SK97) in Nov to ~ 0.37 dB (MGF1601) in Dec. Around Dec AW I worked K2UYH and HB9Q on random CW and heard some other stations in QSO. I also found significant activity with JT65. In a lightening operation I prepared my equipment to operate JT65 as well. Some wires were clamped onto the microphone and the computer was moved into the garage. A few moments later I worked HB9Q (12dB), SM2ILF (18dB), DL7APV (14dB) also 13 dB on tropo, I1NDP (19dB) and G4RGK (16dB). OK1DFC was copied (14dB) - one of the strongest stations but always busy. I hope to catch him later. Since then I have also heard UT3LL and PA3DZL. I studied the affect of treetops on DL7APV's signal. The attenuation appears to be about 5 dB to 10 dB. My echoes were never detected through the trees.

**DL9KR:** Jan Bruinier@t-online.de sends his 70 cm CW EME report for the contest -- Before the contest I worked among the regulars on 7 Oct DL8YHR on random - successfully testing his 5A equipment and on 8 Oct W7IUV for initial #842, on 10 Oct DL3OCH #843 - also successfully testing his expedition gear. Bodo's expedition was disappointing due to some equipment failure though Bodo gave his very best to make things come true. Only 2 weak sequences of his T9 operation were heard. The ARRL contest was fun despite halved activity as compared with the early nineties. I QSO'd on 14 Oct JA9BOH, VK3UM, JA6AHB, 7M2PDT, EA3DXU, RW1AW, UA3PTW, DL1YMK, RK6MC, RW3PX, FR5DN (at times 579), OH2DG, YO2IS, G4ALH, KL6M, HB9Q, DL7APV, OH2PO, OK1DFC, G4RGK, UT3LL, UT2EG, SM3AKW, K1WHS #844 - excellent at his moonrise [Is Dave in a new grid?], DL9JY, DK8VS, NC1I, K4EME, K1FO, N1BUG, SP6JLW, DJ7GK, N9AB, W8TXT, SV1BTR, DF3RU, HG1W , SM4IVE, KE2N, KU4F, VE6TA, KL7HFQ, DL5FN, DG1KJG and OE5JFL, on 15 Oct UT5DL, JJ1NNJ, JR1RCH, SM3JQU, DL7UDA, JH4JLV, JS3SIM, JH1KRC #845 - pleasant surprise to find Mike on 70 cm, UA6LGH, OK1TEH, SP7DCS, YO9FRJ, I1NDP, G3LTF, G3LQR, SM2CEW, K2UYH, UZ5DZ #846, HA1YA (same as HG1W) - called with 50 W at first, K6JEY and S54T, and on 11 Nov SM3BYA, LX/PE1LWT #847, UT2EG (dup), PA3CSG, UT5DL (dup), K?3UY - nearly made it but gave up

one QRZ early, K5GW, KE2N (dup), WA6PY, YU1EV, SM2A (same as SM2ILF), K3MF, EA3DXU (dup), DL7AFB, PE1ITR, LX1DB and KL6M (dup) for a total of 76x35. Not a single French station was worked! On 18 Nov 5A7A #848 and DXCC 94 was worked after the antenna cleared a big cedar tree. Tree blockage was a factor in Oct, consuming 1 hour at rise and 4 at set.

**F2TU:** Philippe f2tu.philippe@orange.fr sends news on his recent activity – On 1296 I added two initials on 4 Nov with 9H1ES (439/549) #254, G4RGK (O/O) #255, and in the 2nd part of the EME Contest (on 9 Nov) made 46 contacts and 30 multipliers despite only 9 hours of operating time due to recovery from the operation on my hand. Of the reports received 43 were between (569 and 589). I also added 5 initials with DL1HYZ #257, UA3DJG #258, LA2Z #259 and ON4BCB #260. I QSO'd on 2304 on 10 Dec VE6TA (44/55) on SSB, on 5760 on 2 Dec QSO'd on random SSB RW1AW (56/56) for initial #21 and the first France - Russia 6 cm QSO, and on 10 GHz on 28 Nov SM5DHN (559/529) random for initial #43, 29 Nov SM5DHN (559/529), RW1AW (559/559) and (53/34) SSB and partial F5VKQ, on 2 Dec LX1DB (569/569), and 5 Dec F5VKQ (529/O) for initial #44 – [Any info on this new station]?

**G4DDK:** Sam jewell@btinternet.com is putting a bigger dish on 23 cm for the New Year -- I have been given a used Orbitron C10 TVRO dish. This dish is 10' dia. This should be a significant improvement over my existing 7.5' KTI TVRO dish. The C10 is all-aluminum construction and although this one was in regular use for C and Ku band reception, it was recently replaced by a smaller Ku band only system. One problem I have with the new dish is that the Orbitron polar mount is going to be awkward to modify for full declination adjustment and it may be easier to move it to AZ/EL. If anyone has made the declination modification to the Orbitron mount, I would be pleased to hear from them. I do like polar mounts and would prefer to take this route. Don't expect any progress on the new dish until the spring.

**G4DZU:** Doug doug.parker@btinternet.com Sept report was lost. I am not sure how this happened, but in it he reported an amazing 1296 CW QSO on 21 Sept with VK3UM (539/539) via a 5 degree gap in the houses blocking his eastern horizon. This gap enables a literal window to Oceania twice a month for half an hour. Doug also reported working on 15/16 Dec via JT65C on 23 cm SM5LE, G4RGK, G4DDK and OH3MCK.


**Eastern moon shot from G4DZU to VK3UM**

**G4RGK:** Dave's g4rgk@btinternet.com EME activity news -- I was on 23 cm on 1 Dec and worked ES5PC and G3LTF, but had high winds so I could not use the dish for long. On 70 cm using the yagis, I worked DL7APV on JT, SM2CEW, partial N4PZ (559/-), PE1ITR on JT, DL7AFB on JT, OH4LA on JT, RW3PX, KL6M and N1KI on JT. In the DUBUS 70 cm CW activity time period on 3 Dec I QSO'd SM2CEW and RW3PX. Later I worked SM2ILF on JT and PA3DZL on JT. I then switched to 23 cm to QSO K2UYH (14dB/21dB) on JT65C and (O/O) on CW. On 9 Dec on 70 cm I had a partial with VK2SN (24dB/-) and finally on 23 cm a random CW QSO with G4CCH (559/549).

**HK1DX:** Maximo (also EA1DDO) ea1ddo@hotmail.com in FJ29em was again active on 70 cm EME in Dec -– I copied signals from OK1DFC on JT but he did not reply. I then worked K2UYH (26dB/O) on JT for my first NA 70 cm QSO. I tried again with OK1DFC with the same results, and copied DL9KR (15 dB) on CW with the best signal here. I replied using the JT CW mode, but have little experience receiving CW. Next year I hope to try 23 cm both here and from my home QTH at EA1DDO. I plan to use a 2 m dish and a 100 W "brick" amplifier.

**K1DS:** Rick rick1ds@hotmail.com [President of the Pack Rats] has been bitten by the moonbounce bug. He has made some CW and JT QSOs on 144 MHz and now wants to give 1296 EME a try. Rick hope to be QRV in March with 120 W to 10' dish with a Septum feed plus scalar ring and cavity preamp.

**K5SO:** Joe k5so@valornet.com reports great results on 23 cm with his new "Pulsar" configuration -- I was very pleased with signals during the AW. W7UPF, LA8LF, and others were much stronger than when previously worked. I still could not see pulsars though. The 23 cm SETI beacon was good copy, but I could not copy the code by ear. I switched back to 432 toward the end of the month and hooked up with KU4F. Signals were great both ways (579/569). KU4F's S7 moonbounce signals are quite impressive. My own echoes were S6. He's an initial and a new state for me on 432 MHz EME. [Also see Joe's comments on readout encoder noise under Technical near the end of this NL].

**KL6M:** Mike kl6m@qsl.net had great ups and downs this month -- I had a major structural failure the weekend after the Dec AW. My pillow block broke, probably because of a by-passed limit switch! The good news is that I was able to make repairs and am back in operation although still need to fully check the dish out. I was on for the AW and had a very nice time on 432. I made 11 QSOs with lots of big signals: Contacted were RW3PX (549/569), G4RGK (549/559), EA3DXU (559/559), N4PZ (559/559), K3MF(549/559), K6UCY (O/O) for initial #169, SP6JLW (569/569), UA3PTW (569/569), VK4AFL (559/539), DL5FN (549/559) #170. This has not been a good year for initials on 70 cm. I only added 6 in 2006 compared with 23 last year and 52 during my first year with the 30' dish in 2001! I plan to operate on 432 on 30/31 Dec. I hope to do some 222 EME in the near future. I expect to have lots of time to work on optimizing 23 and 13 cm in the near future as I will retire as of 3 Jan.

**LX1DB:** Willie wbauer@pt.lu was active during the Dec AW -- On 10 GHz I had 4 QSOs with RW1AW (57/57), F2TU, DF9QX and IQ4DF. On 1296 I worked G3LQR, LA8LF, SM5LE and WB2BYP. My present project is a 24 GHz 42 W solid state amplifier. I hope to have it finished after Christmas.

**N1BUG:** Paul paul.kelley.n1bug@gmail.com was active during the Dec AW -- I heard a few stations on 432, but ended up battling Murphy. I was calling N4PZ when my noise level suddenly increased. On investigation I found a never before heard electrical noise that pins the S meter when the array is pointed at it. I can only hope it is something temporary (faulty Christmas display?). Shortly after that my azimuth indicator died again! I am going to start over from scratch on a new control/indication system. I hope to be QRV again in a month or two.

**N1KI:** Phil pdeporter@comcast.net made his first 70 cm EME QSO back in March with N9AB on JT65 followed by HB9Q in April, but then had a major setback in June. All his antennas were destroyed by a major wind storm. Fortunately no one was injured and damage to his house was minimal. Since then he has re-built his antennas. He is now QRV again on 70 cm with 2 X 432-9WL yagis with AZ/EL control, LA-70B (600 W) PA and TS-2000X from EM75wx in TN. Since rebuilding Phil has QSO'd on 2 Dec DL7AVP on JT65, on 3 Dec W7AMI on JT65, K3MF on JT65, W7MEM on JT65 and G4RGK on JT65, on 4 Dec KE2N on JT65 and K6UCY on JT65 and on 6 Dec K2UYH on JT65 and CW. Phil prefers JT because he has a pulsating RFI source centered on 432.066 that splatters across the band, but will take both JT and CW skeds.

**OH2PO:** Jukka (OH6DD) oh6dd@sral.fi sends information on his groups efforts in the ARRL EME Contest -- Matti's station was activated once again on 432 in the ARRL EME contest. Ops were Jyrki(OH2HYT), Jukka (OH6DD) and Matti (OH2PO). It is always fun to fire up this station as OH2PO has been rarely on the air outside the ARRL EME contests. Conditions were especially good on the 1st weekend. We scored 72x32 on CW. On JT65B we QSO'd 20 stations. As many of our JT65B QSOs were made using the EME-logger, we decided to send ARRL a pure CW log (JT65B QSOs shown but no credit taken). Thus our contest score is 72x32 (of 92x35). All CW QSOs were 100% random. On 1st leg we QSO'd JA6AHB, RK6MC, UA3PTW, SM3AKW, VK3UM, DL1YMK, RW1AW, OH2DG, RW3PX, KL6M, OK1DFC, 7M2PDT, G4ALH, FR5DN, YO2IS, DL9KR, HB9Q, DF3RU, G4RGK, UT2EG, DL7APV, K1WHS, DL9JY, K1FO, DK8VS, DJ7GK, N1BUG, SP6JLW, UA6LGH, DL5FN, NC1I, UT3LL, W8TXT, N9AB, HG1W, SV1BTR, KU4F, VE6TA, SM4IVE, KE2N, F1NWZ (JT65B), OE5JFL, G3LTF, DG1KJG, KL7HFQ, K2UYH, EA3DXU, OH4LA (JT65B), JJ1NNJ, UT5DL, JA9BOH, DL7UDA, JA0TJU, SP7DCS, SM3JQU, DL8YHR (JT65B), RK3WWF (JT65B), F6APE (JT65B), JH4JLV, JS3CTQ (JT65B), K4EME, I1NDP, AA9MY (JT65B), KI0LE (JT65B), UA4AQL (JT65B), UT3LL (JT65B dup), DF4UE (JT65B), G3LQR, SM2CEW, W7MEM (JT65B), UZ5DZ, K3MF (JT65B), K6JEY, DB6NT, PE1ITR (JT65B), W7CI, SM3BYA, KE2N (JT65B dup), and on the 2nd leg LX/PE1LWT (JT65B), K6UCY (JT65B), PA3CSG, UT5DL (dup), UT2EG (dup), K5GW, PE1ITR, K5SO, YU1EV, WA6PY, DF4UE (JT65B dup), OE5MPL (JT65B), KI0LE (JT65B dup), OZ4MM, VK2SN (JT65B), JA2TY (JT65B), YO2IS (dup), YO9FRJ (JT65B), DL7AFB, LX1DB, DL9JY (dup), KE2N (dup) and OK1TEH (JT65B).

**SM2CEW:** Peter <sm2cew@telia.com> was QRV on 70 cm during the Dec AW/ATP – I made 11 QSOs with lots of big signals. QSO'd were RW3PX (549/569), G4RGK (549/559), EA3DXU (559/559), N4PZ (559/559), K3MF (549/559), K6UCY (O/O) for initial #169, SP6JLW (569/569), UA3PTW (569/569), VK4AFL(559/539) and DL5FN (549/559) #170. I have created a blog http://blog.sm2cew.com intended to promote CW in general and CW EME in particular. All are invited to write messages or comments. You can register by visiting the following URL: http://iloblog.sm2cew.com/blog?Register&regcode=88a30a6bb45e2efc4b5f1503a738372f.

**VE6TA:** Grant <ve6ta@telusplanet.net> was active on 70 cm during the Dec AW and heard W7MEM and sent (O) reports during their unsuccessful sked. He was called by RW3PX and completed. On 13 cm Grant had a FB crossband QSO with JA4BLC (559/559).

**VK3UM:** Doug tikaluna@bigpond.com sends his Dec EME report -- I could only get on for a short time but managed to work a few on 2 Dec. On 70 cm I QSO'd N4PZ (559/559) but tipped the dish over only for the period of this QSO as the winds were gusting to 70 kph! Later on Moonset when the gale had abated I worked RW3PX (549/559), UT3LL (449/559), DL5FN (549/559) and I5CTE (549/559). Someone called right on set (0.3°), but I never got the call. VK4AFL (559) and FR5DN (559) were heard but I did not get time to call them on 70 cm. During the same period I was also on 23 cm where I worked VK4AFL (549/559), IW2FZR (569/579), G3LTF (559/569), LA8LF (569/569), IK3COJ (549/559), ON7UN (569/569), G4CCH (559/579), ES5PC (549/569) and RW3BP (449/559). Five initials were made during this period. The signal reports are referenced to S+N/N in a 120 Hz BW. Conditions were stable, enhanced with the perigee period and showed little Libration. Faraday was close to 90° for NA and almost aligned for Eur 8 hours later. The weekend following the AW I added on 70 cm OZ6OL (449/55(), UA3PTW (569/569) and DF2RU (569/579) and someone else missed under Karl. On 23 cm I caught JA4BLC (559/579). Where was everyone else?

**W2DRZ:** Tom w2drz@madbbs.com sends his ARRL contest report – Jim, NY2Z, did all the operating during the contest. All contacts were on CW. QSO'd were on 14 Oct at 0809 SM4DHN, 0811 K5JL, 0826 F6KHM, 0845 OK1KIR, 0900 SM6CKU, 0933 K5GW, 0954 HB9BBD, 1003 K2UYH, 1041 DL1YMK, 1058 LX1DB, 1109 RW1AW, 1114 HB9SV, 1136 N2IQ, 1146 LA9NEA and 1212 G4CCH, on 15 Oct at 0832 OZ4MM, 0843 OE9ERC, 0906 VE6TA, 0914 OZ6OL, 0927 OK1CA, 0952 LA8AV, 1017 LA8LF, 1042 K1RQG 1107 W5LUA, 1146 OK1DFC, 1202 ES6RQ, 1219 G3LTF, 1607 partial VA7MM, 1624 K5SO, 1633 K4QI, 1741 VK3UM and 1843 JA6AHB for a score of 23x31.

**WB2BYP:** John storyavenue@hotmail.com was active on 1296 during the AW and heard a number of stations including LA8LF, but did not call him. He did call CQ a few times, but again had a PA problem. John did work WW2R and W5LUA.

**WA6PY:** Paul pchominski@Jaalaa.com Dec 432 EME activity report -- Due to the bad weather I decided to play with 432. During 9-10 Dec weekend I managed to QSO on 432 PA3CSG on sked, UA3PTW on random, DL7APV on sked and OZ6OL on sked. Most of the time all signals were received on vertical polarization. I am still using my dual dipole feed extended with 8 wavelengths of directors forming cross-yagi. Due to the excitations structure this antenna has high side lobes and thus a high noise temperature, so I do not hear as good as on the other bands. I took my laptop to the shack and for the first time played with Spectran. It looks like that I can copy by my ears everything that I can see on the screen. Good exercise was the QSO with OZ6OL. Hans had very tiny signals in noise, I could barely see it on the Spectran, and I found his signal first with my ears. I probably need more experience with Spectran or I should tap the signal to the laptop after my time-domain filter. OZ6OL's callsign in combination with libration sounds similar to OOO instead of OZ O. This cause me to listen to a few sequences to be sure that I copy all correct. Maybe watching the computer screen and trying to copy letters from the waterfall distract me too much. Finally I just concentrated on listening. Final RR and 73 were very easy to copy. I certainly need to be more familiar with using computer in the shack. The weather was bad, strong winds and rain and I could not aim any other antenna on the Moon.

**WD5AGO:** Tommy wd5ago@hotmail.com was active on 13 cm in Dec – I worked JA8ERE, and CWNR JA8IAD and JA4BLC during the AW. The following weekend was much better. I QSO'd JA8ERE and JA4BLC (449/339) for initial #23 through 20% house blockage. I also heard JA8IDA. The new down converter is working fine and I only hear a little of the 2.4 GHz QRM/noise. Fortunately the EME signals are now strong enough to overcome the noise.

**WW2R:** Dave <eme@g4fre.com> was QRV on 23 cm during the Dec AW and worked WB2BYP, but heard nil from G3LQR in a sked. He also QSO'd LA9NEA, LA8LF and ES5PC, and heard SM5LE on CW. On JT65C he added ES5PC and K2UYH. K2UYH was his first USA JT QSO. He is now up to initial #48* and is itching to break #50. Dave notes that he is working on 3456 feed.

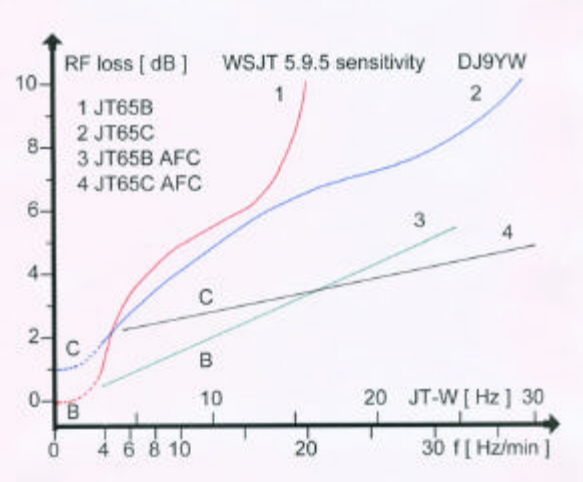
**K2UYH:** I was only able to be on briefly during the AW and totally missed the 70 cm ATP because of social/holiday season conflicts. I was on 432 on 2 Dec at 2130 and connected with HK1DX on JT65B. The moon was in my trees, but I was still able to work Maximo easily using JT. I do not think I could have QSO'd him on CW. Maximo was not a new country as HK1TLT was my WAC QSO back in 1976. I copied DL9KR calling him on CW about 350 Hz below his sync signal. I told Maximo that Jan was calling him on CW, but I do not believe he switched to CW. I also copied OK1DFC calling Maximo on JT. Down the band I copied N4PZ and G4RGK on CW. At 2230 I worked DL7AFB on CW. This was not an initial, but it was our first QSO in more than 20 years on 70 cm EME. Bodo had a nice 559 signal I then had to run for my company's holiday party. The next day, I was on 1296 and had nil results at 2230 UA3MJB on JT65C – Nik has a new higher power PA, and QSO'd at 2300 G4RGK (21DB/14DB) JT65C for initial #283* and on 2310 G4RGK (O/O) on CW #255 and 2330 SM5LE (449/449) on random. I tried again on 6 Dec at 0300 with UA3MJB with the same nil results, but was surprised by a call and worked at 0314 WW2R (14DB/8DB) on JT65C. I later switched to 432 and QSO'd at 0500 N1KI (15DB/O) JT65B for #730* and at 0515 N1KI (559/O) on CW for #693. On 7 Dec at 0500 UA3MJB nil results again – Nik always copies me FB. I was also active on 10 Dec on 1296 and at 0500 nil UA3MJB on JT65C, and QSO'd at 0542 PA0BAT (18DB/13DB) JT65C for initial #284* and 0558 PA0BAT (339/O) on CW #256, 0629 LA9NEA (559/569) and 0639 SM3CKU (559/569).

**NETNOTES BY G4RGK: PA0BAT** is working on increasing his power on 23 cm and is also working on a system for 13 cm EME. **K7XQ's** goal for 2007 is getting 10 GHz EME running and finishing cross polarity on 432. **K5PJR** reports only small progress on his new dish. **W5LUA** during the Dec AW QSO'd on 1296 LA8AV and LA8LF. Al also went to 10 GHz and worked RW1AW. **WB7QBS** is still working on how and where to mount his new array. **W7MEM** had no success with VE6TA on CW, but did work N1KI and K3MF on 70 cm JT. **N8CQ** is working on a GS-35B PA for 70 cm. **WA7CJO** was on X band during the Dec AW. He worked RW1AW on CW and SSB and F5JTA as well. W7BBM and W7GNP were visiting during the QSOs. **K5JL** was QRV on 1296 during the Dec AW, but had another failure. Jay does not recommend using an SMA isolation relay on the receive preamp if you are running 1.5 kW (or more?) on 23 cm. **W2UHI** was not active in Dec because of lots of snow. **K8UC** in WVA plans to get back on 70 cm EME. **VE4SA** is putting together a 23 cm EME system. **VE3KRP** is making progress on his dish for 1296 EME. **NC1I** was not activity in Dec, but will be on for the next AW. **K7LNP** will be putting a 432 array up at his store with a good window all around, but will not be QRV before the spring. **WB4BKC** has a new e mail address wb4bkc@bellsouth.net. **KU4F** was on 70 cm EME in Dec. **K9SLQ** reports his system is working well and that he QSO'd LA8AV on 23 cm.

**FOR SALE: WA1JOF** has sold off his 1296 EME station. He still has left a complete water cooled 2 x 7289 driver and OZ9CR 6 tube ring PA with PSU plus many miscellaneous items. Contact Don at wa1jof@megalink.net. **JH1KRC** is looking for some 3CPX800A7, which has a little longer ceramic stem. NOS or Mint condx preferred. Please contact Mike directly at jh1krc@syd.odn.ne.jp. **K8RRA** has a 10' TVRO dish available for free. Located in Western Mich. Contact him at k8rra@arrl.net. **KA0Y** has his 5 acre ham farm for sale - see www.ka0y.com Ken's new lower price $299.900. **NC1I** is selling W1ZX's dish. The dish is 24' and appears complete (less mount). There are 24 ribs and a steel hub. The mesh is not in great shape and was apparently salvaged from a few TVRO dishes, so it's a variety of patterns and colures. The original inner rings were apparently cut during disassembly so they would need to be replaced. The outer ring is included. The dish is at NC1I's QTH and available for the taking (free), but it most go before the end of the year or unfortunately it will be scrapped. Contact Frank at frankp@gcq.net. **WA8WZG's** RF connector website can now be found at <http://www.wa8wzg.net/>. **W7MEM** has a 70 cm 3XCX800 PA build by WD5AGO for sale for $US450 + shipping. Contact Marc at w7mem@msn.com. **K5PJR** is looking for a couple of VK3UM's dish controller boards. Contact Tony at K5PJR@centurytel.net. **VE6TA** has for sale a 4 x 7289 tube 1296 cavity PA with homebrew water jackets, a C3I bias board to go with it and bias transformer if needed, but no HV supply. He also has a 2320 MHz converter available and is looking for 222, 3455, 5.7 or 10 GHz transverters. Contact Grant at <ve6ta@telusplanet.net>.

**TECHNICAL - WSJT 5.9.5" Tests from DL3OCH and DJ9YW:** In the last NL DJ9YW provided a comparison graph of the JT65B vs. C on 1296. Unfortunately this graph can be incorrectly interpreted. The Y-axis is not the

synch. The Y-axis is the loss relative to JT's greatest sensitivity (at minimal frequency shift/spreading). To obtain these results Heinrich transmitted and received a signal and used the criterion that both call signs had to appear in the AVG line after two transmissions. As you can see, the loss is zero (Y-axis = 0), if there is no Doppler shift or other frequency drift (or spreading). The larger the frequency drift is, the higher the loss. The sensitivity degrades about 6 dB if there is a frequency drift of 13 Hz/min using JT65B without AFC. If you use JT65B with AFC, then the loss is only 2.5 dB. Lines 1 and 2 cross at about 8 Hz/min. This means that JT65B is more sensitive if the drift is less than 8 Hz. If the drift is more than 8 Hz, JT65C is more sensitive. In addition the graph shown in the Dec NL is for WSJT 5.9.3. Version 5.9.5 is a little different because of improvements added by K1JT. The following is a more complete report and revised graph of relative performance for latest version of JT (5.9.5) -- To determine the influence of key parameters a true RF connection was created using a signal generator programmed to duplicate the frequency drift of an EME signal (TX-RX and Doppler shift). The tests showed the new version of WSJT has superior performance. The AFC mode especially showed improvement compared to the older versions. The diagram shows that with the AFC off there is a significant loss of sensitivity for only a frequency delta of 5 Hz/min. Therefore the AFC should normally be on at all times. A disadvantage of the AFC was found when strong QRM type signals, as from radar or other carriers, are present within the RX band. Such signals can be easily seen on the green line, which will not be smooth. Frequency drift accrues from the Doppler shift and the frequency drift of the TX and RX during the one minute period. Today many rigs have an extremely stable reference oscillator, but the short time stability can be rather poor (e.g. IC-7000). A Doppler shift of 1 Hz/min on 2 m will not hurt sensitivity, but many rigs have a drift of 20 Hz/min after switching from TX to RX. Everybody should pay attention to this problem and check their equipment. A nice improvement especially for the higher bands in WSJT could be realized if K1JT used the already calculated Doppler shift to implement a correction into the decoding process. We did some on the moon testing during the last dxpedition to Croatia. Conditions were good and we were able to test several WSJT features to confirm the measurements made in the lab. You often hear that the Deep Search Decoder (DSD) increases the sensitivity, and that only a few parts of the message need to be received, and therefore a QSO should only count as valid, if the RX level exceeds -25 dB. We found that the DSD only decreases the time for a QSO and not the sensitivity required to achieve a contact. It took 7 periods to decode the signal without DSD and only one with DSD at a signal level of -29 dB! Using DSD just helps to see the signal faster. It does not change the level required for a QSO. We wish everybody good luck and a lot of success using WSJT. It is outstanding software to communicate with QRP on EME and for small station EME dxpeditions.




**JT65C vs. JT65B trades on 1296**

**HOW THE ARRL CONTEST BRANCH WORKS – Guest Editorial by N2UO:** The ARRL has asked me to write this year's EME contest QST and Web reports. For such purpose, I have solicited comments and pictures. After receiving the first few submissions, I noticed that some EME operators do not have a clear understanding on how the ARRL Contest Branch operates. Let me try to shed some light on this issue. The current ARRL Contest Branch Manager is Tom Hogerty. Tom recently replaced Dan Henderson, who now has a different position within the ARRL. Tom is a member of the ARRL Headquarters staff. He can be contacted by the following link: http://www.arrl.org/contact.html. Although Tom is the Contest Manager, the ARRL contest rules are set by the Contest Advisory Committee (CAC). The CAC has members from each ARRL division, and more information on it can be found at http://www.arrl.org/contests/cac.html. Since the VHF/UHF contests are quite different from the HF contests, a special VHF-UHF Advisory Committee (VUAC) was recently formed, again with representatives from each ARRL division. More information, and details on its members can be found at http://www.arrl.org/contests/vuac.html. The VUAC is the ARRL entity that can suggest changes to the ARRL EME contest rules. The VUAC started to operate in June 2006, and its members are limited to a 3 year term. Finally, the person who does the QST report is a regular ham, who does not necessarily have any involvement with the VUAC. He/she does not receive or review the logs. The report is written based on the information given to her/him by the Contest Manager and the contributions received from all the participants. For more information on the ARRL Contest Branch, you can visit http://www.arrl.org/contests/contest-faq.html.

**TECHNICAL - US Digital Readout Noise:** The main cause of noise appears to be the absolute inclinometer (on 70 cm). If you do not have absolute encodes you may not have a problem. W5SO put his into a cast Alum box w/cover. This reduced the noise somewhat, but it was still present at a low level and still annoying. Joe believes that when he gets the metal box grounded and also shields the AZ encoder, the QRM will be reduced more… To be cont'd.

**FINAL:** I had hoped to have completed this NL at least a week earlier, but I became involved in preparing equipment for the C6ARI dxpedition. All the holiday parties this time of year did not help me keep on schedule.

? I now have a little better picture of the high contest scores on 70 cm. I appears that DL9KR has regained the top spot with 76x35, he is followed by OH2PO with 72x32 on CW. OH2PO made additional contacts on JT65 with the assistance of the reflectors for a total of 92x35. They did not submit this higher score to the ARRL, since it was achieved using means that did not conform to the rules. NC1I is in third place with 60x28. HB9Q also had a high contest score, but disqualified himself because of assisted operation and has not made known his actual QSO totals on either 432 or 1296. On 23 cm HB9BBD remains on top with a QSO count of 94.

? There are a number of documents relevant to EME relating to the IARU interim meeting, which takes place in Vienna in Feb, that can be viewed at http://www.iaru-r1.org/IARU%20R1.htm

? News from G3LTF is that the Galileo schedule continues to slip. The original date for the contract was 2004. Details can be found at http://www.eetimes.eu/uk/196603012.

? I and N2UO are planning a 1296 EME dxpedition to Hawaii for 15-19 June. We are looking for stations in Hawaii who would be interested in assisting us. We have all the equipment needed, but I know from past experiences that local assistance will greatly increase our likelihood of success.

? The next issue will follow the Jan AW and 1296 SSB Contest. I plan to be on for the 2nd Dec AW and the Jan AW, but will miss the 70 cm CW APT because of Travel. Please keep the reports and technical info coming. 73, best holiday greeting and a very Happy New Year, Al – K2UYH

**C6ARI SKEDS** (! = confirmed, ? = did not confirm yet, # = change

4 Jan 0200z ! 1296.080 DJ9YW JO42QA JT65C
4 Jan 0245z ! 1296.085 G4CCH IO93QL JT65C
4 Jan 0330z ! 1296.090 OE9ERC JN47VL JT65C (CW)
4 Jan 0415z ! 1296.085 OK1DFC JN79GW JT65C
4 Jan 0500z ? 1296.075 PA3CSG JO21WD JT65C
4 Jan 0545z ! 1296.070 OK1KIR JN79DW JT65C
4 Jan 0630z ! 1296.075 HB9Q JN47CG JT65C (CW)
4 Jan 0700z ! 1296.085 K2UYH FN20QG JT65C (CW)
4 Jan 0745z ! 1296.090 W5LUA EM13QC JT65C
4 Jan 0830z ! 1296.085 K5GW EM13PA JT65C
4 Jan CQ on 1296.080 in JT65C/CW after K5GW until 1000z
5 Jan 0115z # 1296.090 HB9BBD JN47EE CW
5 Jan 0200z ! 1296.085 OH2DG KP30CK JT65C
5 Jan 0245z # 1296.090 DL4DTU JO60TS CW -- followed by CQ on
5 Jan CQ on 1296.080 in JT65C after DL4DTU until 0400z
5 Jan 0400z # 1296.090 SM2CEW KP15CR CW
5 Jan CQ on 1296.090 in CW after SM2CEW until > 0500z
6 Jan 0300z ! 432.040 DL9KR JO40DE CW
6 Jan 0345z ! 432.048 DL7APV JO62MM JT65B
6 Jan 0430z ! 432.040 DK3WG JO72GI JT65B (CW)
6 Jan 0515z ! 432.048 OE9ERC JN47VL JT65B (CW)
6 Jan 0600z ? 432.040 OE9MPL JN78CJ JT65B (CW)
6 Jan 0645z ! 432.048 HB9Q JN47CG JT65B (CW)
6 Jan 0730z 432.048 K2UYH FN20QG JT65B (CW)
6 Jan 0815z 432.040 K5GW EM13PA JT65B (CW)
7 Jan 0300z ! 432.048 OH2DG KP30CK JT65B
7 Jan 0345z ! 432.040 OK1DFC JN79GW JT65B (CW)
7 Jan CQ on 432.048 in JT65B after OK1DFC until 0600z
7 Jan 0600z ? 432.040 SM2CEW KP15CR CW
7 Jan CQ on 432.040 in CW after SM2CEW until > 0700z