432 AND ABOVE EME NEWS
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THE NL WEB VERSION IS PRODUCED BY W6/PA0ZN AND AVAILABLE AT <http://www.nitehawk.com/rasmit/em70cm.html>

CONDITIONS: The best I can say about the Dec sked weekend (SW) is that conditions were better than during the EME contest. Fading still was a problem on 70 cm, but signals seemed louder when the polarization was right. Unfortunately Faraday rotation was often uncooperative and thus stations with fixed polarization missed QSOs. Activity was also lackluster, which is not a surprise for a post contest SW. One highlight of the Dec SW was the 1st NA-JA 10 GHz EME QSO – see W5LUA's report for details. The Jan SW offers an interesting opportunity as it corresponds with the ARRL's Jan VHF Contest. This contest covers all bands above 50 MHz and has no restriction on the use of EME. Entrants need not be from NA either. The scoring is based on multiplying contacts x 4 digit grid squares, thus many larger contest efforts may try EME as a way to increase their scores. Also the moon will be high during late night/early morning hours when tropo activity is light, and EME is an excellent alternative. The exchange is simply your 4-digit grid square. I expect to see a lot of contest related EME activity in Jan.

EME SSB CONTEST: This is an early reminder that the NL sponsored EME SSB Contest on 23 cm is scheduled for 15 Feb at 1500 and continues to 16 Feb at 1500. (The intention is to give everyone one common moon pass.) Complete rules will be published in the Feb NL and will be basically the same as last year.

K7XQ's feed for his 1296 dish – see Jeff's report

DK3WG: Jurgen DK3WG@nexgo.de had only one QSO on 70 cm EME during the Dec SW with DL7UDA on sked for initial #390. He heard nothing in skeds with LU7DZ and KL7HFQ, and only copied OK2BDQ for a brief period.

DL7UDA: Ditmar dl7uda@t-online.de tried JT44 on 70 cm – I was QRV from my EME QTH on 21 Dec and QSO'd K2UYH (O/O). Sometimes I could hear his JT44 signals, but I did not receive his CW call after the JT44 QSO. Aroun d 432.009 I have a big birdie, and this may be the reason. Also my skeds with K4EME, K9SLQ and K5WXN failed (nil heard). I have to check my system as G4RGK heard K4EME and K9SLQ well. My only other sked on Friday evening was good with DK3WG (O/M).

DL9KR: Jan's activity was limited during the SW due to high winds and reports only hearing JA6AHB. He worked on 28 Dec SM5IOT (559/559) for initial #774. Jan says that SM5IOT is running 1.2 kW to 8 x I0JXX yagis from (JO99). Jan reports that he now needs only 16 more countries for DXCC on 70 cm. [Congratulations to Jan on the marriage of his son.]

F5SE: Franck kozton@easynet.fr reports his EME projects are moving along, but slowly -- My dish project is at a stand still. I am waiting for info regarding the concrete pad I intend to pour to build up a "rat race" for the tower. I hope to get this answer very soon. My JT44 effort is also on hold as my laptop PC is under repair. The audio part seems to have burnt out. I don't know if we fed too much audio when we tried JT44. F1EHN is presently reshaping his famous Moon tracking software. I sent Jean-Jacques complete info regarding how to properly compute Doppler shift. He will modify his software accordingly. In the meantime, we are checking if observed Doppler shift fits my computed results. I asked him to run tests with F2TU on 10 GHz to check the mutual Doppler shift given by my software.

G4RGK: Dave was active during the SW on 432. He heard K9SLQ very well and K4EME too, but got no reply to his calls. Dave did QSO K5WXN on random and CWNR OK2BDQ. He felt condx were bad.

HB9JAW: Michel's HB9JAW@Kaktus.ch contest results just missed the last NL – I finished with 49x27 on 432. My initials were N9AB, K0RZ, UT3LL, UA3PTW, DJ6MB, DJ3FI, S52CW, JR9NWC, JL1ZCG, SM3BYA, ON5OF, JH5JLV, DK3FB, K5WXN, OE5EYM, G3HUL, DJ5NV, SP6JLW, EA3DXU, RA3LE, G4RGK, OK1DIG, K4EME, K9SLY, I5CTE, S51ZO, VE6TA, DL1YMK, F2TU, W7CI, DL4KG, JJ1NNJ, PA0BAT, F/ON5OF and OK2BDQ. Heard were JH0WJF, LU7DZ in QSO with HB9Q but then disappeared, IN3KLQ and HG1PVL [?]. I was quite happy to have worked so many. I had hoped to be on 1296 for the second contest weekend, but Murphy hit us and damaged the tracking. I had to stop all operation. All in all it was an interesting first try with my new dish. I was amazed by the loud signals on 70 cm, but disappointed by the low activity. I hope to work everyone on 23 cm very soon - maybe this coming activity weekend.

K0YW: Bruce k0yw@frontier.net writes – I was able to work two new initials during and between the contest weekends: KU4F for #124 and W9IIX #125. Events overtook me in early Dec and over the Holidays. I missed turning in my log to the ARRL! For the record, it was 48x26 on 1296. This is way down from last year's effort. Activity was way down and I missed a couple that couldn't hear my QRP 150 W (to the 30' dish – Hi). It was fun to work you on SSB with such a good signal. I will now have some time to finish off the improvements to my TH-327 amp. Most of the hard part is done. I just need to get it together again. I finally finished rebuilding N7AM's 2 X 7289 amp. It is now giving a reliable 200 W plus out at only 1200 v key down. It is intended to loaf at 100 W as a driver to for his YL-1050 amp.

K1FO: Steve steve@lunarlink.com had limited time to operate during the 2nd contest weekend (70 cm), so he ended up spending less than 20 hours operating over both weekends. He had 19 more QSOs, but several were duplicates from the first weekend so his 70 cm contest total ended up being 67x28 for 187,600 points. This is his worst score since 1986. DL7UDA was QSO'd for an initial. He thought he had an initial with HB9JAW in Oct, but Michel reminded Steve that they had a prior QSO under the call HB9RCI, so Steve's initial count remains at 605. Steve was QRV for a few hours over the Dec skeds weekend and QSO'd K5WXN, RA3LE and K9SLQ. K4EME was CWNR. He expects to be QRV during the Jan skeds weekend, especially on Saturday and Sunday because the ARRL Jan VHF contest is on those days (the contest runs from 1900 on 18 Jan to 0400 on 20 Jan). Look for Steve and other NA stations to be QRV on EME and looking for QSOs with 4 digit grid square exchanges e.g. FN31).

K4EME: Cowles candrus@rica.net was QRV during the Dec SW – I was on for both of my skeds on 21 Dec. My equipment appeared to be working well, but I did not hear DL7UDA at all. I heard my echoes very well and also K9SLQ calling him right after my sked. K9SLQ sounded much louder than usual. I think I copied G4RGK, however I just could not pull out the calls. I sent "T" and continued to try him until I ran out of sked time. I would like to try him again. The following night I worked K5WXN with a very good signal and heard K9SLQ loud but lost him. I then called CQ and heard many calling, but could not pull out calls. I am always happy to try to work new stations. I am at currently at initial #85.

K5JL: Jay was active on 1296 during the Dec. He gave K7XQ his initial 1296 EME QSO on 8 Dec. On 14 Dec he QSO'd K5GW and DF4PV with big signals. During the SW Jay ran again with K7XQ and says that Jeff has his tracking issues under control but still has receive problems. N2UO, ZS6AXT, OH2DG, DF4PV, OZ4MM, KA0Y, K9KFR were all worked after running with K7XQ. Later Jay QSO'd K7XQ a 2nd time.

K5WXN: Dan reports very bad libration fading during the Dec SW on 432. Signals were generally very strong, but very difficult to copy! He worked on 21 Dec G4RGK, K2UYH and K9SLQ on random, and had a partial with DL7UDA on sked, and on 22 Dec K1FO, K4EME and K9SLQ with strong signals. K1FO went from S7 down to below noise.

K6JEY: Doug dougnhelen@moonlink.net (DM03wt) reports on 70 cm EME -- I was listening on 21 Dec at about 0400 but only heard two partials. Conditions were horrible. There was more than the usual QRN locally. The next day (22 Dec) I heard K4EME weakly and K9SLQ quite loud at times around 0430. I was also able to hear my own echoes fairly well, but was not able to rouse anyone with CQs. Conditions were not perfect and my antennas were wet. My station now consists of 4 x 25 el K1FO yagis, 1.1 kW PA and 0.2 dB NF LNA.

K7XQ: Jeff k7xq@elite.net in CM97qi is now QRV on 1296 -- I finally worked my first 1296 EME contact on 8 Dec with K5JL, but still need to improve my station. I am running a 3.1 m dish with about 100 W at the feed, but with linear polarization. I am looking for a circular polarized feedhorn and should be QRV with circular pol very soon. I am getting reasonably good sun noise and am interested in trying skeds.

K7XQ's 3.1 m dish for 1296

K9SLQ: Wayne was active on 70 cm during the SW, but had problems with high winds. He did work K5WXN with QSB and heard K4EME loud on his attempt with DL7UDA. On 26 Dec Wayne had a great contact with SM3BYA (549/549).

KA0Y: Ken was active on 23 cm in Dec. He QSO'd on 14 Dec around 2300 DF4PV, F2TU and W9IIX, and a little later DF4PV and F2TU on SSB - DF4PV had a very nice SSB signal, and on 22 Dec around 0400 K9KFR, K5JL and OH2DG. Ken also listened in on K7XQ and K5JL.

KL7HFQ: Roger rkh@alaska.net was active again in Dec on 70 cm EME, but found little activity. On 22 Dec he worked DF3RU (559/449). Karl's was the only station he heard in about 8 hours of listening.

KO7N: Richard rewing@teleport.com in CN84ia did not have a good year, but is hoping for better luck in 2003 – I am acquiring a 7 m commercial solid dish from a TV station complete with mount and AZ-EL drives and controllers. My immediate goal is to get on 1296 EME. Currently I have an FT847 as IF, DB6NT xvtr and W4PO's 2 x 7289 PA for 250 W out. I am also working on a 1 - 1.2 kW class PA for 23 cm. I have already purchased 2 axis 16 bit encoder electronics and a 23 cm feed from VE1ALQ, and a W7CNK LNA. I have all the parts in hand or on the way, but due to the WX, it is not likely that I will be QRV before early summer. After 23 cm is operational I will start work on adding 10 GHz.

PA0PLY: Jan jan.kappert@comtestnl.com with a belated contest report and news of BV2 -- I was active in the first leg of ARRL but had severe problems due to the winds. Signals arrived like on a ship with lots of QSB and weak. I QSO'd only OH2PO and DL9KR and CWNR DF3RU, DJ5NV and K2UYH. On Sunday could not run at all, and saw a section of my antenna's blown away by the high winds! I could not be QRV in the second leg due to a business trip to Asia. This was disappointing, however in Taiwan (BV2) I made some very good contacts! I did a presentation on EME at the Technical College of BV2OL, and after 8 years appear to have generated some real interest. I received an email that the college is requesting support for an EME communications project. If it is awarded they will have 2-3 Years to develop an EME system! Most likely they will start with 23 cm EME and then possibly try 10 GHz. Since I have been working with them over the years, I believe it will go smoothly once they locate a dish. They have some questions on how to get high RF power (200-300 W). My advice was to get the dish and I have all the remaining parts up to 30 W. Thanks to free gifts of several ham's like JA4BLC, DB6NT, PA0JCA, PA0HRK and myself, they should able to run the first tests from BV before too long. I'm currently not QRV due to setting up a new shack. I should be operational again in Jan or Feb.

PA0PLY presenting to BV2OL EME group in Taiwan

SK0CC: Sven sven.o.nordin@telia.com writes that after having a hip operation that he is back in business as operator of SK0CC on 70 cm EME with 8 x 17 el horizontal yagis and TX power of 1200 W from JO99bd. He is looking for CW and JT44 skeds. Sven is using 432.098 for JT44 operation. [This is a bad choice for NA station as 432.100 is used a tropo calling frequency.]

SM2CEW: Peter sm2cew@telia.com NL report follows -- Very cold weather, lots of work at the salt mine and some minor tracking problems kept the activity somewhat on the low side in Dec. My tracking problems turned out to be a ground loop in the tracking system that upset one of the computers, but also I found that I was feeding low voltage (about 4 V) to the US Digital encoders in the dish. The voltage problem was not evident in warmer weather, but at temperatures lower than –20 deg C, it showed up. I guess the encoder's components reached a critical point at that temperature. Anyhow after supplying a stiff +5 V, I have full tracking capabilities down to at least –32 deg C. Graham, F5VHX told me that the US Digital encoders are specified down to –20 deg C only, so I'm pleased with their performance. But as you see, I create my own problems that take a day or two to troubleshoot. On 23 cm I worked DL8OBU, DF4PV, N2IQ, OZ6OL, W2UHI and W9IIX for initial #115. Doug had a good signal for his 10' dish and low power. Conditions on 1296 were quite good during the times that I was on, but activity was lacking probably due to all the Christmas preparations, etc. On 432 I worked SK0CC, K4EME, DJ3FI and G4RGK. I heard on JT44 SK0CC, DF4UE and PA0BAT trying to work each other. Also heard was SM3BYA with solid signal calling K4EME, but I think they were cross polarized at the time. Conditions on 432 were very good, but again activity was somewhat low. I spent long periods calling CQ without any reply despite huge echoes. If weather permits I will be on for the coming activity weekend and am interested in skeds on CW or JT44.

SM3BYA: Gudmund (SM2BYA) sm2bya@telia.com reports on his activity on 432 – I was QRV from SM3BYA in the early mornings of 26/27 Dec. Conditions were excellent. I had very strong stable echoes for several hours both days, so Faraday must have been extremely stable. This also resulted in long periods of virtual lockout to some locations. On the 26th I had a very nice QSO with K9SLQ. Wayne was (549) most of the time, armchair copy. Later I found he had to rotate pol about 90 degs between TX/RX to make it. I then tried with K4EME (539) copy, but he heard zip from me - no pol rotation at either end. I also had a partial with DL4KG. He got everything except for the final Rs. On the 27th I added VK4AFL (549) - Trevor had to rotate by 60 degs, completed with K4EME and had a second unsuccessful attempt with DL4KG. S52CW and OK1DIG were unable to run their skeds due to iced over antennas.

UA3PTW: Dima reports that he has a new email address ua3ptw@bogorod.tula.net and is QRV for sked at just about all times. His station is 20 x 15 el BVmod yagis, GS35B 1.3 kW PA and MGF4319g LNA. On receive he gets about 19.5 dB of sun noise and about 4 dB from Cassiopeia.

W2UHI: Frank feels his system is working just as good as it can. He was on 23 cm during the SW and QSO'd on 21 Dec OZ6OL, SM2CEW and K5JL. Nil was heard from W9IIX. He had problem with WX the 2nd night.

W9IIX: Doug iix1@attbi.com writes – I brought in the Christmas holiday (25 Dec at 0100) by working PA3CSG on sked for initial #19 on 1296 EME. I did not hear anyone else on. On 28 Dec I added K5GW (559/559) #20. Earlier in the month I added initials on 14 Dec with KA0Y and F2TU, and during the SW with SM2CEW and DF4PV. I am interested in additional skeds. The station is currently 150 W to a 3 m TVRO dish in EN61dr near Chicago, IL, but I have 23 cm GI7B amp about 75% complete.

WA6PY: Paul pchomins@san.rr.com has a new email address and says his old one is no longer good. He is planning to be active on 2300 during the Jan SW. Paul reports that Charlie, W7GBI also plans to be QRV on 13 cm in January and wants to encourage other stations to be on.

WA7MIC: Larry wa7mic@charter.net writes -- I haven't been on EME for some years now, but still I have my homebrew 8938 PA. I'm currently trying to put together a 4cx250k cavity amp for 432 and am looking for a socket. I am now located in Coosbay, OR and have a station operating on AO40. I miss EME and may become QRV again in the future.

W5LUA: Al completed the first NA – JA 3 cm QSO. He had a partial on 21 Dec and on 22 Dec QSO'd JA7BMB (O/O). He had success with JA7BMB crossband (10.450/10.368 GHz). Al was also on 1296 looking W9IIX. He reports that a HV assembly was shipped to VE7CLD for a 24 GHz TWT and that G3WDG will be visiting and able to pick up his 24 GHz gear.

YO2IS: Szigy yo2is@yo2kjo.ampr.org has mailed in his ARRL-EME Contest logs for 70 cm -- In the second leg I added DL7APV, UA3PTW and SM2CEW. CWNR where DJ6MB, DL1YMK, F2TU and N9AB. I heard new stations JA0WJF and OK1DIG. That's far away from my expectations, but I was happy to log my 700th 70 cm EME QSO! In the '92 contest I logged 42 QSOs. I still need QSLs from 9M2BV, KL6M and many others.

ZL1KA: Brent addis.zl1ka@xtra.co.nz is near QRV on 23 cm -- Progress is being made down here even if slow. It is the beginning of summer, but you wouldn't think so with another wet weekend coming up! I now have a new preamp and relay installed and the TX side is ready to try. If we get some good WX, I should be ready for my first echo trials before Xmas.

K2UYH: I operated on 70 cm the 1st night of the Dec SW (21st). I QSO'd at 0303 K5WXN (559/54). At 0400 I switched to JT44 to easily work DL7UDA (O/O) for initial #657. I could hear in the speaker Ditmar's JT44 signal but did not copy him at 1st as he was about 500 Hz low. After the JT44 QSO I switched to CW, but never heard him again. I then QSO'd at 0509 DJ7MK (O/O) – [is anyone familiar with this call?] and 0558 OK2BDQ (559/559) #658. I CWNR K9SLQ, who had a very good signal. On 22 Dec I switched to 1296 and worked at 0443 K9KFR (569/569), 0451 OH2DG (569/569), 0544 DF4PV (56/56) on SSB and 0600 OZ4MM (55/55) on SSB. After 0600 the band was very quite and no signals heard. On 31 Dec and 1 Jan, I ran with K7XQ on 1296. During the 1st sked I copied him (M), but Jeff had a problem and did not hear me. During the 2nd I had tree blockage problems and heard nil at my end. I think the trees were giving me loss even with the leaves off. My echoes were way down. I thought tree branches had very little loss on 23 cm. I guess if there are enough of them, you can have a problem as I obviously did.

NETNEWS BY G4RGK (Based on K1RQG's NETNOTES): **K9KFR** is back in action on EME after a long absence. Bob showed up on 1296 during the Dec SW. Bob also has a new e-mail address K9KFR@FWI.com. **RA3LE** reports no new stations on 432 in Dec. **K9BCT** retired a week ago and is interested in a big offset dish. He will be QRV on 1296 during the Jan SW. **W4AD** has 18 W on 3 cm and a 0.6 dB NF preamp. He hopes to be ready to try for a contact in the spring. **9H1PA** reports he is not QRV on 70 cm at this time. **WA9FWD** is working on his 70 cm EME system as he has problems with receiver intermod. John is still QRT still on 23 cm. He is working on a new feed horn. **KF2B,** Jamie in Rochester, NY is interested in JT44 on 70 cm EME. He has 2 M2 yagis and 300 W. **W2DRZ** does not expect to be back on 23 cm EME before the spring - too much snow. **F5VHX** is working on PCBs for a radiometer for measuring noise temp at 23 cm. **N7AM** had problems with the wind during the SW and did not report any new QSOs on 1296. **W5ZN** is working on a 7 m dish project. **VE3AX** reports no progress on his 28' dish project. He came across 3 bearing assemblies 48" in dia for about $US500 - 2 available. **N2IQ's** Dec SW operation was limited by social activities, but he did get on 23 cm a bit and worked SM2CEW. **WA0QLP** is getting on 10 GHz with a Macom unit and Primestar LNB from IA. **HB9BBD** is interested in JT44 skeds on 1296. **AA5C** is working on GS9B amp for 13 cm EME. **WA1JOF** is making progress on his shack at his new QTH. **LX1DB** is looking forward to the arrival of a new 3 m dish for 24 GHz EME. Willie still needs a bigger TWTA. He is now limited to 5 W. He has a new email address lx1db@lx1db.com and web page at www.lx2db.com.

FOR SALE: **NU7Z** has a 40 W 2304 amplifier chain available operating from 28 Vdc with all class C stages (1, 10, 40 W). There are spare 1 watt and 40 watt transistors and he will include a pipe cap filter too. Already to go for $US280 + shipping. Contact Rick Nu7z@aol.com. **W0PUF** in Rapid City, IA has a 10 GHz 600 W TWT available. He can only be reached by telephone at 605-327-3239. **OZ9AAR** chg@logicio.com asks does anybody build/sell a feedhorn for 23 cm? His dish has an f/d = 0.5. **K7XQ,** Jeff at k7xq@elite.net is looking for the following items: VE4MA 1296 feedhorn with polarization screws, WD5AGO 1296 preamp, 70 feet of 1 5/16 inch hardline with connectors, and a PTC XTAL heater for SSB LT-23S Transverter. **KG6FCB** has a new (unused) TH-328 tube for sale. He is interested in a WD5AGO preamp. **WA1JOF** is looking for a Bird 43 wattmeter and possibly some slugs to modify for use on 23 cm. **WA9FWD** has lengths of square aluminum tubing available for the 23 cm square feed horn (N7ART/VE1ALQ modified by K9BCT). **K9BCT** has available an extra diagonal feed horn good for a 0.35 to 0.42 f/d dish but designed for 0.375 f/d.

TECHNICAL: Paul, WA6PY has sent in the following technical note on 23 cm LNA design and evaluation that he originally prepared in response to questions from HB9BBD. I have edited it slightly, but believe that I preserved Paul's meaning -– When measuring NF, any change in input return loss of an LNA is directly exchangeable for NF. PHEMT LNAs at 1.3 GHz have a high input Q value. According to the Fano-Bode criterion, we cannot obtain a better input return loss (RL) then a certain value over a specified bandwidth. With such a high Q load, we could design a very narrow band matching circuit and theoretically handle an RL close to infinity, but the question is how to design such a matching circuit and keep its losses to a very low value. The ratio Loaded Q to Unloaded Q of a matching circuit is related to loss and consequently limits NF. We want the lowest possible loss input circuit for best NF. In order to provide a very narrow band for matching satisfying Fano-Bode criterion, we might need a matching circuit that has an unloaded Q value close to infinity. The fact is that in order to achieve very low NF, we do not need very good RL. In ham applications a very good LNA RL is usually not necessary. I do not think that for very low NF using a PHEMT with a gate of 0.2 x 200 microns, we can achieve RL < -4 dB. If we use a device with a broader gate, then the input Q will be lower and we can get a better RL. But the noise temperature (due to the PHEMT) might slightly rise. The problem is that there is no commercial production of such PHEMT devices, because there are no applications other then for amateur radio moonbouncing that need such devices. The radio astronomers cool down their LNAs to 4.2 deg K. Measurement of the RL depends on the RF input power because a PHEMT is a non-linear device. Minimum NF can be obtained only for very low input RF power. NF measurements of high RL devices are very sensitive to the mismatch of the ON and OFF states of the noise source. I never optimize my LNAs alone. I always have all the adapters and isolation relay in place during optimization. The RL of my feed horn is <-26 dB. Thus when I connect my system all together, I can verify by measuring Cold sky/Ground noise that the system works as designed.

TECHNICAL II: Bruce, K0YW sends in the follow tip – I learned a new technique for soldering water-cooling anodes on 7289s. The material is still the standard copper 3/4" pipe cap. I used 3/8" OD x 3/4" copper tubing for the hose connections. The first trick is to silver solder them into the pipe cap. To

accomplish this without making a big mess with the usual propane or MAPP torch, I use a heat gun and silver solder alloy solder in circular pre-forms around the base of the water tubes at the pipe cap junction. The heat from the gun is easily directed and causes a smooth, nearly simultaneous solder melt at the junction where you want it. The solder penetration is good, resulting in waterproof joints every time. The assembly is then placed in the tube anode. I use a little rosin flux on the outside skirt of the pipe cap to insure good adhesion. I use small diameter regular rosin core solder (.031" or smaller). Wrapping several turns of the solder around the pipe cap lower skirt will fill in the gap between the pipe cap and the anode. On some tubes, the fit is tighter, no worries, just wrap the solder above the joint to allow downward flow into the gap when it melts. I again use the heat gun, but direct the hot airflow on the cap side and the tube anode collar. The rosin core solder melts at a substantially lower temperature than does the silver solder on the pipes. Insure that you add enough extra solder into the gap to fill it. Be sparing on the heat. When cooled off, remove any built up of solder flux with water or alcohol. I often put the tubes on a trip through the dishwasher to cleanup the ceramic seals from old dirt and finger soil as well. It works nicely.

JT44 OPERATION: The number of stations operating EME using JT44 on 70 cm and up has not grown as fast as some had hoped (and others feared). The level of JT44 EME operation on 144 is much greater. I suspect this is due to several factors, but the principal reason is probably the popularity of MS operation on 144. It takes very little effort to try EME on 2 m, if you are already operating MS using WSJT. There is no comparable operator pool on 432 or 1296 where MS is much more difficult. In fact an MS QSO has never been achieved on 1296. I guess the best we can do is to encourage 2 m WSJT MS operators that have equipment to try JT44 EME on the higher bands. In actuality a much smaller station is needed for success on the higher bands than on 144. JT44 does require some special considerations at the higher frequencies. No matter on what frequency you operate, timing is critical. We are use to synchronizing our clocks for EME skeds, but if your clock is off by a few seconds, it does not matter. With JT44 you want to be with a second. This is not difficult to do using WWV or a similar time standard. If you have an error greater than several seconds, it will not prevent you from detecting a signal, but the decoding can be garbled. Frequency accuracy is the other problem. Getting within a few hundred Hertz on 144 is relatively easy. As you operate higher in frequency it becomes proportionally more difficult, but there are ways around this difficulty. The RX frequency window with JT44 is +/- 600 Hz. I suggest you make your best estimate of the sked frequency and set you transmit carrier to this frequency. (The SSB modulated JT44 signal will be around 1.2 kHz above this frequency.) Never change your TX frequency during a sked. Set your RX frequency to your TX frequency plus the Doppler correction. The JT44 program will indicate the mutual Doppler correction automatically just as long as you enter the grid square of the station you are skedding. If you don't detect the station you are skedding after a period (or two) move your RX frequency an additional 600 Hz down. If this does produce detection, try 600 Hz up. Continue searching outward in frequency until you find the station. If you have polarization rotation you may want to rotate your pol by 90 before you start searching in frequency. Remember to keep your polarization fixed as much as possible during the 30 second receive periods. If you have to switch pol between TX and RX try to make the change during the dead periods between TX and RX. Start rotating before the TX or RX period ends. The station on the opposite end of the sked should follow the same procedure... Never change his TX frequency during the sked and tune for you in 600 Hz increments. JT44 EME operation is not that different from a regular EME schedule except that everything is done in 30 second intervals.

FINAL: I produced an amended version of the NL last month that included OH2PO's final score in the ARRL EME Contest on 70 cm of 83x32. This put the OH2PO group in 1st place for overall 432 score. As I believe OH2PO is a multi-op group, they will not be eligible for the single band/single op award offered by the ARRL. DL9KR should take this class. OH2PO's report arrived after the NL had been printed, but the email distribution had not been all sent out. I believe the change was shown in the text version, but not in the PDF distribution. The up dated version is on Rein's (W6/PA0ZN) WEB page.

Sorry, I do not have the HB9Q Top Initials List in this NL. Somehow I lost the files. I will try to have them for next month. In the mean time please keep HB9Q www.hb9q.ch updated on your initial tally.

Plans for the 2004 EME Conference, which will take place in the Trenton area are moving along. N2UO expects to have the conference web site up before the next NL.

I think that covers this month's news. Please keep the reports and technical information coming. The number of skeds is up this month and more may be added. Please check the web (see below) to review the latest sked status. We shall be looking for you off the moon. Have a very Happy New Year & 73, Al – K2UYH.

SKEDS – Latest update can be found at http://www.dl4eby.de/ltskd.htm:

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17 JAN
Time      432.040
2100z  OH2DG -JA8IAD
2130z  OH2DG -JR1RCH
2200z  OH2DG -OK1DIG
2230z  OH2DG -DL5LF
2300z  OH2DG -SP6JLW
2330z  DL7UDA-RA3LE
18 JAN
Time      432.035        432.040         432.050
0000z                    K9SLQ -UA3PTW
0030z  K9SLQ -OH2DG      OH4LA -K2UYH    WB0GGM-OK1DIG
0100z  LU7DZ -OH2DG      SM5IOT-K2UYH    K5WXN -DL4KG
0130z  W7MEM -OH2DG      WB0GGM-DL4KG    K5WXN -OK2BDQ
0200z  W7CI  -OH2DG      WB0GGM-OK2BDQ   K5WXN -I5CTE
0230z  K6JEY -OH2DG                      WB0GGM-I5CTE
0430z                    KJ7F  -RA3LE
0830z                    JA8ERE-K2UYH
0900z                    JH0WJF-K2UYH
2030z                    JR9NWC-RA3LE
18 JAN
Time     1296.050
1000z  W9IIX -W5LUA
19 JAN
Time     1296.050
0100z  W9IIX -OH2DG
0130z  KU4F  -OH2DG
0230z  N7AM  -OH2DG
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Grote Reber, W9GFZ is a silent key. Grote Reber , a radio amateur and a pioneer of radio astronomy who built a dish antenna in his Illinois back yard in the 1930s and tuned it to radio signals from space, has died at age 90. Reber died in Australia's southern island state of Tasmania on Dec. 20, according to Dr. Fred Lo, director of the National Radio Astronomy Observatory (NRAO) in Socorro, New Mexico. Reber was the first person to build a radio telescope dedicated to astronomy, opening up a new window on the universe that eventually produced such landmark discoveries as quasars, pulsars and the remnant afterglow of the Big Bang, the NRAO said in a statement. His self-financed (radio amateur) experiments laid the foundation for today's advanced radio-astronomy facilities. "Radio astronomy has changed profoundly our understanding of the universe, Lo said in the statement. "All radio astronomers who have followed him owe Grote Reber a deep debt for his pioneering work." Reber was a young engineering graduate and radio engineer in Chicago when he followed up Karl Jansky's 1933 announcement of the discovery of radio waves from space. In his spare time in 1937, he built a 30-foot antenna dish in his back yard in Wheaton, Ill., and managed to pick up signals two years later. "Reber was the first to systematically study the sky by observing something other than visible light. This gave astronomy a whole new view of the universe," Lo said. In 1941, Reber produced the first radio map of the sky, based on a series of systematic observations. Reber's original dish antenna now is on display at the National Radio Astronomy Observatory's site in Green Bank, W.V., where Reber worked in the late 1950s. Reber later moved to Tasmania because it was a good place to study cosmic radio waves at very low frequencies. Reber's amateur-radio callsign, W9GFZ is held by the NRAO Amateur Radio Club. This callsign was used on the air for the first time since the 1930s on August 25, 2000, to mark the dedication of the Robert C. Byrd Green Bank Telescope.

W9GFZ