432 AND ABOVE EME NEWS
JULY 2002 VOL 30 #8

EDITOR: AL KATZ, K2UYH; ENGINEERING DEPARTMENT, THE COLLEGE OF NEW JERSEY, PO BOX 7718 EWING, NJ 08628
TEL (W 609-584-8424) OR (H 609-443-3184), FAX (609-631-0177), E-MAIL a.katz@ieee.org
PROD/MAIL: BRIAN MULLANEY, KB2TIS (609-883-6390), E-MAIL mullaney@mccc.edu
NETNEWS EDITOR: G4RGK, DAVID DIBLEY, E-MAIL g4rgk@hdeng.freeserve.co.uk
REFLECTOR/MOONNET EDITOR NU7Z, RICK BEATTY E-MAIL nu7z@aol.com
EME NETS: 14.345, 10 AM ET SATURDAY AND SUNDAY (AFTER VARO NET ENDS ON SUNDAY)
NET CONTROL AND SKEDS CORDINATOR: JOE, K1RQG, TEL (207-469-3492), E-MAIL k1rqg@aol.com
EME DIRECTORY: http://www.dl4eby.de/, DL4EBY/DK0TU, KLAUS TIEDEMANN, TEL (49-30-7955467), E-MAIL: <tklaus@berlin.snafu.de>
E-MAIL LIST CORD: WARREN, W2WD wbutler@comcast.net /NL DISTRIBUTION: SCOTT, KD4LT <cscott@surfsouth.com> [TXT OR PDF]
EME STANDINGS: DAN GAUTSCHI, HB9CRQ/HB9Q E-MAIL hb9crq@hb9q.ch OR SEE HIS WEBPAGE AT www.hb9q.ch.
THE NL WEB VERSION IS PRODUCED BY W6/PA0ZN AND AVAILABLE AT <http://www.nitehawk.com/rasmit/em70cm.html>

CONDITIONS: June 70 cm activity was dominated by the ill-fated W2WD/0 dxpedition. Warren and company tried very hard, but Murphy was the winner this time. Persistence did pay off and 3 stations were able to add Nebraska to their states list. Tnx for a good try. Full details can be found at the end of this NL. The news on 23 cm is that N2UO is now QRV and giving out initials. 10 GHz was also will represented this month. The growth in activity on 3 cm is indicated by the reports. More than 20 percent of the reports involve activity on 3 cm! Otherwise the reports are almost equally divided between 70 cm and 23 cm, with 432 having a slight edge, and with a sprinkling of reports for the other microwave bands.

AA5C: Greg AA5C@flash.net reports working I4TTZ on 10 GHz EME (O/O) on 16 June for initial #34. Nothing was heard from OK1CA earlier.

DB6NT: Michael writes that he's back on 432 MHz EME. His equipment is 4 x BV 7.5 wl yagis and 1 kW PA. His web page is http://www.db6nt.com/kuhne.html. [Tnx to DL4EBY for forwarding this report. DB6NT will replace DK0NA in the EME Directory.]

DB6NT 70 cm EME array

DK3WG: Jurgen DK3WG@nexgo.de was active on 70 cm EME in June. Despite some tree blockage, he worked KO7N (419/429) and PA0PLY to bring him to initial #388.

DL0AO: Tom (DJ5RE) <Thomas.Hoeppe@asamnet.de> writes for his EME team -- Our club station, DL0AO, is now ready for 70 cm EME. The problem is there is no linear at the location, and I have to bring mine from my home QTH. So we have to be active in blocks of time. The rig is 4 x 11 lambda BV yagis, 700 W at the antennas. We were planning to try our first EME operation on 15 June, but when testing we discover my protection-circuit activated at a few hundred watts. Turning round the slug of my bird-meter showed lots of reflected power. I discovered water running out of the connectors of the yagis! We used 1/2" HCF for stacking with new connectors by "Telegärtner". The connectors use lots of O-rings to make them waterproof. The whole was extra sealed with lots of high-quality tape. It is not clear where the water came from. We hope to be able to try again in July. We are interested in skeds. All instructions/tips are very welcome.

DL4KG: Gerald dl4kg@qsl.net (JN48ou) was QRV on 70 cm on June 13th. I had a sked with K9SLQ, which failed in spite of very good echoes. During the last period of the sked HB9SV called me, and we made an easy QSO (599/5599). Later I worked KO7N (O/O) for initial #75 and US state 18. During the normal SW I only heard HB9SV. Activity seemed to be very poor. DL9KR, VK3UM, DJ3FI and VK4AFL sent me a lot of helpful information and photos of their open wire/tube feed systems. I already have the copper wire for an open feed harness. I will look at the local ham radio fair for PTFE for the spacers and suitable dipole material. If I can arrange for Al welding, I will go for an all one-piece open tube feed. I am also planning to enlarge the array from 8.5 to 10 WL yagis, to add a DB6NT preamplifier. In total it will be a great improvement of my system (~ 1.5 dB more RX gain). I hope to have the new system ready before the EME conference in Prague. Somebody wrote in the last newsletter about poor QSLing. I have had the same experience. All QSLs were sent out via bureau or normal mail. Only a few QSLs were received via bureau. So I suggest that everyone bring missing QSLs to exchange in Prague. I will contact the stations by e-mail whose QSL cards didn't arrive and ask them to bring their QSL to Prague. Nevertheless I am very excited to see all EME hams there.

DL8OBU: Juergen Juergen.Kaufer@t-online.de is QRV on 1296 – I worked some nice contacts this weekend with my 10' dish and only 100 W at the feed. QSO'd on 14 June at 1640 OZ6OL (429/429) and 1725 K5JL (429/429), 15 June at 1130 JA6AHB (O/429) 1345 G4CCH (529/439) 1528 GW3XYW (449/449), 1541 F1ANH (O/M) 1548 G3LTF (529/529) and 1720 W2UHI (539/529), and 16 June at 1615 VE1ALQ (O/O) on sked. My homepage is http://www.qsl.net/dl8obu/index.html.

F2TU: Philippe's F2TU@guideo.fr EME activities follow –- In the Italian EME Contest I QSO'd on 70 cm 22, on 23 cm 17, 13 cm 4, on 6 cm 4 and I6PNN for initial #17, and on 3 cm I5PPE and I4TTZ for initial #24. During the June SW I worked on June 13th on 1296 FANH (33/33) and F6ETI (32/32) both on SSB, and on June 15th on 10 GHz AA5C (O/O) on random, OK1CA (O/O) and OK1UWA (O/O), and on June 16th on 2320 OE9XXI (55/55) on SSB. I shall make a demonstration of EME on July 13th between 1800 and 1900 on 1296.020. This will be for a group of none radio amateurs and would like to be able to contact as many SSB stations as possible.

F6ETI: Philippe"s f6eti@wanadoo.fr June report – I was on 1296 MHz EME, random CW, and worked on 15 June G3LTF and GW3XYW, on 16 June G4CCH, OH2DG, IK2MMB, K0YW and OE9XXI, and on 17 June heard three party QSO between K5JL, W2UHI and WA1JOF and QSO'd K5JL and W2UHI, but not WA1JOF, later OZ6OL and CWNR IK3COR - heard with W2UHI. The station is still a 3.2 m dish with about 150 W at the feed and a 0.5 dB NF LNA.

G3LTF: Peter 100633.1656@compuserve.com writes – I was very sorry that the W2WD/0 expedition didn't work out well, and sorry for all the effort and time they put in to little avail. Hopefully it will encourage some locals to put Neb on 432 EME on a more permanent basis. On 13 June I had a sked on 432 with PA0PLY, but although he was (549) he could not hear me at all. I was active on 15 June and worked on 1296 JA6AHB, F6ETI, DL8OBU for initial #188 - Juergen has a good signal for 100 W and a 3 m dish, and F1ANH, and on 432 KO7N initial #359, and on 16 June VK3UM and JH4JLV - condx were excellent at this time with sharp polarization. I heard later on 432 UA3PTW, VE1ALQ, SK0CC, K5WXN, KU4F and PA0CSG. I ran my new 432 PA on the skeds with W2WD/O and it worked fine. It has a lot more in hand than the K2RIW and uses fewer fuses! Sun noise on 432 was 16 dB with a flux of 133.

GM4JJJ: David gm4jjj@amsat.org notes the following -- One small correction to last month's NL where K5PJR asked about tracking programs that run on

Linux for a polar mount. I see that my "MoonSked" was recommended, however please note that MoonSked is not available for Linux, only for MS Windows and Macintosh. It can be run under a Windows emulator in Linux however, and I think DK5YA mentioned that, so I expect this is where the confusion arose. [MoonSked software - Tracking, Prediction, Scheduling and much more is available for either Windows or Macintosh, also PalmTrack for Palm OS at http://www.gm4jjj.co.uk/MoonSked/moonsked.htm]

GW3XYW: Stuart gw3xyw@thersgb.net observes – EME Activity during the June SW seemed quite high on 23 cm particularly on Sunday. Contacts obtained were as follows: Saturday 15 June F6ETI? (339) – partial, F1ANH (559/559) and DL8OBU (449/449), and Sunday 16 June OZ6OL (559/559), G4CCH (569/569) and (54/54) on SSB, IK2MMB (559/559), IK3COJ (539/339), OH2DG (559/559), OE5EYM (559/559), K0YW (569/579), W4OP (449/449), VE1ALQ (569/569) and W2UHI (559/549). On Saturday I also ran some tests on 10 GHz EME and heard I4TTZ, OK1CA and OK1KIR. All had a T7 (Gurgle) tone. I called I4TTZ and after some time got a QRZ but no contact. I am probably running less than 10 W with a well-used TWTA (originally rated at 10 W). The antenna is a homebrew 9' (2.7 m) 0.5 f/d dish.

HB9Q: Dan's hb9crq@hb9q.ch NL weekend report – We will be QRV on 144, 432 and 1296 for a few hours on July 13th and maybe on the 14th. If anyone would like a sked let us know. We worked the following new stations in June for a total initial count of #184. We worked on June 8th at 1038 DB6NT (429V/539), and on June 15th at 1750 4L/ZL1RS in LN21 (O/O). Bob has 4 short yagis and approximately 50 W. We also worked our 1st JT44 via moon on 144 MHz. This was very interesting experience and we are now ready for JT44 on 432 and 1296 and are interested in skeds. HB9DBM and myself (HB9CRQ) will be attending the EME Conference in OK in Aug.

I4TTZ: Vico (I4ZAU) lodzauli@tin.it (JN54J) reports on his groups June 10 GHz EME activities – We were QRV on June 15th and QSO'd at 1525 I5PPE (O/O) on random, 1545 F3VS (O/O) on random, 1615 OK1UWA (O/O) on random, 1710 OK1KIR (O/O) on sked, 1740 OK1CA (O/O) on sked, 1910 VE4MA (O/O) on sked and 1945 AA5C (O/O) on sked. We heard for a few seconds W6HD and nil from W5LUA. We will be QRV again in Oct.

K7XQ: Jeff k7xq@elite.net is now QRV on 1296 -- I was active on 15 June between 2000 – 0000, but heard nil. During the SW I setup skeds with G4CCH and OE9ERC. I think I may have as little as 30 W at the feed, since I was only seeing about 60 W in the shack. I run 70' of ½ hardline to the feedhorn. They both heard me with (M) copy and full calls. The biggest problem I have is frequency drift on the transverter and not knowing where I am frequency wise. I think both stations had to hunt around to find me. The strange thing is I couldn't copy them! They both run very large stations, so if anything, I should have at least copied them. I only got bits and pieces of letters. I will be getting an IC-1271A in the next few weeks. This should cure the frequency drift and frequency accuracy issue. On 1296, I run a 3.3 m dish with a minimum elevation limit of 30 degs and about 100 W. I also have 2 x 9 wl yagis with 800 W on 70 cm and have made 2 initials there.

KL6M: Mike had had fairly bleak results on 432 during June -- I got lots of emails for not QRV or cancel for my June sked, which I really do appreciate. On 14 June I only had a repeat QSO with SKØCC and a partial with S51ZO, but better luck on 15 June with HB9SV (549/559), I5CTE for a new country and initial #118, PA2CHR (O/O) #119 and KO7N (539/529) had a very nice signal. Others heard this weekend were OH2DG, K5WXN, WA4NJP, G3LTF and K1FO - all with very good signals. I will miss the July SW and not be QRV until at least Aug as I am re-doing the shack.

K0YW: Bruce is back in operation on 1296 – Big echoes and then lots of QSOs... The new absolute encoder, W6HD based tracking system is working like a dream. Winds up to 30 mph but the dish is much steadier with the revised counterweight anti sway supports and holds to within 0.1 deg in the breeze. I had two successful sessions on the band. I worked on 16 June GW3XYW (569/569), DF4PV (569/579), W4OP (559/589), IK3COJ, (439/549), W2UHI (569/579), G4CCH (579/599), K9KFR (579/579), WA1JOF (539/539), W7BBM (55/57) on SSB, OE9XXI (599/579), F6ETI (539/559), IK2MMB (559/569) - a good session with excellent signals from everyone, and on 23 June K5JL (589/589), N2UO (529/539) for initial #122 - thanks Marc, W7BBM (559/559), W2UHI (569/579) followed by K5JL (57/58) on SSB and W7BBM (55/55) on SSB - signals were surprisingly good at this low declination. On 20 June I heard a station trying out what sounded like MSK 16 "Picolo". I went back on SSB. No demod by me of course, but the other station was synchronizing his transmissions in reply to mine. It would be nice to know who and what? [It was K2UYH – see my report.] I was running my old W7CNK single stage pre-amp and receiving 23.2 dB of sun noise with it. My other 2-stage LNA checked out ok at a 0.23 dB NF. I still have lots of little things to do on the amplifier. 1100 W out is fairly easy to get. Patti and I have been doing the 8 PM to midnight shift in the County Emergency Comm. center. Mostly running the evacuation hotline phones and updating map overlays. Our little blaze has reached a Type 1 status and has burned over 27000 acres so far! We have been real lucky with structure losses though, only a couple of outbuildings so far.

N2UO: Marc lu6dw@yahoo.com made his 1st 1296 QSO in July – I finally got my 23 cm system up and running, after several months of work. It consists of a 10' stressed dish (f/d 0.45), VE4MA type feed, 2 x 2C39 water-cooled PA (120 W out with only 1100 V), auto-tracking, and 0.4 dB NF FHX35 preamp. Sun noise measurements indicate an antenna gain of around 30 dBi. Power at the feed is 80 W. On June 16 I had a partial with W2UHI (O/O) on sked, nothing heard from W5LUA (suspect wrong frequency), and I worked (all on random) OE9XXI (569/449), OE9ERC (569/449) and G4CCH (549/439). Later I worked K2UYH (449/O) on sked using narrow RF and audio filters to suppress the terrestrial signal interference. The following weekend the moon was very low on the horizon and I only had a one-hour window. Anyway, I worked K0YW on random (539/529). Right now I am working on a 6 x 2C39 amplifier that I borrowed from K2UYH. That should give me at least 6 dB more power. I also had the visit of Trevor VK4AFL and his wife. We had a very good time talking about EME, and later on an enjoyable dinner with K2UYH and our wives. Trevor is interested in 23 cm operation, after his success on 70 cm.

OH3MCK: Petri petri.kotilainen@nokia.com wrote – I'm QRV on 1296 MHz from KP11WL on JT44 mode. I have approx. 40 W power and a 25 dBi antenna gain [linear pol yagis] and RX system NF is approx. 0.6 dB. So I'm really "small gun". CW skeds with BIG GUNS are also possible. [Petri and I have exchanged calls both ways by JT44 – see my report.]

OK1CA: Franta ok1ca@ges.cz writes – I had my 1st QSO on 3.4 GHz EME. I worked on 13 June W5LUA (O/M) for initial #1 crossband 3400/3456 MHz. This was the 1st EME QSO on 3.4 GHz from OK, the 1st OK/W and I think that the 8554 km dist is a world record. I have on 3.4 GHz a 3 m dish with linear scalar horn, FT736R + TRX DB6NT, PA with 15 W at the feed and LNA with ATF36077. I was QRV on 10 GHz on 15 June and I worked I4TTZ (O/O) for initial #6 and F2TU (O/M) #7.

3 m dish used by OK1CA on 9 cm EME

PA0PLY: Jan j.a.kappert@freeler.nl updates his activity – I arranged a lot of skeds outside the SW. I was happy to find so many OMs QRV on 432. Results were on June 13th nil UA9FAD, partial VE1ALQ - No report copied, nil K9SLQ, partial HB9SV (529) called on random between 2 skeds, nil DL4KG, nil OE3JPC and nil G3LTF. It was very frustrating to me after such a good result the month before. G3LTF reported coping me vertically, which may indicate Faraday was a problem. On June 18th I tried again with DK3WG, OE3JPC and UA9FAD with same frustrating results. On June 20th I had another try with OE3JPC, OK1KIR and DK3WG. Still nil with OE3JPC and OK1KIR, but I worked DK3WG (M/O) for initial #17. I will be at EME conference and am trying to collect QSOs for the Keppler Award, but am still missing OK on 432. We will try again in July.

PA3DZL: Jac Jac.de.Bruyn@12move.nl reports his first 13 cm EME QSO – I worked, OE9ERC (549/339). His outstanding station made it possible because I have only a QRP rig for this band: 2.5 m dish, 30 W and 0.6dB NF at the feed. I heard Erich from the beginning and even during echo testing. I'm looking for more QSOs and interested in skeds.

SK0CC: Sven (SM5LE) sven.o.nordin@telia.com reports – I have renewing the whole 70 cm antenna (15 years old). I have installed new driven elements and gotten rid of a lot of corrosion. The return loss went from -11 dB to -25 dB! There was 1.5-2 dB more sun noise and 0.65 dB better transmission loss. I heard a lot of stations during the June SW including DL9KR (who doesn't), DJ3FI, OH2DG, DJ5NV, ON4KNG, WA4NJP, KU4F (worked), EA3DXU, UA3PTW, HB9SV and OE3JPC, but not W2WD/0. I also worked KL6M, and on 18 June at 2100 PY5ZBU (M/O) - but solid. Don says he is available for EME sked on 432 MHz. Most of the heard stations were called but NIL. SK0CC still has a TX transmission loss of 3 dB (94 m of 7/8") - an "unsolvable" problem?

VK3UM: Doug tikaluna@ycs.com.au managed to get on for a short time during the June SW – I found conditions 'normal' and worked the following (no new ones) all on random on 432: 15 June at 1009 VK4AFL (559/559), 1037 DL8OBU (539/549) and 1054 JH4JLV (539/449), and on 16 June at 0223 K9SLQ (559/559), 0244 K1FO (569/569), 0254 KU4F (569/569), 0300 N9AB (559/569), 0315 JA4BLC (339/559), 0335 JA6AHB (549/559), 0910 UA3PTW (549,569), 1106 OM1TL (439/449), 1116 G3LTF (559/569), 1123 DF3RU (559/559) and 1134 G4YTL (549/549). I leave on 16th July for Eur and will see you in Prague!

W2UHI: Frank was on 23 cm in June as usual. He worked during the pre SW F1ANH, G4CCH and DL8OBU for a new one, and during the SW at 0153 W7BBM, 0206 K0YW, and 0217 K5JL – all with good signals. He heard N2OU and CWNR.

W2WD/0: Warren wbutler@comcast.net sends the following summary report on his dxpedition -- We were extremely disappointed that we could not help all the people needing a Nebraska contact towards their WAS via EME. It was not because of lack of effort. There were many Nebraska hams that worked very hard to get the station up and running in a short period of time... none more so than the hosts, Bill, K9RZ and Karen, N0KWH. They were there through the whole process of fixing one problem after another. On 432 the antenna was a 20' portable dish on a polar mount, preamp MGF-4918D at the ant, power at ant was 350-500 W. Stations worked were K0RZ, KL6M and WA4NJP. Stations heard were DL9KR and K2UYH. [Warren full report is at the end of this NL.]

W5LUA: Al worked in June during the pre SW on 9 cm OK1CA (3456/3400 crossband), on 24 GHz RW3BP (O/O) but did not complete with AA6IW and VE7BLD, on 3 cm I4TTZ, and heard nil on 13 cm. During the SW Al added an initial on 23 cm with DL8OBU and heard W2UHI trying to work N2UO, but did not hear N2UO. He is trying to resurrect 24 GHz TWTs.

WD5AGO: Tommy THenders@tulsa.cc.ok.us writes -- It has been a while since my last report. We moved to a larger house with less yard space in April/May and are now close to seeing the last box get folded up. No major antennas are up yet, other than in the attic and wire antennas. No towers can be put up (restrictions) but maybe a small dish for 5.7 GHz and a temporary yagi array for 222 and 432 MHz EME. We will hold off from other bands for later construction. I am still working on LNAs and down converters, but allowing more time with family activities. My new address is 3017 N 2nd St, Broken Arrow, OK 74012 and tel is 918-355-5839.

ZS6AXT: Ivo zs6axt@global.co.za does not have much of a report for June -- Unfortunately we had real lousy weather in the month before the June SW and I did not manage any repairs on the dish drives etc. According to meteorologists it was coldest weather for last 42 years! I hope to be ready for the July SW at least on 23 cm. With my left hand still lousy, the repairs will take quite an effort.

K2UYH: I had my 1st experience with JT44 this past month and was impressed. I ran with OH3MCK twice on 16 June. Petri is running 2 yagis and 40 W. I do not believe I could work him without using JT44. The 1st time at 2000 I copied full calls with in 3 minutes, but he did not hear me. It was actually pure luck that I heard him. Frequency is very important with JT44. You must have your frequency correct with in 600 Hz, including the Doppler. This is not too much of a problem on 144 MHz, but on 1296 MHz you have to be very careful. An error of 100 Hz on 2 m is nearly a kHz error on 1296. This will take the signal out of the receive window. You must also correct for the common Doppler shift, not the shift of your echo. The JT44 program gives your echo Doppler. This may be ok on 144 where the maximum Doppler shift is about 300 Hz, but is unacceptable on 1296 and even 432. During the sked with OH3MCK, my echo Doppler was about 2 kHz, but the common Doppler was less than 50 Hz. [Programs as VK3UM's Moon Tracking Program give the correct Doppler shift when calculating the common window between stations.] During my 1st sked, I reset my frequency so that the JT44 signal on my counter read the sked frequency (.033). This put me about 1.2 kHz low from the frequency I had previously set on CW. I now realize that the SSB mode (0 Hz) freq and the CW mode freq are the same. However, I made a 2nd error that compensated for this on RX. I forgot to change my Doppler frequency correction. I had previously set it to receive my echoes that were about 2 kHz high. This compensated for the TX error. I had calculated this earlier, but as noted forgot to make the change in my RIT. I was thus receiving near the right frequency, but transmitting about 2 kHz low. This explains why Petri did not copy me. We tried again an hour later. This time Petri copied full calls, but I received nothing. I am not certain what went wrong on our 2nd try. I put my TX frequency back to where I had measured it with the CW carrier and turned off my Doppler correction. Possibly this was my mistake. The Doppler was now between about -300 and -500 Hz and I did not try to correct for it. Later I found that my counter was reading about 600 Hz high, which should have partially compensated for the Doppler. We tried a 3rd time on 19 June at 2200 with nil results at both ends, but this was at low moon elevation and Petri had a tree directly in front of his yagis. I am interested in trying more JT44 skeds on 70 and 23 cm. I believe that JT44 can give even greater benefits for EME on 432 and 1296 than on 144, if we can get our frequency correct. [On 1296 the SETI beacon offers an excellent way to check your frequency, if you can detect it. It is accurate to a few Hz. Obviously, you will have to correct for Doppler.] Later on 16 June I worked on 1296 at 2145 N2OU (439/449) for initial #202 and 2202 OZ6OL (559/569). I also spent a considerable amount of time on 70 cm looking for W2WD/0. Others heard were K1FO, VK3UM, WA4NJP, K0RZ and KL6M. I finally copied them on Sunday night (17 June), but missed connecting for a QSO.

NETNEWS BY G4RGK: **K6IBY's** 70 cm antenna system is now completely operational. Joe will run on random until further notice. He is pleased with system so far. **W6FOG** is asking about dishes for 23 cm. (The minimum rule is 10' 100 w, which should hear echoes). E-mail Neil with any info or ideas to w6fog1@aol.com. **UA3PTW** had initials with DB6NT, JA4BLC and KO7N on 70 cm in June. **K5WXN** has a new e-mail address k5wxn@aol.com. **F5SDD** is the proud father of a new son (2 kg and 48 cm)! **W4SC** (EM93iv) has picked up his 18' dish from K2DS. He now has a dish and PA for 23 cm EME. He is looking for feed info. **W4AD** copied WA7CJO off the moon on 10 GHz. He has no TX yet. **W7MEM** reports no progress with his 70 cm array and will not be QRV for the July SW. **GM0ONN** will not be available for 23 cm skeds until Sept. **K0RZ** reports working W2WD/0 in NE. Bill is now looking for KI, HI, ND, VT and NV for WAS on 432. **K5JL** cleaned out his feed of bird residue and is now back to normal performance. Jay worked on 23 cm during the June pre SW DL8OBU, and SW W7BBM, K0YW and W2UHI. He did not hear N2UO. **N4PU** is hearing signals on 1296, but is having problems with tracking the moon. **M3RKL** is setting up for 13 cm operation with a 3.5 m dish. **PA3CSG** hopes to be on 6 cm in July. **VE6TA** is working on a new 18' dish. 4 ribs have been completed so far. **VE4MA** was on 10 GHz in June and worked OK1UWA and I4TTZ for initials. Barry has his 47 GHz preamp NF down to 4.75 dB and with a 6' offset dish is measuring sun noise. **W6WE's** e-mails has changed to w6we@charter.net. **WA4NJP** confirms a 432 QSO with W2WD/0 on random. **W4OP** par@parelectronincs.com has completed the expansion of his dish. Sun noise is up about 2 dB. He is still working on a YD-1336 PA. **W2TTT** in FN30 is listening on 70 cm EME, but has limited power. **DL9KR** reports he was on for W2WD/0 but nil heard. **DL7APV** was on looking for W2WD/0 too. **WA1JOF's** 18' dish is still in progress. **KU4F** should be on 23 cm in July. In June he worked on 70 cm JA6AHB, K1FO and WA4NJP. **DL1YMK** is working on amp for 23 cm. **G4RGK** was not on in June due to QRL problems.

FOR SALE: **WA2FGK** is looking for a 4' aluminum mesh dish and a dual band feed for 2304 and 3456 MHz. Contact Herb or Andy at WA2FGK@epix.net or afurlong@eclipse.net. **WD5AGO** has for sale an FT726R (2m/70cm) for $US450. Tommy's e-mail is THenders@tulsa.cc.ok.us. **KD4LT** cscott@surfsouth.com has for sale an EIMAC Y-834 tube for $US400. This is the EIMAC clone of the TH-327. This tube is full output and in very good condition. Also he has a Parabolic 1296 to 144 transverter for $US250, two Parabolic 144 to 28 transverters for $US225, his BIG 432 TH-551 PA with K2RIW driver (will not divide) – "this is a real amp, lets talk", and a VE1ALQ box for interfacing the F1EHN software to the real world for $US250. All items are + shipping. Call Scott at 229-890-2506. **VE3AX** has a dish package: a new 15' Andrews dish in 2 halves and 2 20' tower sections with a large prop-pitch motor, a new 36" saginaw actuator and a free 16' fiberglass dish – for pick up only. **W7MEM** has a 432 8-way power divider for sale. **Looking for tubes**, you might want to try D & C Electronics, 1848 Chatham Village Dr, Orange Park FL 32003; Phone/Fax (904) 541-0068; e-mail RgoldmanR@cs.com. **W4RDI** has for sale a Kenwood TS-870, Parabolic 1296/144 MHz XVTR and 144/28 MHz XVTR. **K1UHF** k1uhf@arrl.net is looking for a 23 cm water cooled 2 tube amp. Also wants a 40 W 10 GHz TWTA. **W4OP** has 2 tube 23 cm PA for sale. **K2DH** k2dh@frontiernet.net has the following for sale: EIMAC/Motorola 903 MHz PA 300 W, PS and spare tubes; Siemens 15 W TWTA for 3456, 5760 (1mW input), 28 VDC in; Varian 20 W TWTA for 5760 (1mW input), 28 VDC

in, DEMI 23 cm PHEMT LNA <.4 dB NF, >16 dB gain, DEMI 70 cm Hi-Dyn Range XVTR model 432-28 10 W output, <.8 dB NF NEW, (2) 2304 MHz GaAs amps – 0 dBm in, 1 W out for $US75; 2304 MHz GaAs amp - 1W in, 10 W out, plus many low loss cables and more.

TECHNICAL: Rx Noise problem on 432 MHz by G3LTF

I have been troubled for some time by a feed mounted preamp going into oscillation at certain positions of the dish and at certain positions of rotation of the dual dipole feed. I eliminated VSWR change of the dipoles and eventually found that what was affecting it was the position of the UR67 down lead, which was loosely tied to one leg of the feed support. I found that I could induce the oscillation by moving the coax away from the support leg. When I looked at a spectrum analyzer on the o/p of the preamp, in the shack, I could see the noise rising as it approached oscillation . I checked the coax connectors and all were OK. I concluded that what was causing the feed back was pick up from the leakage through the cable sheath back into the dish aperture. I also found that the effect was worst when the dipoles were in line with the leg and the cable tied to it. The solution was to tie the cable to the support leg with no loops and at the back of the leg, away from the aperture. When I'd done all this I gained 0.5 dB of Sun noise! The preamp is a 2 stage design with about 33 dB of gain and the down lead is good quality UR67, but I assume that because the whole length of it was, roughly, being focused back to the feed the leakage was "enhanced". I never had this effect before although years ago, at a previous QTH where the shack was immediately behind the dish and the LO chain was poorly screened I experienced noise pick up.

FINAL: HB9CRQ's Toplist now has almost 200 entries, but there are still many active stations that have not entered their standings. Please help Dan make the Top List complete and up to date.

Prague 2002 is only a little over a month away, and as reported last month will be one of the best attended EME Conference of all time. You don't want to miss this one! However, Dan, OK1DIG warns that reservations for accommodation in the EME conference hotel will be definitely closed on July 3! Any other later attempts for accommodation must be directly with the hotel and will not receive the discount and free rooms guarantee provided by the conference. For details see www.emeconference2002.cz.

Please keep the news and technical information coming. I will be looking for you off the moon. 73, Al – K2UYH

EME Schedules
JULY 13

Time	432.040
0900z	DK3WG -JA3SGR
0930z	DK3WG -JH7PAV
1500z	OK2BDQ-DK3WG
1530z	LU7DZ -DK3WG
1600z	W4ZRZ -DK3WG
1630z	W1IPL -DK3WG
1700z	K6IBY -DK3WG

THE W2WD/0 STORY

When my xyl's family announced a reunion in Omaha, NE set for 15 June, it presented a chance to give some of the EME group a shot at getting a new state for their WAS. Instead of using the airlines, we could rent a van and drive to Omaha. K2UYH had loaned us his 20 foot portable dish, which we had tested on a simplified polar mount. This plus the 432 MHz TX, RX, etc. would easily fit in the van. But before we made serious plans for the trip, an impromptu survey was conducted on the Moon-Net asking how many needed Nebraska on 432 MHz EME.for WAS. The result was surprising. Very few from the 432 group responded, whereas there were many, many heartbreaking pleas from the 2-m gang. It appears that NE has not been on 2-m EME for perhaps a decade or so. And the KA0RYT operation a few years ago must have taken care of most of the 432 people. This altered the planning for the trip. We had 2-m equipment from our satellite operations of many years ago. A TX using pp 4CX250B's, a MGF-1302 preamp, transfer relays, etc., and the FT-767GX had the 2-m plug-in. The antenna was an old Telrex 8-element Yagi. It was FB for satellite work, and I did raise W5UN on random during one of the EME contests. But I needed something much bigger for the trip to NE so as to give most of the EME hopefuls a reasonable shot. I called the M2 Antenna people and spoke to Mike, K6MYC. He was sympathetic to the project and agreed to loan us two of his 2MXP28's with the power splitters, crossboom, etc. These would be drop-shipped to the site in Omaha in time for the operation. The site in Omaha was arranged by an old friend, W0LHZ. Joe is a member of the 300-member Aksarben Ham Radio Club. As is K9RZ, Bill Jackson, who has a 3.5 acre, HF dxer's dream location on top of a hill, which would provide essentially unimpeded coverage of the moon from moonrise to moonset. Bill and his XYLl, Karen, N0KWH, agreed to host the operation from 6/14 through 6/16. We would setup on 6/12 and 6/13 and takedown on 6/17. So the plans were in place to operate both 2 m and 70 cm EME stations at the QTH of K9RZ. Since the XCVR and power supply were common to both systems, simultaneous operation would not be possible.

While preparing for the trip, Mr. Murphy showed up. I had not used the 432 system for several months so I thought a routine check before packing it for NE was in order. While answering a CQ from KL6M, the PA flashed over and blew the high voltage fuse. One of the pp 4CX300A's was damaged. I put in the spare set that I intended to take to NE. The same problem occurred about 30 minutes later when I was calling K9SLQ. I put out a call for help with 4CX300A's on the Moon-Net and K2UYH responded with three and WA0TEM sent several more. After cooking the filaments for many hours, I found two pair that were a little flaky when pushed a little, but did not blow fuses. I did not feel too comfortable and was wondering, if the operation should be called off. About this time, Al, K2UYH, said his old amplifier had been repaired by K2AH and could be used as a backup unit. I drove to the Jersey shore and picked up the 7650 PAS. Tom does not have a 432 driver so could not hot test the unit. He did, however, use a signal generator to set the tuning controls about right.The tetrode has its screen at chassis ground for stability and its grid bypassed in a grounded-grid configuration. I made a quick modification to the HV PS to provide the proper screen voltage using VR-150 regulator tubes. When the PA was fired up, the screen was drawing very heavy current and output was nil. During discussions with Tom on the phone, it was thought that perhaps the tube was bad, but that Al had spares. However, Al was on a business trip and would not be back before I had to leave for NE. Tom suggested I take the amplifier with me and if I could make further checks to pin it down to a bad tube, maybe Al could overnight a spare to NE.

While the above was going on, I pulled the 2-meter amp from the relay rack and to my surprise I found old 4X150A's in it and the output was way down. I had forgotten that I had sold the 4CX250B's years ago. I could not quickly find any 250's locally and Surplus Sales in Omaha was out of stock. RF Parts in CA did overnight a pair of Svetlana's which worked FB. I also had to order LMR coax, adapters, control cables and all the bits and pieces that would be needed for the 2 m station. The coax adapters were misdirected but arrived in time.

With so many things on a shaky footing, I was still considering calling off the operation, but it was late in the game. The M2 antennas were on their way to NE and many people were looking forward to a contact with a new state on EME. If Murphy would ease up a little and we had some luck in Omaha, I felt it would be worth the effort. So we packed the van and the XYL and myself took off for Omaha via I-80.

Before we hit the road, we made reservations for overnight stops along the way and for our stay in Omaha. We were jolted by the news that the College World Series was going to start in Omaha the weekend of our operation and that all hotels/motels were completely sold out even for miles around the city. We managed to get accommodations in the small town of Blair, which is about 17 miles north of Omaha but not too far from K9RZ.

The 1200-mile trip took three days and we arrived in Omaha on schedule; 6/12. The next morning, we were joined by Aksarben club members at K9RZ. The van was unpacked and work started on erecting the dish and installing the TX/RX, etc. The 20 reflector panels are constructed of 1-inch chicken wire held in place by frames of wooden strips. Progress was slowed by entangling of the Dacron fish line strings that hold the reflector panels in place. A photo of the antenna on its polar mount was included in the Nov 2001 issue of the EME NL. Its F/D is about 0.5. The driven element is a 1-wl circular loop in front of a 0.62-wl square reflector. Spacing was adjusted for a VSWR of <1.1, which was about 0.13-wl. The HF-400/2Z transfer relay and MGF-4819D preamp are mounted in a plastic box behind the reflector. Separate coax lines are run to the TX and RX. An additional preamp was used at the RX to make up for line loss.

The two 2MXP28 antennas from Mike at M2 Antennas were more of a challenge than originally anticipated even though Mike took the time to color-code the elements and boom locations. This certainly helped, but mounting them to the crossboom and then to a tripod mount required some ingenuity. Several trips to Home Depot and home workshops finally got the job done. The tripod was about 5' high which meant that with some droop in the booms the vertical reflector elements were just above ground with an elevation angle of about 5 degrees. VSWR was checked at <1.1. The polarity switching relay, TX/RX transfer relays and MGF-1302 preamp were mounted on a piece of plywood attached to the tripod at the crossboom. Separate coax runs were used for TX and RX. The array was setup pointing at moonrise. It was hoped that several stations could be worked before the moon rose above the beam pattern. If results were encouraging, several plans were under consideration to raise the height of

the crossbeam and therefore, the ability to elevate the beam. One idea was to mount the tripod on top of the van, but the windy conditions on K9RZ's hill would have made this a risky proposition. When we were unable to hear anyone including KB8RQ, we tried to rough check the beam pattern by passing a hand-held through the beam in the far field. Reflections, scattering and blockage led to inconclusive results. It was then discovered that the horizontal driven elements had been inadvertently set out of phase. The vertical elements had been installed properly. The problem was corrected for the Sunday moonrise when several signals popped out of the noise. K9TI was 539 on peaks and we attempted to raise him but could not make the connection. We later found that he had heard us also. Someone said that we were on the wrong frequency. The signals were gone after a short time and probably the result of ground reflection boost. A near miss but no cigar.

Wind conditions kept the tie-down ropes on the 432 dish for Friday, 6/14. My memory is hazy as to what other things happened and when. It seemed we were tackling one problem after another. Some were minor annoyances, but they still cut into valuable operating time. The relays used in the 2 m system were Dow Key series 60 of 1970 vintage. All contacts had been burnished, but one of the high-isolation connectors got stuck in the grounded position and could not be broken loose. Fortunately, I had brought a spare connector. But it took some time to sort through boxes to find it and replace the bad one. On 432, the PA was acting up intermittingly. However, the backup unit was unavailable. It had been opened early on to check the 7650 tube for shorts between internal elements. At least under cold conditions there were none. A quick inspection did not reveal any obvious problems, so further trouble shooting was put off until returning home. On Saturday I left operations on 432 in the good hands of Joe, W0DB and Bill, K9RZ, while I attended the family reunion in Omaha. When I returned, they reported two significant happenings. First, a sudden wind storm nearly destroyed the dish. It took their efforts along with Karen to hold the tie-down ropes to avert disaster. Second, the D-26-N brick used as a driver had severely overheated. When it cooled down, it again acted normally, which is just coasting along to drive the 4CX300A's. However, it was a fore warning of further trouble on Sunday. The intermittent problems with the 432 PA appeared to be tube related so the tubes were replaced in pairs as the unit is operated push-pull. This is not a "lift the lid and plug in the replacement" type of operation. The entire tank circuit has to be dismantled to get at the tubes, which seemed to take forever under the circumstances. Then, at one point the brick broke into sustained oscillation with very high current and quickly overheated. I have used the driver for many years without any problems, but Murphy had struck again. The unit was opened after cooling down a bit, but there was no sign of transistor damage or other indication of trouble, except the heavy connections from the input/output connectors and the board grounds looked suspiciously cold-soldered. These were resoldered using lots of heat and fresh solder. When the system was fired up, the TX seemed to be acting normal for the first time, but it was late in the game. It was time for the last scheduled station, K0RZ. About this time, K2UYH phoned and asked to be added to the end of the list at 0000z. K0RZ was worked and then several stations tail-ended which cut in to Al's scheduled time. Knowing that he had his WAS, we ignored Al and worked WA4NJP and then KL6M. Following this we looked for Al, but apparently we were behind his trees or he had given up on us. Joe, W0DB did the operating during this period. Bill, K9RZ, who was our official liaison with the sked coordinators and the net, announced over the Moon-Net that we would be calling CQ on 432.030. When we got no takers, the operation went QRT.

I think we tried to cram too much into a fixed window of opportunity. As stated before, it was a great disappointment not to have worked more people, especially those needing Nebraska for the last state or two. We do hope that the expedition will result in an EME station operating from NE on a regular basis.

73, Warren – W2WD

N2UO's 10' stress dish with feed in place

HB9CRQ TOP LIST

Pos.	Callsign	Equipment	Band	Initials	Updated
1	DL9KR		432	768	2002.02.01
2	K2UYH	28" Dish 8938 PA	432	649	2002.02.22
3	DK3WG	16x27el LY, kW	432	385	2001.12.14
4	SM2CEW	8 mtr dish and 1.5kW	432	382	2002.03.03
5	OK1KIR	5.5 m dish	432	358	2002.04.01
6	SM3AKW		432	357	2002.01.22
7	G3LTF		432	353	2002.01.13
8	KU4F	14.6 meter dish	432	326	2002.02.18
9	K0RZ		432	301	2001.11.28
10	VK3UM		432	263	2002.04.05

Pos.	Callsign	Equipment	Band	Initials	Updated
1	OE9ERC	8 m dish	1296	252	2002.02.23
2	K2UYH	28" Dish	1296	197	2002.01.21
3	OZ4MM	10M DISH	1296	193	2002.04.11
4	OK1KIR	5.5 m dish	1296	189	2002.04.01
5	G3LTF		1296	187	2002.01.13
6	F2TU	8 meters dish	1296	186	2002.06.10
7	ZS6AXT	5m dish and 200W	1296	181	2002.06.10
8	HB9BBD	10m Pb	1296	178	2002.04.28
9	WD5AGO		1296	170	2001.12.15
9	SM3AKW		1296	170	2002.01.22
10	G4CCH	5.4m dish	1296	168	2002.04.27

Pos.	Callsign	Equipment	Band	Initials	Updated
1	S52LM		2304	366	2002.04.06
2	OE9ERC	8 m dish	2304	51	2002.02.23
3	OK1KIR	5.5 m dish	2304	41	2002.04.01
4	OZ4MM	10M DISH	2304	38	2002.04.11
5	F2TU	8 meters dish	2304	31	2002.06.10
5	ZS6AXT	5m dish and 120W	2304	31	2002.02.22
6	JA4BLC	20ft dish	2304	26	2001.06.01
7	SM3AKW		2304	23	2002.01.22
8	wa6py	2.4 m dish	2304	10	2002.02.22
9	LA8LF	5M dish	2304	9	2002.04.14
10	ON5RR	3.7m dish	2304	7	2001.12.31

Pos.	Callsign	Equipment	Band	Initials	Updated
1	OE9ERC	8 m dish	5760	24	23.02.2002
2	OK1KIR	4 m dish	5760	17	2002.04.01
3	F2TU	8 meters dish	5760	16	2002.06.10
4	CT1DMK	5.6m dish	5760	15	2002.03.13
5	ZS6AXT	5m dish	5760	13	2002.06.10

Pos.	Callsign	Equipment	Band	Initials	Updated
1	AA5C		10000	32	2002.03.13
2	F2TU	8 meters dish	10000	24	2002.06.10
3	OK1KIR	4 m solid dish lin. or cirk.pol, TWT 20 W	10000	19	2002.04.01
4	CT1DMK	5.6m dish - twt 50W - NE32584 /0.7dB	10000	16	2002.03.13
5	W6HD	3.1 meter dish, 75K tsys, 220 watts	10000	13	2002.03.10
6	OE9ERC	8 m dish	10000	12	2002.02.23
7	G4NNS		10000	7	2002.01.13
8	PA0EHG	3 mtr dish 200 Watt 0.7 db nF	10000	6	2002.03.11
9	WA6PY	2.4 m dish linear polar 20W	10000	1	2002.04.13
9	WA6PA	2.4 m dish	10000	1	2002.02.22