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: Despite the high path loss and noise during the Jan Moon Weekend, conditions were relatively good on both 432 and 1296. Unfortunately the early morning moon hours did not attract much of a turnout to enjoy these conditions. The expected boost from the ARRL VHF Sweepstakes Contest did not materialize either. Only a few stations took advantage of the additional grid multipliers offered by EME QSOs. Moon times are a bit better in Feb. This and the annual EME SSB Contest on 1296 should make the Feb skeds weekend (SW) definitely worth turning out for.

W1ZX at Rochester

W1ZX A SILENT KEY: There has been too much sad news recently, but few items have hit as close as the word of W1ZX's death. Willy became a silent key on 5 Jan, one day prior to his 66th birthday. Willy was the mainspring of the K3NSS EME Tests and subsequent regular 70 cm operation using the Navy's 85' dish in Cheltenham, MD back in the 80s. After K3NSS was forced to QRT, he became an active EME operator from his home station. In 1996 he chaired the International EME Conference in MD. He was a mentor and close friend to many of us. The entire amateur and the EME community in particular will miss him.

EME SSB CONTEST RULES: This contest is meant to be fun event with the bigger stations helping the smaller stations get in on the activity. This year the SSB contest starts on 15 Feb at 1500 and continues to 16 Feb at 1500. The intention is to give everyone one common moon pass. Operation is on 23 cm only. Scoring is the contact points times number of 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 Grid Sector. Only the 2 sector letters need be sent. Operation may be by single or multiple operators from one location. No distinction for scoring will be made. CW only stations are encouraged to participate. Log 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.

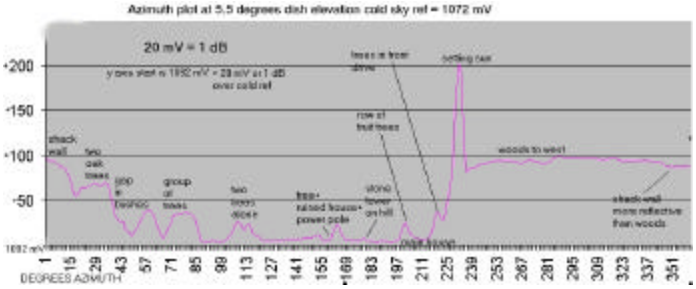
SPITZBERGEN JW/SM2BYA TO BE QRV ON 432 MHz EME: Gudmund SM2BYA reports that the new EISCAT Director supports his plan for EME tests and wants to take advantage of the operation to promote the EISCAT scientific program and activities - (he had a license years ago, but let it lapse). -- We have been told to put in a request for time on the 32 m antenna into the official scheduling system, and provided there is no competition for the time slot, we may get 48+ hours! Meanwhile, I have been collecting equipment. Everything except the back end (HF RX and TX) will be rack mounted in the feed cabin behind the main reflector of the EISCAT Svalbard Radar fully steerable 32 m antenna. We will use my K2RIW and a small HV power supply with forced air cooling. I am currently assembling a 28/432 transverter complete with TXCO local oscillator chain, sequencing logic and power supplies, in an old, stripped-out 19 inch instrument case. All transverter modules except for the second stage RX preamp and the sequencer are ready and tested. The transmitting converter puts out about 15 W, not enough to drive the RIW to full output in class-C, so we will set the bias for class-B and expect to see about 500 W. That should be plenty, as the gain of the 32 m antenna at 432 MHz is estimated to be about 41 dBi! The operating position will be in the radar control room. The 28 MHz if signals and some control/monitoring signals will be piped up and down in coax and twisted pairs. We will not be able to do the operation until May at the earliest. More info about the exact timing, frequencies and operating schedule will be announced later. Questions can be sent to sm2bya@telia.com.

2004 EME CONFERENCE: N2UO reports that the conference web page is now operational at <www.qsl.net/eme2004> thanks to K3TKJ [and the efforts of Marc and his XYL Patty]. The Conference was initially scheduled for August 13, 14 and 15 2004, but some people had concerns that the Perseids meteor shower may affect the attendance. As we want to make the conference open to all amateurs with interest in Moonbounce and general VHF-UHF-Microwaves techniques, we decided to gather opinions and then decide whether to move the date a week earlier or leave it as it is. Please send your comments to Marc at lu6dw@yahoo.com.

DL9KR: Jan Bruinier@t-online.de writes -- I was shaken by the message about Willie's joining the silent keys. My sympathy and condolences go to all who knew and loved him. W1ZX was one of my first EME QSOs when he pounded brass at K3NSS. Willie will be remembered. Here's a brief up-date on my ARRL Contest results, which never recovered from the first weekend storms. It was my first ever contest without any initial. I worked (dupes not listed) on 26 Oct S52CW, UA3PTW, YO2IS, EA3DXU, OH2PO, OK1DIG, HB9Q, DF3RU, K1FO, VK3UM, JL1ZCG, VK4AFL, SP6JLW, JR1RCH, JA8IAD, DJ4FI, DJ5NV, JR9NWC, G3HUL, JH0WJF, ON5OF, F2TU, SM2CEW, G4RGK, DL5LF and G4ALH, on 27 Oct K0RZ, HA1YA, UT3LL, KL7HFQ, K5WXN, HB9JAW, PA0PLY, DL8OBU, N9AB, K5GW, OE5EYM, K4EME, IN3KLQ and K7XQ, on 23 Nov DK3FB, F1CH, OK2BDQ, K9SLQ, RA3LE, G3LTF, YU1EV, VE6TA, DL1YMK, K2UYH, I5CTE, F/ON5OF, DL7UDA, S51ZO, SM3BYA, S53J, DL4KG, W7CI, DL7APV, SK0CC, F6KHM, JJ1NNJ, JA9BOH, PA0BAT, OE5JFL, F5FLN and JA2TY, and on 24 Nov LU7DZ, WA6PY, G3LQR, DJ6MB, JH4JLV, JA6AHB, 7M2PDT, DB6NT, DK3WG and PA3DZL. The WA6PY QSO while Paul was using his feed solo surprised me because Paul was clearly readable at first call. I had worked OE5JFL while Hannes was using his dual dipole feed in a previous contest, also random. [I thought Hannes had used an extended version of his feed?] There were some getaways such as W7MEM, who I did not dare to call tailending on K1FO's frequency. Hopefully, we shall see better WX and lots more activity next time.

F1EHN: Jean-Jacques jjm_f1ehn@wanadoo.fr is working on a new version of his EME System Software. He asks you to send him any ideas and/or needs for ways this software can be made better. The new version will provide improved - Doppler shift calculation (important on the microwave bands), - Antenna pattern measurement, - An Ultri Track Interface (hardware) support, - EME calculator (with more options), and - Improvement of the correction module. The current version (4.3.20) is available (freeware) at http://www.nitehawk.com/rasmit/f1ehn.html

F5VHX: Graham Graham.D@wanadoo.fr has developed a direct conversion (zero IF) radiometer -- It converts a band centered on 1296 to the detector chip (down to dc/baseband with no LO or mixer or other stuff to introduce gain drift and noise used). I still have much to do and a lot of software to write for the micro controller that runs it all. The figure is for trees with the leaves are off. The trees were damp. I can measure the difference between damp (more reflective and thus quieter from true Tground), really wet, leaves, no leaves, etc. It clearly shows the effect local environment on receive capability at low elevation. There is a wall of trees to the west only about 15 m from the dish. The other features in the plot range from 50 m to 300 m away. The plots are at 'limited' resolution at the moment only 0.05 dB steps. I expect to be able to reach 0.00625 dB steps (theoretical) eventually. Some of this resolution may get lost in drift and A/D conversion noise. I will perhaps eventually write this up for the newsletter and make the boards and software available for those interested. I still have many weeks of work a head before this project is completed.



GOUND PLOT FROM F5VHX's RADIOMETER

G3LTF: Peter 100633.1656@compuserve.com sends his first report since Nov -- I was not on in Dec due to a combinatio n of a bad cold and wet WX, so I couldn't go out to the dish. I then set about rebuilding the dish gearbox with a new worm drive to further reduce backlash and to give more frequent updates, every 0.2 degrees of Hour Angle. Again, due to adverse WX, this could not be completed before the Jan SW, but I did get on Monday, 20 Jan and had an excellent QSO with Guenter, DJ4PV on CW and SSB. The next day I worked Jeff, K7XQ on sked for initial #193. He had a good signal (539) and we made an easy QSO. I should be on in Feb, and am available for skeds on 13, 23 and 70 cm.

GW3XYW: Stu gw3xyw@thersgb.net reports on his 23 cm EME activity – I worked on 21 Dec LX1DB (559/569), ZS6AXT (559/569) and IK2MMB (559/559), on 18 Jan IK3COJ (549/549), HB9Q (569/559) and IK2MMB (559/559), and on 19 Jan G4CCH (569/569), W2UHI (559/559), OZ6OL (559/559), N2IQ (559/559) and K5JL (569/579). WSJT was tested on ECHO mode on 23 cm with my normal EME system, except for the linear switched out. Good peaks were obtained first on 5 W and then on 1 W (FT736 direct o/p). Full result details were e-mailed to Joe K1JT. On 18 Jan from 2245 to 2345 I called CQ/test with JT44 on 1296.040 during the EU window. [1296.044 is the JT44 calling frequency agreed up at the Prague Conference.] I ran additional CQ/tests on 1296.040 0n 19 Jan from 0105 to 0135 during the US window. No signals were copied on either test. I think I was being a bit optimistic to expect a random contact on 23 cm! Transmission level was at 0 W, just enough to hear weak echoes on USB. [The JT44 Echo mode is considerably more sensitive than regular JT44 mode. I'd suggest you use full power on JT44 until you have a few JT44 QSOs.] A correction of 600 Hz had to be made because my FT736 was 600 Hz low when checked against an accurate frequency standard. The computer clock was set manually against a broadcast time standard (Rugby in the UK). I am looking forward to the SSB contest after which I will probably QSY to 13 cm. My 10 GHz equipment is t ested OK in the shack and is ready to be re-installed on the dish in the spring.

HB9JAW: Michel HB9JAW@Kaktus.ch sends his 1st activity report for 1296 -- After weeks of receiver problems, HB9JBL and myself were able to solve some of them before the SW. With a 23 cm rig we have been able to check receiver performance and found dead preamps. After replacing them with some very old once with over 1 dB NF, we hoped to have more luck. At about 2200 we elevated the system and found some sigs off the moon. Signals were strong, but difficult to read because my FT 726 has got no filters! In a bit more then 1 hour we worked 8 stations very easily, then our autotrack died. A switch burned out due to arcing. I need to install power switches. Stations worked were ZS6AXT (559/579) for the very first initial, HB9SV (559/579), HB9BHU (539/559), IK2MMB (559/559), G4CCH (559/589), DF4PV (559/579), W2UHI (559/579) and OZ6OL (559/559). My power level was about 300 W. It was a nice new experience to be on 1296 EME. I will try to improve my RX performance and be on for the SSB EME Contest.

HB9Q: Dan hb9crq@hb9q.ch sends news of his group's plans for Feb – Our next activity will be from 15 Feb at 1500 to 16 Feb at 0630. We plan to be QRV for the 1296 MHz SSB EME Contest on or close to 1296.016 (if QRM look for us higher). We may also test on 432.020 random for a few hours, depending on the progress on our 432 system. We worked on 17 Jan on 1296 at 2014 G4CCH (559/559), on 18 Jan on 432 at 2356 UA3PTW (539V/569) and on 1296 at 2129 IK3COJ (539/559), 2148 IK2MMB (529/549), 2213 GW3XYW (549/569) and 2229 DF4PV (529/579), and on 1296 on 19 Jan at 0108 ZS6AXT (559/589), 0111 KU4F (569/569), 0118 W2UHI (569/589), 0133 HB9SV (589/579), 0148 K5JL (559/589), 0153 W7BBM (539/559), 0208 N2UO (329/559), 0223 K4QI (559/559) and 0242 K9BCT (549/569).

K1FO: Steve steve@lunarlink.com was QRV for the Jan activity weekend and the ARRL January VHF contest on 70 cm EME. Inactivity and the cold weather are taking a toll on his EME array. On Friday night Steve's elevation indicator was stuck at 60 degs and his camera was not working, but moon echoes were so strong he was easily able to find the moon using his echoes. He left the camera powered up overnight and it then worked, although intermittently. The elevation indicator eventually broke loose late Saturday night. QSO'd on 18 Jan were EA3DXU, UA3PTW, OK2BDQ, SM2CEW, DJ3FI and SM5IOT (#606), and on 19 Jan K5WXN, W7CI and SM3AKW. For the most part signals were really strong, which was especially impressive given the degradation of 2 dB to almost 3 dB over the weekend due to the Moon's distance and sky temperature. Steve extends a special thanks to all those that provided WW locator exchanges.

K7XQ: Jeff's k7xq@elite.net new feedhorn (VE1ALQ "VE4MA" Feedhorn) has made a big difference — During the Jan SW I worked G4CCH (539) on random on his CQ for initial #5. I heard K2UYH calling CQ on .010 after my QSO with Howard, but he must have turned the dial too early, as he did not reply to my call. I then worked K5JL in a quick 5 min (539), followed by K2UYH on sked (549) for initial #6. Al had a funny sounding rapid QSB to his signal unlike the steady signals from K5JL and G4CCH, but still loud. I heard K2UYH and G4CCH on SSB but not enough to copy words yet. I am now measuring about 15 dB of sun noise. Much of my earlier problems appear to be associated with bending of the feed mount. The new feed is attached with a pipe that runs along the bottom of the feed to prevent bending in elevated positions. The mount was made from schedule 40 black PVC and can be slid in and out for adjustment. The 1 5/8" TX section is located behind the dish and is connected with a ½inch Heliax jumper to the feed. I tested for bending and it's OK this time.

K7XQ's New Circular Feed with Improved Mounting

KL6M: Mike kl6m@cworthy.net should be QRV on 70 cm again in Feb – I have been off the air since June renovating the entire station and reconfiguring the connections from the shack to the tower. The project involved burying all the cables, a new antenna junction box, new positioning indication system, mounting all equipment in a new rack and console in the shack, and a much needed paint job for the tower. I fully expect to be on 70 cm by 0300 on 16 Feb 16, so sked requests are welcome to <kl6m@qsl.net>. I will still be running the same equipment: 9.2 m dish, K4QI feed, KAØRYT 0.16 dB NF preamp and K2RIW PA at about 600 W output. I have acquired a GS35B and hope to have it on the air in the near future, but not in time for the next SW, but hopefully by the DUBUS Contest in March. I plan to run in the DUBUS 1296 contest in April also. I believe my station may be featured in the winter edition of CQ-VHF, so you may want to check it out.

N2UO: Marc mfranco@lintech.com sends the following: I only worked a couple of stations last activity weekend on 1296 (HB9Q and G4CCH) as I spent most of my time working on a 2 x GI7B amplifier. I can get 250 W out of each cavity, and they seem pretty stable. I hope to have the amplifier up and running for the next SW, or at least for the SSB contest. I also worked K2UYH on JT44. It was my first JT44 QSO, and it did not take much effort to complete. Al was running reduced power, and I had about 90 W at the feed of my 10' dish on 1296 MHz. Amazingly, I am using an old 486 computer that seems to be slow, but still runs JT44 for QSOs. I have some problems with the echo mode, though, probably due to the heavy calculations that take place.

N7AM: Jack jackriggs@attbi.com sends the following update – We have been experiencing lots of westerly storms off the Pacific Ocean. Waiting for some decent WX, we have been repairing the Temp gauge at the tower and making some welding improvements. Last night the tracking system software quit and we are attempting to get it working again with some good Computer Garu work.

The contest was very enjoyable and we worked all we could hear. I have learned that we need to get the DEM transverter freq calibrated. I am also planning to get on JT 44, when the time permits.

SM2CEW: Peter's sm2cew@telia.com NL report for Jan – Again excellent conditions were found on both 432 and 1296 in Jan. On 432, I worked OK2BDQ, JA6AHB, UA3PTW (twice), OH1DG, RA3LE, K1FO (2 QSOs - one for the ARRL VHF contest), K9KFR and SM5IOT. Very good signals were observed at all times. The weekend before the SW, I worked G4ALH and K5WXN. On 1296 I was QRV on 11 Jan and worked SM5CFS, F1ANH and F6KHM and then on 19 Jan I worked SM5CFS again, JA6AHB and ZS6AXT. Heard were HB9JAW on Jan 18 with good signals, but I was only listening that day and on the following day Michele was not heard on. It will be our 3rd band on EME when we work on 1296. Also heard was HB9SV with a huge signal. On 432 MHz JT44 I found EA3DXU and DL4KG working each other, excellent signals from both stations.

W2DRZ: Tom w2drz@madbbs.com plans to be active on 23 cm EME the WX turns warmer. He has been working on Moon Tracking Controller Board that he wants to share with the EME community. Before the printed circuit board is sent for production, he would appreciate some feedback. The board is designed to use 2 software Programs: F1EHN and NOVA. You should just be able to just start either of these programs and the unit will control antenna EL and AZ. Tentative specs for the unit are: 1) A/D 10 bits, 2) AB (US DIGITAL) 12 bit sensor, 3) Incremental encoders (quadrature 2 wire) with up to 16 bits depending on the span min to max, 4) Parallel 16 bits - There is a span to set the Min and Max for pots, "analog" and incremental encoders, 5) After installion you set the zero setting and then calibrate the unit to maximum and do a max set of the pots or the incremental encoders - This is stored in the PIC until you have a reason to change, 6) The settings will be there on boot up of the system - Just run the software selected. 7) A zero set for the absolute encoders is included - After installed simply do a zero set of each encoder, 8) An elevation switch setting for 3 conditions (90 deg, 180 deg and 360 deg) will directly interface with the YAESU G5500 rotor using an 8 pin din plug out matched to the YAESU pin alignment used on the control box output. – (Is there a better output arrangement?), 9) Will have a 7 second wait delay of antenna movement - After 1st or last time move if over 7 seconds, bur instant in El or Az each, Will have a shut down of all movement, if no sensor change in 7 seconds, 10) There will be no start of antenna movement until the unit is powered down and back up if no sensor change is detected in 7 seconds - Any shorter and some systems may not be fast enough on sensor to quantify change - This is not intended to be a "safety save for antennas or rotors" but just a feature that will be free to be included as a better mechanical failsafe method should be employed instead , 11) Do not have at present a soft start in the design - How important is this feature?, 12) There is a dilemma of sorts on how much to quantify change before the antenna is moved (big system 0.1 deg, 0.01 deg, or yagi antenna with 2 to 5 deg) - Should there be a switch selectable amount, for example 4 different amounts that can be set by a switch?, and 13) Any other desires with in reason? Please let Tom know your thoughts.

ZS6AXT: Ivo's zs6axt@global.co.za experienced noise problems from a new computer and reports -- On 22 Dec I worked on 23 cm JA6AHB, DL1YMK, LX1DB, GW3XYW, IK2MMB and K5JL. At that time I was still running my new 1.3 GHz computer, which was causing very high noise level, as I discovered later. On 11 Jan I worked on 23 cm K5JL, F1ANH, DF4PV, G4CCH and K9KFR. This was still with my new computer running. On 12 Jan, I made moon AZ/EL printouts and switched off the computer. What a difference in reception! I worked OH2DG, F6KHM, DF4PV, OZ6OL, HB9SV, K0YW and OE9ERC. All with excellent signals, even though it was apogee. I worked on 23 cm on 18 Jan DL1YMK, IK3COJ, G4CCH, IK2MMB, GW3XYW, HB9BHU, HB9JAW for initial #187, DF4PV, N2IQ, W2UHI, OZ6OL and HB9Q, and on 20 Jan SM2CEW, JA6AHB and SM5CFS. Heard were HB9SV. With the exception of SM5CFS all signals were booming. Not much activity, in fact the non SWs were about same activity wise as the SW. There was no response to my query (and warning) on MOON-NET about the use of high-speed computers while operating EME. I wonder has anybody else has had such a problem?

K2UYH: I a.katz@ieee.org found activity very poor on the 18th on 70 cm, and not much better on the 19th on 23 cm despite the ARRL VHF Contest. During the pre- SW I was on 23 cm on 13 Jan for an extra sked with K7XQ. I heard Jeff weakly, but he did not copy me. Before this sked at 0242 I caught N2IQ (56/56) and we had a nice SSB QSO. My results during the SW were not good with nil for all my 70 cm skeds. On 432 on 18 Jan at 0030 OH4LA nil (possibly something, but whatever it was, was too weak to copy), 0100 SM5IOT nil, 0134 K9KFR (569/559), 0405 W7CI (569/559), 0835 JA8ERE nil, 0900 JH0WJF nil, 0927 JA6AHB (559/559) and 1000 VK3FMD nil in an extra JT44 sked. Charlie (VK3FMD) reports partial copy of my calls. I don't understand the poor results on this sked. With the leaves off the trees, we should be able to make it easily on JT44, if not CW. The next day I switched to 1296, but found little activity. I did give N2UO his 1st JT44 QSO at 0330 on 1296. This was challenging because the direct (~ 1 mile) path between us could contaminate the decoding. I later worked at 0415 K5JL (FN20/EM15), 0426 G4CCH (56/56) on SSB and 0500 K7XQ (O/539-CM97) on sked for initial #209. After the SW I was able to reach SM5IOT by email sm5iot@chello.se, TNX to SM2CEW, and discovered that he knew nothing about our sked or the 432 Up Skeds System. I arranged to put Chris on the NL distribution list, so he should be aware of future skeds. I tried to find an email address for OH4LA without success. Does anyone have info on this station? I also discovered that I had previously worked JH0WJF. This led me to start checking my initials list. I have not finished this task, but it appears I have several dups in my 70 cm list. Interestingly, I seem to have missed several stations on my 23 cm list. I still have more checking to do. With more than 30 years on 70 cm EME operation, this may take a little time. After I complete this job, I will correct my tally. I do not believe it is far off.

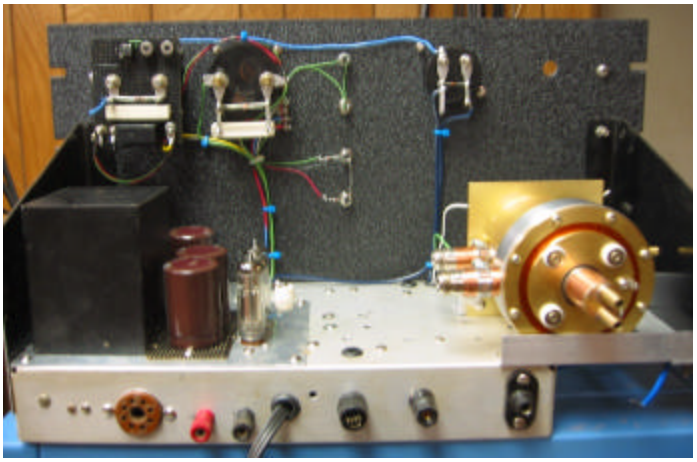
NETNEWS BY G4RGK BASED ON K1RQG NETNOTES: **F2TU** has a new email address F2TU.Philip@guideo.fr. **W9IIX** worked K5GW (559) on 1296 in Jan. He is looking for info on the GI7B cavity amp that N2UO is constructing. **K5WXN** needs info on how to split receive an IC-746. **VE4MA** is still working on gear for 47 GHz EME. **AA5C** is working on GS9B PA for 2304. **K9SLQ** had a great contact with SM3BYA (549) in Jan. **EI7FJ** in IO62RG is working on a 70 cm EME station using 4 x 29 el Cushcraft yagis and 500 W. His UHF call will be EI9E. **W2UHI** has ordered an HP-8970B NF meter. WD5AGO is measuring 3 dB of sun noise with a 20" horn on 23 cm. CS/G noise is 6.8 dB. **W4OP** is making progress on his YD-1336 PA. **W5LUA** has shipped the HV assembly to VE7CLD for his 24 GHz TWT. It looks like G3WDG will be visiting and able to pick up his 24 GHz gear. **W4TJ** now has an AIL NF meter. **LX1DB** has a new email address lx1db@lx1db.com and web page www.lx2db.com. Willie is putting a 3 m Andrews dish on 24 GHz, but will not be QRV until his TWTA arrives. He presently is limited to 5 W. **K5JL** worked K7XQ again on 23 cm in Jan and reports Jef's new feed is working well. **N7AM** is sending e-mail QSLs. (The ARRL currently does not accept E-QSLs for awards).

FOR SALE: **HB9JAW** is looking for a 600 Hz filter for a FT726R. Michel also asks can anybody repair a DD1XF Cavity preamp? He can be reached at HB9JAW@Kaktus.ch. **K5JL** cliebman@ionet.net has for sale 6 x 7289 OZ9CR amplifier with input and output mods. PA includes 6 filament transformers, bias supply with metering and adjustment for each tube. Without tubes Jay is asking $US1600. **KG6FCB** has a new unused TH-328 tube for sale and is looking for a WD5AGO preamp. **G4RGK** has the following looking for a good home: DOD006 tube (similar to 7213), half finished metalwork kit for K1FO 2 x 3CX800 70 cm PA and a GS35B 70 cm PA. **K9BCT** has a spare 1296 MHz diagonal feed, if any one needs one. It will work with dishes of 0.35 to 0.42 f/d, but was designed for a .375 f/d dish.

TECHNICAL: DL9KR reports that during the recent weeks he has been evaluating the performance of the new Agilent devices, ATF34143 and ATF54143, and comparing them with an unaltered MGF4919G. The MGF4919G was measured very conservatively at 0.31 dB in Prague. I used 30 dB attenuation plus circulator between the noise source and the DUT. Both the ATFs were tested in an appropriate cavity, outer conductor 43x43 mm, inner conductor 12 mm dia and length 68 mm. Bias was applied thru the (inner) coaxial conductor thus excluding the influence of a choke. 5 samples were tested without any difference in NF and very small variance in their dc parameters. All 34143s were 0.02 worse than the MGF4919G and had approx 5 dB less gain than the 54143s. All 54143s were 0.04 dB better than the original MGF4919G cavity. In addition, in spite of its lower gain the 34143 was much more difficult to stop oscillating. IP3 was not measured because it is not relevant at my QTH. To sum it up, Jan says "NFs at or below 0.2 dB on 432 MHz are unrealistic at room temperatures. Only performance in the real world counts!"

GS-15B CAVITY TECH NOTE BY K5JL: Mats WD5FXZ has come up with a unique cavity amplifier for 1296 using the GS-15B. For details go to www.nd2x.net. Under the QRO section look up the GS-15B article by WD5FZX. Mats shows complete construction information and test results. The good news is for those who do not wish to construct their own cavity. Mats is putting the cavity together, testing it, and supplying a spare tube. The price is about a dollar per watt or around $US400. Contact Mats at www.mgbpcs.swbell.net for a delivery date or additional details. He is presently working on a run of five and needless to say – all have been spoken for. We acquired a cavity from Mats and are extremely pleased with its operation. It is running very conservative and producing over 300 W out. More dive and a reduction of bias will produce about 400 W. The cavity is most stable. It was initially tuned and has not been touched with the output remaining constant. Mats has been running one – keying it 24 hours a day for several weeks with the same results. Our on the air results are most pleasing. Signal reports are about an

S unit below the TH-327 running a kW. The GS-15 lets us drive the TH-327 to about 2 kW out, as before with the 2 x 7289's just over a kW was possible. Power supplies for the cavity are pretty much straight forward. The cavity and all power supplies with the exception of the HV supply were built on a 10½ panel mount rack. As per Mats recommendation we are running the hearer at 5.5 volts. The bias supply is 33 volts and the screen supply is 330 volts. Zenners can be used for the bias and screen supplies. We are using 3 OB2's for screen regulation. As the GS-15 is a negative screen current generator a good stable supply is must for the screen voltage. Also a 68 k – 2 W resistor MUST be installed from cathode to ground, to cope with the negative screen currents. We have not seen an indication of positive screen current. When loaded properly the cavity runs about 1 ma negative screen current. Mats came up with the idea of reading the current of the 68 k resistor, which is 4 – 5 mA, without drive. When drive is applied, it will indicate a decrease of about 1 mA. Thus a 10 ma meter for the screen current will suffice. Normal grid current is 8 – 10 mills. A 20 mA meter for the grid current is sufficient. We run 1800 to 2000 volts on the anode. Current is between 300 and 400 mA depending on how hard you drive the cavity. With 10 W drive the above voltages produce an output of 300 to 350 W. Water is used for the main cooling of the amplifier and a small muffin pan fan is used to blow air over the input section.



K5JL's GS-15B PA (by WD5FXZ)

EDITORIAL BY DL9KR ON JT44: It was with great interest and consent that I read the many letters concerning the inclusion of JT44 into the DXCC mixed mode, along with CW and SSB. Wisely, up to now the ARRL has established a separate DXCC for non-aural modes such as RTTY. JT44 and the like are non-aural modes as well. After all, we are RADIO amateurs experimenting with RADIO aspects of our hobby, i.e. we are trying to obtain optimum performance of our antennas, transmitters and RADIO receivers, the latter predominantly meaning ultra-low noise front ends and overload insensitive receiving systems. Moreover, ARRL even issues a separate top band DXCC because top band requires ingenious RX and TX antennas and personal efforts concerning (aural) weak signal work, quite comparable with EME. In contrast, JT44 depends primarily on DATA PROCESSING in a non-aural way. In this context, experimentation is left to a knowledgeable minority and, by my opinion, has nothing to do with RADIO as we understand it since the days of W1AW and his fellow amateurs. Inclusion of non-aural modes into the CW/SSB mixed count for DXCC, VUCC etc. would render decade-long efforts of many EMEers worthless because "EME" would become feasible with submarginal RADIO systems. To be sure, I'm absolutely not against modern and ingenious techniques and even prepared to try JT44 myself. But PLEASE put this completely different mode where it belongs, i.e. separate from the conventional (aural) modes.

EDITORIAL RESPONSE BY K2UYH: The advent of JT44 has generated significant passion among many members of the EME community. Differences in opinion can be good in that they can produce interest and result in a better overall understanding of issues. They can also be bad if we lose site of our common goals and friendships. I am not in total agreement with the editorial by DL9KR. I believe the ARRL does recognize RTTY QSOs and by similarity JT44 QSOs for DXCC (mixed mode). I believe WSJT and similarly JT44 QSOs are counted for VUCC. I can support special recognition of DXCC/VUCC awards achieved exclusively on CW or SSB or both. I do believe things will get even more complex as new technologies are applied as new narrow band digital voice modes that offer better performance in the presence of noise than SSB. This will all make for some very interesting times.

FINAL: This is an unusual month as we have more tech material than activity reports. Please keep the technical stuff coming, but we also want the activity reports too!

** The *TOP10* of HB9Q's Top List are included at the end of this NL for 70, 23 and 13 cm. Next month I will have the microwave EME bands. Dan now has close to 300 entries in the list. Please help him keep the list up to date by updating your entry at www.hb9q.ch/database/search.htm.

** Rein reports there is a Linrad equipment data page now on his WEB site at http://www.nitehawk.com/linrad_dat.

** W2WD wbutler@comcast.net has distributed and an updated version of the 432 UP EME Email List.

** WA4NJP invites EMEers to the SVHF Society Conference on 26 April in Huntsville, Al - see www.svhfs.org.

** Because of business travel by K1RQG, there are no skeds this month. Please see http://www.dl4eby.de/ltskd.htm for any last minute updates.

** I hope to hear many of you on 1296 during the SSB Contest and on 70 cm as well. 73- Al, K2UYH

TOP LIST

Pos.	Callsign	Band	Initials
70 cm			
1	DL9KR	432	768
2	K2UYH	432	649
3	K1FO	432	606
4	DK3WG	432	390
5	SM2CEW	432	382
6	OK1KIR	432	358
7	SM3AKW	432	357
8	G3LTF	432	353
9	KU4F	432	326
10	K0RZ	432	308
23 cm			
1	OE9ERC	1296	262
2	OZ4MM	1296	201
3	K2UYH	1296	197
4	F2TU	1296	190
5	OK1KIR	1296	189
6	ZS6AXT	1296	187
6	HB9BBD	1296	187
6	G3LTF	1296	187
7	G4CCH	1296	172
8	SM3AKW	1296	170
8	WD5AGO	1296	170
9	SM6CKU	1296	158
10	EA6/DF5JJ	1296	148
13 cm			
1	OE9ERC	2304	58
2	OZ4MM	2304	41
2	OK1KIR	2304	41
3	F2TU	2304	32
4	ZS6AXT	2304	31
5	JA4BLC	2304	26
6	SM3AKW	2304	23
7	WA6PY	2304	13
8	LA8LF	2304	9
9	EA3UM	2304	7
9	ON5RR	2304	7
10	PA3DZL	2304	2