432 AND ABOVE EME NEWS
MAY 2009 VOL 37 #5

EDITOR: AL KATZ, K2UYH; DEPT. ELECTRICAL/COMPUTER ENGINEERING, 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: TOM KIRK, KA2VAD (609-584/8424), E-MAIL kirkt@lintech.com
NETNEWS EDITOR & INITIAL LISTS: G4RGK, DAVID DIBLEY, E-MAIL g4rgk@btinternet.com (based on K1RQG's Netnotes & Reflector News)
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@snafu.de
NL EMAIL DISTRIBUTION and EMAIL LIST CORD: WARREN, W2WD wbutler@ieee.org [TXT OR PDF OR "ON WEB" NOTICE]
THE NL WEB VERSION IS PRODUCED BY REIN, W6SZ AND AVAILABLE AT http://www.nitehawk.com/rasmit/em70cm.html

CONDITION: We were blessed with two contests this month: the 10 GHz leg of the EWW/DUBUS/REF EME Contest on 28/29 March and the 432 and 5760 Contest on 4/5 April. I think the closeness of these two contests may have affected activity levels. Conditions on 70 cm did not help and were not especially good. Faraday produced 90 deg non-reciprocal polarization conditions, and the libration fading was not at its best – See SV3AAF's report. There was also two dxpeditions 5N0EME, which is still taking place, and 5Z4EME. Coming up immediately is the 13 cm and 9 cm EME Contest on 2/3 May, and at the end of May (30/31) the 23 cm grand finally! MI/DL1YMK's dxpedition to Northern Ireland will be active during this contest on 23 cm and on other dates on 70, 23, 13 and 9 cm as well – see Michael's skeds at the end of this newsletter (NL). Besides Bodo's continuing 5N0EME operation, 4O/PA2CHR is planning to be QRV in May – see below and the HB0/DF1SR dxpedition is in operation as I write. With all this activity it seems superfluous to note that the weekends of 2/3 and 30/31 May are both Activity Weekends (AWs) and that the May 70 cm CW Activity Time Period (ATP) is on Saturday 2 May from 1230 to 1430 and 2200 to 2400.

4O/PA2CHR: Chris (PA2CHR) with PA3FPQ and PE1LWT plans to be QRV on 432 from Montenegro (JN92hj) from 26 May to 4 June 4 x 16 el yagis and a TBD PA (they are still looking for a small one with QRO).

5N0EME 2.4 m dish used on 23 cm

5N0EME: Bodo, DL3OCH dl3och@gmx.de sends an update on his Nigerian dxpedition -- The next activity of 5N0EME is for 23 cm on 30 April between 1700 and 2000. I will be on 1296.090. I will always call in JT65 in first period, but I am happy to answer your call in CW, if I hear you. I am always listening on my own echo frequency. I am using a 2.4 m dish with patch (CP) feed and about 90 W out of my DJ9YW transverter. I do not have a preamp, but only a short cable. Please keep in mind that I have to move my dish by hand which may lead to some QSB. My operating site has its own generator, but the installation is very bad and often I have power problems. If you are working me and I just disappear, please keep calling me until the QSO is finished. I might have just lost the power for a while. I am often asked about a sked in the night. It is not very pleasant as the light attracts thousands of bugs. If I open the door to go out and adjust the antenna, it would make it even worse. I therefore prefer to operate EME during the day only. During my last 23 cm activity I had JT65 QSOs with DJ9YW, HB9Q, G4CCH, HB9HAL, LA9NEA, OK1DFC, RD3DA, RW6AG and PA3FXB. Additionally I had QSOs on CW with HB9Q, OK1DFC and OZ4MM. I also worked on 70 cm HB9Q, DL9KR and OZ4MM. I hope that many others will follow. I will be in Nigeria until July. (I also made many 2 m QSOs). I check the HB9Q logger when I am on 23 cm.

5Z4EME: René (PE1L) hasperrene@gmail.com reports that the 70 cm part of their dxpedition was not as successful as they had hoped. They had RX problems, but did QSO HB9Q and PI9CAM and later DL9KR [I believe]. PI9CAM only (28DB) on JT, so they were not hearing that well. They also had problems with HB9Q's logger and used the N0UK logger.

AA6EG: Pat, apolloeme@live.com, organizer of the Echoes of Apollo (EOP) program on 26 June, USA Field Day weekend [see past NLs], writes -- We were given permission to use the 45 m SRI dish and are working on a fast build up of a 23 cm station. In the short time available we are under pressure to accomplish a lot and are determined to be on the moon soon. We visited the SRI Dish and are developing a cooperative working relationship with the SRI team of professionals. We are also working with interested local amateurs. We examined the dish and its drive systems to develop mounting/installation ideas for our planned prime focus feed. We already have a 300 W TX/PA and need to decide on the feed. It may be a scalar feed from SRI or we may purchase a VE4MA dual mode or septum feed. The professional Staff at SRI includes a number of hams, and ham friendly members, who are very helpful. I am looking for help with locating the feed. We continue to invite EMEers to join the EOA event, particularly during prime time for EME between Australia and the world on 26 June. Australia is the principal target, due to their historical prominence in the Apollo 11 moon walk broadcasts. This is 40th anniversary year of that event, the original inspiration for creation of EOP. Dishes and EME stations planning to participate include: SRI 45 m dish (37,24,31N & 122,10,47W), DSES 20 m dish (40,08,53N & 105,13,56W), Morehead 21 m dish (38,11N & 83,27W) PI9CAM 25 m Dwingeloo/CAMRAS (52.813N & 06.396E), Tasmania 26 m Mt Pleasant dish for receive only (42,48,18S & 147,26,21E), Pisgah 4.6 m Smiley dish (35,12,07N & 82,52,23W), KL7UW (60,40,05N & 151,18,51W), K5JL (35.66N & 97.76W), K5SO (36.00N & 106.1W), K1RQG (44,38,42N & 68,43,47W) and several additional Australian dishes. I am looking for ideas on the operating activity design, to maximize fun, and numbers of contacts. I also want to maximize publicity, and science outreach opportunities, so, if you can, invite visitors to your EME station shacks, and observing 3rd party restrictions, engage the visitors as participants. Invite the local news media to do a story. With the number of large dishes in the 50 dBi gain range, we are hoping to see some Satellite and terrestrial 1296 stations to do EME with us. We are also investigating webcam software to allow streaming video to be viewed on line from suitably equipped stations.

AA6EG checking out the feed at the Stanford Dish

CT1DMK: Luiz cupido@mail.ua.pt is back on EME. He was on 6 cm and 3 cm for their respective contest weekends. He worked two stations on 5760. During the 3 cm contest weekend, I started work on dish on Friday and finished Sunday. I had about 18 W on 3 cm - not happy with the low power, and 0.6 dB NF and 35 W on 6 cm with circular pol.

F1EHN: JJ jjm_f1ehn@wanadoo.fr writes -- There are now more than 140 photos of antennas in my database covering the EME bands from 6m to > 1.2 cm at http://picasaweb.google.com/papatoux. The goal of this database is to quickly display during a QSO the photo of the antenna and the location of a DX station. Of course. The database can also be browsed with other tools like EME System and Google Earth at any moment. I plan to do a new package at the end of March. If you wish to add your antenna's photo, please send it via email + info the following information: a photo of your antenna (1 per band) (> 640*480 pxl), a comment/title of this photo (ex: F6KSX 3 cm - 3.3 m dish), latitude and longitude of the antenna (optional), your grid square (locator), the nearest city to check the location of the photo, web site (if you have one).

F2TU: Philippe f2tu.philippe@orange.fr sends news on his DUBUS 10 GHz Contest activity – On Saturday of the contest, the WX was bad with rain, snow, fog and high winds working against me. Signal copy was equally bad with lots of QSB. Despite these problems, I contacted 14 stations on random: F5JWF, ES5PC, IQ4DF, G4NNS, OK1CA, WA7CJO, LX1DB, OK1KIR, SP7JSG, DL2LAC, GW4DGU, F6CQK for initial #50, WA6PY and W5LUA. I also had a partial QSO with VK3NX, who disappeared into the QSB. WC8VOA reports hearing my CQ. On 30 March I QSO'd also on 3 cm I4BER (569/569) and (55/44) on SSB and IK2RTI. I4BER's signal can be heard on web page, http://F2TU.perso.orange.fr under "Signals". I was not QRV on 5.7 GHz part, but will be active on 2/3 May on 2304 and 2320 and listening crossband for 2424 and 2301 QSOs.

G3LTF: Peter g3ltf@btinternet.com sends his April EME reports -- On 4 April I started on 1296 as I wanted to work SM6FHZ and missed him on previous occasions. I QSO'd him for initial #295 [Is this an initial as Inglof was QRV in the past?]. He had an excellent signal despite some tree blockage at my end. I also worked IW2FZR. I then put the 432 feed in and worked the following: VK3UM, UA3PTW, SP6JLW, SM2CEW, JA6AHB, JA0TJU, OZ6OL, DL9KR, OH2DG, I1NDP, DL1YMK, IK6EIW, G3LQR, SP7DCS, SV3AAF, UA6LGH and GW3XYW. I then went back to 1296 to work DF1SR #296 and then to 2320 to look for him there. I didn't hear him, but he heard me. I did work SP6GWN and heard and called DL2LAC (both on 232). Back again to 432 and worked N4GJV, NC1I, K5JL, DF3RU, K1RQG, WA6PY, K2UYH, W8TXT, OZ4MM, SD3F and K7XQ. On 5 April, I worked JJ1NNJ, OE5JFL, YO2IS, S51ZO, DL7APV, SM3JQU, DL5FN, IK2RTI, G4YTL, and OK1DFC. CWNR was N4PZ. Conditions were good, but you did need to get the polarization right, it was very sharply defined. It was sad that there was not more US activity on the band. Paul, WA6PY shows how to do it with a pretty small antenna. I am now getting ready for the summer microwave season. The 13 cm system is giving 15.9 dB of sun noise with an SF69. I'm well on with the new mount for my solid 2.4 m offset dish, which I shall use on 6 and 3 cm, hopefully later this summer.

HB0/DF1SR: Kasimir (DL2SBY) dl2sby@arcor.de sends news on plans to put Liechtenstein again 23 and 13 cm (2304, 2320, 2424) EME -- Georg, DF1SR and I will be again going to Liechtenstein! As last year the callsign will be HB0/DF1SR. We will be there from 24 April until 4 May (QRV 27 April through 3 May) including the DUBUS 13 cm Contest. We will have a bigger dish (3.7 m vs. 3 m last year). We will TX on 2320.090 and RX on 2320.090, 2301.950, 2304.090 and 2424.090. Information about our trip can be found at http://home.arcor.de/georg.hylinski/. We hope to work you all!

JA4BLC: Yoshiro ja4blc@web-sanin.co.jp reports on the Eur/DUBUS Microwave EME Contest – On 29 March I listened on 3 cm and copied OK1KIR (O) on 10.368, and on 4/5 April worked on 5760 OK1KIR (O/O), OK1CA (339/559), VK3NX (O/M), ES5PC (O/O), W5LUA (O/O), IK2RTI (559/549) and OE9ERC (559/439). Before the weekend, on 3 April I worked JA6CZD (449/449) on 5760. My equipment on 5760 is my 6 m dish with the center 4.2 m covered by aluminum panels fed with a circular pol Septum feed and HB 30 W SSPA. My Sun noise is 11 dB and Moon noise 0.7 dB. On 10 GHz with the same antenna with similar circular pol Septum feed and NE32984 LNA, I measure Sun noise of 8.6 dB, Moon noise of 0.5 dB. I have no SSPA at the moment.

JA6CZD: Shichiro ja6czd@mx35.tiki.ne.jp is now QRV on 5760 using a 5 m mesh dish and 80 W SSPA. He worked on 4 April during the DUBUS EME Contest OK1KIR (559/559), VK3NX (559/569) and IK2RTI (569/559); and earlier JA4BLC (449/449). [TNX JA4BLC for forwarding this report].

K1RQG: Joe k1rqg@aol.com was on 70 cm EME in April – I QSO'd a few stations on 4 April between 0000 and 0100. On 432.014 there was 3 or more stations only about 10 hz apart calling me repeatedly. I believe one was VE2ZAZ and the other OK1TEH, but both were transmitting simultaneous all the time. I also believe K7XQ was in the fray as well. Just too close together. Sorry to those stations. I finally did work VE2ZAZ.

K2DH: Dave k2dh@frontiernet.net was QRV the end of March and in April on 1296 -– I worked on 28 March HB9MOON, VE3KRP and HB9IZ, and on 29 March IW2FZR, LA9NEA, UT5JCW, G4CCH and HB9MOON again. My station is now working very well and I am concentrating on getting my 13 cm hardware going. I now have a feed that seems to perform very well as far as port VSWR and port-port isolation. Next, I have to get it up on the dish and see how it looks on Sun Noise.

KA7V: Barry barrywright@sbcglobal.net was on 432 for the DUBUS Contest with his new TR relay and preamp – At the contest start I heard K1RQG and K5JL right away. After moonrise on Saturday (local) I heard Jay and called him but no replay. I also heard K2UYH and a few others that I couldn't quite discern their callsigns. I then heard I1DNP calling CQ for quite some time and called him several times, but no luck. I took a nap with the intention of getting up in time for the VK/JA window to my west, but didn't wake up in time.

KL6M: Mike melum@alaska.net writes -- Sorry I did not make it on for the 70 cm contest... Except for a brief period when I was able to fire up and work I1NDP and DL1YMK. It saddened me to miss the DUBUS 70 cm contest, it is my favorite! I had work conflicts and also my wife's birthday dinner, besides the declining declination caused tree and mountain blockage for my Eur window. I am still having polarity rotator problems as well whenever the temp goes below 32 deg F. I am building a new polarity rotation system that should be ready by summer.

LX1DB: Willie wbauer@pt.lu reports on his 10 GHz activity – On 31 March I made initial QSOs ON5TA (2.3 m dish and 8 W), WC8VOA (569/579) and (44) on lower SSB, then (55) on USB but no report back because as they were not prepared for SSB. In the DUBUS Contest I made 6 QSOs with ES5PC, F2TU, G3NNS, W5LUA, IQ5DF and OK1KIR. CWNR was WA6PY. I was QRV on 28 March for only 30 min and on 29 March only 1 hour and 15 minutes, but had to stop due to high winds. I also heard WA8VOA during contest with a nice signal.

NC1I: Frank eme@nc1i.com reports that his DUBUS Contest plans were spoiled -- W1QA came over Friday night as planned for our 432 effort in the DUBUS contest. We found that we had a final problem and after some trouble shooting it appears to be an open filament. The 8938 amp has been a real workhorse for nearly 30 years and still has the original tube in it. I do have a new spare, but we want to do more trouble shooting before installing the new tube. After some conferring with K1FO, it was clear that we did in fact loose the tube. Steve made some recommendations on installing the new 8938. The spare tube was still sealed from Eimac but had an 86 date code so we wanted to proceed with caution. Bob did the swap out and all went fine. Steve suggested running at low power for the first few hours so the amp is throttled back about 4 dB for the weekend. After this weekend we will return to full QRO. Bob did all the operating as I have to be away for some family activities. About a dozen stations were worked. Due to the high winds the array is still tied down which limits us to elevations greater than 30 degrees. This kept us off during the Asian window. Activity from here will be sparse now until late fall as we are now into baseball season, which occupies most of my spare time. Bob is working on a few projects/upgrades to the station so I am sure he will keep it somewhat active while I'm involved with other activities. Later this month I am going to pull the preamp box down and go through it. It has not been touched since 1994 and it's probably a good idea to check all of the connectors, cables, relays, etc. I do think we are down a couple of dB on receive, so this is probably a good place to start. Received signal reports continue to be very good and the SWR is outstanding. (Less than 1 watt reflected with 1500 W forward). Visual checks of the open wire junctions do not indicate any problems so I think something in the preamp box may be the issue.

N4GJV: Ron's qstdemb@yahoo.com 70 cm EME activity report for April -- I was QRV briefly on 29 March and QSO'd K5JL and had a partial QSO with OZ6OL. During the European EME test, I experienced a transmitter problem, which caused my power output to be below normal at the beginning of each transmission. The more serious side of the situation was that the power output further declined as the transmit sequence continued. I had introduced this problem while making an ill fated attempt to cure a HV fuse blowing problem! Faraday rotation seemed to be greater than it has been during recent months. In the final moon pass, the moon declination was relatively low and I experienced

some birdie and noise problems, as a result. Despite the low transmit power, I QSO'd K2UYH, OZ6OL, K1RQG, SD3F, W8TXT, JJ1NNJ, VK3UM, K5JL, UA3PTW, OZ4MM, SM2CEW, DK3WG, DF3RU, I1NDP, SP6JLW, G3LTF, WA6PY, DL1YMK, DL7APV, NC1I, JA9BOH, JA6AHB, OK1DFC and G3LQR. All heard my tiny signal well enough to complete random CW QSOs. Thanks to all for their efforts! My highest praise to WA6PY, who obviously has absolutely incredible "ears"! KA7V, UA6LGH, OH2DG, K7XQ, K4EME and SV3AAF were all heard very well, but called without success. I did receive QRZ? from the latter three stations. Also heard, with good signals, were DJ7GK, LZ1DX, and N4PZ. I had a great time, despite the transmitter problem, TNX to the enhanced activity resulting from the contest! Many thanks to the contest sponsors!

OK1CA: Franta strihavka@upcmail.cz was QRV during 3 cm part of DUBUS Contest -- I had trouble with my transverter, and as a result worked only F2TU, ES5PC, G4NNS and F5JWF. The following weekend I was on 5.7 and QSO'd VK3NX (559/529), ES5PC (O/O), JA4BLC (559/339) for an initial #10, OK1KIR (579/O), IK2RTI (579/529), G4NNS (O/O), CT1DMK (559/549) #11, K5GW (579/559) #12 and W5LUA (579/O) in the 6 cm part of DUBUS Contest. CWNR were JA6CZD and HB9HAL.

OK1DFC: Zdenek's ok1dfc@seznam.cz April report -- Due to busy days in QRL and bad WX this winter, I was not very active the past few months. This weekend we had very nice WX and I had some time to spend with my dish generating a little traffic via the Moon. I have finished a new LNA for 432 MHz with an NF of 0.3 dB and a gain of 21 dB. It is my first stage, than I have 5 resonators cavity filter and second stage LNA with 18 dB gain. With the filter I have eliminated some of the QRM produced by CDMA phone operator and TV DVBT approximately 8 km from my QTH. I am now also using an SDR 14 which working great and giving chance to know who is where without turning a knob. This year I had the chance on 23 cm to work 2 great EME dxpeditions to Africa and add 2 new countries to my DXCC account. I QSO'd since Jan on 1296 CW/SSB: I5MPK, UT5JCW, UT5JCW SSB, PY1KK SSB for initial #247, PA3FXB SSB, PY2MJ #248, UT5JCW, G4CBW #249, K4QI, N2UO, LA9NEA, RD3DA, SM2CEW, HB9HAL, 5N0EME #250 and RW6AG #251, and on 1296 JT65 G4CBW {#58}, PY1KK (#59), VK2JDS {#60}, HB9HAL {#61}, PY1KK, V5/KT6Q {#62} and DXCC* 59, W5LUA, 5N0EME {#63} and DXCC* 60 and LA9NEA {#64}. I added on 432 CW LZ1DX #89, VE2ZAZ #90, DL9KR, UA4API #91, VK3UM, OK2POI #92, SP6JLW, UA3PTW, JJ1NNJ #93, DK1KJG #94, DF3RU, OZ4MM, G3LTF, SP7DCS #95, SD3F, N4GJV, G4YTL, OZ6OL, SM3JQU, G3LQR #96, K1RQG, S51ZO #97 and VE6TA, and on 432 JT65 OE3SJA {#56}, LZ1DX {#57} and DXCC* 49, UK/DL9LBH {#58} and DXCC* 50, EA3XU {#59}, V5/KT6Q {#60} and DXCC 51*, YL2HA {#61} and DXCC* 52, DL5FN {#62}, OH3KLJ, PE1RDP, VE2ZAZ {#63}, UA3PTW {#64}, YU7AA {#65}, RW6AG {#66}, EB3DYS {#67{, JH0TOG {#68}, JN4VAX {#69}, RA6DA {#70}, UA4API {#71}, LZ1DX, UA4AQL, VK4CDI {#72} and PY1KK {#73} and DXCC* 53. So my final account on 23 cm is now initial #251 (CW), {#64} JT and mixed DXCC* 60 and for 70 cm initial #97 CW, {#73} JT and mixed DXCC* 53. I will follow up with my improved 432 set up now and focus a little bit my activity on this band. Please be patient if I am asking QRZ because QRM is horrible and I need a little more time to read all letters correctly. You cannot to imagine how terrible it is to read JJ1NNJJJ1NNJ with fading and librations via Moon. Also S51ZO with so many dots on beginning of the call! TNX for all the EME fun.

OK1KIR: Vlada, Jan and Tonda vladimir.masek@volny.cz ops of the OK1KIR EME team send a summary of their recent operations -- We were active on the microwave bands and worked on 28 March, on 13 cm at 1022 LZ1DX (M/449) for initial #80, DXCC 32 and first LZ/ OK on 13 cm QSO (LZ1DX is using a 2.4 m TVRO dish, 400 W and a 0.27 dB LNA), and on 3 cm at 1932 WA7CJO (599/559), and on 29 March on 3 cm at 0718 F5JWF (559/579), 0727 F2TU (549/549), 1506 ES5PC (559/559), 1530 G4NNS (559/569), 1540 IQ4DF (599/569), 1608 SP7JSG (O/539), 1622 GW4DGU (O/O), 1750 W5LUA (559/569), 1851 CT1DMK (O/O) and 1955 LX1DB (589/579). Heard on 3 cm were WA6PY (short period), JA4BLC, ON5TA and WC8VOA. We missed OK1CA, VK3NX, DL2LAC and F6CQK (QSO'd by F2TU). We also worked on 3 cm on 30 March at 1456 I4BER (55/55) and later (57/56) on SSB - (repeated for demonstration), and on 1 April at 1929 ON5TA (M/O) for initial # 44 and DXCC 9. (ON5TA is a new station using a 2.3 m offset dish and 9 W out). Heard on the 1 April were ES5PC and CT1DMK. We took part in the EU (DUBUS) EME Contest for 5.7 GHz and worked on 4 April at 1215 ES5PC (O/O), 1238 JA4BLC (O/O), 1311 VK3NX (559/559), 1420 JA6CZD (559/559), 1418 OK1CA (O/579), 1534 HB9HAL (M/559) for initial #29 and DXCC 18, 1555 IK2RTI (559/569), 1623 G4NNS (O/O), 2130 K5GW (O/O) #30, 2151 CT1DMK (549/559) and 2345 W5LUA (569/569), and on 5 April at 0030 WD5AGO (M/O) and 1447 VK3NX (559/559) and 1700 OE9ERC (579/449) for a score of 13 x 13 = 16,900 points. We also tried on 10 GHz on 4 April at 1800 LZ1DX (2.4 m dish, HB septum feed and 21 W TX) for only a partial (T/339). During this sked we heard SP7JSG (O). TNX to everyone for all the good activity and the great contacts.

OZ4MM: Stig vestergaard@os.dk reports a visit from Mr. Murphy during the April 432 DUBUS Contest weekend. When I started my TH347 PA in my "PA-remote house", it started as a machine gun with flashovers, etc! I found out there was moisture in the 4 kV power supply and in the cavity too. During repair I was listening to the QSOs being made. By 2000 I was ready and the amplifier then worked OK. I need some heating in my "PA-remote house" to get rid of the moisture. Generally, I found good conditions but not the best activity.

PA3FXB: Jan jvmmap@bart.nl reports on his April operation – I had a very nice start. On 2 April I was very happy to work 5N0EME on 23 cm! It's the first 5N-PA on 23 cm and it completes my WAC. Thanks to Bodo for this nice activity! On 3 April I added another new DXCC for me, YL3AG. ZL1WN has become active on 23 cm EME. Ross and I have a very short window of about 6 minutes once a month. I received his signals on 28 March during his QSO with HB9HAL, but the window closed before we could have a QSO. I hope to have a QSO during our next 6 minute window. Because of a tree, which gets more leaves every day now, the window is becoming even smaller. EME is an exciting game!

PI9CAM: Jan jvmmap@bart.nl also reports on the his club's April big dish operation -- On 5 April we were active again on 23 and 70 cm. TX permission came only a few days before this activity. That's because sensitive radio astronomy experiment going on in the vicinity of our dish, which caused our TX to temporarily stop. (It was moved to another location just a few days before - excellent timing – hi)! We started a bit earlier than expected. Building up the station now seems to have become a routine. At 10 degrees elevation on our moonrise, we have TX permission. At that time we saw JH1IGC on 23 cm. That was a surprise! We worked him and found out later that he was using only 5 W! He had 5 m dish, which helps a lot. We called CQ on 23 cm and worked ES6RQ, RD3DA, VK2JDS, JA1WQF and RW3BP. Sergei surprised us by "testing our RX" ability by only using 1 W for our QSO. We still had excellent copy! The main goal of this short activation was to work the 5Z4EME expedition on 70 cm. They first had a QSO with HB9Q and after that we called them. We had good copy of their signal, but it seemed their RX was difficult. After 40 minutes we finally succeeded! After that there was only very little time left for other QSO's, but we did work on 23 cm OH2DG and YL3AG, and on 70 cm IK6EIW and OZ4MM. We were supposed to stop at 1800, but pushed the limit to 1815. It was heartbreaking to hear you guys call us after our QSO with OZ4MM, but we really had to pull the switch.

SV3AAF: Petros sv3aaf@yahoo.com reports on 70 cm DUBUS Contest activity -- Activity was relatively good during contest. I worked on Saturday VK3UM, UA3PTW, I1NDP, SD3F, OH2DG, DL9KR, G3LTF, JA6AHB, DL7APV, SM2CEW, DF3RU, SP6JLW, K2UYH, K1RQG and OZ4MM. Signals were mostly good, but with Faraday spread during eastern window and to the west vertical pol conditions with one way propagation to central and northern Europe. I had to alternate polarity between RX/TX. Single and non-adjustable polarity stations would have had a hard time. On Sunday I only had the chance to operate later when the traffic was disappointing. There was only the usual ones calling CQ; no stations responded my calls. Libration was terrible at times. I think it will help a lot to account for libration when arranging activity weekends and contests for 432 and 1296 where it is the most disturbing. I have put together a low libration table on http://users.otenet.gr/~pgiogk/sv3aaf/page4.html and expect it to reflect conditions better for the northern temperate latitudes when the moon is at high positive declination. If anyone gets the chance to check it out over time, please email me your feedback. So far this year, the table's lows were clearly observed here (KM17) in Jan and March, while Feb was not that clear. Libration highs are not show in the table, but they are assumed to occur at 4 days before the start date and 5 days after the end date of the low periods. It is all based on lunar ephemeris and takes geometric libration as the root cause of the effect on signals, although the phenomenon seems more complex, possibly relating to magnetic field distribution and disturbances. I will be looking for you all during the next DUBUS Contest weekend on 2.3 and 3.4 GHz.

SP7DCS: Chris sp7dcs@wp.pl reports on his 70 cm DUBUS Conditions activity – It was difficult for H pol only stations like me. Most of time Faraday was not cooperative and only stations that could change polarization were audible. There was also deep signal fading. Of course there were also some good moments. I am very satisfied with my result considering my quite modest equipment. On 432 I worked 15 stations 4 x 25 el H pol yagis and a 400 W SSPA. QSO'd were K5JL for initial #18, VK3UM, DL9KR, G3LTF, DL7APV, K1RQG #19, SM2CEW, OZ4MM, UA3PTW, I1NDP, SP6JLW #20 (first SP-SP via 70 cm EME), K2UYH #21, DL1YMK #22, OE5JFL, OK1DFC #23.

Heard were DF3RU (very SRI, but I was constantly receiving SP7DCH from you), SV3AAF, SD3F (QRZ), DG1KJG, K7XQ, NC1I (only QRZ), G4RGK, G4YTL, IK2RTI, DL5FN, JA7AEP?, DK3WG, JA9BOH and PI9CAM. Now the preparation for 23 cm leg begins!

VA3TO: Hugh hughd@cogeco.ca remains active on 23 cm and was QRV in March and April -- I've been working out the bugs in my system and still have an issue with aiming using my polar mount, but I managed to add a few more initials to the log at the end of March/beginning of April. QSO'd on CW on 3 April were HB9HAL (539) and 4 April G4CCH (529), on JT65C on 8 March DJ9YW, 2 April HB9HAL, VE7BBG and RW6AG, and on 3 April LA9NEA.

VE2DFO: Don don.falle@inukshuk.ca is coming on 70 and 23 cm -- After many years of focusing on 6 m DX(now around 137 countries), I am getting re-energized and returning to EME, this time on 70 cm and potentially 23 cm. 144 up here has too much interference these days to be useful. My last EME efforts were from VE3ONT and the 46 meter Algonquin Park dish (it was very nice to hear S9+20 dB echoes on 432!!) with VE3CRU and VE3ASO both now silent keys as you know. I have acquired an 8877 PA for 432, which is built like a tank and puts out 800 W, but really needs an 8938 for more power.

VE4MA: Barry ve4ma@shaw.ca did not make it on 902 with WW2R, nor did he get his 5760 stuff running, but he was on 23 cm -- I worked on 1296 LA9NEA, G4CCH and VE4SA for a new one. I made some comparisons between my analog radio and SDR and kudos tip surprisingly to the analog radio.

VE4SA: Shawn ve4sa@rac.ca is doing well and now has his OZ9CR amp somewhat working -- I was on and heard echoes, but did not hear too much else. I am concerned about the HV regulation. It is now running at about 400 W out with 1200 V under load at 1.1 A.

VK3UM: Doug tikaluna@bigpond.com was QRV in DUBUS 70 cm EME Contest -- Conditions on Saturday were characterized by deep fading and mostly a ~45 deg Faraday offset, whilst on Sunday conditions were more stable with a ~90 degree Faraday shift. This naturally provided stronger and more consistent signal levels. I missed many stations who were on, but not during my window! There was excellent decorum and operating procedures through out the weekend. I spent an hour trying to get OK2POI's suffix (small station) on the Saturday, but got it 2nd go on the Sunday thanks to his persistence. There are still some deaf receivers out there and its not all Faraday! Sun noise will tell you the truth and if it is lower than predicted, then you are making it a lot harder for the other guy! When we drop the key, you can always tell how well you are being received by the delay of the other guys reply. Then you can resort to O's if necessary, even when he is 55N! This saves a lot of time. Finally if one is sending YYY de VVV KKK 333 UUU MMM, it is meant to mean something for you to follow, Hi! I had QRM for about 20 minutes during what was Moon rise in the Middle East longitude on Saturday. There were rough birdies up and down the band (only on horizontal pol) and a most significant white noise only on vertical pol. No it was not local. It was coming off the Moon and it was not present at the same respective time on Sunday. I wonder if anyone else heard it? (Someone's bucket of bolts taking off?) On 4 April I QSO'd at O523 K1RQG, O528 K5JL, O537 JJ1NNJ, O544 K2UYH, O551 JA9BOH, O556 N4GJV, O606 W8TXT, O613 WA6PY, O623 JA0TJU, O628 JA6AHB, 1135 OZ6OL, 1142 UA3PTW, 1150 SD3F, 1155 OH2DG, 1211 SP6JLW, 1256 SV3AAF, 1305 DL1YMK, 1333 G3LQR, 1337 SM2CEW, 1344 I1NDP, 1349 SP7DCS, 1405 DL7APV, 1425 G3LTF, 1431 DG1KJG, 1447 UA6LGH and 1452 G4RGK, and on 5 April
O615 K7XQ, 1308 SM3JQU, 1321 OK2POI, 1342 OK1DFC, 1417 DL5FN, 1427 DF3RU, 1438 S51ZO, 1449 OE5JFL and 1505 DK3WG for a score of 35 x 33 = 115500 (ten less than last year).

VK4CKI: Phil moat@usq.edu.au is now QRV on both 70 and 23 cm EME using JT -- I am QRV on 1296 and have one QSO in the log, but everything that could go wrong has... The main problem at the moment is aiming the dish, unless I can see the moon, I have no idea where to point. I haven't got the encoders hooked up mechanically yet. The RX is working well. I don't seem to have any trouble seeing signals. I am using a transverter and my 2 m rig, but I think something better is required as freq accuracy is what it should be. Its a long, slow process, but I am getting there!!

W3HMS: John W3HMS@aol.com had extensive water damage at his QTH due to cracked toilet bowl. So far it seems that there was only minor equipment damage in his shack. But he will be off the air (no 23 cm EME) for about 30 days due to station tear down and reassembly after a new carpet is installed.

W8TXT: Mike (no e-mail) was delayed in getting on the moon for the DUBUS 70 cm Contest due to very high winds. He worked K1RQG, K2UYH, N4GJV, JJ1NNJ, VK3UM and JA6AHB and more for a total of 15. Mike did look closely at yagi alignment and notes that they need to be tweaked just a bit.

WA6PY: Paul pchominski@maxlinear.com report on his March/April DUBUS Contest activity – On 10 GHz on 28/29 March I QSO'd WA7CJO, ES5PC, IQ4DF, F5JWF, G4NNS and W5LUA. I heard well GW4DGU but could not catch his attention. The next day my window started too late to catch I4BER with his 32 m dish from the Medicina Observatory. On 432 on 4/5 April I QSO'd K1RQG, VK3UM, SM2CEW, SP6JLW, UA3PTW, K5JL, G3LTF, N4GJV, I1NDP, OZ4MM, DL1YMK, SD3F, G3LQR, DL7APV, G4RGK and OZ6OL. Most of the QSOs were made with vertical polarization. I TX'd on horizontal only during my QSO with OZ4MM. I first called Stig with vertical because he came in loudest on vertical, but I got only a QRZ. I then switched to horizontal for TX, and have got a response with a good report. On the eastern horizon signals had a deep QSB and also displayed rapid polarization change. Unfortunately I've got new QRM; radar like strong noise burst repeating every second. These noise bursts lift my S-meter from S=1 to S=7. I could only listen for half of the second. This made reception very difficult and painful for my ears. On 5 Aprilat the end of the contest my window was only one hour, this QRM was even stronger. I had a very difficult time to copy OZ6OL. Without this QRM I would make a very easy and quick QSO with Hans. There was another station also calling me. He was a little bit weaker the OZ6OL, but unfortunately he gave up. I already copied few letters of his call and we should have been able to finally QSO. I do not like to guess at a callsign because this creates more confusion then listening once again. Sometime more then one station was calling me on very similar frequencies. Again typical case was that after my QRZ, the other station come back repeating my call sign 6 times and his own 3 times. Please understand that if I call QRZ, this means that I received my callsign. I am sure that other station is calling me and I need to get his callsign. Please remember that I have only a single yagi and signals are extremely low on my side. Before the contest weekend I setup my 5.76 GHz system on my 3.6 m dish, but unfortunately I am getting very similar kind of QRM as on 2424 MHz. The level is definitely lower, but for EME it is devastating! My noise blanker helps a little bit, but I am unable to perform system noise measurements and aim the dish using wideband noise power. Unfortunately I did not time to investigate this QRM and thus made no 5760 QSOs.

WC8VOA: Mike (KA8ABR) murph@erinet.com reports his group was active on 10 GHz EME in April. He operated for a schedule with CT1DMK on 3 cm, but did not complete and then blew up their power supply. A few days later after making repairs he did QSO easily LX1DB. They are using 40 W and a 24' dish with a Cassegrain feed and are only QRV on 3 cm EME. Jim (N8ECI) another member of the team later worked IQ4DF easily on CW, but when they went to SSB became a bit confused and did not complete. They did hear some other weak stations, but identified no callsigns. They report that they now have a SDR-1000 running and that it seems to be an improvement.

WD5AGO: Tommy wd5ago@hotmail.com is now QRV on 5.7 GHz with about 10 dB of Sun noise and 0.35 dB Moon noise. During the DUBUS Contest he worked OK1KIR and W5LUA, and heard F2TU, K5GW, OK1CA, ES5PC and an "AW?". He discovered his PA was only running 15 W at feed for the first 2 hours, after which he upped it to 20 W for the last two contacts. Tommy did get several QRZs with the 15 W and his 8' dish.

W3HMS 10' TVRO dish used on 1296 EME

YO2IS: Szigy yo2is@wa7v.ampr.org says hello from KN05ps – I was QRV on 70 cm for the DUBUS Contest and found the best signals were mostly vertical from dish stations. I sent many CWNRs and did QSO G3LTF, SM2CEW and OZ4MM in a big pile up! CWNR were DL9KR, I1NDP, SD3F, DL7APV and K1RQG - Joe had to fight QRM in an endless pileup.. Heard were UA3PTW (439), DF3RU, LZ1DX and DL1YMK all (O). My rig is still in good shape and only needs some grease on the elevation screw. I have an K2RIW (2 x 4X150A) with about 400 W out and 4 x 7.7 WL BV yagis.

K2UYH: I a.katz@ieee.org QSO'd on 28 March on 23 cm with JT65C at 1625 RD3DA (6DB/O), 1638 RW3AG (8DB/6DB) for mixed initial #342*, then switch to 70 cm at 1835 OK2POI (20DB/10DB) on JT65C for mixed initial #761*, 1855 OK2POI (O/O) for CW initial #709, 1950 DG1KGJ (559/O) CW #710, and on 31 March at 0150 JA6AHB (10DB/10DB) JT65B. I also tried again BX1AD several times with nil results, which is not surprising as the window was not as good as before. In the 432 part of DUBUS EME Contest I worked at 0012 UA3PTW (569/559), 0029 K5JL (579/559), 0037 OZ6OL (559/559), 0045 N4GJV (559/559), 0355 W8TXT (559/569), 0419 K1RQG (569/569), 0410 JJ1NNJ (559/559), 0504 JA6AHB (559/559), 0528 JA9BOH (O/O) – great to work Kimio after so many years, 0542 VK3UM (559/559), 2143 DF3RU (559/559), 2157 I1NDP (559/549), 2202 SM2CEW (559/569), 2209 OZ4MM (579/569), 2225 SP6JLW (559/559), 2235 SV3AAF (559/549), 2315 SD3F (559/559), 2319 G3LTF (559/559) and 2340 UA6LGH (O/O), and on 5 April 5 0007 SP7DCS (O/O) #711 for a score of 21x18. Later on 5 April, I worked on 70 cm at 0035 YU7AA (18DB/19DB) on JT65b #763* and partials with at 0624 JN4VAX (20DB/-) JT65B and 2255 SP4VCS (-/22DB) JT65B – nil copy on both at my end, and on 6 April at 0213 K7XQ (15DB/17DB) JT65B and 0225 VE2ZAZ (19DB/22DB) JT65B. I had hoped to be QRV for the 3 cm contest as well, but bad WX during the contest weekend made operation impossible with my unprotected equipment. I plan to be QRV for the 13 cm contest.

NETNEWS by G4RGK: **UA3PTW** had JT65B QSOs on 70 cm in April with S54T, RX9AT and DL2LAH. **UA4API** had JT65B QSOs on 70 cm with G4RGK, W7AMI and K7QX. **RW6AG** had JT65C QSOs on 23 cm with VK2JDS for and initial, VE7BBG and LA9NEA. He worked LA9NEA on CW (559). **DK3WG** had JT65B QSOs on 70 cm with DL5FN, SP3VSC, SV8CS, VE2ZAZ and OK1TEH. All were initials and bring him mixed mode to #466*. **WD5AGO** is now QRV on 5.7 GHz with about 10 dB of Sun noise. **K5JL** was QRV on 70 cm during the contest and made some QSOs. Jay was on for the JA window with little results. **VE3KRP** had bad WX during the March/April AWs and worked only K2DH, LA9NEA, G4CCH and SM6FHZ for initial #50 on 23 cm EME. **K7NII** is working on 5 m dish. **N4PZ** is making progress towards 23 cm. He is installing a low noise preamp at his yagis for 70 cm EME. **SM4IVE** reports most of his big dish is complete with only one more ring to go, then the mesh goes on. He still needs to redo his old dish mount. Sven expects to be finished this summer. **N7SC** may show up on the moon eventually from OR with a 30' dish. **HB9BBD** was on 23 cm on 5 April for 2 hours and worked a few regulars and DF1SR (589) - what a big signal! 8J1AXA's mail address found in QRZ.com is not valid. QSLs [I believe] should be sent c/o JH6RTO, Seiji Fukushima, 1182 Hase, APT 2-506, Atsugi City, Kanagawa 243-0036 Japan. [TNX JH1 for report]. 8J1AXA's mail address found in QRZ.com is not valid. QSLs [I believe] should be sent c/o JH6RTO, Seiji Fukushima, 1182 Hase, APT 2-506, Atsugi City, Kanagawa 243-0036 Japan. [TNX JH1KRC for this info]. **WA4TZK** old time 432 EMEer now in Atlanta, GA sends his regards. Bill is not presently QRV. **WW2R** now has 100 W on 3456 and for first time ever saw echoes on 3456. **W5LUA** reports that he finally has auto tracking on his 5 m dish and that 5760 is running well - first time in 34 years of EME. Al worked JA4BLC and K5GW for new ones. **VE6TA** has 13 cm feed in the dish and is working on combining the 2 Spectrian PAs for the EME Contest. **G4RGK** worked WA6PY as well as about a dozen others in the DUBUS 70 cm contest. **K5S0** should be active on 1296 during the May DUBUS Contest. **K4KIY** is getting on 23 cm EME.

FOR SALE: **VE2DFO** is looking for some tubes and amplifiers — big stuff of course. Don needs a good 8938 or even a complete amp. He is also looking at TH347 PA or other high power 23 cm amp – see Don's report. **K4AR** has an array of 8 432 9 WL yagis for sale. He also has a very nice 2 m M2 X-Pol EME array for sale. Contact Bert at k4ar@comcast.net if you are interested. **K0ALL** is looking for a solid state amp for 1296 in the 150-200 watt range. This would allow me to have a complete portable station together with my 12.5 ft trailer mounted dish to take to SD and MN. I've tried to order one from Down East Microwave, but had to cancel my order because they don't seem interested in making one. Write Ron at rroche@ideaone.com. **N4PZ** is looking for a 14 ~ 16' dish in a reasonable distance from central IL. **OZ4MM** is looking for some 270 pF (and/or 470 pF) ATC 110 mil porcelain capacitors. If you have some to sell contact Stig at vestergaard@os.dk. **K1RQG** still has W2UHI gear for sale including KENWOOD TS-2000. E-mail Joe at k1rqg@aol.com.

TICHNICAL: Stripline Parallel KW Amplifier Additional Information - There has been a lot of interest in re-building K2RIW PAs. The following is Dick, K2RIW's thoughts: 1) COPPER CLAD PCB -- My original Stripline Parallel KW Amplifier (which is still operational since 1971), with a pair of 4CX250B tubes, uses double sided copper-clad PCB for the Plate Resonator, L1. A few builders told me their particular brand of double sided PCB material displayed a kind of resonance between the two layers -- this caused a "hot spot" in the Resonator. They solved the problem by soldering copper foil around the edges between the layers. I believe their situation was aggravated by not soldering the Tube Anode Finger Stock to both sides of the PCB. 2) PLATE RESONATOR MATERIALS -- The Resonator is 5" wide, 9" long, and double sided, therefore the current density on the Resonator should be very low. Successful builders have used many different materials -- including brass. I did not place any soldered copper foil around the edges of the double-sided PCB on my Plate Resonator. Some builders applied a silver coating to the Resonator and tried to measure the difference in performance; I don't believe there was any difference. 3) CORNER ROUNDING & TUNING -- The article did not included the dimension for the rounding radius of the plate resonator in the vicinity of the tube anodes -- its about 1.2 inch. Many constructors rounded all corners to 5/16 inch. This change in the design adds extra capacitance to the tube end of the resonator; as a result some resonators will not tune as high as 432 MHz. There is no real "magic" about the exact length of the Plate Resonator (or the Grid Resonator). Don't be afraid to remove 1/8" or 1/4" from the 9" length. When it is the correct length for the Anode Capacitance of your particular tubes (and your corner rounding), the Flapper Tuning Capacitor, C5, will tune in the center of it's range -- which is midway between the Resonator and the chassis. Do not allow the Flapper Tuning Capacitor, C5, to touch the Plate Resonator (a B+ short circuit will occur), or the chassis (RF arcing will occur). 4) THE GRID RESONATOR -- Many builders used different tuning capacitors, or a slightly different layout of the Grid Resonator circuit. Sometimes the Grid Resonator will not tune as high as 432 MHz. When this happens the high Q of the Grid circuit will not allow the drive signal to get to the Grid. Under this condition not even 50 watts of Drive will excite the tubes. Again, don't be afraid to shorten the length of the Grid Resonator to the point that the Tuning Capacitor, C1, tunes in the center of it's range. Do not remove plates from the C1 Tuning Capacitor; this will limit the tuning range. Some builders were not able to find the suggested capacitors, and they substituted Flapper Capacitors in the Grid Resonator circuit. This worked very well. If the amplifier is giving you poor output power, be sure that none of the Grid or Plate Tuning Controls are running out of range. 5) POSSIBLE PLATE TUNING DRIFT -- When the amplifier is operating properly the Plate Resonator, L1, and it's associated components run quite cold, only slightly heated by the leakage of hot air from the tubes. This suggests that tuning drift is not being caused by the amplifier circuits. Most 4CX250B tube amplifiers will experience some tuning drift as the amplifier heats up under high duty-factor usage. This seems to be caused within the tubes themselves. It is likely that the Screen Grid experiences heating and expands in the direction of the Anode, which increase the Anode Capacitance. This effect can be mitigated by starting out with the amplifier tuned slightly on the high side by minimize the C1 Plate Tuning Capacitor. 6) GRID BIAS STABILITY -- Be sure your Control Grid bias network can tolerate 15 ma (2 tube total) of current flow in either direction without loosing Control Grid voltage regulation. Under certain loading conditions that Control Grids could either draw or supply a total of ~ 15 mA of current. 7) THE TUBE SOCKET -- The most important part of the 4CX250B Tube Socket is the Screen Grid Bypassing Capacitor, and the health of the socket's Screen Ring Finger Stock. Each tube has 4.4 picofarad of Plate Capacitance. Almost all of that capacitance is between the Plate and the Screen Grid. When the amplifier is cranking out full power, there is about 3,800 volts of RF peak-to-peak, or 1,345 volts RMS on the Plate (between the Plate and the Screen). The 4.4 picofarad has a capacitive reactance of 83.7 ohms at 432 MHz. That reactance and the 1,345 volts RMS on the Plate means that 16 amps RMS (at 432 MHz) flows into each Screen Grid, and ultimately into each socket's bypass capacitor. If all the sockets Screen Ring Fingers are not making very good contact, you can run into the problem where the tube will become welded into the socket, and the remaining fingers may become damaged the next time you attempt to remove the tube from the socket. Be careful about removing the tubes from the sockets a large number of times; you will eventually wear away the silver plating that is needed for good RF grounding of the Screen Grid. 8) SCREEN VOLTAGE -- The peak Plate Current capability of a tetrode tube, like a 4CX250B, is primarily caused by the Screen Voltage raised to the 3/2 power. The article recommended a Screen Voltage of 300 volts. The tube specified maximum Screen Voltage is 400 volts. You will find that the amplifier's Gain, and the Maximum Power Output will raise considerable as the Screen Voltage is raised to 350, or possible 400 volts. 9) SCREEN POWER SUPPLY SUGGESTIONS -- Be sure that the Screen Power Supply has a 15 k (or lower),

15 watt (or greater) Bleeder Resistor to ground; also a in-line (series) 2 k, 20 watt Screen Protection Resistor that feeds the amplifier's Screen Grids. 10) WHY THE BLEEDER RESISTOR? -- Under certain Tuning and Loading conditions the Screen Current can be as high as 15 milliamps in either direction. Without the Bleeder Resistor the Screen PS Voltage could increase (maybe beyond 400 volts), it will back bias the PS rectifying diodes, and the amplifier will go into a Plate Current Runaway condition. By all indications, this condition will look like an Amplifier Runaway Oscillation, but it is merely a Runaway Bias condition. It is OK to put a 10 or 20 micro farad capacitor at the Screen Grid to ground, in order to momentarily hold the Screen Voltage, so as to increase the Amplifier linearity during SSB peak power demands. 11) WHY THE 2k PROTECTION RESISTOR? -- The Screen Grid of each tube can only tolerate 12 watts of dissipation. If the loading is set extremely light (with full drive), or if the drive is applied without the Plate Voltage being present, then the Screen Grid Current could easily exceed 34 milliamps (per tube) at 350 volts (12 watts), if the 2k resistor was not present. This could destroy the tube's Screen Grid in seconds. With the series 2 k resistor present, the combined Screen Dissipation cannot exceed 15.3 watts (7.15 watts per tube, if they're balanced). This would occur at 87.5 mils of combined Screen Current, when there is 175 volts on the Screens and 175 volts across the 2 k resistor. At a greater or lesser Screen Current, the Screen Dissipation will be less -- it's rather fool proof. 12) ONE WATT OUTPUT OPERATION -- Once the 2 k Screen Grid Protection Resistor is in place, it becomes quite safe to drive the amplifier with the Plate Voltage turned off. In this mode, with the convenient flip of a switch, the kW amplifier will put out about one watt. I would not use this mode if you are using a very heavy amount of Drive Power -- the Control Grid dissipation could be at risk. Monitor the Control Grid Current, and do not let it exceed 6 mA, or 2 watts of dissipation (per tube). 13) ARC-OVER -- There is a rare condition to be concerned about. If the Plate circuit is resonated, with extremely light Plate loading, the Platecircuit RF voltage swing could be so large as to cause an arc-over within atube. An arcing tube will draw extremely high current. A very fast-acting fusing network in series with the Plate voltage wiring will limit the tube's internal damage. You do not want the full energy storage of the Plate voltage PS capacitors to be discharged within the arcing tube. That would increase the internal damage. I did not use such a network, and I believe this caused some of my tubes to be partially damaged during an arc-over of newly-used tubes. This was before I found out about the tube wake-up procedure (see below). TUBE WAKE-UP PROCEDURE -- If your 4CX250B tubes have not been used during the last few months, you should first use a tube "wake-up procedure" before applying Plate voltage (B+) to them. Unless your tubes were built under the most ideal conditions, all the elements within the tube are slowly out-gassing materials into the tube's vacuum space. You want to avoid a tube internal arc-over because of that gas accumulation. The wake-up procedure consists of applying air, and only the Filament voltage to the tubes for a couple of hours. In that way the internal Gettering Material can collect the internal gasses, and thus avoid the possible arc-over when the B+ is applied. Every arc-over is potentially damaging. Try to avoid them. 14) NEGATIVE SCREEN CURRENT EXPLAINED -- The screen current (positive, negative, and how much) is the strongest indicator of proper Plate Loading (when the Plate is resonated). Most tubes put out maximum RF when the Screen Current is near zero. When the Plate Circuit is resonated and lightly loaded, the instantaneous Plate Voltage can easily be less positive than the Screen Voltage, at the instant that the peak of the cloud of electrons comes roaring past the Screen, and is heading for the Plate. If the Screen Grid is more positive, a substantial number of the electrons will "stick" to the Screen, and create positive Screen Current -- an indication of light loading. If the Plate circuit is resonated and very heavily loaded, then the Plate Voltage Swing will be greatly decreased. Now, the instantaneous Plate Voltage will be more positive. The electrons that now hit the Screen will free up secondary electrons that will be drawn to the Plate. Those secondary electrons leaving the Screen, will be sensed as Negative Screen Current -- an indication of heavy loading. 15) COMBINING MULTIPLE KW AMPLIFIERS -- There are quite a few amateurs who just love the Gain, Efficiency and low cost of 4CX250B tubes, and they ask me for the best way to combine multiple kW amplifiers. For decades the solid state people have been combining pairs of amplifiers while obtaining great VSWR performance, total inter-amplifier isolation, and "Graceful Degradation" by the use of the Balanced Amplifier technique -- it's also called a Kurokawa Amplifier. To implement this technique you will require a pair of Quadrature Hybrids. In this very high power version of a Balanced Amplifier assembly the Hybrids will insure that each amplifier is completely isolated from each other, thus you will have maximum stability and ease of tuning. Otherwise, there could be a lot of interaction of the input tuning and output tuning, as well as the possibility of oscillations between the amplifiers. 16) THE OUTPUT HYBRID -- The high power lossless output Hybrid could be constructed in air-suspended strip line, similar to the Plate Resonator. The 432 MHz Parallel KW Amplifier's Strip Line ground plane spacing of 3 inches was used primarily to accommodate the height of the tubes. The Hybrid will not require that much height since it will be running at close to a 1:1 VSWR. In Class C service the amplifier's Plate Resonator runs with a loaded Q of 39, thus there is close to 27 kW of RF energy bouncing back and forth in the box. The output Loading Flapper Capacitor draws out almost 700 watts on each pass (for instance). The output Hybrid will not have to accommodate more than about 2,000 watts. 17) DUMMY LOAD & HYBRID HOOK UP -- The 350 watt 50 ohm dummy load for the output Hybrid (worse case dissipation = one dead amplifier) can be constructed from a length of lossy coax. When hooking up a pair of Quadrature Hybrids for this service, the correct connections will look reversed. In the Balanced Amplifier block diagram, merely take a picture of the input Hybrid (with it's dummy load), rotate it 180 degrees and connect it to the amplifier outputs. Then, the input connector of the input hybrid will become the output connector of the output hybrid, and you will have the proper connections. If you get it backwards, all your output power will appear at the 50 ohm dummy load. 18) SOME REFERENCES -- 1. The original article, "A Strip-Line Kilowatt Amplifier for 432 MHz" was published in the April and May issues of QST in 1972 (way back in the darkages -- Hi). The articles are available in the QST Archives to ARRL members. 2. The W1JR/W1JAA, W6FZJ/1 modifications and notes can be found at: "More on the 432-MHz KW Strip-Line Amplifier", (Technical Correspondence), QST Jul 1975, page 47. 3. The W2GN amplifier versions for 6M, 2M and 222 MHz can be found at: http://www.newsvhf.com/w2gn.html. 19) CONCLUSION -- There probably are a quite a few more helpful hints that the builders have discovered. These are the ones I could think of at this time. I hope this information is helpful.

FINAL: This has been another difficult month and this NL is arriving later than I had hoped.

❍ G4RGK's updated CW initials lists can be found at http://www.zen70432.zen.co.uk/Initials/index.html with 13 cm DXCC list added. Please report any errors/updates to Dave, g4rgk@btinternet.com.

❍ Jan, PA0PLY has created an updated database of EME stations on 432 and up. The list is on his website, www.pa0ply.nl, in both PDF and data formats. Please send me any updates/corrections to info@pa0ply.nl.

❍ WA8WZG reports that the very popular VHF Dinner at the Dayton Hamvention will not happen this year due to problems with the hotel. Many EMEers regularly attend. Hopefully they can find a common place to gather on Friday night.

❍ We are hoping to see you off the moon. 73, Al – K2UYH

MI/DL1YMK DXPEDITION SKEDS – if you are not on the list and want to be contact Joe at k1rqg@aol.com. Details of Michael's dxpedition were published in the March NL. (MI/DL1 = MI/DL1YMK below)

25 MAY 1296.030
0530z MI/DL1-VK3UM
0600z MI/DL1-JA4BLC
0700z MI/DL1-SV1BTR
0730z MI/DL1-OZ4MM
0800z MI/DL1-G3LTF
0830z MI/DL1-DJ9YW
0900z MI/DL1-DL4MEA
0930z MI/DL1-SP7DCS
1000z MI/DL1-PA3CSG
1130z MI/DL1-K2DH
1400z MI/DL1-K2UYH
1430z MI/DL1-W5LUA
1500z MI/DL1-WW2R
1530z MI/DL1-K0YW
1600z MI/DL1-K5PJR
1630z MI/DL1-N2UO

26 MAY 2320.100 *RX 2320.1/2304.1/2424.1
0630z MI/DL1-JA4BLC
0800z MI/DL1-OK1KIR
0830z MI/DL1-OZ4MM
0900z MI/DL1-G3LTF
0930z MI/DL1-DL4MEA
1000z MI/DL1-PA3CSG
1230z MI/DL1-K2DH
1530z MI/DL1-OK1CA
1600z MI/DL1-W5LUA
1630z MI/DL1-WD5AGO
1800z MI/DL1-WW2R

27 MAY 3456.100
0930z MI/DL1-OZ4MM
1000z MI/DL1-G3LTF
1030z MI/DL1-DL4MEA
1100z MI/DL1-OK1KIR
1400z MI/DL1-OK1CA
1700z MI/DL1-W5LUA
1730z MI/DL1-WD5AGO

28 MAY 1296.030
1230z MI/DL1-G4DZU

29 MAY 432.030
1100z MI/DL1-VK3UM
1200z MI/DL1-SV1BTR
1230z MI/DL1-DL4MEA
1300z MI/DL1-G3LTF
1330z MI/DL1-DK3WG
1400z MI/DL1-OK1KIR
1500z MI/DL1-I1NDP
1600z MI/DL1-G4RGK
1730z MI/DL1-OK1CA
1800z MI/DL1-N4GJV
1830z MI/DL1-K2UYH

30/31 May QRV for 23 cm for DUBUS/REF Contest.
1 June 3456.100
2300z MI/DL1-WW2R
6 June 432.030
2300z MI/DL1-G4YTL