432 AND ABOVE EME NEWS
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ON0EME EME BEACON, 1296.000 IS QRV WHEN MOON >10°, SEND RX REPORTS TO WALTER (ON4BCB) on4bcb@gmail.com
DL0SHF 3 CM EME BEACON, 10368.025, SEND INFO & QUESTIONS TO PER (DK7LJ) per@per-dudek.de.
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CONDITIONS: This is a joyous time on year, but with three EME SKs (F5SE, G3HUL and K5AZU) in the last month, it is hard to be merry about anything – see more details below. EME wise there were two very successful dxpeditions. V31EME put Belize on 432 EME for the first time with an excellent signal. Around the same time, N1H was on from NH on 1296 and worked just about everyone QRV on the band! Their reports appear later in the Newsletter (NL). There are no 432 up dxpeditions in Jan. EA8/G4RGK will be on holiday and QRV on 432 from 29 Dec to 5 Jan. In Feb, TG3MB will be on 432 through the microwave bands from Guatemal. – see PA3CHR's report. In March the Azores will be on 432, in April 3B8MB will put Mauritius on 1296, and T46MB will be QRV from Cuba on 144 thru 1296. **This month is EME SSB Funtest. There are some major changes from the announcement in the Dec NL – please see the revised name and rules later in this NL. The 13 cm contest now starts on 26 Jan (Friday Z) at 1800 and ends on 27 Jan (Saturday Z) at 1800. The 1296 SSB Funtest starts on 27 Jan (Saturday Z) at 1900 and ends on 28 Jan (Sunday Z) at 1900. Since this is a "Funtest" no restrictions will be made on the use of the Internet. It should be thought of more like an Activity Weekend then a contest.** The next 70 cm CW Activity Time Period (ATP) will be on 15 Jan 0400-0600 (EU/NA) and 2000-2200 (EU/VK). The first DUBUS Contest for 2 m and 70 cm is on 24/25 Feb.

F5SE is an SK: Franck and his father (F9FT) were true VHF/UHF and EME pioneers. They produced the F9FT yagi and other innovative antennas and were responsible for many firsts. Franck was at the key of the first 432 EME QSO from France. He has continuously maintained an exceptional signal off the Moon on 70 and later on 23 cm for more than 40 years. In 2010, He completed a 10 m dish that he beautifully mounted and used to produce one of the top 1296 EME signals. He was a regular at the International EME Conferences. In 2015, Franck was the top Fun Maker on 1296 in EME SSB Funtest. In memory of Franck the contest will now be known as the "F5SE MEMORIAL SSB FUNTEST". Frank was 70 and had heart problems for more than 30 years, but always managed to survive. His death was unexpected. RIP dear friend.

G3HUL is another Dec SK: Doug was active on 432 in the '80s and '90s and a familiar call on the band. He used 8 long yagis on 432. Unlike Franck, he had not been active and ill for a long time with Prostate Cancer. He is believed to be 90+ when he passed away. Doug will be greatly missed and remembered by his many EME friends.

K5AZU is the third SK in Dec: Ray was another long time VHF and EME operator. He provided LA to many of us on 1296 EME and was activity off the Moon until not much more than a year or two ago. He had a 6 m dish and 6 x 2C39A ring PA. Ray passed away at age 80. Ray will be deeply missed. He is remembered by his close friends for his gentle kindness and his wealth of knowledge of Electronics.

F5SE MEMORIAL SSB FUNTEST: The 13 cm Funtest starts on 26 Jan (Friday Z) at 1800 and ends on the 27 Jan (Saturday Z) at 1800. The 1296 SSB Funtest starts on 27 Jan (Saturday Z) at 1900 and ends on 28 Jan (Sunday Z) at 1900. These events are intended to be fun. You do not need to transmit on SSB to participate. CW to SSB and vice verse exchanges are encouraged and count for points. (Only one QSO between stations is allowed, i.e., you cannot work a station SSB to SSB and SSB to CW for extra points). Scoring is contact points x number of two letter Grid Sectors (IO, JM, FN, EM ...) worked. SSB to SSB contacts count as 2 points. SSB to CW (or CW to SSB) count as 1 point. The exchange is your Sector (IO, JM, etc.). Only the 2 sector letters need to be sent and copied by EME. The exchange of signal reports and/or 4 character grids is optional and not required. Operation may be by single or multiple operators from one location. No distinction for scoring will be made. Since this is a "Funtest" not a true contest, no restrictions will be made on the use of the Internet. It should be thought of more like an Activity Weekend then a contest. Logs should be sent to the 432 and Up EME NL by email to alkatz@tcnj.edu ASAP after the end of the contests. (All logs for contest awards should have been received within the month following the contest). The top scoring station on each band will receive an attractively framed certificate that will be presented at the next International EME Conference (Holland 2018).

UPCOMING EME EXPEDITIONS IN YEAR 2018 >432

TG3MB [EK44] by PA2CHR & PA3FYC - starting on **23rd Feb 2018**: 432 30 el Y. 17.8 dBd and SSPA, 1296 MHz: DB6NT transverter, GPS locked 67 el Y. 19.9 dBd and SSPA
CUx?x [HM77CT] on 70 cm by The X-Team DH7FB and DF2ZC - starting on **24 March**
T46MB [FL02GN] by The Verona DX Team - starting on **15 April** - on 6 m, 2 m, 70 cm, 23 cm, active simultaneously
PY0F [HI36TE] on 70 cm by DG8NCO - **2nd half of 2018**

DK3WG: Jurg dk3wg@web.de was QRV in Nov/Dec primarily on 70 cm – I completed 5 initials using JT65B with NU6O, V31EME for DXCC #134, YL2FZ, S57M and at some QTH S56P and SM5EPO. I was also active on 23 cm, but added no new calls.

DL7APV: Bernd dl7apv@gmx.de finished 2017 in a big way – I am now at mixed 141 DXCC and initial #858*. I was not as active in 2017 as I should be, but will be more QRV when my new antenna is ready. It only needs a few hours of work to complete. If WX cooperates, I will do done very soon. But in the winter, I don´t expect this to happen until March or April. I am not 20 anymore. I need it a bit warmer outside, Hi! I gave Dorothy, M6EBQ, her first EME contact. She has a 10W license and was using a single 17 el yagi. The rig was the same as M0ABA, so it did not count as an initial, but was still a nice QSO. QSOs as this one hopefully will encourage more EME activity by smaller stations! She was (22DB) best here, so there is plenty room for stations with less gain! See https://www.essexham.co.uk/news/essex-eme-success.html for more info. My QSO with V31EME was easy thanks to my new small vertical 8x11 yagi array. They are 9 db down compared to my big 16 yagi array, but V31 was (23 DB) on the V array and nil on the H array. When the new array is ready, I plan to extend this V array for sure!

G3LTF: Peter g3ltf@btinternet.com reports on his Nov/Dec Moon activity -- Not a lot to report this month due to the holidays and poor WX. On 4 Dec, I was on 23 cm and worked IK5YDI on CW. He then called me on SSB and we had a QSO. I was then called on SSB by PA3DZL and then worked IK1FJI on CW. I called CQ on SSB and worked F1RJ, a completely random QSO for initial #445 and finally worked on SSB ON5GS. The next night, I came on again and worked JA6AHB on CW, and then II0IAAR/5 on SSB – am not sure if this was an initial. I suspect not, probably an "old" station with different call. After him I was called, in SSB by F1RJ again. The Moon was very close on these nights with <0.1dB excess loss. On 4 Dec I heard what I am certain was a Galileo signal. The noise was peaking quite sharply from a satellite climbing in a tilted polar orbit and was about 2 dB above the noise in a 300 kHz BW. On 12 Dec, on 13 cm I worked VE4MA/K7 from Az for initial #137. I nearly blew it, because I forgot to look on the X band frequency. We made it FB with (M/O) reports. I completely forgot about the 23 cm N1H NH dxpedition, but the bad WX here would have prevented operation anyway. I did work W1QC there in 2000. My current WAS (CW) is 37. I have been making progress on my 3 cm system. I have decided to make it completely separate from my other bands (70-6 cm). I am building a new sequencer and TS850 interface and finishing the TX driver part of the transverter. I am now just about ready to try out the 40 W TWTA.

HB9Q: Dan (HB9CRQ) dan@hb9q.ch is looking for states -- During 2017 we added two more states to our 1296 WAS count. It is now at 38 states. A special thanks to N4QWZ for TN and KN0WS for activating NE on 1296! We have been contacted by several stations that are working on becoming QRV. We need the following 12 states: AL, AR, DE, KY, MS, MT, NV, OR, SD, UT, WV and WY. We are capable to easily work stations running 1 yagi (40-70 el) and 15W or 1.5 m dish and 10 W using JT65C. For CW we need about 10 dB more. Any help will be very much welcome!

I0NAA: Mario mario.natali@gmail.com besides remaining QRV on 23 cm, has also been hunting for Pulsars. He is now up to #5! For more info see his website http://i0naa.altervista.org/.

IK1FJI: Valter valter_dls@yahoo.it reports his recent 23/70 cm Moon activity -- I worked after the ARRL contest on 23 cm on 3 Dec using CW at 2020 ON5GS (559/559), 2105 I5YDI (539/539) for initial #70 and 2110 PA3DZL (559/559), and on 4 Dec using CW at 0137 WA9FWD (549/549) #71 and 2223 G3LTF (569/569), and using JT65C VE7MA/7 (18DB) sending the tones via microphone! It was a good contact. On 70 cm using JT65B on 3 Nov at 1955 HB9Q (8DB/29DB) for digital initial {#1}, on 26 Nov at 2005 UA3PTW (20DB/24DB) {#2}, on 28 Nov at 2105 I1NDP (18DB/25DB) {#3}, 2230 NC1I (14DB/22DB) {#4} and 2240 HB9Q (12DB/23DB), on 28 Nov using CW at1755 DL9KR (O/O) for CW initial #1, and on 1 Dec using JT65B at 2058 DL7APV (20DB/24DB) {#5}. My rig is a single 7.7 wl OPT BV yagi, 180 W SSPA and MGF1302 preamp.

IK1FJI's single 7.7 wl BV yagi (front)

JA4BLC: Yoshiro's ja4blc@web-sanin.co.jp EME report for Dec -- My activity was on 3 cm using my two dishes. I was pleased to add 3 initials. On 3 Dec, I worked UR5LX on 10 GHz (O/O) for initial #43 with my 3 m dish. This is 4th band that I have QSO'd Sergey on EME (also on 144, 432 and 1296). An hour later, I used my 2.4 m offset dish with a circular feed to worked OK1KIR (559/559). At moonrise at 0900 (EL 12 degs) I worked K2UYH (O/O) #44 and our 5th band EME QSO (also on 432, 1296, 2304 and 5760). I added QSOs on 4 Dec JA1WQF (569/569), DL0SHF (579/549) #45, UR5LX (O/O), on 5 Dec OZ1LPR (579/559), on 8 Dec HB9Q (589/579), and on 9 Dec JF3HUC (559/559)

KA1GT: Bob ka1gt@hotmail.com is switching to a dish for EME -- My 432 yagis are now down, and a 2.4 m dish is up and working on 1296 RX with OK1DFC septum feed. I'm currently building an OK1DFC small ring feed for 432 in addition to building a 2W to 30 W SSPA for 1296. This amp is a first step to reasonable power. I have 600 W on 432 ready to go once the feed is done. [Suggest you consider adding a ring of very light mesh, 2 ~ 3" spacing, to increase aperture on 432].

KA1GT's new 2.4 m dish

N1H's 2.4 m dish & KL6M feed

N1H: Frank frank@NC1I.COM, Bob (W1QA) and Bob (KA1QFE) report on their group's NH 23 cm dxpedition -- Everything went well. The WX cooperated with just a little rain the first night. Temperatures were slightly above normal and there was no snow on the ground. We did have to move our operating frequency from the announced 072 up to 100 due to interference lower in the band. I had mistakenly thought V31EME was going to be on 23 cm, but since there was in fact no other dxpedition on 23 cm, we moved to 100. Our total stats for the trip were #62 initials, 27 DXCC entities, 8 US States and 13 stations worked on CW. We made it a point to switch to CW whenever asked and to call CQ on CW on occasion. We were pleased to work 13 stations on CW despite a couple of "regulars" (G3LTF and SM2CEW come to mind) apparently not being on over the weekend. Stations worked starting on 30 Dec were OK2DL (6DB/3DB), SP5GDM (18DB/11DB), DK3WG (17DB/11DB), OK1IL (14DB/12DB), OF2DG (8DB/3DB), DL0SHF (6DB/3DB), DF3RU (12DB/O), PA3FXB (15DB/10DB), ON4AOI (12DB/7DB), EA8DBM (13DB/7DB), F1RJ (16DB/10DB), I5YDI (17DB/12DB), DJ9YW (14DB/10DB), I7FNW (19DB/O), G4CCH (12DB/6DB), KD3UY (23DB/14DB), DJ5AR (26DB/12DB), G4FUF (26DB/18DB), DF2VJ (21DB/16DB), VA6EME (19DB/16DB), DL0SHF (569/579), G4YTL (19DB/15DB) and K5DOG (17DB/09DB), on 1 Dec VE4MA (23DB/15DB), W2HRO (27DB/15DB), OK1KIR (25DB/05DB), UA3PTW (10DB/6DB), YL2GD (18DB/O), DF2GB (20DB/O), OK1DFC (11DB/06DB), YO2BCT (21DB/15DB), ES6FX (13DB/10DB), UA3TCF (27DB/16DB), OT7K (17DB/08DB – assumed to be the same as ON4AOI and not counted as an initial in our total), DJ2DY (26DB/O), G4CCH (559/559) on CW, OF2DG (549/449) on CW, OK1KIR (559/559) on CW, OK1DFC (559/559) on CW, RU4HU (26DB/18DB), OE5JFL (15DB/12DB), PA3DZL (11DB/10DB), DF2GB (18DB/O), VE3KRP (18DB/12DB), OE5JFL (O/O) on CW, PA3DZL (549/559) on CW, W5LUA (539/569) on CW, and K2UYH (539/559) on CW, on 2 Dec LZ4OC (22DB/16DB), EW1AA (27DB/18DB), XE1XA (15DB/9DB), ZS1LS (20DB/13DB), NC1I (9DB/12DB) – N1DPM was guest op at my home station, VE6TA (559/559) on CW, XE1XA (O/O) on CW, VE6BGT (539/449) on CW, KL6M (559/559) on CW, K5DN (12DB/7DB), JA6AHB (10DB/9DB), RW0LDF (24DB/16DB), RA3AUB (19DB/9DB), I1NDP (9DB/4DB), ON5GS (15D/6DB), UN6PD (16DB/7DB), IK5VLS (16DB/11DB), DC7YS (14DB/14DB), PE1CHQ (14DB/9DB), UA9FA (24DB/14DB), LA3EQ (22DB/16DB) and HB9Q (8DB/6DB), and on 3 Dec W1PV (24DB/O) and VE4SA (15DB/12DB). I did not list DUPs unless they were on a different mode. With the exception of one blown fuse (amp PS) right at the start of our operation, all of our equipment worked flawlessly throughout the three days. Our plan of staying on until EU moonset Thursday night and Saturday night and operating the entire moon-pass Friday worked well. I doubt we missed anyone because of that schedule and it allowed us to get a reasonable amount of rest/sleep. It really is amazing what you can do on 23 cm with a fairly small (2.4 m) dish. I am only aware of 2 stations that tried to work us and were not able to complete a QSO. And I am quite sure one of those two stations had RX problems. Some of the smaller stations we completed with were EW1AA (1.5 m dish and 150 W), UA9FA (1.8 m dish and 100 W) and G4FUF (2 x 49 el yagis and 400 W). With just the three of us, we had everything setup and the dish calibrated (on the sun) within 3-1/2 hours of arrival at the site. One of the things that we really like about the 2.4 m dish is that we can transport it in one piece complete with the feed in place. This saves a lot of setup time and I believe we can pretty much work everyone that we could work with a 3 m dish, which (we would

need to break down to transport). We have posted several pictures of our setup on the N1H page at QRZ.com. BTW the large gray box at the base of the tower is the Kuhne 1KW PA and Meanwell PS. We ran the amp at about 700 W into 8 m of FSJ4-50B coax to the feed. This gives us about 500 W at the feed. The large piece of equipment just to the left of the tower is the 20 kW diesel generator. This provides much more power than needed, but it runs quiet and runs 30 hours before needing to be refueled. We are currently planning at least one and perhaps two New England dxpeditions for 2018. We are not yet certain on which States or which bands (either 70 cm or 23 cm) we will operate. Hopefully we have something to announce in the next few months. This N1H operation was our 6th New England dxpedition in the last 2-1/2 years. Operations to date include 144 and 1296 from CT, 432 and 1296 from VT, and 432 from Rhode Island. We also operated dxpeditions to VT and RI back in the 80's. In the words of Paul Simon, "Still Crazy After All these Years"! We will have QSL cards printed up soon and hope to get them in the mail in the next 4-5 weeks. Cards will be sent direct to each stations QRZ.com address unless requested to send it somewhere else. If you would like to send a card in return you can send it to the NC1I's QRZ.com address. No green-stamps are necessary.

N1H dxpedition mobile shack and 2.4 m dish

N1H operating position

N5BF: Courtney's courtney.duncan.n5bf@gmail.com EME report for Dec – I was QRT from 18 Nov to 9 Dec doing upgrades to the station. Work included a bigger fan in the 23CM2W500 W6PQL SSPA and a switch to 28 VDC LNA and relay control. I have had no QSOs since returning to the air. I was particularly bummed to miss the N1H NH operation during that period. I am looking forward to some QSOs as the Moon increases declination during the holiday break. Please look for me calling CQ on 060 second during the holidays.

NC1I: Frank's frank@NC1I.COM Dec report -- Due to our N1H dxpedition my time to operate from home in Dec was extremely limited. Based on how things went from NH, it appears it was a good month for both activity and conditions. From home, I worked using JT65B unless noted otherwise, on 432 starting on 28 Nov IK1FJI (1 x 7 wl yagi and 180 W) and on 29 Nov SM5EPO, on 4 Dec K9MRI, KC0V and S51LF, on 5 Dec KC0V, on 6 Dec SM5EPO, on 8 Dec S57M (JT and CW), IZ2DJP, S56P (presumably the same station as S57M), F6APE and ON4GG, and on 9 Dec K9MRI, ON4GG, V31EME consistently (13DB to 15DB) with their single 25 el yagi, US7GY, DL7DAU, and AI1K. On 1296 I worked using JT65C unless noted otherwise, on 4 Dec IK1FJI and W3HZU, on 5 Dec W1PV, K5DN, WB8HRW (539) on CW with a very nice signal from his 3.7 m dish and 130 W and UA9FA, and on 8 Dec WA9FWD on CW. 432 activity has been very good and in my opinion on the rise. In Dec I worked my 300th JT initial. It seems there are new stations to work every weekend. Unfortunately I don't have an accurate count for my overall initials on 432 (going back to 1982). I believe it is well over 750. I also believe I may have worked DXCC on 432, but I don't have the logs or the cards to confirm it. Even without having complete records/logs from my first 20 plus years on 432 EME, I do believe DXCC is reachable for me in just a few more years. I have fallen a bit behind with paper QSLs and promise to catch up by the end of Dec. I am up to date on LOTW through mid-Nov. I would encourage everyone to utilize LOTW even if they collect paper QSLs. I have gotten into the habit of using LOTW for all contacts and sending paper cards for all EME initials. Thanks and congratulations to Uwe and the crew at V31EME for a job well done!

OK1KIR: Vlada and Tonda vlada.masek@volny.cz send latest EME from their group -- During several short EME sessions early in Dec we made the following QSOs: On 23 cm we worked while waiting for the NH dxpedition on 1 Dec using JT65C at 1646 DL0SHF (0DB/4DB) for digital initial {#288}, 1702 4X1AJ (22DB/12DB) {#289}, 1715 RU4HU (24DB/13DB) {#290}, 1754 F1JR (9DB/4DB) {#291}, 2018 DC7YS (7DB/1DB) {#292} and 2042 N1H (16DB/25DB) {#293} – just after their moonrise, later their signals jumped to (5DB), and using CW at 1822 DF2GB (559/579 and 2147 N1H (559/559) for CW initial #427. We worked on 2 Dec during some nice JA CW activity on 3 cm direct on 10450 at 1711 JA6XED (559/559) for initial #120 with H pol and 1720 JA4BLC (559/559). Heard was JA1WQF (559) with a nice signal. On 70 cm we QSO'd using JT65B on 9 Dec at 0527 V31EME (23DB/25DB) for digital initial {#217} and a new DXCC.

OK1TEH: I (Metej) ok1teh@seznam.cz write -- In Dec I tryied to QSO some new stations on 70 cm. I was successful in working 3 new initials: KA1GT (28DB/25DB) – 1 yagi to 2 yagis(!), PA0BAT (27DB)/21DB) - with just a 3.7 m dish and ON4GG (25DB/24DB). ON4GG is the same station as ON4IQ - they use 8 x 43 el yagis and a GS23 1 kW PA. The QSO was a piece of cake. I also had skeds with S51FL and VE3ELE. We copied each other but no QSOs were completed. The same occurred with VK3NX and N6OVP in CA. At the moment I'm at mixed initial #119*. I also have some 30 initials on CW with my homebrew (HB) single 5.7 m long DK7ZB yagi and 800 W SSPA. I'm always looking for more skeds. PSE see http://ok1teh.nagano.cz/eme_log432.htm.

OK2AQ: Mirek kasal@feec.vutbr.cz was active on 7 0cm EME in Dec with his 8 wl XP M2 yagi and 250 W SSPA. He added initials with DL5FN and SM7THS, and worked HB9Q (10DB), UA3PTW (13DB), DK3WG (20DB), OK1DFC (17DB), DL7APV (16DB), I1NDP, DL6SH (16DB) and NC1I (14DB). See more at info at http://www.urel.feec.vutbr.cz/esl/files/EME/EME432.htm.

OK2PWY: Tom ok2pwy@seznam.cz (supported by his father, Milan OK2BFF) sends a info about his first EME QSO on 432 -- During Autumn we started thinking about the possibility of becoming QRV on 70 cm again from our home in JN89kw. I live in village and have very limited possibilities to erect a big antenna because of very close neighbors and insufficient space. My first antenna was lost in Oct in a serve gale. This time, I decided to use a shorter and lighter 16 el DJ9BV 5 wl yagi with a 4x reflector built by my dad. It does not have elevation. A small 100 W SSPA with a 1.2 dB NF MGF1302 preamp was located close to this yagi. My first step was to check RX by listening for some beacons. My first attempt at an EME was on 11/12 Nov at my moonset. I easily decoded NC1I (20DB) and later HB9Q (22DB), but wasn't able to make a QSO because of TRX's frequency drift. OK1TEH sent me instructions how to easily improve my FT847 stability by inserting a foam cube. The thermal isolation of the crystal helped a lot. [See Tech note at end of this NL]. I then tried with DK3WG without any success. On 2 Dec I tried with OK1DFC at moonrise. I saw Zdenek's signal via tropo as well as off the Moon. Although we saw each other, a QSO wasn't completed as my TRX was turned on cold and hadn't time to stabilize. On 10 Dec I tried with HB9Q on moonset, starting at 20 deg el. I found Dan's signal immediately. When the Moon got to 9 degs, the signal improved rapidly and I started calling. Dan made few more contacts and then answered my call at 1032 for my first 70 cm QSO! It is amazing that EME is possible at such a small power. Thanks to OK1TEH for help to setting up my equipment and with the skeds. I plan to continue my EME tests. 432 is a really nice band.

OK2PWY's 5 wl BV yagi (bottom) used for first EME QSO

ON5GS: Dirk dirk.reyners@telenet.be sends info on his contest results – I have not been very active on EME but was QRV for the ARRL EME Contest on 23 cm. Unfortunately the contest was the same weekend as the big tropo contest over here and I didn't work any OK stations - seemed like national boycott, Hi. I made 59 QSOs with most on CW and 3 DUPs. Comparing my new 6 m dish to my old 3 m dish, the signal difference is huge! I was able to work all the stations I heard on CW with very solid copy, and even made a few SSB QSOs as well. With the 3 m dish it was hard to identify calls, and they often didn't hear me. Now it's really easy. My automatic tracking also runs fine and within 0.5° tolerance. My final improvement will be to combine 2 SSPAs to boost my signal another 3 dB. My reception is often very good, but the returned report is not always so good. I heard HB9Q (1DB), but he sent (7DB). My QSOs were with PA0PLY (10DB/16DB), ES6FX (9DB/12DB) and SP5GDM (7DB/10DB). So I hope to better match the TX with the RX in the future!

ON5GS's new 6 m dish - See QRZ.com for a detailed picture story of Dirk's dish construction

PA2CHR: Chris post@pa2chr.nl is setting up for TG3MB, the dxpedition to Guatemala (EK44) on 144, 432 and 1296 -- We plan to be QRV between 23 Feb and 4 March. We will have on 432 a single 30 el (17.8 dBd) yagi and an SSPA. On 1296 a single 67 el (19.9 dBd) yagis and SSPA. I tested the 23 cm system with the preamp/relay box mounted as close to the dipole as possible to reduce cable losses. We will have more info soon. See also: http://www.mmmonvhf.de/latest.php.

V31EME - DECEMBER DXPEDITION TO BELIZE: Uwe (DG8NCO) uwedanzinger@web.de reports on the 432 part of his Belize dxpedition (EK57KF) on 8 thru 10 Dec -- First of all, I would like to thank all those who supported the dxpedition, especially a couple of hams whose support made 432 operation a reality. Without the donations it would not have been possible to take all the heavy equipment that made the dxpedition a success. 25% of all the costs were covered by the EME community. When I started to plan the trip no 70 cm activity was considered. I have been active on 2 m for more than 20 years, but had not been on the higher bands until DK3WG convinced me to try a test on 432 with him using a 25 el I0JXX yagi. The results were not that good. I contacted DG7YBN and sent him one of these antennas. Hartmut found out that the original dipole and mast clamp were the problem. He modified the dipole, (I can send details); with only one of these yagis plus the BEKO HLV 1470 PA, I had excellent results with Jurg, (13DB)! Unfortunately in Belize I was not so lucky. The Faraday rotation produced vert pol signals in EU with my horiz pol yagis. On 2 m, I had cross pol yagis that allowed many QSO to be realized that otherwise would not have been worked. On 432, of 43 QSOs started, only 30 could be completed. I QSO'd on 70 cm using JT65B (except for one on CW) NC1I (18DB), OK1DFC (26DB), LZ1DX (23DB), HB9Q (14DB), OK1KIR (25DB), DL7APV (22DB), K2UYH (18DB), DK3WG (15DB), W5LUA (26DB), I1NDP (17DB), DL6SH (27DB), DL9KR on CW (519), YL2GD (27DB), N7NW (24DB), ON4GG (24DB), ON4IQ (22DB) (same as ON4GG), ON4AOI (26DB), JA6AHB (26DB), K5DOG (27DB), UA3PTW (20DB), PA0BAT (28DB), DK0SF (20DB) (same as DL6SH), UT6UG (25DB), UX0FF (26DB), UX5UL (25DB), UT5DL (25DB), OT4E (20DB) (same as ON4GG) and DL8FBD (27dB) for a total of 25 initials. The equipment on 70 cm was 1 x 25 el yagi and a Beko HLV-1470 1.5 kW PA and LNA. The news good is that the Belize Radio Club - V31HQ have taken over the antennas and the preamps, and will soon use them for permanently activity on 2 m and 70 cm EME. QSL cards should be sent directly to me (DG8NCO). I am already working on my next dxpedition, probably to PY0F, and will include 70 cm again.

V31EME operating position with Uwe between 2 x 432 yagis in the center of array

VE3KRP: Fast Eddie eddie@tbaytel.net catches up on some missed some reports -- I worked on 23 cm using JT65C on 4 Nov OE9GLV, K4EME, DF2VJ, W1PV, WA2FGK, SP5GDM, OF1LRY and ON4AOI, on 1 Dec N1H for an initial (#), DC7YS (#), K5DOG, K5DN (#), K7/VE4MA, W2HRO (#), VE4SA, UA3TCF, VA6EME and WA2FGK, on 16 Dec TI2AEB, and on 23 Dec G4CCH, K5DOG and W3HMS. hings have really cooled off here in the Great White North. It was -28 degs C last night! The ol' dish and tower rotor just don't like that!

VE4MA/K7: Barry ve4ma@shaw.ca writes that he was able to QSO on 1st Dec N1H (15DB/23DB) on JT-X with his 5' dish.

W2HRO: Paul w2hro.fn20@gmail.com is now QRV on 1296 with a 3 m mesh dish with a linear loop feed and 150 W (100 W at the feed) -- In early Dec with the Moon at high declination and near perigee, I completed QSOs with N1H (14DB/25DB), W3HZU, K5DOG, NC1I, W5LUA, VA6EME, VE3KRP, ON5GS, XE1XA, and K2UYH. These are all initials. I am W3HZU's 5th 1296 QSO. I plan to be QRV again after New Years. I have CP feed but have not had time to install it. I'm looking forward to extra 3 dB.

W2HRO's 3 m dish with linear feed for 23 cm

K2UYH: I (Al) alkatz@tcnj.edu report – Activity slowed down this month, but I still had some good QSOs. I was on 1296 on 1 Dec to QSO at 2343 N1H (559/539) CW for initial #385, and 2 Dec at 0015 K5DN (5DB/1DB) JT65C for mixed initial #559*, 0020 VE4MO (23DB/17DB) JT65C, 0024 W2HRO (22DB/O) JT65C #560*, 0038 DC7YS (4DB/3DB) JT65C #561* and 0100 K5DN (569/579) CW #386. I was also on 3 cm on 2 Dec and had a partial QSO at 0830 JA4BLC (O/O) XB(10368 to 10450) but did not find Yoshiro until the end of our limited window and did not have time to complete. The next day I did better knowing where to look and immediately heard signals. At times several signals were heard at the same time. I worked on 3 Dec at 0900 JA4BLC (O/O) CW easily for intial #28, DXCC 20 and my last continent for WAC, 0925 JA8ERE (O/O) CW #29 and 0940 JA1WQF (O/O) CW #30. I also tried with Mitsu at 1020 using JT4F but had decode problems with the XB JT control. We will have to try again. On 9 Dec, on 432 I worked using JT65B at 0653 V31EME (16DB/18DB) 0657 for mixed initial #963* and DXCC* 134. I plan to be QRV during the SSB Funtest weekend on both 23 and 13 cm.

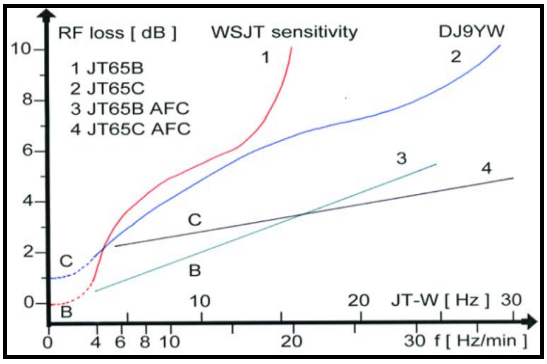
NET/REFLECTOR NEWS: **UN6PD** was active on 1296 in Nov/Dec and made initial QSOs using JT65C with ON4AOI, N1H, RU4HU, UA3TCF and possibly others. **OK1UGA & OK1CU** well known from 2 m EME are working on a 6 m offset dish for 23 cm EME. Pictures can be seen at http://ok1uga.nagano.cz/emeqth23.htm. **OK8WW** lost his 3.7 m dish in a Dec gale and is temporary QRT. He expects to be back soon. **PA2V** is presently QRT because of antenna damage, but hopes to be QRV again in the spring. **WA2FGK** on 4 Dec added on 1296 VK2JDS - lucky the leaves were all gone. **WB3DZC** is working to get a 10 m dish at the University of VA on the Moon for educational and ham radio use. Rich's email is rbradley@nrao.edu. **DJ3JJ** in Dec visited the Stanford ARC EME Station, W6YX; TNX to help from K2YY. Andreas met with AD6FP. Gary showed him around the station and the new auto tracking system with a 3 phase controller/ azimuth motor that he installed. Now the tracking of the station is very precise. Andreas send his thanks for the tour.

DJ3JJ (L) visiting AD6FP (R) at W6YX shack – 8 m dish in back

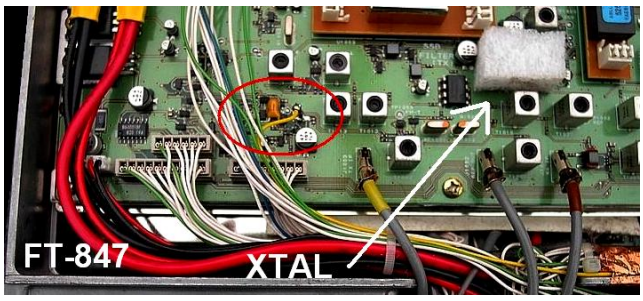
FOR SALE: **N4PZ** has for sale a massive Az/El rotor from a TVRO system. It's dirty but mechanically sound. Motors run on 28 V but does not include any controller electronics. It should work with either a polar or EL/AZ mount – the price is right! He also has a Spectrian amp for 2304 complete with power supply (plug and play) available. If interested in either, contact Steve at n4pz@live.com. **W2ODO** has for sale (not donation) a 50' dish. It comes with all ribs (3 piece ribs), center hub, mesh, Az/el mount, and SS nuts and bolts. The price is the approx. scrap price of the Aluminum, which is $1000. Pickup ONLY as it is close to 2000 lbs total. For an extra $400, he will add in feeds for 432 and 1296 - (not for sale separately). For mor info contact Pete at pmanfre@gmail.com.

EME 25 and 35 YEARS AGO by Peter, G3LTF: In **Dec 1982** the ARRL contest changed to the autumn so Nov/Dec were full of contest activity (30/40 reports). Most was on 432 with top scores of 69x29 from N9AB with his 16 Quagi array and 69x27 from K3NSS with a (decommissioned NRL) 84' dish. Top 1296 scores were 18x14 from SM6CKU with his 8 m dish and K2UYH with 17x14. This represented a high level of turnout on 1296 as the top initials score was only 25 at this time. On 432 the top initials total was 203. This was the first initials listing in the NL, and the editor topped both bands! A surprise showing in the contest was NP4B with the Arecibo 1000' reflector; they made 18 QSOs with a 3 W TX. Two more new countries appeared on 1296, OZ9CR and OE9PMJ (using the call OE9XXI, who became one of the leading 1296 stations, technically and operationally, for the next 18 years, and sadly became an SK in 2004). A big problem in the contest was QRM.... Editorial quote "We must spread out more - especially on 432. Everyone cannot operate between .005 and 010. Lets at least move up to 015, 020". Of course the bottom of the band was not full of electronic appliance crap as it sadly is today, but then you did quite often have 5 – 10 stations simultaneously operating in the bottom 10 kHz. In **Dec 1992** the top contest scores on 432 were SM4IVE with 174x38 and DL9KR with 163x38, and on 1296 OE9ERC with 49x24 and OE9XXI with 49x23 of which 38 were on SSB! Activity was very high anticipating the appearance of VE3ONT's operation from the Algonquin 46 m dish but storms prevented it. There were still complaints of QRM on 432, but at least we were now operating from 005 to 020 and with a "QRP window" of 030-040. Scanning through the many reports for Nov and Dec my estimate is that the average 432 station was using 4 or 8 yagis and 700 W, and on 23 cm a 5 m dish and 500 W. [All on CW and SSB]. The top of the initials list for 1296 was OE9XXI, 106 and 28 DXCC and also on 2304 with 28 and 11 DXCC.

TECHNICAL CORNER: OK1TEH writes I have found that newcomers are often using FT847 (or FT857) for their first EME tests. Such transceivers are good enough for CW but suffer from frequency instability that make JT65 QSOs more difficult. The oscillator stability during TX affects the decoding at the receiving station as shown in the following graph - TNX DJ9YW.



The drift is caused by the internal fan which is starting to blowing air when TX is ON. The blowing air cools the internal xtal. In JT65, it has the effect that during the first few seconds of the JT period, the signal drifts quicky and then drifts more slowly. What to do? There are several solutions. First you can add external heater to the xtal; the QH40 from DB6NT is an example – see http://frenning.dk/OZ1PIF_HOMEPAGE/QH40A.htm or http://shop.kuhne-electronic.de/kuhne/en/shop/professionell/prof-zubehoer/Precision+crystal+heater+40%C2%B0+QH40A/?card=724. Another option is modifying FT-847 for an external reference input, see: http://www.vk3hz.net (you can find there a full description of how to do it). Most of newcomers don't want to make any big modifications to their precious transceiver (although it's is highly recommend to separation the RX/TX ports to allow the use of an LNA without an external relay). Is there another solution? Yes, and very cheap and easy to do. You just put some insulative foam (thermal) around the crystal. I did it few years ago and it was good enough. The foam prevents the xtal from changing temperature from the blowing air. It has only one small disadvantage; the transverter has to be running a few minutes to thermally stabilize (especially if you have a cold hasmshack). The picture shows how and where I put the foam cover.



Foam cover to stabilize FT-847 and similar rigs

This simple modification can lower the drift to about 10 Hz/1 min. [The TS2000 can display a similar problem. One solution for the 2000, is to keep the fan running at all times]. In case you observe such drifting on an RX signal, it's possible to improve your JT65 decoding by maintaining a constant RX frequency (straight line on SpecJT) by manually adjusting your RIT.

THE RADIOASTRONOMICAL CORNER: NRAO has announced a new interesting book about early radio astronomy pioneers called "Four Pillars of Radio Astronomy: Mills, Christiansen, Wild, Bracewell", see https://public.nrao.edu/news/new-book-radio-astronomy-pioneers/.
News: Scientists from Pasadena found a supermassive black hole in an infant universe. Will this new discover change our understanding of the early universe and black hole formation? There are plenty of supermassive black holes in the universe. Virtually every "SBH" sits near to galaxy center and it's often a powerful radio source. But the newly detected SBH - quasar is very rare. This monster, which is found within a very bright quasar, shines at us from the universe when it was about 690 million years old. That's a big problem. If there is not some error, we have an SBH at a time when the universe was half-ionized. It was at that time that the first galaxies formed from neutral hydrogen and began to shine from the glow of their first stars. According to Robert Simcoe, the age of this SBH is the most accurate estimate of the time when the first stars in the galaxies were created and began to burn - the era of *reionization*. Simcoe said that such a SBH could not have emerged from a imploding star; for example, after the collapse of a gigantic star, and grow to 800 million Suns in size in so short a time. Due to current theories this is something that isn't possible. At this point, no one knows how this SBH/quasar was created. More cen be found at:
http://news.mit.edu/2017/scientists-observe-supermassive-black-hole-infant-universe-1206

Some of quasars have already been detected by radio amateurs. CT1DMK wrote at his webpage http://www.qsl.net/ct1dmk/raobs.html: *"The strongest Quasar is still a weakie. The 3C273 has 46 Jy at 21 cm https://en.wikipedia.org/wiki/3C_273 (it has a redshift of 0.158, which corresponds to a distance of 2.4 billion light-years) and produced about 0.05 Kelvin of antenna temperature; certainly the minimum signal I can measure with my setup. More than 30 scans were done to obtain a clean one. For such small signal variation measurement (below 0.01 dB) all stability affects count. Even the lightest fog or the thinnest cloud could perturbate the measurement. Not to mention the temperature stability of the radiometer and other components of the system. There are just a few amateur detections of quasars. As far as I know 3C273 was detected with single dish setups by me, Herman Hagn (DK8CI) (7.5 m Wuerzburg-Riese dish) and Robert W. Stephens (18 m dish), and with interferometer setups by Hans Michlmayr (VK6ZT) (2 x 5 m dish) and recently Jim Abshier (W8QOP) (2 x 3m dish). He has also detected fainter sources such as 3C147/23Jy [6.4 billion light-years away!]."*

Quasars

Name	RA h:m	Dec °:m	Flux Jy (2)	Comments / (Y at DMK's)(3)
3C48	01:34.8	+32:54	16	
3C147	05:38.7	+49:50	23	
3C196	08:10.0	+48:22	14	
3C273	12:26.6	+02:20	46	1st Ham detection (?!) by: CT1DMK & DK8CI
3C286	13:28.8	+30:46	15	
3C380	18:28.2	+48:43	14	

Source: http://www.qsl.net/ct1dmk/eme_ra2.pdf

FINAL: Normally this NL starts with **VERY BEST SEASONS GREETINGS FOR A WONDERFUL NEW YEAR FROM ALL ON 70 CM & UP EME TO ALL.** This banner is shown in place of all the Holiday Greeting that were part of the reports in this month's NL, but included for brevity. We have much to be thankful and celebrate, but considering the loss of so many of our dear friends, it did not seem an appropriate way to begin this year. Lets hope for happier time next year, However, we must be realistic as our ranks become older and appreciate what we have.

►The results of the 2017 REF/DUBUS CW EME Contest can be seen at http://www.marsport.org.uk/dubus/EMEContest2017results.pdf. Contest activity in 2017 compared to 2016 was slightly better on 70 cm. 23 cm continues to be the band with the highest activity, but 2017 scores were slightly lower than in 2016. [This may be due to the shorter Moon window]. Approximately 100 stations were active. Activity on 13 cm was about the same as last year and reasonably good. 9 cm activity was a real winner and much higher scores than in 2016. There was a record of > 33 stations active. The 6 and 3 cm also had an excellent turnout with > 38 stations active on 6 cm and > 36 on 3 cm. Congratulations to the OK1KIR team for the top Multiband entry with score 8,672,400 points. This was one of the highest scores ever! Great thanks to DL8HCZ/CT1HZE for organizing and managing the contest. Much of the above information came from sources provided by Joe.

►The 2018 DUBUS CONTEST dates and rules can be found at http://www.marsport.org.uk/dubus/EMEContest2018.pdf.

►N4PZ announces that he is trying to get an EME group going on 75 m again in the eastern part of NA. Start time is 0130. They have been using 3670 kHz; however, 3846 kHz is an alternative that has been used in the past.

New comers to 70 cm EME should read the following article by DL7APV: http://dl7apv.darc.de/start/start.htm.

►EME2018 the Netherlands at https://www.eme2018.nl/ is 7 month away. It is time to start making serious plans to be there. Have you indicated your plans to attend? Registration info is available on the webpage. In the last NL were the CALL FOR PAPERS details. The deadline for abstracts is April. Please send your contributions to jvm@netvisit.nl.

►Hope to CU you all during the EME SSB Contest. Please keep the reports and tech info coming. Best wishes off the Moon to you and your family for a Healthy, Happy, Prosperous and Fun 2018. 73, Al – K2UYH & Matej, OK1TEH.