

## 432 AND ABOVE EME NEWS FEBRUARY 2018 VOL 47 #2

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**CONDITIONS:** Sadly the bad news does not stop; after the 3 SKs last month. WA3LIB unexpectedly passed away in Jan – see below. The major EME news this month is the first 13 cm EME SSB Funtest, and the very successful F5SE Memorial 23 cm SSB Funtest on 27 and 28 Jan respectively. I was pleased with the turnout, especially on 13 cm for a first time event. The top fun maker on 13 cm was the Klodzko contest team under the call of SP6OPN with a score of 280 points. There is no question that the 2.3 GHz Funtest will return in 2019. On 23 cm, the FUN was more intense with OK2DL returning to the top spot with 1080 points after 4 years. This score is almost twice Marek's 2014 score and the best in many years. Coming up is the first 2018 DUBUS CW Contests. This one is for 70 cm (and 2 m) and on 24/25 Feb. The 13 cm DUBUS Contest will be 24/25 March. There is no 70 cm CW Activity Time Period (ATP) in Feb because of the 70 cm contest. There were no dxpeditions in Jan, but there will be plenty of dxpedition activity in Feb and March. TD9CHR and TD9FYC will be QRV from Guatemala (EK44sb) on 144, 432 and 1296 between 23 Feb and 4 March – see report in this newsletter (NL). CR2EME is to be on 432 (and 144) from the Azores (HM77ft) between 24 and 30 March. In 15-25 April Cuba is expected to be on 432 and 1296 under the call T46MB (FL02gn) – more info to follow. 3B8MB is to be QRV from Mauritius (LH80ta) on 1296 (and 144) with 2.3 m and 250 W.

**WA3LBI is an SK:** We had to re-read the shocking news to believe that WA3LBI suffered a fatal heart attack. Jim was working on a commercial television tower and it is reported that he was holding a rope when he collapsed. The paramedics were able to get a heartbeat again, but Jim died on the way to the hospital. It was only about 3 months ago that Jim set a new 3 cm world distance record with VK7MO by QSOing between the western tip of Australia and the eastern edge of DE by EME. Both were using portable stations – see the Oct EME NL and <http://www.arri.org/news/new-10-ghz-earth-moon-earth-world-record-set>. Jim was a friend to many hams, and a long time member of the Suburban Radio Club (K3MTK), which he joined as a teenager, and was interested in EME even back then. Jim was active on EME on bands from 144 to 10 GHz. Jim also had numerous professional accomplishments. Jim and his company Total RF received 9 Emmy Awards for Technology Innovation and Production. This is a terrible loss for ham radio, as well as his family. Jim will be sorely missed by all his EME friends.

**9A5AA:** Dragan [dragan9a5aa@gmail.com](mailto:dragan9a5aa@gmail.com) writes – This year's the SSB EME contest was special. I especially appreciated that it was dedicated to our SK friend F5SE. We will miss Franck's signal with its many dots. I operated only on 23 cm and QSO'd on 27 Jan at 1915 I1NDP (58/57) JN, 1933 OK2DL (58/55) JN, 1948 DJ3FR (56/56) JO, 1957 SP6JLW (56/55) JO, 2009 DF3RU (55/53) JN, 2034 DL3EBJ (55/55) JO, 2040 IZ1BPN (55/55) JN, 2045 LX1DB (59/57) JN and 2230 K2UYH (56/54) FN, and on 29 Jan at 0051 XE1XA (55/55) EK, 0146 VE6TA (55/55) DO, 0235 VE6BGT (55/33) DO, 0242 N4PZ (57/55) EN, 1450 HB9Q (59/55) JN, 1508 P19CAM (57/55) JO, 1710 ON5GS (55/55) JO, 1723 IK3COJ (53/52) JN, 1728 YO3DDZ (55/55) KN, 1847 ES6FX (55/55) and 1858 SP3XBO (55/53) JO for a total (20x2)x8 = 320 points.

**BD4SY:** Hsu [BD4SY@126.COM](mailto:BD4SY@126.COM) reports that he was not able to operate the past several months but will be QRV again soon – I had problems with my email and great difficulty with operation on 13 cm because of local jamming. It often would cover the entire frequency band. In the first half of last year, I already finished my 6 cm equipment. I should be able to work on 6 cm soon, and will be willing to try 13 cm at the same time. When I am ready, I will let everyone know.

**DF3RU:** Karl [karl.schmidt@asamnet.de](mailto:karl.schmidt@asamnet.de) was active on 1296 in the F5SE Memorial SSB Funtest – I worked on 27 Jan at 1920 I1NDP (58/57) JN, 1929 SP6ITF (55/55) JO, 1930 OH2DG (57/57) KP, 1942 DL7YC (55/55) JO SSB-CW, 1937 IK1FJI (55/55) JN, 1950 SP6JLW (57/57) JO, 1955 DJ8FR (56/56) JO, 1959 DL3EBJ (55/57) JO, 2003 OK2DL (58/59) JN, 2008 9A5AA ((56/55) JN, 2010 DL7UDA (55/56) JO, 2015 OK2ULQ (56/57) JN, 2019 SV3AAF (58/56) KM, 2021 DL6SH (57/57) JN, 2023 YO3DZZ (56/57) KN, 2032 ES6FX (56/56) KO, 2035 SM7FWZ (56/56) JO, 2040 PE1LWT (55/55) JO, 2056 IZ1BPN (57/56) JN, 2007 LX1DB (59/57) JO, 2206 K2UYH (58/55) FN, 2220 HB9Q (59/56) JN, 2233 XE1XA (54/54) EK, 2239 K5DN (55/55) EL, 2334 VE6TA (56/56) DO, 2357 VE6BGT (57/56) DO, 2341 WA6PY (56/56) DM, 2346 VE4SA (55/44) EO and 2355 W7JM (55/57) DM CW-SSB, and on 28 Jan at 1437 VK5MC (55/55) QF, 1442 PA0SSB (56/55) JN, 1453 P19CAM (58/59) JO, 1511 DC7YS (57/42) JO, 1518 DK3WG (53/54) JO, 1758 SP3XBO (54/54) JO, 1809 IK3COJ (55/55) JN and 1818 ON5GS (54/55) JO for a total of (35x2+2)x12 for 864 points. I heard only SM7SJR, KD3UY and WA9FWD. I used a 6 m dish and 800 W.



**WA3LBI with his dish for 10 GHz EME**

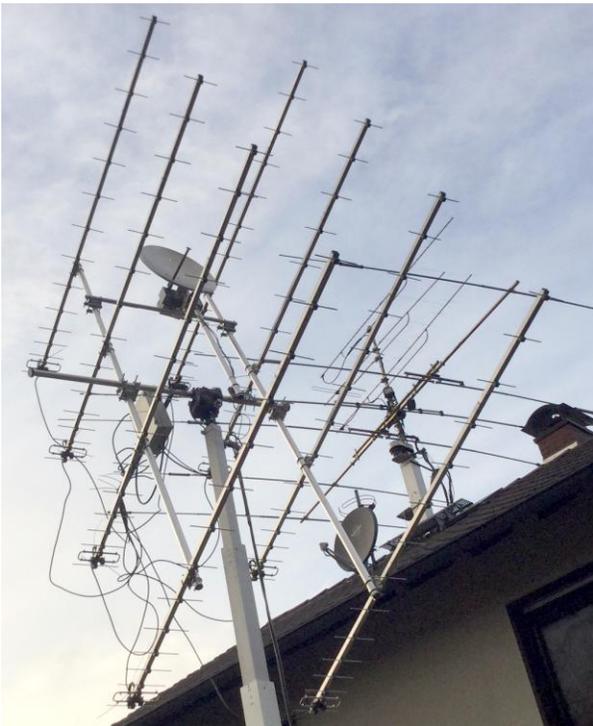
**DJ3JJ:** Andreas [dj3ji@gmx.net](mailto:dj3ji@gmx.net) was an SWL in the F5SE Funtest on 23 cm – I heard 7 stations on SSB OK2DL, K2UYH, SP6JLW, IZ1BPN, I1NDP, HB9Q and LX1DB with only a 2.5 m dish. I put a video on Youtube showing how I copies SSB during the Funtest - see <https://youtu.be/sCQsh2O5V7E>. Likes are welcome.

**DJ8FR:** Juergen [dr.juergen.friedrich@gmx.de](mailto:dr.juergen.friedrich@gmx.de) sends his log for 23 cm F5SE Memorial EME Funtest -- I was lucky, no snow and low wind at my side. I contacted on 27 Jan at 1920 OK2DL (59/59) JN, 1927 OH2DG (56/56) KP, 1933 SP6JLW (56/56) JO, 1937 DL6SH (57/56) JN, 1941 DL3EBJ (56/57) JO, 1945 SM7FWZ (55/55) JO, 1949 9A5AA (55/56) JN, 1952 SV3AAF (56/55) KM, 1957 DF3RU (56/56) JN, 2001 YO3DDZ (55/56) KN, 2024 I1NDP (57/58) JN, 2107 IZ1BPN (56/56) JN, 2117 SP6ITF (55/57) JO, 2140 K2UYH (56/55) FN and 2154 LX1DB (59/58) JN for a total of 15x2x6 = 180 points.

**DK3WG:** Jürgen [dk3wg@web.de](mailto:dk3wg@web.de) was QRV during Jan -- I added on 432 initials using JT65B find EW7AW, S51LF, M0ABA and IT9CJC to bring me to mixed initial init #800\*. On 1296 using JT65C was very pleased to QSO RA2FGG, AA7HC and G3WDG.

**DL3EBJ:** Chris' [dl3ebj@t-online.de](mailto:dl3ebj@t-online.de) 1296 F5SE Funtest results follow – I made 26 SSB to SSB QSOs in 8 sectors for a score of  $26 \times 2 \times 8 = 416$  points. I QSO'd on 27 Jan at 1911 I1NDP (59/57) JN, 1920 OK2DL (59/57) JN, 1928 SP6JLW (59/55) JO, 1940 DJ8FR (57/56) JO, 1957 SP6ITF (55/55) JO, 1959 DF3RU (57/55) JN, 2018 HB9Q (59/55) JN, 2025 DL6SH (58/56) JN, 2034 9A5AA (55/55) JN, 2042 SM7FWZ (57/55) JO, 2052 IZ1BPN (58/56) JN, 2119 SV3AAF (57/55) KM, 2128 ES6FX (57/55) KO, 2226 LX1DB (59/57) JN and 2235 K2UYH (56/55) FN, and 28 Jan at 0010 VE6BGT (56/54) DO, 0016 VE6TA (56/55) DO, 0021 WA6PY (55/55) DM, 1438 PI9CAM (59/59) JO, 1524 PA0SSB (55/54) JO, 1555 SP3XBO (55/55) JO, 1614 ON5GS (54/55) JO, 1644 YO3DDZ (57/57) KN, 1701 DL7UDA (55/55) JO, 1753 IK3COJ (55/54) JN and 1859 IK1FJI (55/54) JN.

**DL6KAI:** Randolph [DL6KAI@aol.com](mailto:DL6KAI@aol.com) is currently active on 70 cm with an 8 x 15 el GOKSC yagi array and 750 W – I am QRV from my QTH near Bonn (JO30ot), and am looking for skeds on HB9Q EME chat.



**DL6KAI 8 x 15 el GOKSC yagi array for 70 cm**

**DL7UDA:** Dietmar [dl7uda@versanet.de](mailto:dl7uda@versanet.de) now has on 1296 more power (500 W) into his 4.5 m dish – In my first 23 cm Funtest I worked on SSB to SSB on 27 Jan at 1939 OK2DL JN, 1952 HB9Q JN, 2002 I1NDP JN, 2013 DF3RU JN, 2137 SP6JLW JO, 2137 IZ1BPN JN and 2219 LX1DB JN, and on 28 Jan 0018 K2UYH FN, 1443 PI9CAM JO, 1701 DL3EBJ JO, 1707 YO3DDZ KN and 1716 SP3XBO JO for a score of  $12 \times 2 \times 4 = 96$  points.

**DL9LBH:** Hans [DL9LBH@darcd.de](mailto:DL9LBH@darcd.de) is setting up for EME again from his home QTH (JN59id) on 70 cm -- On 27Jan, I worked on 432 at 1312 HB9Q with a single 48 el yagi. I will expand to 4 x 48 el yagi, probably by the time you read this and also have more power (750 W).

**EA8/G4RGK:** Dave [zen70432@zen.co.uk](mailto:zen70432@zen.co.uk) managed to find time to assemble his station and operate 70 cm EME while in EA8 on holiday -- Conditions for the most part seemed quite good. As usual I had to TX Horz and receive vert for EU. I spent a long time calling FR5DN with no response. I couldn't find the optimum polarity for him. I did manage to work the following stations: HB9Q, DF3RU, NC11, SM7THS, DL5FN, DL8FBD, PA0BAT, VA3ELE, W5LUA. VA3ELE is a 2 yagi station with a remarkably good signal. I also had nice CW QSO with G3LTF. G3LTF turned out to be my last QSO because my HLV550 SSPA blew up right after we completed. I had no chance of fixing it down there. I brought it

back to the UK where I have now replaced the destroyed MRF6V4300NB devices and repaired the burnt up board. While I was away from home a big storm destroyed my 4.6 m dish. Thus, G4RGK will be QRT for a few months on 23/13 cm, while I build a new dish. The yagi arrays on 2 m and 70 cm survived with some damage, which has now been fixed.

**ES6FX:** Karmo [es6fx@asat.eu](mailto:es6fx@asat.eu) sends his log for the 23 cm F5SE SSB Funtest – From my QTH in KO37ow, I worked all SSB to SSB on 27 Jan at 1910 SP6JLW JO, 1919 I1NDP JN, 1924 OK2DL JN, 2023 DF3RU JN, 2107 IZ1BPN JN and 2128 DL3EBJ JO, and on 28 Jan at 1428 DL6SH JN, 1440 PI9CAM JO, 1720 HB9Q JN, 1804 LX1DB JN, 1844 OK2DL DUP and 1848 9A5AA JN for a total of  $12 \times 2 \times 2 = 48$  points.

**G3LTF:** Peter [g3lft@btinternet.com](mailto:g3lft@btinternet.com) writes that he has only a short report for Jan -- Very little activity this month as the WX has been near continuous strong winds, rain and/or snow - (its called Winter)! On 28 Dec there was a pause for a day and I worked SA6BUN (DL1YMK at his vacation QTH) on 6 cm SSB for initial #78. I also worked SM6CKU on CW. On 3 Jan on 70 cm CW, I worked EA8/G4RGK for initial #471 with his single yagi system. I was away on holiday at the end of Jan and thus sadly missed the EME SSB contests.

**IK1FJI:** Valter [valter\\_dls@yahoo.it](mailto:valter_dls@yahoo.it) wrote -- During holidays, I spent time late at night on EME and was very happy to worked several stations on CW/SSB. The highlight was a FB CW QSO on 1296 with PA2DW, who was using only 2.4 m dish. Others worked on 23 cm CW were DL0SHF (559/569), K5DOG (559/559) for initial #72, GM4PMK (549/559) #73, VE6TA (569/579), SM7SJR (569/579) #74, DF3RU (559/569) #75 and PA2DW (549/549) #76. I also worked few stations in JT65C too. On 70 cm I made a random QSOs on JT65B with DL7APV using just a single 7 el yagi and 180 W. I much enjoyed the F5SE SSB Funtest on 23 cm. I worked DF3RU JN, DL6SH JN, OK2DL JN, SP6JLW JO, I1NDP JN, IZ1BPN JN, LX1DB JN, HB9Q JN, K2UYH FN, WA6PY DM, VE6BGT DO, N4PZ EM SSB/CW, PI9CAM JO, SM7SJR JO, ON5GS JO, YO3DDZ KN and DL3EBJ JO. My score was  $(16 \times 2 + 1) \times 7$  for 231 points. My current station consist of 3.2 m mesh dish, septum feed, with about 900 W at it, LNA with < 0.3 dB NF/35 dB gain and a TS2000. For tracking I use EA4TX.

**IZ1BPN:** Stefano [iz1bpn@libero.it](mailto:iz1bpn@libero.it) wrote about his participation in SSB EME Contest on 23 cm -- Once again lots of fun to have the precious opportunity to make "old style QSOs". I found it definitely more fun that any PC based mode! Unfortunately I was able to operate just three hours on Saturday, but this demonstrated that even in analog modes you can still do a lot of QSOs via the Moon. I used an 8 m dish with IK1MTZ design septum feed, a 500 W SSPA and an LNA, both from DB6NT. Logged were 9A5AA (55/55) JN, SM7FWZ (55/55) JO, OK2DL (58/57) JN, DL3EBJ (56/58) JO, SP6ITF (55/59) JO, DF3RU (56/57) JN, SV3AAF (57/57) KM, DJ8FR (56/57) JO, ES6FX (55/55) JO, OK2ULQ (55/57) JO, OH2DG (55/55) KP, PE1LWT (54/55) JO, SP6JLW (56/55) JO, IK1FJI (55/55) JN, DL6SH (55/56) JN, DL7UDA (54/55) JO, YO3DDZ (56/57) KN, LX1DB (59/59) JN, I1NDP (59/59) JN, K5DN (55/55) EL, K2UYH (56/55) FN, W7JM (53/55) DM and VE6BGT (55/45) DO for an all SSB-SSB score of  $23 \times 2 \times 9 = 414$  points.

**JA4BLC:** Yoshiro [ja4blc@web-sanin.co.jp](mailto:ja4blc@web-sanin.co.jp) can now be QRV at the same time on two microwave bands by running his 3 m Cassegrain dish and his 2.4 m offset dish -- On 30 Dec, I had a sked on 24 GHz with OF2DG. I installed 24 GHz rig on my 3 m Cassegrain dish and heard Eino weak/QSB but (539) at his last transmission. It ended a partial QSO as Eino did not hear me. I heard good echoes from JA1WQF. My 10 GHz activity was done with my 2.4 m offset dish and a 40 W SSPA. On 31 Dec, I had success with WA3LBI (O/O) for initial #46. I worked on 2 Jan JA6XED (559/559), on 3 Jan JA1WQF (559/559), JF3HUC (559/549) and OH2DG (569/559), on 4 Jan I had partial with EA3HJM, on 5 Jan JF3HUC (569/569) and on 6 Jan heard UT2EM (M/O) partial but no RRR.

**JH1KRC:** Mike [jh1krc@syd.odn.ne.jp](mailto:jh1krc@syd.odn.ne.jp) sends greetings from JA for a Happy New Year -- After my old RX coax (loss of 20 dB) was replaced, I noticed my receiver was almost dead. A few months ago, a cell-phone tower about 30 m high was built some 300 m away to the south of my shack. My newly installed VLNA for 23 cm with much hi-gain and very low NF, in a bench test is unfortunately totally saturated! And it provides too much input to my TRX, so that it is also saturated! Looking at a spectrum analyzer display caused me to almost have a heart attack. The saturated RX is very quiet – no signals can be heard! My old HB9BD

LNA with its hi-Q input resonator and a very narrow band pass filter in front of the TRX works much better. With it, I can finally receive very good echoes again. I was on during my NA window, but received no reply to my CQs. I still was happy to hear good echoes, even if no one else was around. I plan to be more QRV in the future.

**K1DS:** Rick [rick1ds@hotmail.com](mailto:rick1ds@hotmail.com) reports on operation from his winter QTH in FL -- I was on 70 cm EME using JT65B for a while on 29 Dec. With my single yagi and 100 W, I contacted NC11 (18DB) best and added mixed initial #9\* with DL6SH (18DB) best. I recently acquired another 3 cm transverter, as I had sold my old one, and it came with a 10 W TWT. I also bought another 40 W TWT and PS. I plan to try some 3 cm EME using a 1.3 m solid dish, if I can get some of my Packrat club members to assist, it could become a reality. Jani my XYL and I are making plans to attend EME 2018 with a pre-conference tour of Iceland.

**K4MSG:** Paul [pbockjr@gmail.com](mailto:pbockjr@gmail.com) is back on 432 -- After a hiatus from EME of about a year, I plan to back on the Moon with my 432 "small station" EME in Feb. I will start with a single 15 el yagi, 500 W and an antenna-mounted <0.5 dB NF LNA. The outdoor mount will be a heavy-duty surveyor's tripod with Alliance U-100 TV rotor for azimuth and a "yoke-style" antenna mount to allow manual elevation adjustment. At some point the antenna will be improved and possibly a second yagi added. My goal is to keep the outdoor mount fairly simple and as portable as possible since it may eventually be used for quick portable operations. Within the next two years, we will be re-locating, possibly to a location that doesn't allow outside antennas; so portable EME operation may be necessary. I also plan to eventually add 1296 EME. A quick set-up and takedown dish for 23 cm is next on my list of design projects. I am also working on a database of all operators who have completed WAC on 432. If you have WAC on 70 cm, please contact me by email. [This is also a project I have been interested in. I have been trying to get a list of all WACs on 432 and above from the ARRL].

**K4QF:** Ben [LoWeb@esp-inc.net](mailto:LoWeb@esp-inc.net) sends a progress report on his efforts to get AL QRV on 1296 EME -- I'm still pecking away on my 1296 system. After replacing some of the spokes from my stressed dish (40 years of weather took its toll), my next task was to install a surface. I did find the rotator I was looking for, but instead of a dc motor, my model had an ac motor. I thus cannot slow it down by lowering the voltage level. I kept looking and found a vehicle winch motor from Harbor Freight that will do the job. Getting the new surface contours to within 1/16th WL took much longer than I anticipated. Before I got too far along, summer arrived here in Dixie. In addition it was a very wet spring. Bugs and a couple of Copperheads slowed work on the dish. It is now winter with almost no fall season; and very few outside workdays. I did get the surface installation completed a couple of weeks ago. Last weekend I installed the counter balance for the dish - the same counter balance I used 40 years ago. On the good side, I was invited to Luxemburg as part of a NASA team that came up with a concept for extracting water from the ample supply of ice under the surface of the Moon. We were finalists for the "The Luxembourg Prize." I developed the microwave source for melting the ice. We did not win, but it was still nice to be one of the 5 finalist invited to present. On the negative side, it took time away from the dish project. I now only need to install a feed, build a timing circuit to control the tracking motor and get a PA going. My immediate goal is to be receiving for the Jan SSB EME contest. I'm thinking of starting with a single PQL 60 W SSPA and then increasing it to about 250 W. I am also looking for some semi-rigid coax (15-20') for getting around the rotator and mount. I'm also not sure what to do about a sequencer. It sure seems like things went much faster when I was 40 years younger.

**K7ULS:** Mike [k7uls@yahoo.com](mailto:k7uls@yahoo.com) is considering putting UT on 1296 with a modest system -- I just acquired a ux-910 to allow me to operate 1296 with my IC910h. I have a 55 el long loop yagi that I can easily mount for full AZ/EL tracking. My question is anyone in UT on 1296? I will probably have only 10 W to start.

**K7XC:** Tim [k7xcnv1@gmail.com](mailto:k7xcnv1@gmail.com) asks -- Is there interest in NV on 432 EME? I ask as it is a band that I have gear for. My present home is in NV on 5 acre lot. I should be able to get a 4 bay array and a 180 W SSPA going without too much difficulty. I have a single 22 el K1FO yagi now and can slowly make 3 more by the summer. I might be able to borrow a pair of 1296 loopers, but I would still need at least a preamp, sequencer and SSPA to become QRV on 23 cm.

**KA1GT:** Bob [ka1gt@hotmail.com](mailto:ka1gt@hotmail.com) has new 70 cm antenna and writes -- I'm now QRV on 432 with ~ 500 W to my new 2.4 m dish. I have an

OK1DFC loop feed that can rotate 180 degs for pol control. I am not expecting much from this small dish, but since I have the power and the preamp, I'm going to give it a try! I intend to expand it to 3 m at the same point. I'm still waiting for the parts for my 1296 PA to arrive. I have a trip coming up in Feb, so I may not be QRV on 1296 until March. I will be listening on the band. I seem to be hearing reasonably well.

**KD4FOV:** Will, [wwrogers@mit.edu](mailto:wwrogers@mit.edu) delayed report on his and W1NJE's participation in ARRL EME Contest back in Nov with the 37 m Millstone UHF MISA antenna at the Haystack Observatory in Westford, MA on 432 follows -- We worked using SSB unless noted otherwise on 3 Nov OK1DFC (55/44), DF3RU (55/55), ON4GG (449/229) CW, HB9Q (56/52), G3LTF (55/33) and DL9KR (559/529) CW, and on 4 Nov UA3PTW (579/529) CW, OK1CA (559/559), DL7APV (1DB/1DB) JT65B, K1KNR (57/57) on tropo, NC11 (7DB/14DB) JT65B, HB9Q (1DB/11dB) JT65B, DK3WG (1DB/9DB) JT65B, DL7APV (55/52), DL9LBH (5DB/2DB) JT65B, K3MF (1DB/24DB) JT65B, VA3ELE (4DB/4DB) JT65B, OH6UW (6DB/20DB) JT65B, YL2GD (1DB/16DB) JT65B, DL8DAU -1/-17dB, G4FUF (3DB/15DB) JT65B, P19CAM (10DB/7DB) JT65B, SM7THS (3DB/3DB) JT65B, LU8ENU (2DB/15DB) JT65B, ON4GG (1DB/13DB) JT65B, KA1GT (3DB/18DB) JT65B, NC11 (1DB/1DB) JT65B and N7NW (1DB/13DB) JT65B. We are attempting to arrange regular use of the dish on 70 cm EME. This system normally is used for ionospheric radar work at high power (2 megawatts peak) under National Science Foundation support. We are working to reconfigure the system to allow for occasional amateur EME operation in conjunction with the Nashoba Valley Amateur Radio Club (NVARC) in nearby Groton, MA. Test contacts during the recent Nov EME contest were made at low power (estimated 25-30 W) using a transceiver connected to a large WR2100 low loss rectangular waveguide. I think it is important to mention that because of mismatch due to many E and H tuners in the line (the system is tuned for 440.2 MHz), we were using very low power. The radio was seeing a 3:1 SWR, and was throttled back to ~ 20 W. I know from doing testing that we incurred at least 10 dB of further loss. So, I guess our final power out at the RHCP feed was on the order of 3 W. Even with this low power, we were able to work almost every station heard. You will notice in the JT mode our TX signal reports were quite high, while the vast majority of our RX reports were quite weak. We will have an amp for next year and hopefully authorization from Pave Paws, a military radar site on the cape, to TX full power. Pave Paws limits us to 50 W input presently. [TNX to K1DS for forwarding this report].

**KNOWS:** Carl <carlhasbargen@q.com> is QRT on EME during the winter -- During these bitterly cold MN winter days, I am not able to go north to my EME QTH. During my down time, I have been thinking about 3 cm EME. I have obtained a 1.2 m satellite dish and have been working on programming an Arduino to control it. The idea is to see if I could do 3 cm EME from my back yard here in town, instead of being on the side-lines all winter. The power lines, buildings and trees would only give me a several hour window to the southeast, depending upon the Moon's declination. It would give me the potential to work EU and US stations, but not Asia. I have a CP feed made by Bert Modderman and a linear feed from RF Hamdesign. I also have a 30 W SSPA from Kuhne, as well as their transverter and a low noise preamp. I know this setup would only allow me to work big guys, but VK7MO has inspired me! I will have to figure out how to do computer control of my TS-2000 using WSJT-X. The list of things "to do" is long enough that I am skeptical it will work out before spring. But at least I am coming up with things to do in the off-season!

**LU8ENU:** Juan [lu8enu@gmail.com](mailto:lu8enu@gmail.com) sends the following report -- My new 1296 EME setup is still using my old 2.3 m solid dish, which has been now moved to my garden's corner to allow the use of separated VHF and UHF antennas. It's a bit complicated to be active simultaneously on four EME bands from my small garden (10 x 10 m). In the past I have had all four bands 144, 432, 1296 and 10368 mounted on a single tower. It was difficult to position the precise AZ and EL of my 2.3 m solid dish at a height of 16 m due to my home-made rotators. I had an especially serious pointing problem on 10 GHz EME. (I need to give my XYL overwhelming thanks for her patience and understanding). My 23 cm rig is now mounted at the dish feed. It contains a Kuhne transverter, SSPA with 2xMRF286 delivering 120 W output and the LNA. The MRF286 SSPA was bought locally. It has good output power and I don't have to care about any attenuators. The power regulation at its driver is done with LM338. This solution allows for easy WSJT operation, but I haven't tested its linearity during SSB operation (yet). The needed 28 V for the SSPA at the feed is delivered from an old 54 V battery with a charger. The DC power modules (for charger) are installed at the ham shack

together with the GPSDO 10 MHz source (G3RUH). The first on air tests were very encouraging despite low weekend activity. I was able to log 10 JT65C QSOs on 23 cm with 11NDP (13DB/11DB, AA7HC (24DB/25DB), VE3KRP (22DB/22DB), N5BF (23DB/23DB), VA6EME (22DB/17DB), K5DOG (18DB/20DB), DF2GB (25DB/26DB), LA3EQ (26DB/25DB), XE1XA (19DB/15DB) and VE6TA (14DB/17DB). I'm now preparing to start up my 3 cm operation, and finish reassembling my 70 cm station.

**N5BF:** Courtney [courtney.duncan.n5bf@gmail.com](mailto:courtney.duncan.n5bf@gmail.com) brings us up to date on his recent activity -- My station is back on the air as of 9 Dec, and I made around 18 contacts using JT65C through the holiday high declination period including initials with W2HRO for mixed initial #112\*, SM7SJR #113\* and LU8ENU #114\* and DXCC 36. I had been pursuing SM7SJR for about a year as he works plans to QRT soon for relocation. We finally after several near misses were able to complete (24DB/25DB) through my trees to my east and his to his west. I also participated in Straight Key Night (SKN) on 1 Jan netting two CW EME contacts with NC1I and VE6TA. I don't know what they were using at their stations, but I always use a straight key for CW EME. I have now completed about 100 CW contacts. Both Frank and Grant had good signals (579) and easy, clean CW copy (for microwave EME). I sent in a SKN report to the ARRL nominating them for "best fist" and "most interesting" respectively. I found myself in last place, 45th out of 45, in the April 2017 VK3UM Memorial 1296 DUBUS results but note from the number of unique call signs worked by top score UA3PTW (89) that there must have been at least 90 23 cm stations on the air; so my 45th place was only last of those who submitted an entry and was closer to the middle for all participating. Not bad for being on the bottom of the 23 cm EME world looking out of a birdbath of hills and trees! In the 2017 ARRL Contest, I placed 5th out of 19 in the single-op, all mode 1.2 GHz-only category. I'm always pleased to see pictures and reports from so many stations who I've worked to see what all they've gone through to be on the Moon!

**NC1I:** Frank [frank@NC1I.COM](http://frank@NC1I.COM) brings us up to date on his activity through early Feb -- The following stations have been worked since my last report. I QSO'd on 432 using JT65B unless noted otherwise starting on 28 Dec PD7RKZ, DG7YBN, OK2AQ, and DL8DAU, on 29 Dec PA0BAT, PA0PLY, G6HKS, ON4CGX, MX0CNS, DL8DAU, DL6SH, PY2RN, K1DS and S51LF, on 30 Dec VA3ELE, EA8/G4RGK, FR5DN, UR3EE and SM6FHZ (CW), on 31 Dec OK1TEH, N2END, SM5EPO, FR5DN, and K3GNC, on 1 Jan S51LF, DL5FN, DK4RC, and OK2AQ, on 2 Jan VA3ELE and W5LUA, on 26 Jan KA1GT, SM5EPO, G4RGK, S51LF and HB9Q, on 27 Jan OK2PWY (1 x 16 el yagi and 100 W), DL8KAI and DL8DAU, on 28 Jan JE2UFF, JS3CTQ, JA6AHB, JH7PAV, and JH7BAY, On 30 Jan G6HKS, DG7YBN, ON6KX (1 x 21 el and 120 W), S51LF and SM5EPO, on 31 Jan WD4EGF, on 3 Feb N0AKC (1 x 13 wl yagi and 900 W) and VA3ELE, on 4 Feb KC0V and DL8DAU. I QSO'd on 1296 using JT65C unless noted otherwise starting on 28 Dec SM3KPX, W3HZU and TI2AEB, on 29 Dec K5DOG, W1PV, AA7HC, GM4PMK, PE1LWT, RU4HU and DF2VJ, on 30 Dec IK1FJI and PA2DW, on 31 Dec YO2BCT, W1PV and SP6ITF (CW), on 1 Jan N5BF (CW), on 2 Jan PA2DW (JT & CW), on 3 Jan TI2AEB, UA9FA, AA7HC, and W1PV, on 4 Jan DJ5AR, K4EME and AA7HC, on 7 Jan RA2FGG, HB9Q, PA2DW and PA2CHR (1 x 67 el yagi and 75 W), on 25 Jan DC7YS, on 26 Jan K5DOG, RU4HU, LU8ENU, G4DML, IK1FJI and SM3KPX, on 27 Jan N5BF, on 29 Jan LU8ENU, K5DOG (9DB with his new amp!), W3HZU and AA7HC, on 30 Jan IK1FJI, and on 31 Jan K5DN. We have been experiencing some really harsh winter weather. On 4 Jan we had near blizzard conditions with high winds, heavy snow, and really cold temperatures. Winds were consistently 30 - 50 mph (50 - 80 km/h) over the three days from 4 to 6 Jan. All of my EME & HF antennas survived that storm just fine. We also had had some extremely cold nights between late Dec and mid-Jan. My XYL and I vacationed in FL for a couple of weeks in Jan, and I had left the 432 array pointing straight up. This is the best position to stow the array in the event of ice. Unfortunately we experienced more strong winds while we were gone and with the array vertical, the winds put far more stress on my polarity system causing something to seize up (presumably the prop-pitch). It will now require servicing again. It will probably be at least April before repairs can be made. I will remain active on 432 but will not have the luxury of polarity rotation. The array is stuck in the horizontal position. By mid-Feb I expect to be caught up with both LOTW and paper QSL cards. BTW, I find that there are very few EME stations utilizing LOTW. I would encourage others to consider this option. I know it has really helped me with my record keeping (which has been incredibly sloppy over the years). If there is anyone that has not received their N1H card please let me know.

**OK1CA:** Franta reports on his recent activity -- I was QRV in the **SSB Funtest only on 13 cm** and at the beginning. I worked at 1802 HB9Q (58/57) JN, 1807 ZS6EME (55/55) KG, 1813 SP6OPN (57/56) JO, 1844 DL7YC (55/56) JO, 1847 SV3AAF (55/57) KM, 1922 OZ4MM (55/56) JO, 2058 WB5AFY (55/55) EM, 2140 K2UYH (56/56) FN, 2200 W7JM (569/55) CW-SSB DM, 2215 WD5AGO (55/55) EM, 2249 VE4MA/K7 (54/55) DM for a score of  $(10x2+1)x7 = 147$  points. I also worked on CW DJ5AR for initial #147. The signals on 13 cm were very good especially from the stations with small dishes. I tried some activity on 24 GHz and worked [using QRA64D?] on 31 Jan OZ1LPR (15DB/15DB) for mixed initial #17\* with a spread of 173 Hz. I also tested unsuccessfully with OH2DG. I heard Eino, but the signal was too weak for decode even on QRA64D. The weather was also not good for EME on 24 GHz with clouds and very high humidity.

**OK1IL:** Ivan [ivaknn@gmail.com](mailto:ivaknn@gmail.com) writes about his 23 cm EME operation -- I use a 3 m dish with my SSPA located by the feed. I was able to rectify small bugs in my remote communication and especially to install a W6PQL bar graph display as a PA power output indicator. I use small IP camera to see it. I worked during Jan using JT65C W1PL, W2HRO, W3HZU, K4EME, AA7HC, **ZS6JON for DXCC 39**, YO2BCT, DJ5AR and finally **UN6PD for DXCC 40** and mixed initial #109\*.

**OK1KIR:** Vlada (OK1DAK) [vlada.masek@volny.cz](mailto:vlada.masek@volny.cz) and Tonda (OK1DAI) sent news on the latest activity of their club -- Our only EME activity was on 30 Dec and produced two CW QSOs. We worked on 6 cm at 1648 SA6BUN (579/569) for initial #102, and on 24 GHz at 1923 OF2DG (549/559) for initial #23 regardless of a 225 Hz spread. At first Eino's signal suffered from rain on our side, but after the rain stopped, signals jumped up and we completed the QSO. Our Moon noise was 2.4 dB after the rain.

**OK1TEH:** Matej [ok1teh@seznam.cz](mailto:ok1teh@seznam.cz) writes -- During Jan, I was again active on 70 cm. My antenna is still the same 23 el DK7ZB 5.7 m long yagi with 600 W @ its feedpoint. I was very happy to put 4 initials in the log. I QSO'd on JT65B K5QR (25DB), DL6KAI (26DB/25DB) for mixed initial #120\*, VK4EME (27DB/15DB), S51LF (28DB/28DB) #121\* -- (1 yagi to 2 yagis!), G6HKS (29DB/22DB) #122\* and JH7OPT (27DB/25DB) #123\*. I heard or had partials with SM5EPO (27DB), VA3ELE (29DB), 4Z5CP (30DB), VK3NX (30DB), JA4UMN (30DB) and DK0MN (28DB).

**OK2DL:** Marek [sochor@kwradio.cz](mailto:sochor@kwradio.cz) reports on his experiences during the **F5SE Memorial SSB Funtest** -- The contest started at 2000 local time on Saturday night and finished at 2000 on Sunday. In between the Moon set at 0300 in the morning and rose on Sunday after lunch. At the start only three stations were visible on the band. I chose 1296.030 and gave a short CQ. To my surprise, I was called by at least 4 stations and I had great problems reading them all. The pile-up continued for almost the first hour, one QSO after another. By midnight, however, the rate had diminished greatly and I went to sleep. The only OK in log was OK2ULQ. I made 38 QSOs and 4 new initials, all on SSB-SSB but 2. I worked on 27 Jan at 1904 SP6JLW (57/59) JO, 1906 11NDP (59/59) JN, 1910 SM7FWZ (57/57) JN, 1912 YO3DDZ (57/57) KN, 1915 DL6SH (59/59) JN, 1916 OK2ULQ (59/59) JN, 1918 DJ8FR (59/59) JN, 1920 DL3EBJ (57/59) JO, 1923 ES6FX (57/57) KO, 1926 SP6ITF (55/57) JO, 1929 SV3AAF (59/57) KM, 1933 9A5AA (55/58) JN, 1937 OH2DG (57/58) KP, 19040 DL7UDA (55/57) JO, 1955 HB9Q (59/57) JN, 2013 DF3RU (59/58) JN, 2014 IK3COJ (57/57) JN, 2031 PE1LWT (55/55) JO, 2034 IK1FJI (55/57) JN, 2050 IZ1BPN (57/58) JN, 2133 K5DN (55/55) EL, 2146 K2UYH (57/56) FN, 2158 LX1DB (59/59) JN, 2210 WA9FWD (57/53) EN, 2244 XE1XA (53/54) EK, 2253 W7JM (579/57) DM CW-SSB, 2257 WA6PY (57/55) DM, 2301 VE4SA (57/44) EO, 2304 VE6BGT (58/57) DO, 2308 VE6TA (57/57) DO and 2345 W6YX (559/57) CM CW-SSB), and on 28 Jan 0028 VE3KRP (55/57) EN, 1442 PI9CAM (59/59) JO, 1451 VK5MC (55/56) QF, 1521 PA0SSB (55/55) JO, 1547 SP3XBO (57/57) JO and 1607 DC7YS (57/42) JO for a score of  $(35x2+2)x15 = 1080$ . My station was a 6 m HB dish with 500 W SSPA, 0.1 dB NF ATF34143 LNA, DB6NT TRV and K3. I use an OE5JFL tracking system.

**OK2PE:** Karel [ok2pe@kbb.cz](mailto:ok2pe@kbb.cz) is new Czech (Moravian) EME station on 23 cm; his story follows -- I will try to describe my beginnings with EME. It all began with the purchase of two pieces of masts. It was sometime in the summer of 2014. In Aug of that year I dug a pit and in Sept put in concrete to hold the mast. The total height is about 2 m. Another 1.5 m piece is still in reserve. Then nothing happened. It was cold, so I prepared the mount for the feed of for my 1.8 m solid dish. In the spring of 2015, I mounted the dish and started measuring noise levels. The feed that I had borrowed from a contest club did not work well. I changed to

another (OM6AA) feed with a loop. I used a SP9WY preamp. But my RX still was not very good. The preamp did not have enough gain for the 32 m I had following it, I a 2 stage design. I then bought G4DDK LNA. It was really "something", but still could not copy the ONOEME beacon. Next I installed a HB OK1DFC septum feed and was then able to hear the beacon. I was quite excited, but I wanted to go a little further than listening. I put a new 250 W SSPA (4xMRF9060L) at the feed and finally I made my first EME QSO with PI9CAM (538/429) on CW. My second QSO was on 30 Dec with OK2DL (559/449). In the F5SE SSB Contest on 28 Jan I worked PI9CAM on SSB for initial #3. There is still a lot of work to do, but I'm thinking about a bigger dish and may try some WSJT too. [Translated by OK1TEH].



**OK2PE's 1.8 m solid dish used for his first QSOs on 23 cm EME**

**OK2PWY:** Tom [ok2pwy@seznam.cz](mailto:ok2pwy@seznam.cz) is QRV on 432 using a single 15 el yagi but without an elevation and a 100 W SSPA – I worked on 2 Jan using JT65B NC1I and heard DL7APV. I am interested in skeds – please email.

**OK2ULQ:** Peter [ok2ulq@seznam.cz](mailto:ok2ulq@seznam.cz) reports on his Jan EME activity – I was QRV during **F5SE Memorial SSB Funtest on 1296**, but my results were not anything special. I made only 7 SSB-SSB contacts for **a score of 7x2x3 = 42 points**. Contacted were OK2DL, SP6JLW, HB9Q, I1NDP, DF3RU, IZ1BPN and SV3AAF. I also made CW QSOs with DL6SH and DL7YC. I tried to dig out OK2PE's signal from the noise, but we didn't complete a QSO, although we heard each other several times. I tried some WSJT and worked on JT65C DF2VJ, DL7UDA, DF2GB, UA9FA, SM7SJR and LZ4OC. [Translated by OK1TEH].

**ON0EME:** Eddy (ON7UN) [ejespers@telenet.be](mailto:ejespers@telenet.be) wrote about a problem with the ONOEME beacon -- Apparently the signal of the 1296 Moon beacon became very weak. We checked the transmit parameters remotely and the power seems OK; and the antenna seemed to track OK. Most likely we have some mechanical damage after the Jan wind storm. When WX permits we will go on site to calibrate the antenna again and check the mechanics. I will post a message when the 1296 beacon is back in service. [We have not received a follow up, but from reports all seems well with the 23 cm beacon signal].

**ON4IQ:** Johan (ON4IQ) [on4iq@telenet.be](mailto:on4iq@telenet.be) reports the worst possible start of 2018 – On 3 Jan a storm cause the loss of the 70 cm EME array, I jointly operate with ON4GG. The mast cracked in strong gale force winds and brought down our 8 x 43 el YU1CF 432 antenna. More details can be seen at <https://twitter.com/on4iq>. We have not given up and are preparing new array and 24 m mast.



**ON4IQ & ON4GG's smashed 432 EME array**

**PA2DW:** Dick [pa2dw@veron.nl](mailto:pa2dw@veron.nl) writes about his recent EME activity – The xmas holidays allowed me to do some extra 23 cm EME. It was most enjoyable! I worked only one CW station (VE6TA - TNX Grant), but added 4 initials on JT65C with IK1FJI (excellent signal – need to try CW), W2HRO, W1PV and K5DN. The station here is 2.4 m prime focus dish with OK1DFC septum feed and choke ring, 250 W SSPA, 0.16 dB NF LNA, Kühne TR1296H (GPS locked) and a K3. I am now back up to my normal power of 500 W after repairing one of my PE1RKL SSPA modules. In this regard, I have important advice. In my case on two occasions the thin power feed lines to the FETs on the PCB burned up as they are simply too thin. If one PCB trace fails and hence the supply to the FET, there will be an in balance of the Wilkinson combiner resulting in the eventual death of both FET's. I suggest you replace the two lines with 1 mm silver wire or similar and your PA will be more failsafe.

**PI9CAM:** Jan (PA3FXB) [jvm@netvisit.nl](mailto:jvm@netvisit.nl) sends news from Dwingeloo on operation with their 25 m dish and 120 W @ feed -- We participated in **F5SE Memorial SSB Funtest on 23 cm**. We could only be active during the Sunday part of the contest; so we missed our west window this time. This resulted in much less multipliers than last year. Fortunately there was quite a bit of activity and 22 QSO's were made in the short period available - nice *Glimlach* as the main goal of having lots of fun was met! QSO'd were DL3EBJ (59/59) JO, SM7FWZ (59/59), ES6FX (59/59) KO. OK2DL (59/59) JN, DL7UDA (59/59) JO, YK5MC (58/59) QF, DF3RU (59/58) JO, PA0SSB (59/59) JO, HB9Q (59/59) JO, 9A5AA (57/55) JO, DC7YS (53/59) JO, SP3XBO (59/57) JO, ON5GS (55/53) JO, DC7YS (53/57) DUP, YO3DDZ (58/55) KN, IK1FJI (56/58) JO, DF2GB (57/52), G4YTL (55/53) IO, IK3COJ (58/57) JO, SM7SJR (55/55) JO, PE1LWT (55/53), PA0SSB (59/59) DUP, LX1DB (59/59) JO and PE1CHQ (56/55) JO for a **total score of 22x2x6 = 264 points**.

**RU4HU:** Andrey [ru4hu@yandex.ru](mailto:ru4hu@yandex.ru) is a relatively new station on 1296 EME. Recently he QSO'd using JT65C UA9YLU, IK3COJ, DF2VJ, SM7SJR, DF3RU, SP3XBO and DJ5AR. [TNX DK3WG for forwarding this information].

**S51LF:** Leon [leon.fajc@gmail.com](mailto:leon.fajc@gmail.com) is now on 432 EME with 2 yagis -- I am very pleased with my small antenna. I have now worked single yagi stations such as OK1TEH with it. My equipment consists of 2 x 30 el DJ9BV (8,5 wl) on a fiberglass support. More than 20 years ago, I made four of them and in the spring I will put up on a H frame with open wire phasing lines. Between driven element is box with antenna relay and LNA (ATF-54143 +BPF). I have separated RX and TX feed-lines. For power I use an old soviet R310 - GS35b tube PA that I bought at the flea market in Fridrichafen with some mods on both cavities. The heavy silvered bronze resonator is very stable with temperature. With an RF input of 45 W, I have little more than 1 kW at the output connector. At this power I have a problem only with overheating of the N connectors at 1 minute intervals of continuous TX. I end in a "Menina" 432/21MHz (kit by S51RM+S53RM) xverter and a TS590.



**S51LF's 70 cm antenna consists of 2 x 30 el DJ9BV**

**SA6BUN:** Michael (DL1YMK) [DL1YMK@aol.com](mailto:DL1YMK@aol.com) reports on his 6 cm operation from his holiday QTH in Sweden -- Dec is not the best time of the year for EME. The WX has to be cooperative and sometimes it is not. I was able to check out my new 6 cm system with nice QSOs with W5LUA, VE4MA/K7, OZ1LPR, OK1KIR, HB9Q, SM6CKU, G3LTF, W5LUA, VE4MA/K7, OK1KIR, WA6PY, ES5PC and JA6AHB. All came on to give me the opportunity to check out my new setup for 6 cm. QSO's were generally armchair copy, although it was often raining cats and dogs with heavy wind gusts. The mount proved as stable as planned and constructed. Tracking was precise to 0.1 degree TNX to OE5JFL's

superb controller. The whole feedbox system (proved to be water-proof) had never been tried before. It was constructed in my JO31 workshop observing principles given to me by my elmer, LX1DB. The feed box was brought along and installed in the dish with standardized cabling connections allowing for a quick change to 3 cm. Moon noise was exactly as predicted by VK3UM program, echoes may be a bit louder than calculated, resulting in many sideband QSO's. Now holidays are over, it is time to take the feed out and earn some money for the next project.

**SP6JLW and SP6OPN:** Andrzej (SP6JLW) [sp6jlw@wp.pl](mailto:sp6jlw@wp.pl) reports on the Klodzko contest team of SP6JLW, SP6OPN and SQ6OPG in recent EME SSB Funtests -- This year's SSB EME contest split in 2 separated parts. The first day of the weekend was for 13 cm and second day 23 cm. It was clear that our copy/operation on the 13 cm band would be easier since our power is similar on both bands, but the dish gain is much higher on 13 cm. However, we discovered that weak SSB signals on 13 cm were harder to understand due greater distortion than on 23 cm. A weak signal that is completely understandable on 23 cm is almost unreadable on 13. **On 13 cm we used the call SP6OPN** with our 6.5 m dish, 1.5 kW SSPA using 16 x MRF21125s and DG0VE VLNA. We QSO'd on 26 Jan at 1805 HB9Q (59/59) JN, 1810 ZS6EME (55/57) KG, 1813 OK1CA (56/57) JO, 1832 OH2DG (54/59) KP, 1857 DL7YC (54/58) JO, 1859 SV3AAF (53/58) KM, 1905 OZ4MM (55/56) JO, 2149 W7JM (55/59) DM CW-SSB, 2202 WB5AFY (55/55) EM, 2208 K2UYH (56/57) FN, 2226 VE4MA/K7 (429/55) DM CW-SSB, 2316 WD5AGO (53/54) EM and 2346 VE6BGT (53/55) DO, and on 27 Jan at 1416 ES5PC (55/57) KO and 1454 SP3XBO (53/55) JO for a **total score of  $(13x2+2)x10 = 280$  points. On 23 cm for the F5SE Memorial Funtest**, we used the call SP6JLW with our 6.5 m dish and 1 kW SSPA (16 x BLV958) and DG0VE VLNA. We QSO'd on 27 Jan at 1903 OK2DL (59/57) JO, 1908 ES6FX (55/55) JN, 1912 SM7FWZ (55/55) JO, 1925 DL6SH (56/58) JN, 1928 DL3EBJ (55/59) JO, 1929 OK2ULQ (56/58) JN, 1933 DJ8FR (56/56) JO, 1934 YO3DDZ (56/57) KN, 1936 IK3COJ (55/56) JN, 1940 SP6ITF (56/55) JO, 1950 DF3RU (57/57) JN, 1952 OH2DG (55/56) KP, 1956 9A5AA (55/56) JN, 1959 SV3AAF (57/57) KM, 2014 I1NDP (58/58) JN, 2027 DL7UDA (55/55) JO, 2058 IK1FJI (55/55) JN, 2121 IZ1BPN (55/56) JN, 2201 LX1DB (59/58) JN, 2209 K2UYH (56/56) FN, 2305 K5DN (56/44) EL, 2313 VE6TA (56/57) DO, 2323 VE4SA (54/54) EO and 2329 VE6BGT (57/56) DO, and 28 Jan 0001 XE1XA (54/53) EK and 0033 WA6PY (53/55) DM for a **total score of  $26x2x12 = 624$  points.**

**TD9CHR and TD9FYC:** Chris (PA2CHR) [post@pa2chr.nl](mailto:post@pa2chr.nl) and Jos (PA3FYC) will be QRV from Guatemala (EK44sb) on 144, 432 and 1296 between **23 Feb** and 4 March. It is very possible that they will operate on several bands at the same time. On 432 they will use 30 el 17.8 dBd gain yagi with the ability to rotate pol and an SSPA. On 1296 they will a 67 el 19.9 dBd gain yagi, SSPA (120 W likely) and DB6NT transverter with GPS lock. They will listen on their echo. For more information see <http://pa2chr.nl/News.html>. Donations are appreciated to make such trips possible. Send via PayPal to [post@pa2chr.nl](mailto:post@pa2chr.nl).



**432 yagi under test by PA2CHR**

**UA3PTW:** Dmitry [ua3ptw@inbox.ru](mailto:ua3ptw@inbox.ru) during the recent past reports working initials on 70 cm using JT65B with JH7BAY, ON6KX and BD9BU, and on 23 cm using JT65C with RA2FGG and AA7HC. [TNX DK3WG for forwarding this report].

**UA4AQL:** Alexander [ua4aql@inbox.ru](mailto:ua4aql@inbox.ru) is active again on 432 EME after a long absence. He recently worked using JT65B S51LF and SM5EPO. [TNX DK3WG for forwarding this information. He also handles QSLs for Alexander].

**UR5LX:** Sergey [ur5lx@ukr.net](mailto:ur5lx@ukr.net) reports on his recent 3 cm activity -- I added initials on CW with IW2FZR and using JT65F DC7KY, EA3HMJ and K6QPV. I have a 2.4 m dish with a linear feed and a 20 W SSPA. I plan to be also QRV on 6 cm soon with 45 W and a circular feed. [TNX DK3WG for forwarding this report].

**VE3KRP:** Fast Eddie [eddie@tbaytel.net](mailto:eddie@tbaytel.net) was active during Jan despite his winter WX -- The WX has limited operation here with extremely low wind chill temperatures (-43 deg C) to nice ones (+3 deg C). I worked on 23 cm using JT65C on 30 Dec DL6SH, IK1FJI for an initial (#), GM4PMK, RU4HU (#) and DF2GB, on 20 Jan K5DOG, LU8ENU and AA7HC (#), and on 21 Jan I5YDI and DF3RU. I was also **on 1296 for the F5SE SSB Contest** on 28 Jan and worked on SSB OK2DL, K2UYH and VE6BGT for another [CW/SSB] initial (#) **for a score of  $3x2x3 = 18$  points.** I worked on JT65C VE4MA/K7, W2HRO and PA2DW, and on CW N4PZ, I5YDI and IK1FJI. It is nice to see more new stations coming online.

**VE4MA/K7:** Barry [barryve4ma@gmail.com](mailto:barryve4ma@gmail.com) has been quite active in Jan from his AZ winter QTH -- It had been quiet here for EME activity. My 1296 preamp was not good and my NF meter died, but finally I got it repaired. During the Nov ARRL contest weekend I did work 22 stations (with the bad preamp) including 5 on CW. In Dec on 1296 using JT65C I QSO'd N1H in NH for a mixed initial (#), N4PZ, K5DN (#), VE3KRP, KD3UY (#), ON5GS (#), VE4SA (#), IK1FJI (#), WA2FGK (#) and W3HZU (#). On 2.3 GHz I QSO'd on CW K2UYH initial (#) and G3LTF (#). On 5.7 GHz CW, I added SA6BUN (DL1YMK in SM using 3 m dish), and after several attempts ES5PC. I was experiencing spurious outputs from my transverter, so it's not clear how much actual power I had on frequency. I have since repaired the transverter and am seeing much more output power. I plan on echo testing on 6 cm to see if my signal has improved. In the SSB Funtest, it was nice to hear some SSB signals with my 1.5 m dish. **On 2.3 GHz, on 26 Jan I worked in Funtest SP6OPN (52/ 429) - nice signal on SSB-CW, OK1KIR (52/44) and HB9Q (55/41) for a score of  $(2x2+1)x2 = 10$  points.** I also QSO'd WD5AGO (O/O) for an initial on CW (#). **On 23 cm in Funtest** on 27 Jan I heard HB9Q and LX1DB FB on SSB, but only QSO'd K2UYH (51/ 549) on SSB-CW **for a score of 1 point.** I worked on JT65C VE3KRP, SP5GDM and N5BF, and on CW VE6TA (559/O). I have plan more power here in AZ on 1296 next fall - probably 400-500 W, which should make QSOs a little easier. I am only using an SDR dongle as my 2320 RX off the transverter IF and want to do better. I also plan to get on 3 cm from here with a 100 W TWTA. There are several stations in AZ building for 23 cm. AA7HC has recently become active. I remain in AZ until the end of March.

**W2HRO:** Paul [w2hro.fn20@gmail.com](mailto:w2hro.fn20@gmail.com) writes about the improvements to his station -- I replaced my 1296 MHz LP loop feed with a SM6FHZ designed CP patch feed which better matches my .37 f/d 3 m dish. I can now receive the ONOEME beacon at -8 dB on WSJT-X. Based on recent signal reports my RX is much better than my TX. When I move the 150 W SSPA closer to the dish, my TX should improve. I have been QRV on 23 cm since 17 Dec and am already up to digital initial (#40), 16 DXCC, 10 WAS and 4 WAC. I am on JT65C only, but hope to have CW soon. I have a very limited moon window and can only see the Moon when it is above 30 degs EL. I'll have a better dish location this summer. Recent 23 cm QSOs include LA3EQ, ON4AOI, SP6ITF, XE1XA, DK3WG, F1RJ, IK1FJI, LU8ENU, K5DOG, G4CCH, DF2VJ, DC7YS, G4FUF, LU8ENU, AA7HC, K2UYH, UA9YLU, PA2DW and DF3RU.

**W9IIX:** Douglas [w9iix1@yahoo.com](mailto:w9iix1@yahoo.com) is frustrated and looking for help -- I have now been on 432 (and 144) using JT65b for about 14 months with 4 x 21 el m2 yagis, 500 W PA and SSB mast mounted preamp. I also added a band pass filter. Moon tracking is manual with a TV camera. I am seen by many stations, but have made only 2 contacts on 432 with HB9Q and DL7APV. (None on 2 m). These are the only stations I have decoded. My window is blocked to the southwest and west. To the southeast there is a 12 kV high voltage power line 20' away at its closest. 100' north of the array is a very busy 4 lane highway. I wonder if having the 2 bands close to each other is affecting performance. Does anyone have any suggestions? [In years past Douglas was quite successful on 1296 EME using CW].

**WB5AFY:** Dan [wb5afy@wb5afy.net](mailto:wb5afy@wb5afy.net) writes about his experience **during the 13 cm SSB EME Funtest** -- I finally had time to get my 13 cm EME system up and running. WD5AGO provided a new feed for my 5 m .33 f/d dish; and it seems to be working much better. With 300 W at the feed the SSB echos are very good. I still would like to improve the RX side of the system a bit. Also, I was able to verify my 2320 converter is working,

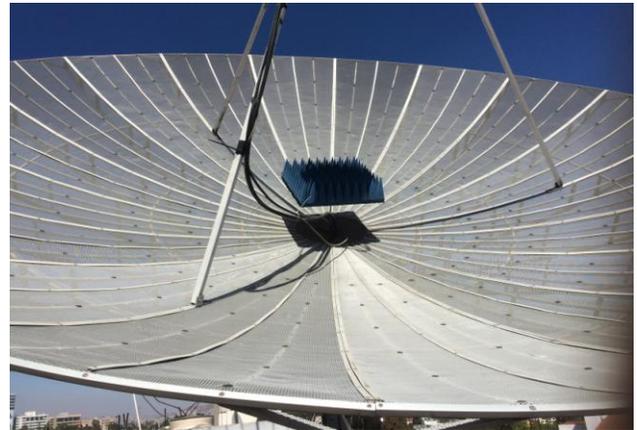
so I make cross-band QSOs as well. The spectrum around 2400 is really nasty here. I am not sure that I can clean it up enough to be usable. Below 2304 is not a problem for a MHz or so is nice and quiet. I had to use two filters inline with my 2304/2320 preamps to clean things up. I repurposed a W1GHZ 13 cm xvtr pipe cap board as a bandpass filter with a MMIC amp at the feed after a G4DDK preamp. At the input to the xvtr, I have re-tuned a 5 pole filter (from WA5VJB goodies) for dual response peaks at 2304 and 2320. The filter skirts are pretty sharp and the combination of these filters keeps most of the junk out of the RX. I am seeing a little less than 1 dB of Moon noise, but think I can do better. Per the VK3UM software, the predicted CS/G and Moon noise are right on. My Sun noise is a dB below predicted. In the Funtest, I had to leave early so only worked 3 stations. I QSO'd at 2058 OK1CA (55/55) JO, 2153 K2UYH (55/55) FN and 2200 SP6OPN (55/55) JN for a score of  $(3x2)x2 = 12$  points. I should be QRV for the DUBUS contest and am available for skeds requested by email.

**WD5AGO:** Tommy [wd5ago@hotmail.com](mailto:wd5ago@hotmail.com) was on 13 cm for the Funtest -- I was able to get on 13 cm after repair of my AZ readout system for the SSB test on 26 Jan. I worked on SSB OK1CA JO, K2UYH FN, SP6OPN JO, VE4MA/K7 (not able to make on SSB but worked on CW for initial #97), HB9Q JN and VE6BGT DO for a score of  $5x2x4 = 40$  points. I also heard WB5AFY. I was experimenting with a new LNA design that uses an isolator and a second filter. It helps a lot with the interference problem; however, only over a single portion of the band. The NF was 0.30 dB with 13 dB of Sun noise and 0.4 dB Moon noise with my 11' dish. For those wanting to complete 1296 WAS, I will activate a couple of the States needed in the south using my system, once I have completed working Africa on 13 cm. I will take the station off line for a month or two to move the equipment to portable use.

**XE1XA:** Max [general.manager@corix.us](mailto:general.manager@corix.us) writes about his 23 cm operation in Jan -- I participated for a few hours in the F5SE Memorial SSB Funtest with a lot of fun by working all the SSB stations heard on random. QSO'd were OH2DL (54/53) KP, LX1DB (57/56) JN, HB9Q (57/54) JN, OK2DL (54/53) JN, 9A5AA (54/55) JN, SP6JLW (53/54) JO, K2UYH (54/54) FN, OK2DL (53/53) JN and VE6BGT (53/53) DM for a score of  $9x2x4 = 72$  points. I surely by missing many others during my time window. I added on CW YO3DDZ (559/559), IK1FJI (569/569) and 9A5AA (569/569), and some others on JT65C. I will be very pleased to participate in this kind of SSB Funtests more often. While experimenting ways to lower my system noise temperature after reading the recent Sept NL about the use of a conical reflector mounted over the central hub of a dish. I came to the conclusion that this arrangement could be good when a dish is pointing high in the sky, but at lower elevation angles you will get added ground reflections to the feed, rising the antenna's noise temperature. A quick calculation showed that the feed shaded area of a dish, in my case about the size of the central hub, represents only a small fraction of the total area subtended by the dish. Therefore, even by pointing the dish high in the cold sky, the decrease in noise temperature with such arrangement with my system will be only about 2.3 K; something that is barely detectable. To verify the contribution of the reflected noise temp to the feed by avoiding ground reflections, I made an experimental test by putting a standard 24" square Cuming Microwave SFC-12 pyramidal shaped RF absorber over the hub of my dish. The difference in measured sky noise with and without the absorber was barely detectable. When TX'ing, the measured RF power right at the RX port of my septum feed dropped from 0.7 W, to 0.4 W. With the absorber, a decrease at the RX port of the feed that will not justify the use of the absorber, or the cone shaped reflector. [See picture at the end of this NL].

**K2UYH:** I (AI) [alkatz@tcnj.edu](mailto:alkatz@tcnj.edu) had major problems with WX. It has been unusually cold here, and I had problems with my dish sticking in AZ. The problem made tracking the Moon impossible when the temperatures were below freezing and particularly to the west. The temp increased enough on 24 Dec to enable me to work on 2304 using CW at 2136 VE4MA/K7 (O/559) for initial #91. The WX then stayed very cold and did not allow me to try with SA6BUN on 6 cm. I worked I improved the situation somewhat after the 13 cm Funtest. I was not able to work VE4MA/K7 because I lost my ability to track as the temperatures dropped and the Moon moved west. I will do a better fix when the WX is better. The WX was OK and I had planned to operate EME during the ARRL VHF Contest on 20 Jan. I had just worked at 1915 W2HRO (19DB/18DB) on JT65C, but had to stop because of illness (flu) and never made it back on the Moon. I was out of service until Monday morning! I was back on again for the 13 cm SSB EME Funtest. K2YY (a member of W6YX club) was in the area and joined me to operate the

contest. John was great help as my hearing does not seem as good as it was the past. We had great fun. We worked on 13 cm SSB to SSB unless noted on 26 Jan at 2138 OK1CA (52/55) JO, 2155 WD5AFY (55/55) EM #92, 2209 SP6OPN (56/56) JO, 2259 WD5AGO (55/54) EM, 2305 HB9Q (58/55) JN, 2341 W7JM (559/55) DM CW-SSB and 2353 VE6BGT (54/54) DO, and on 27 Jan at 0017 VE4MA/K7 (55N/-) no contact because lost tracking for a score of  $(6x2+1)x6 = 78$  points. We were listening on 2320 but only heard DL7YC there and were unable to get Manfred's attention. In general, I was impressed by the quality of the 2304 SSB signals. The next day in the F5SE Memorial Funtest we worked on 23 cm SSB to SSB unless noted on 27 Jan at 2138 DJ8FR (55/56) JO, 2144 OK2DL (56/57) JN, 2148 LX1DB (58/58) JN, 2155 IZ1BPN (55/56) JN, 2205 DF3RU (55/58) JN, 2211 SP6JLW (56/56) JO, 2214 I1NDP (58/55) JN, 2225 SP6ITF (59/44) JO, 2229 9A5AA (56/54) JN, 2234 DL3EBJ (56/55) JO, 2301 IK1FJI (55/55) JN, 2306 WA6PY (55/55) DM, 2314 K5DN (55/55) EL, 2316 VE6BGT (55/55) DO, 2326 DL6SH (57/55) JN, 2335 W7JM (57/569) DM CW-SSB, 2343 WA9FWD (55/56) EN, 2345 VE6TA (56/55) DO and 2354 VE4SA (44/55) EO, and 28 Jan 0005 XE1XA (54/54) EK, 0015 DL7UDA (54/54) JO, 0035 VE3KRP (56/54) FN, 0042 VA7MM (549/55) CN CW-SSB, 0114 N5BF (559/55) DM CW-SSB, 0124 W6YX (55/55) CM, 0135 N4PZ (56/56) EN, 0219 VE4MA/K7 (559/51) DM CW-SSB, 0330 K5DOG (559/55) CW-SSB EM and 0715 VK4CDI (559/55) QG CW-SSB for a total of  $(23x2+6)x14 = 728$  points. I also QSO'd on 1296 using JT65C at 0743 ZL2MQ (28DB/17DB) in RF80 for mixed initial #562\*. I plan to be QRV for the DUBUS 70 cm CW Contest on 24/25 Feb.



XE1XA's dish with absorber in place

**NET/REFLECTOR NEWS: ON5GS** enjoyed his new 6 m dish during F5SE Funtest. His SSB QSO with HB9Q can be seen on YouTube at <https://www.youtube.com/watch?v=Fe2G3R-Cink>. **JF3MKC** is QRV on 70 cm using JT65B with 4 x 13 el yagis and 50 W. He has completed 4 EME QSOs and is interested in skeds via [jf3mkc@jarl.com](mailto:jf3mkc@jarl.com). **R7MU** is another new station on 70 cm using 2 x 3 wl yagis. Sergey is working on a higher power PA. **JH7OPT** is using on 70 cm a UJ-107E-3CX-800A7 tube PA. **TA2NC** is reported to be coming on 70 cm EME. **BD9BU** is often QRV 70 cm with a single yagi and QRP, and has worked UA3PTW and others. **ON6KX** is now QRV on 432 and has made several QSOs using JT65B with a single 21 el yagi and 100 W. **PA1BVM** is preparing a new 70 cm PA for EME operation. **UA3TCF** is going to give 432 a try using JT65B but is limited to 50 W max power. **NU6O** was QRV on 70 cm in Dec with 4 x 12 el M2 yagis and a 500 W PA. He was decoded well by OK1TEH using his single yagi. Joe is interested in skeds. His email is [nu6o\\_ham@yahoo.com](mailto:nu6o_ham@yahoo.com). **SM7THS** has an excellent blog where his 70 cm 8 x yagi station is described - see <http://sm7ths.blogspot.com/>. **AA7HC** is now QRV on 1296 EME. Vernon works on weekends, which limits his activity.

**FOR SALE: VK4CDI** reports that VK3UM's EME dish seems to be abundant. Is there any interest by the local UHF/microwave community in getting it back on the air? **70 cm 1 kW SSPA** ready to use is available. See <http://vhelectronics.sk/index.php/en/special-offer>. **LZ1DX** has a FLEX 1500 for sale for EU350 + shp, and KNB-FLEX Control USB controlled tuning knob for EU90 + shp. Agreements are possible. If interested email [lz1dx@lz1dx.org](mailto:lz1dx@lz1dx.org) or call Ned. **NC1I** is cleaning house and has the following for sale: 1) The original two 1.5 kW K1FO 8938 432 PAs built by Steve. Both have provided many years of solid service and are true workhorse amps. They are standard 19" rack panel face (7" high). The price is \$2700 for each PA including a spare (good tube), and

\$600 each for the very nice matting 4500 VDC/2.5 amp CCS power supplies (not sold separately). Neither power supply can be shipped. [Frank also has K1FO's original 144 8877 PA for \$750 or \$900 with spare 8877. A PS may be available. Everything: 144 + 432 PAs, PSUs, spare tubes as a package for \$5500 (pick up only)]. 2) Two W6PQL 1 kW 432 LDMOS SSPAs built by W6PQL and in his standard cabinet with dual meters, relays, etc. Each will include a Meanwell RSP-2400-48 power supply with all interconnecting cables and DC fuse blocks. SSPAs and PSs were purchased new by Frank and have seen very little use. \$2200 each including PS. \$4000 for the pair with PSs. 3) Down East Microwave 23120PA 120 W 1296 SSPA for \$350. [Frank also has Yaesu FTDX5000MP with SM5000 station monitor in original box for \$2250, and for \$2050 without monitor. Two 2 m Innovation 14 el LFA yagis with baluns (used only one weekend) - cannot be shipped, for \$225 each or \$400 for the pair].

**HISTORICAL NOTE BY VE4MA:** A TV show about conspiracy theories surrounding the Montauk, NY Radar, now a National Historical site, reminded me of the 429 MHz radar that used to operate at Findley ND. W0PHD and I visited the site on the way back from the Central States VHF Conference in 1972. The TV program did not show the high voltage room or the Amplitron (the big TX tube), but the pictures of the big dish were still pretty awesome. You could see the big 432 waveguide feed. The Findley radar used to be our 432 beacon (for Winnipeg). In 1978 K2UYH (and family) came to ND to put it on 432 EME. W0PHD and I came to help them. We set up at Mary's (WA0CHK) goat farm in Hatton, ND. It was basically line of sight to the Findley radar! We could not hear any EME signals until AI substituted a KLM 432 transceiver that had a noise blanker for his regular xverter. The big dish can be seen at [https://en.wikipedia.org/wiki/Montauk\\_Air\\_Force\\_Station](https://en.wikipedia.org/wiki/Montauk_Air_Force_Station). The Findley site was far more impressive than with red/white paint on dish and 5 story black building with no windows. You could see it on the horizon for at least 10 miles. I remember one of the radar operators saying that when they first turned it on, all the old style flash bulbs went off in the pharmacy! Anyway I must be getting old as I look back fondly at some of the good old days!

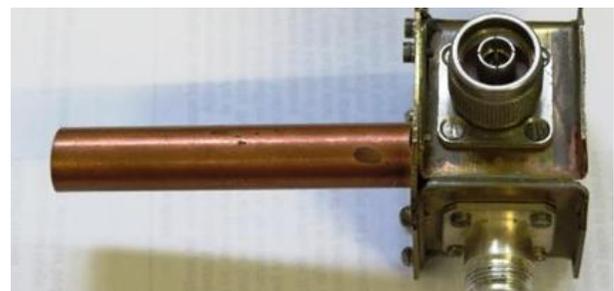
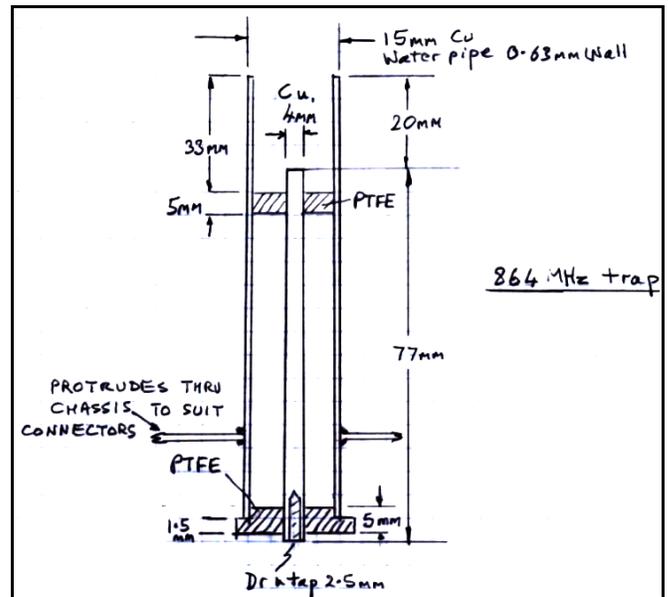


VE4MA's photo of Findley radar from Aug 1972

**TECHNICAL CORNER:** K4MSG writes on TRX drift -- I saw OK1TEH's technical note on the solution of drift with the TS-2000X in which he mentions running the fan all the time as a solution. There is a simple mod to run the fan at the lowest speed all the time (and high speed operation still clicks in normally when needed). I found that this works very well in minimizing the drift as long as the transceiver is warmed up. It's also a good idea to put a small thermal shield around the oscillator module. I'll send a short report with web links (see below) that describe how to do both mods, and I also have both articles in my digital files and can send them to anyone interested. It does require going inside the radio and adding a small component (resistor) and a wire to run the fan continuously, but it's easy to remove the mod to restore the radio. See [http://frenning.dk/OZ1PIF\\_HOMEPAGE/Fancontrol.htm](http://frenning.dk/OZ1PIF_HOMEPAGE/Fancontrol.htm).

**MAB25 Rotary encoders:** F5BQP forwarded the following info regarding the use of the inexpensive MAB25 encoders with F1EHN's tracking system: F1EHN has received a new batch of PCBs for his tracker, and he has informed me that now there is a small interface board developed by N8CQ to support the MAB25 encoders from Megatron instead of the US Digital encoders initially integrated, but which are very expensive. Jean-Jacques (JJ) continues to support his software and related hardware. His tracker is useful for radio-astronomy tasks. I know that some of you are more than aware of JJ's contributions to the hobby. JJ can be contacted at [jim\\_f1ehn@wanadoo.fr](mailto:jim_f1ehn@wanadoo.fr).

**A simple trap for 864 MHz:** G3LTF writes that the band above 864MHz is now designated for cellular radio applications in the UK (and other places as well). I thus needed something to attenuate the second harmonic of my K2RIW PA. A half wave line at 864 MHz presenting a short circuit across the 50 ohm line with the capacitance presented at 432 tuned out with an inductance works well. I used an existing box with two N connectors and soldered the line through the top to align with their centre pins. The line dimensions are shown in the diagrams. If you use different sizes then it will be necessary to re-calculate and to tune the inner length to 864 MHz. The picture (shows the shunt inductance, which is tuned to minimize the return loss by altering the wire spacing. In my case this was about 25 dB. The rejection at 864 MHz is about 50 dB. I measured the insertion loss as < 0.05 dB, and it has been in use now for several years operating at the 600-700 W level on SSB and CW with no sign of heating or any effect on the PA.



Complete Filter

**RADIO ASTRONOMY:** Mario (I0NAA) [mario.natali@gmail.com](mailto:mario.natali@gmail.com) sends info on the new release of his Murmur software, which is perfect for pulsar detection -- I released Murmur (4.6.2) that among many other improvements and bug fixes incorporates the ability to predict Sun noise (y-factor) by downloading latest flux data from <http://legacy-www.swpc.noaa.gov/ftpdir/lists/radio/rad.txt>, and the making a quadratic spline interpolation to calculate the flux for the frequency in use. The program can also show the noise for the most important noise sources (at only 1420 MHz for now) and tracking for the strongest Quasar 3C273! Murmur also comes with its own installer that creates a directory called C:\Murmur and puts the release in use in a subdirectory with the name of the revision. It is now possible to run several different versions of Murmur at the same time as each uses data from its own directory. The Y-factor noise should work well as I tested it quite extensively with the VK3UM calculator, and also had the help of other friends in the debugging. All feedback from the EME community will be greatly appreciated. All inputs/suggestions and corrections are very welcome. The program can be downloaded from my web site <http://i0naa.altervista.org/>. The manual is still for the 4.4.0 version, but I should publish the new manual shortly.

**FINAL:** We are again running out of time. With both Matej and I working on the NL, you would think it would get done faster. Instead the information keeps going. But please keep it coming!

▶ EME2018 the Netherlands at <https://www.eme2018.nl/> is 6 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](mailto:jvm@netvisit.nl).

▶ Don't miss on 6-8 April the OK EME and MW Seminar. For more information see <http://www.vhf.cz/seminar-2018-eng/> or email OK1DFC at [ok1dfc@seznam.cz](mailto:ok1dfc@seznam.cz).

▶ The 2018 DUBUS CONTEST dates and rules can be found at <http://www.marsport.org.uk/dubus/EMECContest2018.pdf>

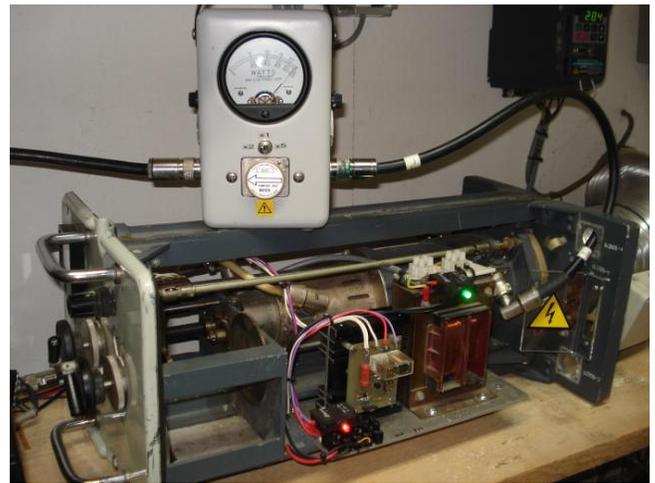
▶ G4NNS reports a link to a Utube clip from a BBC TV program that includes EME from Goonhilly at <https://www.youtube.com/watch?v=QI-U-YuCUj4&feature=youtu.be>.

▶ Has anyone heard or know the status of N4GJV. Both NC1I and K2UYH note the absence of his signal on 432.

▶ 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.

▶ W1JR was among the many to write about their fond memories of F5SE. Joe is presently not QRV on EME, but can be reached at [Joe@Reisert.org](mailto:Joe@Reisert.org).

▶ Hope to CU you all off the Moon, especially during the DUBUS 432 EME Contest. Please keep the reports and tech info coming. Best wishes off the Moon to you. 73, AI – K2UYH & Matej, OK1TEH.



**S51LF'S 70 cm PA**



**TD9CHR 1296 yagi with SSPA under going test**



**ZS1LS's dish with 1296 feed**



**S51LF shack with Menina 432/21 (kit by S51RM+S53RM)**