432 AND ABOVE EME NEWS
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EDITOR: AL KATZ, K2UYH; DEPT. ELECTRICAL/COMPUTER ENGINEERING, THE COLLEGE OF NEW JERSEY, PO BOX 7718 EWING, NJ 08628, TEL (W 609-584-8424), (C 609-047-3889), E-MAIL alkatz(x)tcnj.edu
ASSOCIATE EDITOR AND REFLECTOR/NETNEWS MATEJ PETRZILKA, SIMUNKOVA 1609/21, 18200, PRAHA 8, CZECH REPUBLIC, TEL (+420 603 489 490), E-MAIL ok1teh(x)seznam.cz
CW INITIAL LIST G4RGK, DAVID DIBLEY, E-MAIL zen70432(x)zen.co.uk, AT: http://www.zen70432.zen.co.uk/Initials/index.html
SUN & EXTRATERRESTRIAL NOISE LIST MANAGED BY OK1TEH: http://www.ok2kkw.com/next/nl_k2uyh/sun_table.xls
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DL0SHF 3 CM EME BEACON, 10368.025, SEND INFO & QUESTIONS TO PER (DK7LJ) per(x)per-dudek.de.
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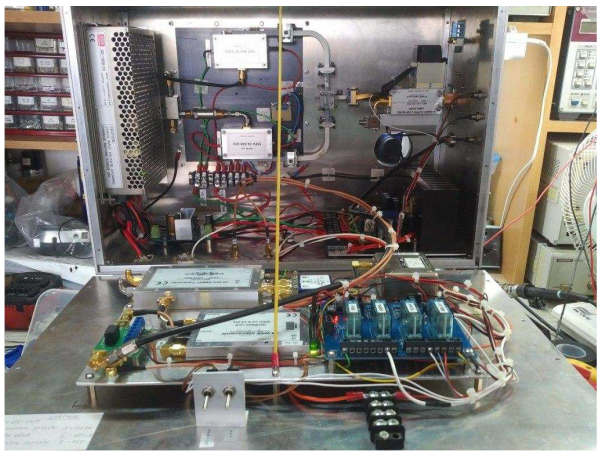
CONDITIONS: The microwave (MW) part of the ARRL EME Contest was reported to be generally down from previous years despite its higher declinations and low Moon loss. The top reported score is from K2UYH with 35x28. Part of the poor showing may have been due to the early hour of it prime moontimes. Another factor may have been the very strong interest in the 4U1ITU dxpedition, which overlapped the contest. 4U1ITU was QRV on 24 to 30 Sept and highly successful despite some problems with bad weather (WX) - to see report in this newsletter (NL). The Q-Team will put HB0/HB9DBM on 23 cm thru 3 cm between 27 Nov and 2 Dec. See their announcement in this NL. Coming up on **27/28 Oct is the first of the two ARRL EME Contest Weekends (27/28 Oct and 24/25 Nov) for the 6 m to 23 cm bands.** It should be a great contest. I hope you can make it on. If you wan to check out the activity list, see http://www.darkside.cz/eme.php where Matej will place any upcoming info about planned activity.

4U1ITU: Zdenek (OK1DFC) ok1dfc(x)seznam.cz sent final report for his EME operation on 7 bands (432 thru 24 GHz) from ITU (JN36bf) – On Sunday, 23 Sept, I arrived in Geneva at 7 am local time after traveling 18 hours and 956 km. In front of the ITU building, OM1AM and OM3YFT were waiting. We immediately unloaded the car and moved the equipment by elevator to the 5th floor where the radio club is located. I had all the radio gear installed by the evening; and after a small dinner, we went to sleep to be fresh to put up the dish on the roof in the morning. On Monday morning, we installed dishes/mounts on the roof and slid the cables from the roof to the shack. We did not dare to install the mesh surface on the 3.2 m dish as the wind was blowing strongly from the north. We had many problems anchoring the mounts to avoid overturning the antennas. The 180 cm dish on one gust almost felt over. We decided to limit our risk, and the first night only operated on 3400 with the small dish. The second day, the wind was weaker. So, we set up the 3.2 m dish for 432. However, we found strong in band interference and heard almost nothing. Geneva, in a valley next to a large lake, can reach a temperature of 30°C when it is very cold in the mountains around it. In the evening after sunset, the cold air flows into the valley resulting in a very strong flow of about 60-70 km per hour - not a pleasant thing for an EME expedition. We enjoyed this effect several times. We could not operate for two nights as a result of this effect. The interference we first experienced on 70 and 23 cm was not problem on the higher bands. On the top bands, we only occasionally had WiFi interference on 6 cm. There was silence at night when the offices were empty. 13, 3, and 1.2 cm were absolutely quiet. In total 210 QSOs were completed on all bands! Worked on 432 35 QSOs, on 1296 79 QSOs, 2320 41 QSOs, on 3400 12 QSOs, on 5760 17 QSOs, on 10368 19 QSOs, and on 24048 4 QSOs and 4 more stations copied. For most of the callers, it was a new DXCC. OZ4MM's QSO completed his 1296 DXCC. We completed WAC on 1296, which made OM1AM extremely pleased. On 3 cm we set a new 4U1ITU distance record with the VK7MO :-) ! On 30 Sept, it was raining and the forecast was for strong wind again. I decided to stop the operation, and move everything off of the roof Sunday night. This turned out to be a very good choice, as we had heavy rain and wind. On Monday, 1 Oct, I loaded the car and by 2100 was at home. Personally, I was very pleased that we were successful on 24 GHz. Thanks to everyone for all the QSOs. My thank to OM1AM and OM3YFT for their great cooperation. I also want to thank other ITU officers who allowed us to occupi the corridors in front of the radio club. See http://www.vhf.cz/text-4u1itu/ for more details.



24 GHz Set up at 4U1ITU dxpedition

DJ3JJ: Andreas dj3jj(x)gmx.net is planning to be QRV for 23 cm in the ARRL EME Contest -- I am reworking my Egis rotator for 360 deg AZ rotation, and trying to combine 2 x 250 W SSPAs for a 500 W PA. My 2 x 90 deg hybrid couplers are not giving the correct phase shift. I hope to be ready for the first weekend.

DK3WG: Jurg dk3wg(x)web.de reports on his late Sept/early Oct EME – I worked on 432 using JT65B W5KDA and TR8CA for DXCC 136 and using CW SM6CKU and W4AT, and on 1296 all using JT65C IW8RRF, RN6MA, G4FQI, 4U1ITU for DXCC 62, K7CA and AA4MD.

DL7APV: Bernd dl7apv(x)gmx.de writes that his activity was down in Sept -- Extremely nice WX kept me busy outside (drinking wine and BBQ!). We have today 25° very unusual and an all time record for time of year. Back in Sept I added OM0AB (KN08) for his first EME QSO on 432 and DF7KB (JO30) – 4 yagis and 20 W. In Oct we had a tropo contest, which kept me very busy, but I still added DJ3AK (JO52) – 19 el yagi and 275 W. I will be QRV in the ARRL contest for both passes on 432 using JT and CW depending on activity.

G0JLO: Keith keith(x)analog.co.uk reports on his recent activity -- I managed to fix my Nokia Tetra driver simply by cleaning off the carbonized striplines and replacing the 22 pF capacitors with ATC equivalents. It now produces some 20% more output power than it ever did! But, no luck on 25 Sept working 4U1ITU on CW his first night. His activity meant the band was teaming with people eager to work him. The *spin-off* was random initials with LX1DB (449/449), OK1CA (449/449), OK1KIR (449/459) and OH2DG (559/559) all on CW. On 29 Sept I added initials with HB9Q (589/579) and PA2V (559/559) the next day. I hope to be active for some of the time during the Oct ARRL Contest weekend, but will miss the Nov weekend and will be QRT until March. **I am interested in CW skeds with Asia, Australia, Africa and South America to complete a WAC.**

G3LTF: Peter pkb100(x)btinternet.com sends info on his last month and recent operation -- Some of my report was missed last month. I started on 8 Aug with an amazing 1296 CW QSO with EA/PA3DZL for initial #454. Jac was using a single 67 el yagi and 120 W. It is hard to be sure but I think this is the smallest system that I have worked on 23 cm EME. On the same day, I worked EW1AA #455 and on 9 Sept K5DN #456 and W1PV #457. On 12 Aug I was on 432 for the CW ATP; conditions were not great with heavy QSB but I worked SM2CEW, G0JLO, G4YTL, and DF3RU. On 13 Aug on 23 cm I worked UA9FA #458. On 1/2 Sept, I was on for the 32 m dish at Goonhilly Tests by G4NNS. My operation was a bit restricted due to family visiting and a fault in my 9 cm system. On 2 Sept I did work GB6GHY on CW on both 3400 and 5760 with excellent signals and made recordings for future analysis. I also worked WA6PY on 6 cm. I kept the 3400 system in the dish and worked on 5 Sept OZ6OL but could not copy enough from G4BAO to make a QSO, and on 6 Sept G4LDR for initial #68 - his first contact on this band. I switched to 1296 on 7 Sept and was delighted to QSO EI2FG #459 and DXCC #71 - (I missed both the dxpeditions to EI by DF6NA and DL1YMK). My ARI Contest activity on 8/9 Sept was reported in the last NL. On 1296 again I worked on 26 Sept SM6CKU after many years absence, followed by DJ8FR and then 4U1ITU #460 and DXCC 72, and on 27 Sept I5YDI on CW and SSB. I switched 2320 CW for the ARRL MW Contest to work OK1KIR, LZ1DX, UA3PTW, OH2DG, SP6OPN, RA3EME, OZ4MM, K2UYH XB, DF3RU, WD5AGO XB, OZ5G, VE6TA, N4PZ XB, G4RGK, WA6PY XB, KL6M XB, OH1LRY, ES5PC, and on 30 Sept 4U1ITU #140 and DXCC #46, OK2ULQ and ON5RR for a total of 21 QSOs. Heard were HB9Q, SP6GWN, VE6BGT XB and WA9FWD XB. On 5760 I worked 8; 4U1ITU for initial #82 and DXCC 36, K2UYH, SM6CKU, KL6M, WA6PY, DL7YC, OH1LRY and DF3RU. I heard HB9Q. On 3400 I worked 3; WA6PY and K2UYH and, in the last hours of the contest, VK3NX XB to the VK allocation. I also had an SWL report from BG6LQV. Overall I had a total of 32 QSOs. I felt that activity on 13, 9 and 6 cm was a bit down from previous years, despite the 4U1ITU dxpedition, but that might have been due to the very late/early morning moon hours. Zdenek did a great job in Geneva; I worked him on CW on 3 bands, a big thank-you is deserved. On 7 Oct on 23 cm I worked on SSB DK7LJ, RA3AUB and G4DML plus SM6CKU, I1NDP and SM4GGC on CW. Later on that day I got a message from SM3BYA telling me he had echoes on 3400 and we worked with good signals for initial #69. It was a great month of microwave activity.

G4RGK: Dave zen70432(x)zen.co.uk completed 432 DXCC in Sept thanks to Zdenek's 4U1TU dxpedition – The 4U1ITU dxpedition was the highlight of the month! I was able to work him on 70, 23 and 13 cm. The QSO on 70 cm was DXCC 100, after 35 years on the band. In the ARRL MW Contest I only have equipment for 13 cm. This was the first time I had used the 4.6 m dish on this band since the rebuild using ½" mesh in March. The dish and the rest of the station performed well. My Ericcson PA is producing a solid 340 W on CW. I limit it to 250 W on JT. My operating time, however, was restricted to a couple of hours each day. I worked using CW unless noted on 29 Sept G3LTF (569/559), OK1KIR (559/549), HB9Q (12DB/15DB) JT65C, 4U1ITU (19DB/22DB) JT65C and LZ1DX (O/O), and on 30 Sept OH2DG (579/569), UA3PTW (559/559) and WD5AGO (O/O) for a total of 8x8.

HB0/HB9DBM: Dan (HB9CRQ) dan(x)hb9q.ch announces a new microwave (MW) EME dxpedition by the Q-Team -- Preparations for the next Q-Team dxpedition have been finalized. To my knowledge this will be the 1st EME activity on 9, 6 and 3 cm from HB0. HB9DBM and I will be active from Liechtenstein (JN47sf). We will be QRV from 27 Nov until 2 Dec. We have a special license to operate on 2320 and 2304 and on 3400. So we will be QRV from 23 to 3 cm. As many of you will know HB0 is in the Alps and surrounded by high mountains. Therefore, our Moon window will be limited. We have found a QTH will allow us to work VK (very short window) and JA on moon-rise and the US Westcoast on moonset. We plan to be QRV 1 full moon-path per band. We will have Internet-access and during activity we'll be on the HB9Q EME logger. You may send e-mails anytime to dan(x)hb9q.ch and check our in-basket several times a day. The station will consist of a 1.5 m dish with automatic Az and El control, on 23 cm 100 W at feed at cir feed & LNA, on 13

cm 90 W at cir feed & LNA, on 9 cm 80 W at cir feed, & LNA, on 6 cm 80 W at cir feed, and on 3 cm 50 W at lin vert feed & LNA. This is the same equipment we used at 3DA0MB, ZS6EME and EA6/HB9COG. Our schedule follows: 27/28 Nov arrive midafternoon & setup station, 2230 (27 Nov) to 1000 (28 Nov), QRV 13 cm (XXX.090) JT65C TX 1st - [MR on 2301.990 (XB to 2320 or 2304, on request only), will QSY later to 2400.090 (XB to 2320, on request only), later to 2320.090 and finally to 2304.090 (QSY will be announced on HB9Q logger)]; 28/29 Nov 3400.090 JT65C TX 1st [2330 until 1030 (29.Nov), MR on 3398.090 (on request only)]; 30 Nov 5760.090 QRA64D TX 1st [0045 until 1115]; 1 Dec 3 cm QRA64D TX 1st [0200 until 1145 10xxx.090, MR 10450.090 later 10368.090 (QSY will be announced on HB9Q logger, for VKs please ask for sked in advance, in this case we would start on 10368 at MR and QSY after QSO to JA-band)]; and on 2 Dec 1296.090 JT65c TX 1st [0315 until 1200 - after moon-set will dismantle the station, pack-up, load the car and drive back home]. Now that WSJT-X 1.9.1 is available, we will use it on 23, 13 and 9 cm for JT65C with Doppler Control ("Own Echo", in other words, we listen on our own echo). On 6 and 3 cm we will use QRA64D (if necessary JT4F) including Doppler Control ("Constant Frequency On Moon" [CFOM] and if necessary "Full Doppler to DX Grid"). Hopefully more people will take advantage of automated Doppler control. Especially on 6 and 3 cm, it is a MUST for successful QRP operations. Although it is on the limit, we will work CW on all bands. However only with big-guns and after the pile-up on JT/QRA is worked. How big a station is needed to work us? During our last 3 activities the smallest stations worked had the following equipment: On 23 cm 2.35 m dish and 150 W at the feed; on 13 cm 2.4 m dish and 150 W at feed, with excellent signals both sides; on 9 cm 2.4 m solid offset dish and 50 W at feed, with excellent signals on both sides; on 6 cm 2.4 m dish and 30 W at the feed with excellent signals both sides - that's less ERP than we have; on 3 cm 1.2 m solid dish with 40 W at the feed with excellent signals both sides – again less ERP than we have! **QSLs** are only by direct to: HB9Q, P.O.Box 133, CH-5737 Menziken **and must include SAE**. If you wish to sponsor our activity, you are welcome to do so by using PayPal dan(x)hb9q.ch (please mention your call).

HB9Q: Daniel (HB9CRQ) dan(x)hb9q.ch sends news of recent initials worked from mid Sept to mid Oct – We worked on 70 cm DL2HWA (JT65B) and G0JLO (CW) to bring us to mixed initial #1046* and 163 DXCC; on 23 cm with all using JT65C K7CA (for NV and WAS 40), AA4MD, DJ3AK, DK5YA and RV6AKA to bring us to mixed initial # 647* and 122 DXCC; on 13 cm RA3EME (CW), 4U1ITU (JT65C & CW) for DXCC 63, LU1CGB (JT65C) - 1.8 m dish 20 W for DXCC 64 and DJ3AK (JT65C) – single 67 el yagi and 35 W for his 1st EME QSO to bring us to mixed initial #171; on 9 cm 4U1ITU (JT65C & CW) for DXCC 34 and G4LDR (JT65C) to bring us to mixed initial #74*; on 6 cm 4U1ITU (QRA64D) for DXCC 37 to bring us to mixed initial #78*; and on 3 cm 4U1ITU (QRA64D) for DXCC 35, DC7KY (QRA64D), SM2CEW (CW) – 2 m solid dish and 12 W), VK7MO (QRA64D) in QE38 and F6BKB (QRA64D) to bring us to mixed initial #161. On 1296 we still need the following 10 states to complete WAS: AL, AR, DE, KY, MS, MT, OR, SD, WV and WY. We can work easily stations running 1 yagi and 15 W or 1.5 m dish and 10 W. Any help is very much welcome! We plan to be QRV on moonrise and moonset during Oct ARRL EME Contest weekend on 432 and 1296, but as always we will not participate in the contest. We will be looking for initials and especially for QRP stations. You can find us on the HB9Q Logger, where we announce our CQ frequencies. We will also be monitoring 13, 9, 6 and 3 cm. You may ask us on the logger to QSY or for skeds. Skeds are also wanted by email. [Also see Dan's report on HB0/HB9DBM].

JA4BLC: Yoshiro ja4blc(x)web-sanin.co.jp has a short report because the bad WX – During the ARRL MW EME weekend a typhoon attacked Japan and I could not be QRV. Fortunately, there was no damage to my station. I was able to be QRV and QSO using CW on 28 Sept, on 3 cm 4U1ITU (O/O) for initial #49 using my 3 m dish. Thanks to Zdenek for the great dxpedition.

K4QF: Ben LoWeb(x)esp-inc.net is very close to being QRV **on 23 cm EME from Alabama** – I have the polarization worked out based on information SM6FHZ sent to me via W4OP. I plan to do some listening tests during the upcoming EME contest weekend. Once I get past the EME contest weekend testing, I hope to be QRV soon after. [See Feb 2018 NL for more information].

KA1GT: Bob's ka1gt(x)hotmail.com contribution for this month follows -- I've completed my dish expansion from 2.4 m to 3 m. With an OK1DFC septum feed and a square to circular flare of my own design, I'm seeing 10.5 dB of Sun noise. I'm now up to mixed initial #94* on 1296. One notable contact was with SM6CKU on CW. The last time I worked Ben (on 432 EME) was in 1979! I also QSO'd on 23 cm 4U1ITU (easily) and 4X1AP - 30 W to a 3 m dish several times though AP or SD decode assistance was needed. For the first time in 6 months, I installed my 432 loop feed on the dish and worked 4U1ITU even though my PA power was down and I had only around 250 W at the feed. Sun noise at 432 was only 4 dB, and the band was very noisy. I will probably only be operating on 1296 during the Oct contest weekend. If you hear me on CW, I will be using WSJT10 to send; so will be limited to 60 second sequencing starting at the minute and an 800 Hz keyed tone.

KL6M: Mike melum(x)alaska.net has been traveling and sends the following report -- I attended Microwave Update in Dayton, Ohio this year. It was an excellent meeting and fantastic to see so many EME friends there. I picked up some goodies to help me get QRV on 3 cm EME. In the upcoming ARRL contest, I plan to operate 23 cm the first pass and then possibly change to 70 cm for the 2nd pass depending on the activity on 23 cm. I may possibly wait until the 2nd weekend to work 432. I was disappointed by the activity during the ARRL MW EME Contest weekend. I made QSOs on 13, 9, and 6 cm. Actually, it was worse last year due to the horrid weekend selection with its low declination that gave me almost no Moon window. I only worked a total of 3, at least this year I'm up to 20! The

feed changes in the wee hours of darkness is painful sometimes, but definitely challenging. I worry most about being attacked by a bear or a moose during those wee hour feed changes. 9 cm is by far my best performer. Too bad about that as the lowest activity was there. 13 cm is a big issue here. I love that band and even the XB operation. However, our FCC has hosed that up. They gave away spectrum to cellular use for their wide band cell site data links. I have a nearby 10 MHz wide block of data on 2350 and even stronger ones residing down at 2200. The one right between 2304/2320 and 2400 are a challenge to filter. I have built some great interdigital filters (http://kl6m.com/13cm/Filter/), but I think I will need to switch between two of them to get rid of it all. And these need to be in FRONT (blasphemy) of the LNA. Otherwise the signals are so strong they desense the LNA terribly. I think we need to find ways to improve the ARRL EME contest. 13 cm and up is a nightmare. Any comments or suggestions are of interest. My main one is that to level the playing field provide a score of 3 points for CW QSOs vs 1 point for JT. My preference would be to make one weekend 144/432 and the other weekend 1296. How's that sound? I am also interested in generating some EME activity on 222. N9HF is interested and K5QE would probably get back on too. I am sure there are more. Anyone interested in a 222 activity weekend in Dec?

KN0WS: Carl carlhasbargen(x)g.com had problems during the MW EME Contest weekend -- I was looking forward to trying three bands for the first ARRL weekend: 13 and 9 cm with my 4.8 m dish and 3 cm with my 1.2 m dish. I traded a few work-shifts to get time off for the event. I even thought that I might be able to work 4U1ITU. The forecast was for rain and clouds, but my prayers were answered when the forecast changed to a calm clear Friday night - just what I needed to visually confirm my dish pointing at these higher bands. Awake at 0630 local, on the road at 0800, and at my dish site at 1000 with five hours for setup in wind and a bit of rain. I fired everything up and immediately had troubles with WSJT-X, then with my 13 cm amp, then with my 9 cm amp, and then with my new worm drive on the mount - it locked up. My not-well-protected 9 cm gear at the feed was stuck 20' in the air! And, I was out of business on 13 and 9 cm. My attention turned to the 3 cm setup. The Arduino controller started acting up. I had to reset it every minute. This was clearly not workable. After five hours of trouble shooting without success, I spent another 2.5 hours tearing things down. As I drove off my property to start my 90-minute drive home, a big beautiful Moon rose over the trees in a clear and calm sky! **Addendum**: I have repaired the mechanical failure of my dish drive and hope to put the dish in service on 23 cm for the Oct contest weekend. I have also built a power supply for the W6PQL 70 cm amplifier I purchased from NC1I. Although the amplifier can do 1 kW, my generator, extension cord and 30 A power supply have me limited to 600 W, which is still 50% more than with my old Beko. Testing the setup on 6 Oct, I was able to use JT65B to work NC1I (5DB), DL7APV (4DB), K3MF (17DB), SM7GVF (26DB) for an initial (#*), GW4XYW (20DB) and DL2HWA (15DB). These were my first 70 cm QSOs this year. It was nice that NC1I was the first QSO I had with this amplifier, since he sold it to me! These were all random QSOs as HB9Q was down.

N5BF: Courtney courtney.duncan.n5bf(x)gmail.com sends his Sept/Oct EME report -- After 34 days QRT with a rotator controller under repair, I am QRV again with all systems normal. New mixed initials are DL7YC #132*, SM6CKU #133* with an excellent (579) CW signal, K7CA #134* Nevada, DK5YA #135*, G4FQI #136* and SM4GGC #137*. I was not able to complete with VK2FLR. I did have on 7 Oct my 400th 23 cm EME QSO with W2HRO (23DB/13DB). I missed 4U1ITU due to wind storms in Geneva one day and by ten minutes due to a local conflict on another. I have modified my IF rig for a ~100 kHz bandwidth panadapter and other such improvements and hope to use it for on the air spotting during the Oct EME contest weekend, if I can get the software working and get sufficiently up the learning curve in time. In any case, I plan to be on for the full weekend.

NC1I: Frank frank(x)NC1I.COM had only time for limited activity in Sept - I QSO'd on 432 using JT65B unless noted starting on 25 Sept 4U1ITU - did not count as an initial as worked before, on 29 Sept PA2V - great to have Peter back, on 30 Sept F8DO, DK5SO, UY5HF, DL8DAU, G4ALH and PA2V (CW), and on 10 Oct KN0WS, G3LGR, ES3RF, F8DO, and EI8JK. I worked on 1296 starting on 27 Sept 4U1ITU using JT65C for initial #290 and a new country, and on 20 Sept SM6CKU on CW for initial # 291. Congratulations and thanks to Zdenek for another outstanding dxpedition! Our current plan is for my station to be very active on 432 and 1296 for both contest weekends. I will have a guest op on 1296 so exchanges will likely be basic standard JT messages. After much discussion and consideration, we have decided to postpone our next dxpedition (US State) until spring. This was primarily due to busy schedules amongst our group members. We will make every attempt to schedule two dxpeditions for 2019.

OK1CA: Franta strihavka(x)upcmail.cz wrote about his success with the 4U1ITU expedition -- On Monday 24 Sept I prepared in the presence of strong wind my setup operation on 70 cm, but at last moment learned that 4U1ITU was to be QRV on 9 cm. I change bands and was able to work them on 9 cm using JT4F. This is the first OK-4U1 QSO on 9 cm. On Tuesday I switched back to 70 cm. During testing a power supply failed in my PC and destroyed my SDR. I installed a new SDRplay and a backup notebook computer. I had a problem with local QRM but finally worked 4U1ITU using JT65B. I also QSO'd G0JLO on CW for initial #187. On Wednesday the activity moved to 23 cm where I QSO'd 4U1ITU. The interest in QSO with 4U1ITU was very high and it took me one and half hours to make the contact. Thursday (27 Sept) the plan was for 4U1ITU to be on 24 GHz and possibly 10 GHz. I started on 24 GHz and heard OK1KIR and G3WDG in QSO with 4U1ITU. Signals from 4U1ITU were very weak, and I had no decodes due to a very wide signal spread. I QSY'd to 10 GHz and worked 4U1ITU using QRA64D (10DB/10DB) and on CW (559/539). I also worked OK2AQ and F1PYR using QRA64D. I was not

QRV in the MW part of the ARRL EME Contest, but plan to be QRV on 23 cm for the Oct weekend.

OK1DFC: Zdenek ok1dfc(x)seznam.cz followed up his highly success 4U1ITU dxpedition with an attempt to extend the 3 cm distance record with ZL/VK7MO – I set up at my second QTH (JO60rn) located in the Krusne hory mountains at 1000 MASL. Unfortunately, I had gusting wind (forecast say 100 km/h). I was disappointed not to work Rex before his moonset. I worked OK1KIR, HB9Q and EA3HMJ, but then the wind grew worse and worse. I had to park the dish with minimum surface in the wind direction. I am now safely back home. It was too dangerous in mountains. It was not the day for a "ONE MAN SHOW". The previous evening there was a combination of rain and fog. In the fog, I could not see that I was pointing through steel mast, which caused problems with my copy of HB9Q. When I passed the mast, Dan was (9DB), and I immediately copied Rex's 400 Hz tone. I had great difficulty closing down, but as they say: I am home! I will repeat my trip to JO60rn when WX permits and will be there also on 24 GHz.

OK2DL: Marek <ok2dl(x)seznam.cz> wrote about the ARI EME Trophy Contest – I operate 1296 and during the summer EME activity was low. The first opportunity for *real activity* was the ARI EME Contest in Sept. I had a lot of other activities scheduled for this weekend, so I just gave out points when I could. Unlike the DUBUS Contest, chats can be used; and HB9Q was quite alive. I operated mainly CW and did not use any reflectors. I was QRV for about an hour on Saturday morning and made 9 CW contacts with nice reports. I was QRV again on Sunday after lunch; I made 11 QSOs of which 2 were using JT65C. Overall activity was good. > 50 QSOs could be made. [translated by OK1TEH from http://www.ok2dl.eu/].

OK1IL: Ivan ivaknn(x)gmail.com contributes the following – Since my last report I worked on 1296 using JT65C EI2FG for my DXCC 51 and mixed initial #149*. #150* was OE5JFL with a huge (7DB) signal. Hannes was followed by AA4MD #151*, VK2FLR #152*, K7CA #153* and DK0ZAB #154*. During ARI contest I tried to copy CW stations and experimented with the best bandwidth and tone to copy weak signals. I have a real problem to copy CW signals weaker than an equivalent (12DB) with JT. For example, I am still able to copy ON0EME at this reduced level. I do not know whether my old ears are the reason or the DSP of my FT950 at low signal level. I am trying to tweak my RX frontend to find the last missing dB. I tested different SDRs with noise measuring software, but from a practical point of view the measure mode of WSJT 10 with fluctuations of ±0.1 is sufficient to evaluate different frontend changes. I now take into account the nonlinearity of the RX chain by inserting a 10 dB attenuator in front of my 1296/28 MHz transverter when pointing at the Sun. The noise level shrank to 9.6 dB, which confirms about a 0.4 dB better CS/Sun value. A highlight of the month was the great dxpedition by OK1DFC to 4U1ITU. I worked then on 23 cm with a big (16DB) for my DXCC 52 and initial #151*.

OK1KIR: Vlada and Tonda vlada.masek(x)volny.cz report on their late Sept results -- The last week of Sept was dedicated to the 4U1ITU dxpedition. High winds and grounding troubles on the roof of the ITU building resulted in the changing the band plan to accommodate the WX conditions. Nevertheless, Zdenek's signal was god copy on all bands except 24 GHz. He made us happy with four 1st 4U1-OK QSOs on the 13, 6, 3 and 1.25 cm bands. We worked 4U1ITU on 24 Sept on 9 cm at 1822 using JT4F (23DB/20DB) for digital initial {#31} and later with CW at 1842 (559/559) for initial #75; on 25 Sept on 70 cm using JT65B at 2110 4U1ITU (18DB/O) for digital initial {#222}; on 26 Sept on 23 cm using JT65C at 1956 4U1ITU (5DB/12DB) and with CW 2132 (559/559) for initial #433; on 27 Sept using QRA64D on 24 GHz at 2012 4U1ITU (22DB/14DB) for digital initial {#42} and the 1st 4U1-OK 24 GHz QSO (the Moon was at +2.3 dB and 50 deg el), and on 10 GHz at 2340 4U1ITU (13DB/8DB) for digital initial {#178) and the 1st 4U1-OK 10 GHz QSO; on 28 Sept on 10 GHz using CW at 0027 4U1ITU (549/559) for initial #123; on 29 Sept during the ARRL MW Contest on 13 cm using JT65C at 2022 4U1ITU (11DB/5DB) for digital initial {#58} and the 1st 4U1-OK 13 cm QSO, and on 6 cm using QRA64D at 2132 4U1ITU (17DB/13DB) for digital initial {#39} and the 1st 4U1-OK 6 cm QSO; and on 30 Sept also during the MW Contest using CW at 0030 4U1ITU (O/O) for initial #105. In addition to 4U1ITU, we worked on 70 cm using JT65B on 25 Sept at 1842 VK4EME (16DB/2DB), 2037 partial BD9BU (28DB/NIL) due to QRM on Wang side, 2049 F8DO (24DB/22DB) and using CW at 2124 G0JLO (549/559) for initial #399; on 28 Sept on 13 cm using CW at 2221 LZ1DX (559/579); outside of the MW contest on 29 Sept on 13 cm with JT65C at 0134 LZ1DX (12DB/19DB) for digital {#56}, 0324 WA3RGQ (11DB/9DB), 0535 K5DOG (13DB/O) {#57} and 0548 ON4AOI (10DB/O), and on 6 cm using QRA64D at 2344 UA3PTW (15DB/18DB); and on 30 Sept at 0933 LU1CGB (27DB/O) {#59} and the 1st LU-OK 13 cm QSO with only 20 W into a 1.8 m dish on Adrian's side. In the MW part of ARRL EME Contest, we worked on 13 cm using CW on 29 Sept at 0005 G3LTF (579/589), 0011 OH2DG (589/589), 0023 UA3PTW (589/599), 0031 LZ1DX (569/579), 0049 RA3EME (579/589) – possibly an initial, 0055 SP6OPN (589/589), 0301 OH1RLY (549/559), 0420 K2UYH (579/579), 0430 WD5AGO (559/559), 0450 OZ4MM (579/579), 0500 DF3RU (579/579), 0558 WA6PY (569/579), 0610 VE6TA (589/579), 0648 KL6M (579/579), 0653 VE6BGT (579/579), 0709 OZ5G (559/559), 0713 G4RGK (549/549), 0741 ES5PC (579/579) and 0824 WA9FWD (569/569), and on 30 Sept at 0134 SP3XBO (549/569), 0142 ON5RR (559/569), 0313 4U1ITU (549/559) for initial #164, 0333 PY2BS (589/579), 0719 F5JWF (579/599), 0742 OK2ULQ (559/589), 0748 W5LUA (589/579), 0837 AD6PF (589/579) and 0913 W5AFY 569/579 #165 for the contest total of 32 x 22. Heard was HB9Q with a very nice signal.

OK2AQ: Mirek mirek(x)kasals.com reports on his 3 cm activity in the ARRL MW EME Contest – A few days before the contest, on Tuesday 25 Sept, I performed the usual Sun, Moon and CS/G noise tests and checked my frequency control by listening to the OK0EA beacon and

measuring my own echoes. I then contacted on 27 Sept OK1CA using QRA64D (15DB/15DB) and OZ7Z (16DB/16DB) for mixed initial #59*, 4U1ITU (16DB/15DB) #60* and a new DXCC, just before the contest G3WDG (12DB/14DB) and UN6PD (21DB/18DB). In the MW contest I made 15 QSOs using QRA64D. QSO'd were UR5LX (19DB/16DB), OZ1LPR (10DB/16DB), OZ1FF (15DB/15DB), W5LUA (11DB/18DB), HB9Q (12DB/15DB), K6QPV (16DB/18DB), VK7MO (16DB/20DB) #61*, DC7KY (14DB/16DB) #62*, DL6ABC (13DB/20DB), G3WDG (12DB/12DB), OZ9DT (20DB/19DB) DL7YC (15DB/15DB), VE4MA (16DB/15DB), N9JIM (10DB/19DB) and EA3HMJ (17DB/17DB), and a CW QSO with DL0EF (559/0). My total 16x10 for 16,000 points.

PA2V: Peter peter(x)pa2v.com sends news on his new 432 array -- The weeks after installing the new antennas were very interesting. It seems that the 4 x 27 el YU1CF yagis perform excellent. I do hear and see my own echoes more often than with the old setup. It was a thrill to call 4U1ITU together with the big guns and get in the log on the 10th row. With some new DXCCs and new initials, it has been a super Sept. I worked using JT65B unless noted on 20 Sept at 1852 DL8DAU (26DB/24DB) and 1910 4Z5CP (26DB/20DB) for mixed initial #147* and a new DXCC, on 24 Sept at 2025 PA2CHR (25DB/19DB) and 2031 4Z5CP (25DB/19DB), on 25 Sept at 2125 4U1ITU (23DB/O) DXCC #148* and a DXCC, on 29 Sept at 0413 NC1I (6DB/6DB), and on 30 Sept at 0524 DL8DAU (19DB/14DB), 0636 G0JLO (559/559) on CW #149*, 0652 DL7APV (579/569) on CW, 0706 HB9Q (7DB/6DB), 0739 F8DO (29DB/21DB) #150*, 0807 G4ALH (23DB/17DB) #151* and 0914 NC1I (579/559) on CW.

PA3DZL: Jac pa3dzl(x)ziggo.nl sends more on his single yagi activity -- I am still active from my old QTH with small yagis on 23 and 13 cm. I am now in the process of getting permission from the local government to put up my 15 m tower and 3.7 m dish at my new QTH. It looks very hopeful. I was very pleased to contact using JT65C on 1296 on 26 Sept 4U1ITU (27DB) for mixed initial #308 and DXCC 77 (67el SHF 23-67 yagi, 120 W and 0.3 dB NF LNA), on 2300 on 29 Sept HB9Q (13DB) and PAØBAT (25DB) – UFB signal (67 el yagi to 3.7 m dish). I also heard K2UYH (25DB). Unfortunately, only a partial with 4U1ITU. Zdenek heard me (23DB) but nil here due to high noise at the time. My rig was 67 el SHF 13-67 yagi, 300 W and 0.3 dB NF LNA.

SM3BYA: Gudmund SM3BYA(x)wannberg.net has made his first 9 cm QSO – Our P&T has indicated that it plans to start allocating frequencies in the 3.4 GHz band to 5G services during 2019. For a while it was unclear if any amateur 3400 permits would be renewed at all, but just before midsummer my 2.3 and 3.4 GHz permits were prolonged until 31 Dec. So I saw that I still had a chance to get on 3400 if I started to put things together quickly. I managed to get the RX working in time for the 9 cm Dubus weekend in July and copied 8 stations with very good signals. I am now seeing about 13 dB of Sun noise at SFU 68, which is about one dB short of optimum. I was hoping to have the TX side in operation before the microwave part of the ARRL EME contest, but I was overly optimistic. However, at noon on 30 Sept, I finally saw a solid 80 W on 3400.1 at the output port of my TX power combiner; and when I pointed the dish at the Moon was pleased to copy nice echoes. On 7 Oct, I worked using CW G3LTF with good signals for my first 9 cm EME QSO. I did the same with Peter for my first 13 cm QSO bsck in May 2011. I am now looking to run skeds on 9 cm and will try to make as many QSOs as possible before the end of the year; just in case we do lose the band in 2019.

SM6CKU: Ben SM6CKU ben(x)sm6cku.se was active primarily on 6 cm during the ARRL MW Contest weekend - I thought there would be lots of activity on 6 cm this weekend, but it didn't turn out so. On Saturday 29 Sept there were almost no stations on 6 so I moved to 23 cm and worked a number of stations. Most of them were initials for me, and all good signals. On Sunday 30 Sept, I spent more time on 6 cm and there were about 300% more stations on. I worked using CW DL7YC, OH1LRY, UA3PTW, K2UYH, WA6PY, PA7JB, G3LTF and 4U1ITU for a total of 8x8. Zdenek was doing very well with his 1.8 m dish, and there was no problem getting a QSO. In between, I switched to 23 cm and worked LA3EQ for an initial (#). Both of my dishes were tracking the Moon, and I could easily switch between bands. The next weekend, I QSO'd on 6 Oct using CW on 1296 ES6FX (#), I1NDP (599/599), SM4GGC, PE1LWT, I5YDI, OZ6OL, K5DOG and IZ1AEM (#), and on Sunday 7 Oct DK5YA (#), LA3EQ, G3LTF, G4DML on SSB (#), RA3AUB SSB, SM4GGC (SSB), I1NDP (SSB), SP5GDM (#) SSB, IZ1AEM SSB, K5DN (back on CW), DF2GB and LU1CGB for my first SA station on 23 cm! I have been on and off on the band since 1980 but never worked a SA station. Signals generally very good and there were many JT stations that would be easy to QSO on CW. I noticed that I could still hear good echoes at 7 degs off in elevation to the west. What a difference compared to the old days.

UA3PTW: Dmitry ua3ptw(x)inbox.ru reports on his activity in Aug/Sept – On 432 I added initials on 432 using JT65B with TR8CA, W5KDA, and EI8JK, on 1296 using CW SM6CKU and with JT65C IW8RRFand G4FQI, on 2300 using CW RA3EME, and using JT65C K5DOG, 4U1ITU and LU1CGB, and on 5760 using QRA64D 4U1ITU. [Dmitry has been the top multiband scorer in the ARRL Contest for the last few years. It seems likely he will on again with his big signal this Oct. TNX to DK3WG for forwarding this report].

UN6PD: Nickolay in Kazakhstan was active in Sept and added on 23 cm using JT65C 4U1ITU, on 6 cm using QRA64D 4U1ITU, and on 3 cm also using QRA64D OK2AQ, 4U1ITU, DF1OI, DL7YC and OZ1FF.

UR5LX: Sergey ur5lx(x)ukr.net has been active on both 6 and 3 cm. In Sept he added initials on 10 GHz using QRA64D with 4U1ITU, DL0EF, OZ7Z and OZ9DT. [TNX to DK3WG for forwarding this report].

VE3KRP: Fast Eddie eddie(x)tbaytel.net reports on his recent 1296 EME -- Not much activity as I have been getting the outside of the QTH ready for the winter season. We have been lucky so far, mostly rain with only an occasional trace of snow. I worked on 6 Oct using JT65C K5DOG and OK1IL, on 7 Oct PA3FXB, N5BF and I7FNW, and on 9 Oct 4U1ITU – hats off to Zdenek! Also hats off to HB9Q and crew for the great new logger!

VK7MO/ZL: Rex rmoncur(x)bigpond.net.au is running a major grid dxpedition to ZL during which [we believe] he has already extended the international EME distance record with a QSO to G3WDG/p. See the last NL for more details. He started with a demonstration during which 8 ZL stations completing QSOs with W5LUA. He is now on a ZL West Coast road trip and has given multiple ZL grids to OK1KIR, HB9Q, W5LUA, OK1DFC and others. We should have the full story in the next NL.

W2HRO: Paul w2hro.fn20(x)gmail.com has extended his 10' dish to 13' (4 m) and reports excellent results on both 432 and 1296. On 432, he is now getting 12 dB of Sun noise. On 1296 he reports a more than 1.5 dB increase in Sun noise. He worked 4U1ITU on both 432 (using 200 W) and 1296.

W2HRO's extended 4 m dish with 1296 feed.

W4OP: Dale parinc1(x)frontier.com writes -- Thanks to WA9FWD I have a new 28 V 45 A switcher in my 500-600 W solid state amp enclosure. While I have not put RF to it yet, bias and all looks spot on. I plan to be QRV in the contest using this amp at the dish. I have finished cutting out all the aluminum for a 23 cm SM6FHZ feed with scalar ring, but won't be putting it in the dish until the spring. Work on a 1 kW SSPA was been put aside while I did the switcher work.

WA3RGQ: Don donhawbaker(x)comcast.net reports on ARRL MW EME Contest from his FL (EL98eb) QTH -- There did not seem to be as much activity as last year, even though last year was interrupted one day by a hurricane. Having the best Moon window at about 3 am local time did not help. By that time, I was about done for the day. This was my first contest on 3400. Unfortunately, I only worked one station. I put my feedhorn at the focus of my 3 m dish and was ready to go, but there was no one on when I was active. I will confess to missing a lot of moon time due to not feeling real well at such an early time in the morning. However, I really do think, as has been stated by several before, we need to limit activity to one band at a time. 10 GHz was buzzing, but many of the other bands were very quiet. I have only very low power on 3 cm and did not choose to try it this time. Just before the contest, I tried to add a second band to my station. I side mounted a 13 cm feedhorn to my focus mounted 9 cm feedhorn. This proved a good move, as I was able to make a half a dozen contacts 13 cm. I only had a short time to test the offset. It seemed to work well, but during the contest, I discovered I was not hearing some stations. After the contest, I discovered that the 13 cm feedhorn was not tracking to the east and to the west, but only toward the south. I checked my dish alignment thoroughly but can find no explanation for this response. I have researched the Internet, but just cannot find any reference to what happens when you off center mount a feedhorn. [I have my 432 feed offset. The beam is offset by the degs of separation. If you move the feed to the right by 2 degs, the beam will be 2 degs off to the right. You must move your dish 2 degs to the right, to point at the Moon]. I am putting the 1296 feedhorn in place now and look forward to the next contest. If I get time, I am going to try the 13 cm feed side mounted with the 1296 feed. [Note: the gain loss from a fixed offset increase with frequency].

WD5AGO: Tommy wd5ago(x)hotmail.com sends his report for Sept -- For the ARRL MW Contest our group planned on operating 13 and 6 cm; however, the weather blessed us with too much rain over the past 6 weeks. The 6 cm system is not waterproof, so we stayed on 13 cm the full weekend. We did have our new switching 5 pole cavity filters for each 13 cm frequency working, which permitted clearer signals on 2320 and 2400; although no JAs were on due to storms in Japan. We worked on CW OK1KIR, OH2DG, OH1LRY, OZ4MM, VE6BGT, DF3RU, G3LTF, UA3PTW, K5DOG for initial #99, VE6TA, KL6M, K2UYH, WA9FWD, WA3RGQ #100, ON5RR, 4U1ITU #101, RA3EME #102, F5JWF, VE6BGT DUP, W5LUA, SP6OPN, G4RGK #103, ES5PC, W5AFY and AD6FP. CWNR were WA6PY, K8ZR, HB9Q and IK3COJ. Our total was 24x19. The highlight was getting to 100 initials after staying the 90's for 3 years. We will not be available in Oct leg of ARRL Contest, but will be on for the Nov leg. 70 cm will be the first day and 23 cm the following day.

ZS1LS: Allan allan(x)rfdesign.co.za sends the story of how he remotely worked 4U1ITU – I knew that I would be away on a family vacation during the 4U1ITU dxpedition. Thus, I made some plans to activate my 23 cm setup remotely. On 26 Sept when Zdenek became active on 23 cm, I set my alarm for 1 am local time. This was when the Moon was mutually high between us. It was then just a matter of logging into my home PC using Teamviewer. I had set everything up before going to sleep. I received his signal at (11DB) and was able after only one call to give them their first AF station! I have finally finished my 3 cm

feed project. I have bench tested everything end-to-end with good results. My output power is 15 W at the feed. My next step is to replace the 23 cm feed and test 3 cm on the dish.

K2UYH: Al alkatz(x)tcnj.edu was not very active in Sept/Oct again because of travel and QRL. I arrived back from a strip to Spain to find my QTH was apparently hit by lightning. The biggest problem was a bad US Digital AZ transducer. Thanks to help from K2TXB, I was able to get the position readout working literally minutes before we had Moon for the ARRL MW Contest. But, we had to track the Moon manually because of controller problems. We QSO'd using CW unless noted on 29 Sept starting on 2304 at 0420 OK1KIR (579/579), 0438 OH1LRY (569/559), 0444 OH2DG (589/579), 0450 G3LTF (579/579) XB, 0457 UA3PTW (579/589), 0512 RA3EME (569/579), 0523 VE6BGY (569/569), 0530 DF3RU (579/579) XB, 0550 LZ1DX (559/579), 0636 WA6PY (569/569), 0645 VE6TA (579/589), 0714 OH3LWP (O/O) with JT65C, 0734 KL6M (569/559), 0747 WD5AGO (559/559), 0757 ES5PC (579/559), 0812 WA9FWD (569/569) and 0945 K8ZR (O/O), then switched to 3400 at 1310 VK4CDI (O/O) and 1416 KL6M (559/559), and on 30 Sept on 5760 0457 DL7YC (559/549), 1416 OH2DG (569/559), 0514 UA3PTW (559/559), 0519 OH1LRY (559/559), 0558 4U1ITU (559/O) for initial #49 and DXCC 30, 0612 SM6CKU (579/569), 0619 W5LUA (569/559), 0650 PA7JB (O/O) and 0700 G3LTF (569/579), then back to 2304 at 0808 ON4AOI (11DB/O) with JT65C, 0819 AD6FP (2DB/O) with JT65C for mixed initial #55* and 0828 OK2ULQ (7DB/10DB) with JT65C, back to 3400 at 0934 G3LTF (569/579) and 0942 WA6PY (559/559), then 5760 at 1040 KL6M (559/559), and finally on 2304 at 1412 K5DOG (8DB/O) JT65C and (559/569) for #50 and #55*. K2TXB, NE2U and K2YY operated the contest with me. We planned also to operate 3 cm, but no one was on the band when we were ready to QSY. We ended with a total on 13 cm of 21x16, on 9 cm of 4x3, and 6 cm of 10X9 for an overall total of 35x28. I was disappointed to miss 4U1ITU on 13 cm due to a misunderstanding of when they would be QRV. We worked on 7 Oct on 1296 at 1447 LU1CGB (559/O). We plan to QRV for the Oct ARRL EME Contest on 2 m (from W2HRO's QTH), 70 cm and 23 cm.

NET/REFLECTOR NEWS: **UA4AAV** added on 23 cm in Sept using JT65C 4U1ITU for a new DXCC. **UA9YLU** worked on 1296 in Sept using JT65C G4FQI and IW8RRF. **FR5DN** is working to be QRV on 23 cm soon. **OZ9DT/OZ7Z** is now QRV on 3 cm with CW/JT/QRA and a 1.8 m dish and 40 W. **VK5ABN** is setting up for 3 cm EME with 8 W into a 3 m dish. He will run using digital modes until he has higher power.

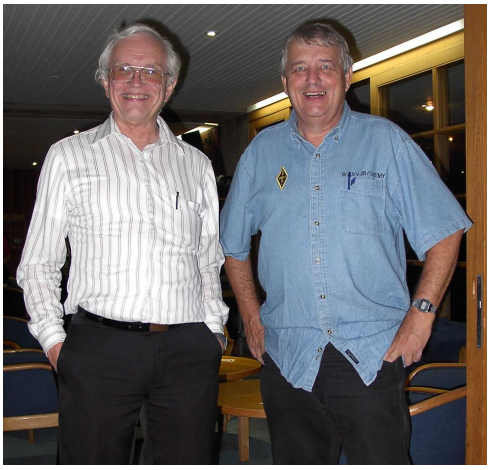
FOR SALE: **FR5DN** is looking 1296 SSPA and PSU. Phil basically needs an SSPA to be QRV. **W7TZ** is selling a 10' TVRO mesh dish (disassembled) with polar mount, actuator, mounting pipe (big and heavy), PTT-AK (OK1DFC design) septum feed, weatherproof enclosure, WA2ODO preamp, SMA relay with semi-rigid interconnects, 35 W 50 ohm load with type N connector. Roger is asking $US500 - pickup only. He will include a TS-2000X to the buyer only for an additional $1100. If interested write w7tz(x)webs.com.

35 YEARS AGO by G3LTF: 1983 May- Sept, in mid May as part of the 50th anniversary celebration of Janskys detection of galactic noise, W3IWI with K8HUH, K2AOE, VK2BMZ and WA4MVI activated the 43 m NRAO Greenbank (W Va) dish on 432. They used a 150 W SSPA and a X dipole CP feed all installed in the focus box. Over 250 QSOs on CW and SSB were made with 132 stations on 6 continents, with many stations making their first EME QSO including several single yagi stations (I recall hearing them on my 2 yagi tropo system at moonset). The full log is printed in the NL. (See picture of QSL card). Other news, VE7BBG started to use CP on 432 and reported steadier signals. G3SEK made his debut with an 8 yagi array. In July the NL contained a description of a 200 W simple to build PA for 1296 by YU1AW and a 21', 9.25 L yagi design by W1JR based on the DL6WU data. Z25JJ, Peter announced that he was relocating to ZS and moving his 20' dish. The Aug NL had details of DL9KR's solder-less 432 LNA input circuit and an announcement of the 1st JA EME conference. The Sept NL announced the US power limit increase to 1500 W plus a very detailed description of a dual dipole switched H/V feed by K5AZU. There were two ZL stations on at this time; both with big systems, 8 yagis and a 20' dish.

25 YEARS AGO: 1993 May-Sept, in May EA6/DF5JJ became active on Mallorca on 23 cm; LU7DZ started on 432 with 4 BV 33 el yagis and 650 W. In the initials list on 432 DL9KR had 526x40, on 1296 OE9XXI had 117x28 and on 2300 OE9XXI had 31x11. There were 27 stations in the 1296 list and the average dish dia was 21'! (This is why we used to have more SSB QSOs in those days!). In June A22BW appeared on 432 and OH2DG came on 13 cm. In Aug KD4LT's 32' dish became operational. OE9XXI worked 14 stations on SSB on 13 and 23 cm. In Sept G4DHF/TF worked a number of stations on 432; KB2AH extended his 24' dish to 34', which lower the f/D to 0.42! Al (K2UYH) continued his fight with the squirrels finding a nest with 2 young ones in the feedhorn. He also celebrated 20 years use of his 28' dish.

43 m NRAO Greenbank (W Va) dish on 432 in 1983

30th Anniversary of the first 10 GHz EME QSO: The New Frontier column in QST of Dec 1988 reported the first EME QSO on the 10 GHz band, which took place on Aug 27, 1988 at 0935 between WA5VJB and KF5N (Texas), and WA7CJO and KY7B (Arizona), after six unsuccessful attempts over the past eight days. On the TX side, a modified SSB transverter was used with was 55 W TWTA and a 12' (3.6 m) dish. The receiving system had a NF of 2.1 dB. On the AZ side was a 90 W TWTA and a 4.8 m dish and RX with a 1.5 dB NF. The stations exchanged (O) reports (full call characters and reports in one session received). According to the WA5VJB message, the Doppler signal was blurred to about 1 kHz. Instead of a tone, a "white CW noise" was received, although the signal was distinct, but very difficult to read. For the antenna pointing they looked for the maximum lunar noise that was about 0.3 to 0.6 dB. They also used a TV camera attached to the antenna.



W7CJO and WA5VJB made the first 3 cm EME QSO

First 10 GHz EME at K2UYH: We completed our first 10 GHz EME QSO on 18 Aug 1989 after several unsuccessful tries. Our system consists of a 10' fiberglass dish with a 2.9 F/d. It was illuminated with a cassegrain feed using nearly hyperbolic subreflector and a dual mode horn, developed by W2IMU. The horn was attached to a length of 7/8" copper pipe, which came up through the center of the dish and supported the horn and reflector, as well as s waveguide feed for the horn. At the back of the dish the copper pipe was tapered to fit a standard rectangular X-band waveguide flange. This was connected to a waveguide transfer switch. The output power of about 37 W from a Hughes TWTA connected by a short piece of flexible waveguide to the transfer switch. The other part of the switch, running through a very low loss isolator (0.2 dB) into a Litton D7770 GaAs FET preamp. A 50 Ohm load was also connected to the switch such that either the TWTA or the preamp was connected to the load when not connected to the horn. The preamp output went to a bandpass filter for image rejection and then to a 2 stage WB5LUA preamp using AFT 10135's driving a 10 GHz SSB-Transverter. The Transverter was also used to drive the TWTA. At the beginning we destroyed one of the FETs, which we had measured at 1.5 dB. The replacement device only produced a 2 dB NF and 3.5 dB NF was measured for the overall system. We had just under 10 dB of Sun noise on the day of the test. After mounting and testing all the parts, we began seriously listening for WA7CJO's signal. At first we heard nothing, if we had not looked for the moon noise with a wideband receiver. We found that the dish was not exactly pointing at the Moon. Once the dish was properly alignment, we almost copied WA7CJO's signal. (I do not think the alignment problem was due to atmospheric bending of the 10 GHz signals as experienced by WB5LUA) when we had acquired Jim's signal. We went to a 5 min (TX/RX) sequence and completed an (0/M) contact in less than 30 min because of Jim's new 300 W TWTA, we received his signal sometimes better then he copied us. The signal had a very strong aurora quality with a little hint of pure tone, so its not difficult to copy (44A). We now plan to improve the receive performance of the system (new HEMT) and concentrate on getting our 16' dish mounted. [**K2UYH - Dubus April 1989].** OK1TEH has some pictures from the first 3 cm EME QSOs from early 90's that can be seen at **http://www.ok2kkw.com/next/eme1994_1kir.htm**

FINAL: Sorry but we have totally run out of time and have again had to limit this NL.

► The Results of ARI EME Spring, Autumn and Trophy 2018 EME Contest can be found at http://www.eme2008.org/ari-eme/contest.html.

► HB9Q new EME reflector is up and running and a great success - TNX Dan!

► The results for the DUBUS/REF 2018 EME contest are available at http://www.dubus.org/eme.htm.

► TNX for all the reports. We are trying to get this NL out before the first the Oct ARRL EME Contest weekend. We are both planning to be QRV in the contest. 73, Al - K2UYH and Matej – OK1TEH

Addendum: 18th International EME Conference as was witnessed by the youngest licensed participant Matej, OK1TEH

During 17-19th August 2018 was hold the 18th International EME Conference in the PA, Egmond aan Zee (JO22HO48UA) on the North Sea. It was already the 4th International EME Conference, which I personally took part in, so let me write up a smaller comparison. In recent years, EME conference was usually sponsored by big and wealthy amateur organizations such a RSGB, REF, ARI, etc., that tried to compete in presenting the best of what they could offer: food, drink, presentation of local customs, rich collections, raffle and luxury hotels. The EME conference in Holland was rather less opulent, but no less interesting event, organized by the Dwingeloo-team led by Jan PA3FXB and his XYL Mariann. It has to be said that despite the minor problems with the financing of the conference, Jan and his XYL did great job, so the only thing that could be a bit disturbing to the participants was the cold and windy weather in August.

The location of the conference was quite close to Amsterdam, so the transportation to the hotel was simple. Our OK group, consisted of Vlada OK1VPZ, Lada OK1DIX and me OK1TEH, decided to go there by our car and the 916 km long trip from Prague took us around 10h including about 1h traffic jam near to Leipzig. With such a long journey, it was very interesting to check out how people in different parts of Europe are struggling with devastating dryness. The fields in the former East Germany resembled a savanna, a little bit better situation was on the west highlands, but we were shocked by incredibly dry nature near to DL / PA border, where we could see a sad look on completely withered trees and yellow grass and forests as somewhere in North Africa. We didn't expected such an arrival in the "evergreen Netherlands". The problems of drought was a quite often spoken topic at the conference, PA friends said that they had been waiting for first rain for over last two months and the same issues, including drying up wells, was reported from friends from SM(!) and even Lasse OH6KTL(!!) .. However, as we got closer to the sea, we got into a "wet area" well known by hundreds of canals and dykes. By the way, some canals are crossing the PA's highway, so you can easily see the steamer above your head when you drive a car :-)

As much we got closer to the conference location, the temperature on the thermometer declined. The tropical 32C° in the eastern DL dropped to the final 17C°, and dense black clouds appeared in the sky. When we finally arrived at the hotel on Thursday evening, we were informed that there was a big fire from the gas heater in the nearby pub in the city, so there was extensive firefighting on site. It was interesting to observe how local authorities operated a system for alerting the population over smart cell-phones, but the warning sometimes came much later when it was already after the fire and we were staying at the local Irish bar, where we held up in the stayed until the closing hour. I was pleased to meet with a lot of old friends from EME and VHF/UHF, talked about contesting on VHF, rise of FT8 with "Mr /life is too short for QRP/" John G4SWX and first time to meet with a number of friends from band like eg. PA3DOL, PA5Y, PA0EHG, Mike KL6M, WI7P, YL2GD, G4CDN and even with Verner OZ5TG who is more well known from the NAC under his club OZ9KY. Surprisingly, the conference wasn't visited by Joe, K1JT, Jan, DL9KR, Kjell SM7GVF, Dan HB9CRQ (HB9Q), and I also expected more UK people. Although the OK DXCC was represented by nice number of participants (OK1VPZ, OK1DIX, OK1TEH, OK1DFC, OK2AQ, OK1DAK from OK1KIR), we missed anybody from SP / S5 / OM / 9A and from Eastern Europe came only our friends Sergei RW3BP with Alex UA4HAK (OK8HAK), UA3AVR and YL2GD.

On Friday morning was set a trip across the northern Netherlands by bus with a scheduled visit to the Dwingeloo radio telescopes. The sightseeing tour of the Dutch landscape was very interesting and, in the minds of the Czech participants, it was possible to recall some chapters of the travelogues of classical Czech author Karel Capek - Pictures from the Netherlands.

Suddenly we were advised to turn off the cell phones and it was clear that we were approaching the first destination. We arrived at the famous Westerbork radio astronomy observatory (WSRT). Its location was a shock because the observatory is de facto placed behind the fence of the large Dutch concentration camp Westerbrook, where the well-known Jewish girl Anna Frank was imprisoned. The main-villa of the concentration camp is transformed into a museum that is all hidden under a giant glass construction, almost like in the Czech sci-fi film "Visitors" .. But back to the radio telescope. The heart of the Westerbork Observatory (WSRT) consist of 14 large parabolic dishes with a diameter of 25m (F/D 0.35) aligned on a 2.7km line, serving as a large interferometer at frequencies ranging from 120 MHz to 8.3 GHz (built in the early 70s). The Observatory is connected to the European VLBI Interferometer Network and is operated by the Dutch National Foundation ASTRON. The new feature of this observatory is the phased array EMBRACE which is part of the international SKA project. These phase antennas are manufactured on special 3D printers at ASTRON labs in the Dwingeloo area, which were our next stop.

Visiting ASTRON's research and development laboratories was a fantastic experience. Since the ASTRON Foundation is funded by the Dutch government, most of the space can be visited without any bigger restrictions and there is a lot to see. Guides have shown us the development of prototypes of preamplifiers (0.2 to 345 GHz), among others, for the 64m radio telescope in Parks, Australia, and the axial rotational multifeed built for the WSRT observatory. The tour continued with a visit to an anechoic (non-reflective) chamber used for phase-antenna testing for the EMBRACE project, as well as centers for the development of new chips and supercomputers designed specifically for radio astronomy "Exascale technology" developed in collaboration with IBM. A large portion of ASTRON's labs also occupy the production of extremely-accurate mechanical parts not only for the ALMA radio astronomy projects in Chile, VLT, but also for the NASA and ESA satellite space telescopes, such as the James Webb Space Telescope. ASTRON also produces extremely accurate parts (including lenses) for X-ray telescopes and special infrared cameras; visitors also saw the SPFFI 2K camera made in 2004 for the VLT Observatory. The highlight was the production and preparation of the new infrared spectrograph METISSE dedicated to infrared spectrum (3-20µm) and developed for the largest optical telescope in the world "ELT" in Chile, with a projected diameter of the main mirror of 39.3m. The METISSE spectrograph should be used for the first direct exploration of terrestrial exoplanets. The main part of the spectrograph consists of a solid body about 3m in size. By the way, in 2019 we will probably hear about ASTRON once again, because in the prepared Indian-Dutch Lunar Mission, one Indian and one Dutch 1.5kg weighing six-inch rover will be put at the surface of the Moon, the ASTRON laboratory will be the control center and CAMRAS 25m dish in Dwingeloo will provide a main communication.

At the end of the visit to the labs, a small note, I must say I was deeply impressed that the overwhelming majority of the labs staff are young people with great enthusiasm including mechanical workroom.

After visiting the lab, we finally visited the famous 25-meter Dwingeloo radio telescope which is often used by PI9CAM. This parabolic dish has a gain of 36.2 dBd in the 70cm band and a 45.8 dBd in 23cm band with a F/D ratio of 0.48 and a 12m long focal length. The Dwingeloo dish was put into operation in year 1956 thanks to C. A. Muller's (PA0CAM) efforts and the famous Professor Oort (his name is well known at the end of the Solar System - the famous Oort Cloud), and it was the world's largest radio telescope until 1957, when the 76m Lovell's dish was finished in Jodrell Bank. The weight of the colossus is about 38t. Radiotelescope had been in operation for radio astronomy purposes until 1997. At that time, the struggle to save the telescope started, the CAMRAS foundation was established in 2007 and radio telescope became an official Dutch memorial in 2009. The Dutch government subsequently released several millions of Euros for the complete reconstruction of the dish which starter in year 2012. All 372 triangular parts were removed, the corroded parts were sandblasted, repaired, dish got new varnish, 211 bolts were replaced and all parts were returned to their original place with 2mm accuracy and finally in 2013 the radio telescope was put into operation again. After a successful and large renovation, it is assumed that it should be kept in service until at least the end of the 21st century. At the heart of the radiotelescope is situated the 1296 MHz OM6AA septum feed, which has the advantage that it also goes well at an important frequency of the 1421 MHz which is spectral line of hydrogen and it's equipped with a Sam G4DDK LNA with a noise figure of around 0.2dB. As a result, the radiotelescope has recently a significantly better receiver than ever before. Incidentally, it is not without interest that during the reconstruction of the radio telescope, a part of the ashes of the father of the radio astronomy Grot Reber, ex W9GFZ, were buried in its foundations.

During the tour, thanks to Jan PA3FXB, it was possible to listen live reflections from the Moon on 23cm not only in SSB, but even in FM (!). The icing on the cake was the reception of a 70cm pulsar from a distance of 3,500 light years and a presentation of the art EME projects by artist Daniela de Paulis. At Dwingeloo, we also enjoyed meeting some of our other friends from UHF, such as Gerard PA0BAT and PA1T from the well known PI4GN club.

The trip ended with the traditional Dutch pancake dinner and later a visitation to the Irish bar again at the hotel, where we stayed in a long conversation until the closing hours. By the way I enjoyed a long trip by a bus in a very interesting conversation with Luis, EA5DOM, which is also dedicated to the 47 and 76 GHz bands in EA. Since the EA hams haven't suffered from heavy cloudiness or humidity in Spain, there haave recently been a measurements of the receiving chain in such high bands using a specially developed SW and HW to do easy measuring of solar noise. The fact that the knowledge and the technology in these bands have been well handled in EA has also been demonstrated by the recent 47 GHz record QSO at 303 km without direct visibility using the FT4G digital mode. The main VHF guru sitting next to Luis was EA3HMJ, who is intensively dedicated to EME traffic in the 24 GHz band, see his very interesting blog https://qlfecv.wordpress.com and he told me very interesting experience with real 0 backslash gearboxes used for rotators. As it seems, not every Chinese company delivers AZ/EL gears of the same quality. Interestingly, there is information that near Madrid, a group of local radio amateurs is working to make a large radio telescope open for EME. Luis had very interesting information related to system, which is dynamically maintaining the preciosity (shape) of the surface of the large parabolic dishe which is operating >100 GHz, because of the dynamical changes of the dish surface (shape) according to the different load in different elevation, which is very similar to a process, for example at Keck's Mauna Kean optical telescope's mirror in the Hawaiian Islands.

A life experience was also a longer discussion with Jan PA0SSB, who showed me his unforgettable historical documents including his commentary. Laer I hard interesting information on the latest RW3BP projects and a we had nice chat with Alex UA4HAK (and his XYL), who showed us his built touch interface for AZ/EL control as well as the newly developed 76 GHz equipment, well now I can't note my 76 GHz's 8mW PA to be QRO anymore ;-)
Sometimes you would want the day to be 27 hours long..
On Saturday morning Jan PA3FXB began the main lecture session. First, we hold a minute of silence for the recently S.K. friends F5SE, OK3CTP, ZS6AXT, OK1DIG, HB9RG, UA4HTS. The first very interesting lecture was presented by Jan, PA0SSB, who talked about his beginnings with EME operation in the early 1970s. By the way, Jan is still active on the EME with the original 6-meter home made dish. Another lecture, this time dedicated to EME at 6cm was presented by legendary Peter, G3LTF. Bernd, DL7APV, had a very interesting presentation about his 10-year long project of his new huge 432 MHz EME "monster" antenna, consisting of 128x11el yagi, designed by DG7YBN. Next lecture was presented by by Zdenek OK1DFC, who described his UHF/SHF EME expedition to North Africa. Following was the SDR technology presented by Alex, ZS6EME (HB9DRI), then we had lunch, lecture by PA2CHR / PA3CMC / ZS6JON about the big EME expedition into 3DA0 (we're looking forward to the new EME expedition to Africa in 2019!). A very interesting lecture was presented by Sam, G4DDK about new generation of his transvertor for 70cm band, IK3XTV talked about prediction of the Faraday's rotation. Further, John, G4BAO continued his interesting experiences about his QRP EME tests in the 23 - 3cm bands. In this funny lecture, I found out very interesting and useful explanation how to do a simple mechanical modification of the SPID RAS rotor for usage of AZ/EL HH12 sensors to precise control of the SPID rotator via the OE5JFL controller. The next lecture followed by G4LDR about the activation of the large 36m GHY6 satellite dish in Goonhill, Cornwall, UK. The

Saturday program came to the end with PA0PLY's presentation discussing his experience with polarization in the 70cm band.

By the way, during the coffee breaks anybody could visit a parallel flea market with various µ-wave components, eg from DK6JL hartwig-rf.de, G4DDK was selling his 70cm transverter KITs, the LNA kits, the noise-figure meter was available, and anybody could visit or buy nice construction from the DJ3FI workshop. Also during the meeting, other meeting attendees arrived, so I was pleased to meet WI7P, which I worked on 2m as a new WAS Utah.

After the lectures, a group-photo was taken on the hotel's stairs and the day came to the end with a pleasant dinner at a nearby beach restaurant. Unfortunately, the weather did not like us, because the cold wind was sweeping the beach. But the dinner was enjoyable indeed and the main event was the unforgettable music trio consisted of Dirk, ON5GS, Jan PA3FXB on guitar led by Jan, PA0SSB. After the dinner, the fun moved back to the Irish bar in the hotel, where it continued until 1 am.

On Sunday, lectures began at 9am. The first lectured was done by DJ5YL about her SSB EME at Dwingeloo, followed by an interesting lecture by Guy F2CT dedicated to the recently S.K. Franck Tonn F5SE and his father F9FT. We got a good news that Franck's 10m dish will continue to be used on air by the local radio club, and it is even now possible to establish a QSO with the TM5SE memorial station.

The shorter but interesting lecture about the beginnings with SHF EME was presented by PA0HRK. The culmination of the conference and the most impressive lecture was presented by trio I0NAA, OE5JFL and I1NDP, uncovering all questions about amateur reception and detection of pulsar signals that are up to 13dB weaker than the 23cm's lunar noise. Mario, I0NAA has explained the main characteristics and specifics of pulsar's receptions, that in shortcut it is better to detect them at lower frequencies and at the widest possible bandwidth, what are the benefits of his special software Marmur. The Hannes OE5JFL followed up with its practical examples of receiving of 54 pulsars with his 7,3m offset dish, and Nando I1NDP described the latest broadband signal processing capabilities, including his USRP B200 mini SDR, which he used for the analysis of 56 MHz bandwidth including 100 different channels. Well done guys!

The lecture program was coming to end by Al's, K2UYH lecture about the traditional SSB EME contest, it's results, diplomas and new special EME club. At the end of the conference, we vote where the next conference should be held in Trenton, New Jersey or Prague (pity that Internet voting wasn't included too). Finally, the participants voted for Prague. Here I would like to stop shortly: although the selection of Prague for us in OK1 does not sound bad, personally I had to agree with Al that in the last 8 years the conferences were held in Europe only and it would not be so bad idea to try again somewhere else. We deeply talked about this topic at the conference, logically, considering the Japan's activity, the good choice would be Japan, but according to the JA friends involved, the conference would be very expensive for the foreign hams, and so it is more likely that JA will be chosen sometime after year 2024. Similarly, it would be very problematic to do the organization of a conference in Russia, although it would be very interesting idea and I'd prefer it. VHF and EME in recent years have been experiencing a huge boom in Russia, and Russian stations have achieved very interesting results even in the highest microwave bands, while the world's EME community, thanks to language barriers, knows very little about these successes. Unfortunately, the Russian bureaucracy is currently putting quite a lot of obstacles for organizations that want to receive money from abroad, which can not be avoided in similar international conference. Let us hope that the international EME conference in Russia will soon come.
What to say at the end? The EME Conference 2018 was certainly a great success; it was attended by a large number of well-known EME radioamateurs from almost all continents, Jan PA3FXB and his wife Marianna set the level high and overcome it will not be easy. I wish Czech organizers good luck.

By the way, photos from the conference are online at https://ok1teh.rajce.idnes.cz/18th_International_EME_Conference_Holland_2018/

73

Matej, OK1TEH

PS: sorry to those who wanted to speak with me at the conference (like DJ3JJ), I had been pretty tired and the time was "short" although I tried the best. Hopefully some of you could visit Prague not only for EME conference but as well as for the family trip and we could talk in less hectic social event at the quiet pub :)