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) OR (H 609-443-3184), FAX (609-631-0177), E-MAIL a.katz(x)ieee.org
NETNEWS EDITOR & INITIAL LISTS: G4RGK, DAVID DIBLEY, E-MAIL g4rgk(x)btinternet.com.uk (based Netnotes & Reflector News)
EME NETS: 14.345, 10 AM ET SATURDAY AND SUNDAY (AFTER VARO NET ENDS ON SUNDAY)
NET CONTROL AND SKEDS COORDINATOR: JOE, K1RQG*, TEL (207-469-3492), E-MAIL k1rqg(x)aol.com (*presently not running the net).
EME DIRECTORY: http://www.dl4eby.de/, DL4EBY/DK0TU, KLAUS TIEDEMANN, TEL (49-30-7955467), E-MAIL: tklaus(x)snafu.de
NL EMAIL DISTRIBUTION and EMAIL LIST CORD: WARREN, W2WD wbutler(x)ieee.org [TXT OR PDF OR "ON WEB" NOTICE]
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CONDITION: As often happen after a lot of contest activity, the past month seemed quieter, but still a lot going on. Bodo put the Philippines on 23 cm for the first time – see the DU/DL3OCH report. CT1DMK showed up on 13 cm to give Portugal out as a new DXCC. Activity seemed down during the Dec 70 cm Activity Time Period (ATP) and I was not able to make the Jan ATP. No ATP is scheduled for Feb because of the now 70 and 23 cm EME SSB Contests jointly sponsored by DUBUS and this newsletter (NL). The EME SSB contests are on 12/13 Feb with the 1296 contest during the first Moon pass and 432 during the second pass – see the following rules. This weekend is also the designated EME activity weekend (AW). There is also some dxpedition activity taking place. FK8/DL2NUD's (RG37) operation was delay by WX and customs problems. At this writing they are QRV on 144, and have single yagis and real power (500/300 W) for 432 and 1296 respectively – see report in last NL. They have canceled their follow on activity from YJ (Vanuatu), but maybe QRV from FK through 16 Feb. C56EME will also be active on 70 cm during 19/20 Feb – see following report.

23/70 CM EME SSB CONTESTS RULES: These events are intended to be fun. You do not need to transmit on SSB to participate. CW to SSB and vice verse exchanges are encouraged and count for points. (Only one QSO between stations is allowed, i.e., you cannot work a station SSB to SSB and SSB to CW for extra points). The 23 cm contest runs on Saturday 12 Feb from 0000 and to 2400, and the 70 cm contest runs on Sunday 13 Feb from 0000 to 2400. These are two separate contests. Everyone one should have one Moon pass with operation moving from NA to Asia/VK, to EU and back to NA. during each contest. Scoring is contact points times number of two letter Grid Sectors (IO, JM, FN, EM ...) worked. SSB to SSB contacts count as 2 points. SSB to CW (or CW to SSB) count as 1 point. The exchange is your Sector (IO, JM, etc.). Only the 2 sector letters need to be sent and copied by EME. The exchange of signal reports and/or 4 character grids is optional and not required. Operation may be by single or multiple operators from one location. No distinction for scoring will be made. Assisted operation is not encouraged. All skeds/operational announcements should be made prior to the start of the contest. Logs should be sent to the 432 and Up EME NL by email to a.katz(x)ieee.org ASAP after the end of the contests. (All logs for contest awards should have been received within the month following the contest). The top scoring station on each band will receive an attractively framed certificate that will be presented at the next International EME Conference (UK 2012).

BD5RV: Michael michael.bd5rv(x)gmail.com sends news of big dish operation from China (BY8) on 432 and possibly 1296 -- I have received permission to use an 11 m dish for EME. The dish is at Chengjiang Station (OL14kq) and used by the Yunnan Astronomical Observatory of Chinese Academy of Science. The dish is used for 70 to 700 MHz solar burst observations. I thus may be able to use the feed as is for operation on 2 m and 70 cm. I will also investigate operation on 23 cm. The anticipated time for this operation is in March and will last about a week. After the big dish operation, the team is considering going to Lijiang (OL06cv) and Shangri-la (NL97ut) for more EME, but with 2 yagis on 2 and 70 cm.

C56EME: Rene (PE1L) renehasper(x)gmail.com will be QRV from Gambia on 432 in Feb with a modest system and is interested in giving out as many QSOs as possible -- After a very successful dxpedition to 3B8EME last year, we will try again from Gambia (IK13ql) on 144 and 432. On 70 cm we will again use a single 23 el yagi with full polarity control and 50 W. PA3CEE and PE9DX will join the party again - don't change a winning team, hi! Operation will be between 11 and 21 Feb. The plan is to leave 9 Feb and build up the station before the weekend. We will concentrate on 432 operation on 19 and 20 Feb using JT65B, but will try with big stations on CW. (We have a CW sked with DL9KR). We will TX first on 432.090 and RX on our echo freq. (From 3B8EME we made 7 432 QSOs in 2 hours). It is not easy to get a license in Gambia. We first had to register as taxpayers and have a lot of patience. Internet possibilities are not certain, but we try to send at least one message a day to update our status. Our dxpedition web site is http://www.emelogger.com/gambia. If we do have access, we will be on the N0UK or HB9Q loggers.

11 m dish in BY8 to be used for EME by BD5RV

CT1DMK: Luis cupido(x)mail.ua.pt is now QRV on 13 cm and gave out a number of initials during the past month. He is already up to initial #17. He feels 13 cm is best band for EME at this time. More than half of his QSOs were on SSB. Luiz still has the 13 cm feed in place and plans to will leave it in for the rest of winter.

DU9/DL3OCH's long yagi mounted in a truck bed

DU9/DL3OCH: DL3OCH dl3och(x)gmx.de was able to put the Philippines (PJ18ql) on 1296 EME for the first time on 24 Dec at about 2200 -- I was really fun to work 23 cm from the Philippines. I was only able to be QRV for two hours, but made 10 QSOs. Worked were OK1DFC, PA3CSG, DJ9YW, OK2DL, ES5PC, OK1KIR, JA6AHB, OZ6OL, ES6RQ and G4CCH. The conditions were far from perfect for EME. My space was too small. I needed quite a bit of

elevation to clear the house, but couldn't go too high because there were power lines right above my antenna. At the other end of the yagi was the door. But it all worked out. I will not be QRV on EME form here again - at least not this time. I am sorry that I could not work during moonrise for NA. There was no way to see the Moon below 20 deg elevation. I would have had to move to another location, but that was too dangerous in the darkness.

F2TU: Philippe f2tu.philippe(x)orange.fr writes about his recent activity – I worked 13 Dec on 13 cm CT1DMK (44/45) on random SSB for initial #111 and DXCC 34 and ES5PC (56/56), on 18 Dec on 23 cm IK5QLO, RA3AUB for initial #347, N4PZ, K1RQG (56/56) on SSB, SV3AAF, PA7JB #348, OZ4MM and DL6MH, on 15 Jan on 3 cm G4NNS (539/539), and on 16 Jan also on 3 cm DF9QX (549/O). [See also Philippe's compilation of ARRL EME Contest individual station/band scores at the end of this NL].

G3LTF: Peter's g3ltf(x)btinternet.com EME report for Jan/Dec -- Not much to report this time, the dish was snowbound for much of the last 2 weeks of the year and high winds have been prevalent since then. Back on 14 Dec I worked W5LUA and S59DCD on 3.4 GHz and the next day added LZ1DX, SM4DHN for initial #34 and DXCC 20 and DF9QX. Apart from some 160 m CW that was it until 17 Jan when I worked on 432MHz PY1KK for initial #441. Bruce had only 230 W to his 4 m dish, but peaked 4-5 dB over noise in 50 Hz. I have been testing and building power supplies for my 3 cm TWTA, so I am still making progress towards that band.

EA8/G4RGK: **Dave g4rgk(x)btinternet.com was in the Canary Islands again over the holiday and was able to add VK3UM on 432 CW during a very short window as the Moon came up from behind a Volcano.**

IK5QLO: Andrea ik5qlo(x)gmail.com sends his January report – I found nice activity and conditions during January. , activity I was up early every day during the Apogee weekend. I did notice very little activity from the USA. I QSO'd on 9 Jan on CW G4CCH, I5MPK for an initial (#) and OZ4MM, and on JT YO8BCF and GW3XYW, on 12 Jan on JT LU8ENU (#), on 15 Jan on CW OK2DL with a new PA - VY strong, OZ4MM, OZ6OL (#), IK3COJ (#), OK1DFC, IW2FZR (#) and on JT PA7JB and VE7BBG, and on 16 Jan on CW HB9IZ, LA9NEA, G4CCH and LX1DB, and on JT PA0BAT, RD3DA and UY2QQ (#).

K5QE: Marshall k5qe(x)sabinenet.com was planning a major effort on 432 EME for the ARRL's Jan VHF Contest (23/24 Jan) – EME QSOs count in this primarily tropo contest -- I am working on a V-pol antenna for 432. It will be 4 x 15 wl M2 yagis. This is a new antenna from Mike and stacks in an 8' square and has 41 el. That is not as much gain as my 16 x 28 el array, but at least it is close. Since it will be V-pol, I can choose which one to use for RX and TX, which should improve the 432 situation. I am hoping that I can do better on 432 during the VHF contest than in the past as the Moon times are better (middle of the night) and thus I should not have much interference problems 432 tropo station. [Sorry I could not get this NL out earlier].

K6JEY: Doug dougnhelen(x)moonlink.net sends some follow up thoughts on recent editorials -- I like your comments about the current trend in EME. You have several excellent points that I would like to expand on. I keep getting the feeling with regard to *getting new stations on EME* that reminds me of the time when CB was popular here in the states. Hams and ham clubs barricaded themselves against the possibility of being infiltrated by CB'ers, who they thought would bring in bad practices and attitudes. As it turned out, the clubs that let in CBers grew and the CBers, in the main, became great hams. In a similar way, we now have a popular digital mode that is bringing in new EMEers. We couldn't ask for a better situation and opportunity. Unlike the 70's, I think we should welcome them in and embrace their efforts in EME. Work them, get to know them and make them feel welcome. As they get more proficient, encourage them to upgrade to the more difficult and challenging mode of CW. From a process point of view it only makes sense to do things this way. The absolutely most difficult aspect of group growth is getting new members across the "doorstep" and into the group. We have the great fortune of having new EMEers entering of their own accord across our doorstep and we need to do all we can to bring them further in. We should not see the situation as an either/or situation, but an opportunity. I also feel the frustration of many in terms of contest design and rules, but I think that confusion is part of the growing pains of the process of something new happening. I think few of us have lived through the magnitude of changes we are experiencing currently in EME, and it surprises us and may make us act defensively. However, if we see these events as an opportunity, then we will benefit from them, if not we may suffer because of them. You mentioned advertising. I think we have some wonderful assets in the EME community. The first are the big stations who year after year provide new EME'ers with their first QSO. Two of my friends in the LA area made their first QSO thanks to these" gate keepers". As a result they are hungry for more contacts and getting more involved. Another asset is our willingness to share our activities and stations with others. Almost all of us welcome visitors and people to elmer in our shacks. Some other assets are less organized but very powerful. While there are several excellent websites about how to get on EME, along with lots of details, I think we need to organize the information and its access better. I see two areas most likely to help more new EMEers. First are articles in the magazines about small station efforts and what they have achieved. Having such information would have put me on the air 10 years earlier. Second, we could set up central contact people in EU, VK, US and JA so that people who are interested in getting on EME could contact a specific person for information and an elmer. An inquiry about getting started in EME could produce an email about how to get started. It could include stories of small successful stations, net resources, the NL and a contact person as close as possible to them to talk to and encourage them. The latter personal encouragement might be the most important motivation in getting a new station on the air. We should have general notices that appears every month in the ham periodicals that say something like, "If you are interested in getting involved in EME on any band with simple equipment, contact (as an example) Doug (K6JEY), San Bernardino Microwave Society EME Outreach Coordinator at eme_info(x)ham-radio.com for further information." The contact person could be simply an officer from one of the clubs with EME involvement or a person designated at the EME Conference. We can also start a beginner's EME NL group on Yahoo. We would need several experienced operators to monitor it and answer questions. Facebook and You Tube would be great places to also have information, if it isn't there already on how to get started in EME. (How about a You Tube on a basic station and a video of it operating specifically for beginners, along with contact information.) Having a video of "how to do it" is much more powerful than a printed story. Having a sponsoring group involved would give the effort greater legitimacy. I hope these comment are helpful and stimulate some positive results. I would be happy to help implement any of the ideas discussed above. [Since there is no central organization, we all need to take on (and in many cases are implementing) some of these suggestions].

PY1KK: Bruce (PY2BS) bruce(x)zirok.net reports on record breaking 70 cm activity from his coastal QTH as PY1KK –- I had a very nice time on 28 Nov on 432! I worked JA6AHB (JT and CW) for a new JT DX record, UA3PTW (CW), G4FUF, ZS6WAB, DG1KJG (CW), ZS5Y and WA6PY (CW) for his single yagi CW WAC. On the weekend of 18 Dec I QSO'd DL8GP, DL9KR (CW), DL7APV, EB5EEO, I1NDP, VA3GMT, KL6M (CW), PA3DZL, DF3RL, DF3RU and G4YTL. I added during the 15/17 Jan AW VK4EME, W7AMI, OK2POI, PA3DZL, YO6OBK, DL7APV, DL5FN, I1NDP, K7XQ, PI9CAM, G4RGK, YL2OK, G3LTF (CW) and NC1I to bring me to mixed initial #46*. I will remain QRV on 70 cm through the end of Jan. All QSOs were on JT65B unless noted.

View of rising Moon at PY1KK

TI2AEB: Armando aebonill(x)ice.co.cr remains active on 70 cm although he was away on holiday during Jan for about a week. He notes that he had a partial with PA3DZL (17DB/-). Armando is now working on 1296 EME and plans to come on this band with a 3 m dish.

VK3UM: Doug tikaluna(x)bigpond.com reports that a new version of his EME Calculator (Ver 7.08) is now available. It has been enhanced to provide 1) twelve additional 432 feeds types (thanks to SM6FHZ data), 2) an expanded feed type comparison window to enable comparison of feed type characteristics. 3) all feed type characteristics have now been converted to polynomial equations for greater accuracy, 4) the feed type cross reference page has been expanded

and now provides direct links to each feed type, 5) a fixed focal length calculation option has been added for those who may wish to extend their dish, 6) the receiver performance calculator now includes the ability to use home and DX data, 7) a quick set up and 'How to" chapters have been added, 8) an additional opening screen (for new users) has been added to provide a direct link to a quick set up procedure, and 9) the ability to vary the on screen hint display delay (or turn it off) has been included. It can be download direct from www.vk3um.com.

VK4EME: Allan vk4eme(x)westnet.com.au updates his 70 cm activity since his last report in Aug – I QSO'd on 4 Aug JE1TNL (22DB/28DB) for digital initial {#21}, on 8 Aug EA3XU (18DB/28DB), on 27 Aug DL7APV (6DB/O), on 3 Sept K7XQ (10DB/22DB), on 4 Sept K5QE (12DB/22DB) {#22} and JE1TNL (17DB/25DB), on 5 Sept I1NDP (O/O) initial #3 on CW, on 10 Sept K3MF (11DB/21DB) {#23}, on 11 Sept K5QE (7DB/21DB), on 12 Sept K3MF (9DB/O) and K5QE (8DB/O), on 25 Sept DL7APV (7DB/16DB), UA3PTW (5DB/14DB), OK2POI (18DB/25DB), F6APE (24DB/26DB) #24, on 30 Sept OK1DFC (O/O) #4 on CW, OK1DFC (18DB/21DB), on 23 Oct W7MEM (14DB/20DB) {#25}, F6FHP (15DB/24DB) {#26}, DL7APV (4DB/11DB), ES6RQ (11DB/19DB) {#27}, OK1TEH (18DB/29DB) {#28} and JA6AHB (11DB/17DB), on 8 Oct YO6OBK (22DB/O) {#29}, on 29 Oct WA4NJP (13DB/13DB) {#30}, on 30 Oct KE7NR (16DB/O) {#31}, on 13 Nov K2UYH (19DB/22DB) and I1NDP (O/O), on 14 Nov K4EME (14DB/O) {#32}, KL7UW (27DB/O) {#33}, on 25 Nov OK1DFC (3DB/12DB), on 26 Nov JA6AHB (9DB/21DB) and DF3RU (5DB/14DB) {#34}, on 27 Nov SM4IVE (O/O) #5 CW, DL7APV (5/18), on 28 Nov G4FUF (19DB/24DB) {#35}, on 9 Dec K3MF (22DB/25DB), on 10 Dec YO3DDZ (14DB/28DB) {#36}, on 23 Dec JA6AHB (11DB/18DB), and on 29 Dec PY1KK (24DB/27DB). All QSOs were on JT65B unless noted.

WA6PY: Paul pchomins(x)san.rr.com reports on progress toward 24 GHz EME -- I still away to go, but I build an additional LNA with 2 x NE32584s. I have no good calibration for NF measurements yet, but the cascaded NF seems to be about 2.7 dB. I set my system on my 3 m dish used for 10 GHz and during the night and measured CS/GND of 2.7 dB and Moon noise of 1.4 dB. This indicates that this dish will be still usable on 24 GHz. Assuming a NF of 2.7 dB, the calculated antenna efficiency is 22%. All these measurements are first cut; the weather is still very bad slowing down my progress. I temporarily retuned my PLL to cover 24.048 GHz, but using an old Motorola PLL IC, I was forced to divide the reference to 78 kHz. The phase noise is not acceptable to receive narrow band signals, but it is OK for radiometric measurements. I will build a new PLL very soon, and then I should be ready to test how well I can receive signals.

WA6PY's dish with 24 GHz feed in place

WA8RJF: Tony temanuele2(x)kentdisplays.com was QRV on 13 cm in Dec and added CT1DMK to his initial and DXCC list. He also had a repeat contact with VE6TA.

K2UYH: My a.katz(x)ieee.org EME activity was limited due to business travel during Jan. I worked back on 10 Dec on 1296 at 2219 PY2BS (7DB/10DB) on JT65C and (54/54) on SSB for initial #313. This QSO was on random an provided a demo of EME for BD5RV during his visit. The next day I put my 23 cm dual dipole linear feed in the dish in preparation for Bodo's operation and left it place for the remainder of the month. On 1296, on 11 Dec I had a partial at 2100 VE2ZAZ (28DB/O) JT65C, but we did better the following weekend. I QSO'd on 23 cm on 18 Dec at 0138 VE2ZAZ (19DB/14DB) JT65C for mixed initial #382* followed (O/O) CW #314, 0714 BV2A (24DB/25DB) JT65C #383* and DXCC*78 and 2346 UY2QQ (21DB/22DB) JT65C 2352 #384*, on 19 Dec at 0004 RA3AUB (10DB/4DB) JT65C #385* and (559/559)CW #315 and 0035 N4PZ (569/579) CW, on 25 Dec at 1230 nil DU/DL3OCH - Bodo did not make it on but good echoes through the trees, and on 26 Dec at 0859 PA3FXB (11DB/11DB) JT65C - PA2DW around too. I was also on for the 26 Dec 432 ATP and worked at 0641 SM4IVE (569/549) CW, 0650 QRZ (T/-) CW, 0730 DL7APV (569/549) CW and 0815 DF3RU (569/559) CW. Unfortunately I could not be on for the Jan ATP because of my travel.

NETNEWS BY G4RGK: **G4ALH** is on 70 cm EME now as the WX allows. He is very busy at QRL but will be on as much as possible. He is building a 13' dish and will get on 70 cm first and then on 23 cm EME with it. **WA1DMV** is still working towards 23 cm EME. **ZS6WAB** is coming on 23 cm with a dish. **KC4KK** is trying to get on 70 cm EME and has 2 and 3/4 of K1FO yagis for 70 cm originally used as part of a larger array by someone in Ohio. They have a polarization rotation mechanism. He is looking for information and assistance in using a pair to get on EME for first time. You can reach Brian at bjrehm(x)frontier.com. **SM6FHZ** has updated the web site commemorating the SK6WM 2.3 GHz EME big dish EME tests back in Oct 1988. TNX to WA6PY who was able to supply some pictures. See http://www.2ingandlin.se/SK6WM_EME.html.

FOR SALE: **SV1BTR** has for sale some 70 cm half wave power dividers of professional quality. Brand new, he has three 6 port dividers (N connectors), and one 4 port with N connectors at input ports and 7/16 at output. Slightly used, but in excellent condition, Four 4 port dividers (N connectors), and two 4 port with N connectors at input ports and 7/16 at output. Contact Jimmy at jimmyv(x)hol.gr. **K1FO** has for sale his 432 24 x 15 el yagi array. With this array he was the #1 NA 432 EME station in the ARRL EME contests 7 times and the #2 NA station 5 times. The only NA stations to ever beat this array had antennas that were much larger (NC1I's 48 yagi array, and 3 times the size of this array N2IQ's 48' dish). It is a rear mount type array that has polarity rotation. I would prefer to sell it complete, 24 yagis, stacking frames, elevation/polarity mount, power dividers, rotors, etc. Everything is in good shape, but it will need new phasing lines. Contact steve(x)lunarlink.com for details and price. **K2UYH** is looking for a 6 cm SSPA or TWTA.

FINAL: This month we have the top 2010 ARRL EME Contest CW/SSB scores based on F2TU's analysis of scores submitted to him. Philippe has done an outstanding job and deserves are TNX. He has not only broken out the results by overall score (70 cm up), but also microwave score (13 cm up) and individual band score.

►There are also a number of corrections for last month's NL: 1) I incorrectly attributed the 70 cm World Distance Record to JA6AHB and PY1KK. It is distance record using a digital mode (JT65B), but the CW record is 18,970 km between G3SEK and ZL3AAD. A list of World Records can be found at http://www.ok2kkw.com/dxrecords.htm - OK1TEH for first bring this to my attention.

EME WR on 432 MHz and up

Band	call	loc	call	loc	mode	date	km
432 MHz	G3SEK	IO91IP	ZL3AAD	RE66GR	CW	12 March 1989	18970
1296 MHz	PY2BS	GG66PJ	JA6AHB	PM53CP	JT65C	1 May 2009	18858
2300 MHz	G3LTF	IO91GG	VK7MO	QE37PC	CW	27 July 2008	17494
3400 MHz	G3LTF	IO91GG	VK3NX	QF21EX	CW	17 June 2007	17494
5760 MHz	CT1DMK	IN50RO	VK3NX	QF21EX	CW	5 April 2009	17680
10 GHz	DJ7FJ	JN48EG	ZL1GSG	RF72GW	CW	12 March 1997	18336
24 GHz	RW3BP	KO85WS	AA6IW	CM87VI	CW	21 April 2002	9519
47 GHz	RW3BP	KO85WS	AD6FP	DM04MS	CW	23 Jan 2005	9739

2) The picture of the EME Gathering at JA4BLC should read from L to R.
3) The picture captioned as OK1KIR's New 1 kW 1296 SSPA is actually a picture of OK1TEH's 70 cm SSPA. The correct picture can be seen if you go to the JAN11NL on W6ZN's web page. The corrections have been made to this copy.

►If you are interested in 70 cm dish feeds, a web page you do not want to miss is http://www.2ingandlin.se/Feed_comp_432_MHz.html. It was put together by Ingolf (SM6FHZ) and has detailed modeling results and performance information for all the common 70 cm feeds.
►Freescale now has a single transistor that can supply > 1 kW on 70 cm, see http://www.rell.com/pages/Product-Details.aspx?productId=966540.
►Amateur ham operators have been asked to listen for the beacon signal on 437.270 MHz of the NanoSail-D satellite. It is is a low orbit. Information on

reception should be sent to the NanoSail-D dashboard at: http://nanosaild.engr.scu.edu/dashboard.htm.

►Since KA2VAD's passing, I have fallen behind in the mailing of the hardcopy NL. I hope to catch up and start mailing again this month.

►Please keep the info coming. We were a bit light on reports this month. The WX has been very bad here, but I am hopeful that the snow in my dish will melt and that I can be QRV. 73, Al – K2UYH

ARRL EME CONTEST 2010
Parallel classification 432 MHz & UP CW/SSB by F2TU

MULTIBAND 432 MHz & UP

	CALL	OP	Bands	QSO	MU	POINTS
1	OZ4MM	S	ABC	176	93	1636800
2	G3LTF	S	ABCDE	150	88	1320000
3	SP6JLW	M	ABC	155	80	1240000
4	K1JT	M	ABCD	123	78	959400
5	ES5PC	S	ABCDEF	120	78	936000
6	SV3AAF	S	ABCE	113	74	836200
7	VK3UM	S	AB	84	76	638400
8	SD3F	S	ABC	94	58	545200
9	SM2CEW	S	ABC	84	55	462000
10	F2TU	S	CEF	55	42	231000
11	SM6FHZ	S	AB	55	40	220000
12	JA4BLC	S	BC	61	36	219600
13	WA6PY	S	AB	37	32	118400
14	WD5AGO	S	AC	38	30	114000
15	OK1KIR	M	EF	16	13	20800

MULTIBAND 2.3 MHz & UP

	CALL	OP	Bands	QSO	MU	POINTS
1	ES5PC	S	CDEF	61	43	262300
2	F2TU	S	CEF	55	42	231000
3	SV3AAF	S	CE	34	30	102000
4	K1JT	M	CD	35	26	91000
5	G3LTF	S	CDE	29	29	81200
6	OK1KIR	M	EF	16	13	20800

432 MHz - A

	CALL	OP	QSO	MULTI	POINTS
1	OH2PO	S	56	25	140000
2	OZ4MM	S	49	27	132300
3	I1NDP	S	43	24	103200
4	VK3UM	S	30	26	78000
5	G3LTF	S	35	21	73500
6	KL6M	S	28	20	56000
7	N4GJV	S	27	20	54000
8	SP6JLW	M	27	19	51300
9	SM2CEW	S	25	18	45000
10	K1JT	M	21	18	37800
11	SD3F	S	20	16	32000
12	SM6FHZ	S	17	15	25500
13	SV3AAF	S	13	11	14300
14	WA6PY	S	11	11	12100
15	ES5PC	S	11	10	11000
16	WD5AGO	S	10	10	10000
17	DL7UDA	S	6	6	3600

1296 MHz - B

	CALL	OP	QSO	MULTI	POINTS
1	SM4IVE	S	117	43	503100
2	G4CCH	S	97	43	417100
3	OZ4MM	S	90	40	360000
4	N2UO	M	91	39	354900
5	LZ2US	S	91	38	345800
6	IZBPN	M	93	37	344100
7	SP6JLW	M	92	37	340400
8	G3LTF	S	86	39	335400
9	N4PZ	S	86	32	275200
10	VK3UM	S	54	50	270000
11	SD3F	S	70	38	266000
12	K1JT	M	67	34	227800
13	SV3AAF	S	66	33	217800
14	SP7DCS	M	61	31	189100
15	DL4MEA	S	61	29	176900
16	JA4BLC	S	51	27	137700
17	F5KUG	S	43	31	133300
18	ES5PC	S	48	25	120000
19	IK3COJ	S	43	25	107500
20	SM6FHZ	S	38	25	95000
21	SM2CEW	S	36	21	75600
22	AL7RT	S	26	15	39000
23	WA6PY	S	19	15	28500
24	N9JIM	S	8	8	6400
25	LU1C	S	5	5	2500

2.3 GHz - C

	CALL	OP	QSO	MULTI	POINTS
1	OZ4MM	S	37	26	96200
2	F2TU	S	38	25	95000
3	ES5PC	S	38	23	87400
4	SP6OPN	M	36	24	86400
5	K1JT	M	31	22	68200
6	WD5AGO	S	28	20	56000
7	SV3AAF	S	25	22	55000
8	G3LTF	S	21	20	42000
9	SM2CEW	S	23	16	36800
10	JA4BLC	S	10	9	9000
11	SD3F	S	4	4	1600

3.4 GHz - D

	CALL	OP	QSO	MULTI	POINTS
1	ES5PC	S	7	6	4200
2	K1JT	M	4	4	1600
3	G3LTF	S	3	3	900

5.7 GHz - E

	CALL	OP	QSO	MULTI	POINTS
1	OK1KIR	M	10	8	8000
2	ES5PC	S	9	8	7200
3	SV3AAF	S	9	8	7200
4	F2TU	S	8	8	6400
5	G3LTF	S	5	5	2500
6	SP6JLW	S	2	2	400
7	SQ6OPG	M	1	1	100

10 GHz - F

	CALL	OP	QSO	MULTI	POINTS
1	F2TU	S	9	9	8100
2	ON5TA	S	9	6	4800
3	ES5PC	S	7	6	4200
4	WA6PY	S	7	6	4200
5	OK1KIR	M	6	5	3000