## Space—The Final Frontier: The 2004 ARRL EME Competition

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pace: the final frontier! So goes the phrase from the popular *Star Trek* TV series. This declaration is not only true for space exploration, but for radio amateurs as well. Today, EME (Earth-Moon-Earth, otherwise known as "moonbounce") communication is commonplace on 24 GHz and experiments on 47 GHz are occurring now. EME activity is alive and well!

The 2004 contest saw a slight drop in log submissions from 2003, down 14% to 131, but the number of different stations active and worked during the competition remained high. This was the first year to officially sanction a three weekend concept for the EME competition, incorporating 50 MHz through 1296 MHz on the two original traditional weekends, and adding a third weekend for microwave activity on 2304 MHz and above.

Six-meter EME has found a resurgence and Dennis, K7BV/1, took top honors on that band.

Two-meters had a fierce shoot out for the single-op top slot between Dave, W5UN, Gary, KB8RQ and Alex, RU1AA. Alex finished with the most QSOs at 170, but Dave and Gary managed to edge slightly ahead, respectively, with multipliers. IK3MAC and I2FAK took the top two slots in the multi-op category.

The top four single-op shoot out on 432 MHz was just as close with Mark, N2IQ; Jan, DL9KR; Andy, N9AB and Uwe, DJ6MB. Mark took the top slot with 84 QSOs. In the multi-op category, OH2PO garnered first place with a valiant effort after being hampered in the second leg with -15°C temperatures and heavy snow.

The temperature was hot on 1296 MHz, though, with a six-way bout for the top slot between HB9BBD, G4CCH, K9SLQ, OK1CA, DLØSHF (by DF9CY) and F6CGJ. HB9BBD nailed down first place, but second place was decided by the difference of only one additional QSO by G4CCH! In the multi-op category, the gang at SKØUX edged out OH2AXH and W2DRZ.

On 2304 MHz, Viljo, ES5PC, operated single band from Estonia for the fist time. ES5PC, OZ4MM and F2TU each individually garnering as many QSOs as had ever been made on that band in past competitions, bringing a smile we're sure to the spirit of W4HHK!

Al, W5LUA took the top spot on 3.4 GHz while Tommy, WD5AGO made his first 5.7 GHz EME contact to take single band first place.

On 10 GHz, OK1UWA took the top single op slot. In multiop, WA7CJO, F6KSX, IQ4DF and DLØEF were the rally leaders with Jim, WA7CJO's 15 Qs

just shy of the 18Q mark of F6KSX set in 2001. Nice job!

In the single-op, multi-band arena, Jimmie, SV1BTR, solidly won the 50-1296 MHz category with his effort, racking up 95 Qs on 2 meters and 33 Qs on 70 cm.

In the single-op 2304 MHz and up category, F2TU took command with his 2.3/5.7/10 GHz approach.

Stig, OZ4MM, finished with an impressive single-op, all band category first place finish with G3LTF and WA6PY close behind.

HB9Q had an impressive finish with a whopping 2,605,100 points in the multiop, 50-1296 MHz category with S53J and YO4FRJ capturing the second and third spots.

A number of stations tried EME for the first time in this year's event, including VK4CDI, and digital activity continued to increase.

Soapbox comments ranged from the effects of weather, bad conditions at some locations, and the need to consider an "Assisted" category. These will all be reviewed and discussed for the 2005 competition, but one thing is a solid bet: the excitement and intensity will continue. Be sure to check the ARRLWeb for expanded coverage, line scores and dates for the 2005 ARRL International EME Competition!



The 2-meter array ( $16\times6$  cross-polarized, 1.1 wavelength, 22 dBd) of Jimmie, SV1BTR.



The Ohio Big Gun array of Gary, KB8RQ, who finished second in the 144 MHz Single Operator category.

## Scores

Each line score lists call sign, score, stations worked, multipliers, and band (A= 50 MHz, B = 144 MHz, C = 222 MHz, D = 432 MHz, 9 = 902 MHz, E = 1296 MHz, F = 2304 MHz, I = 10 GHz).

Single Operator All Band					LZ2US UA4AQL	98,900 96,600	43 42	23 23	B B	Single Operator 2304 MHz
OZ4MM	1,702,800	24 65	16 32	B D	YU1CF W3SZ K7MAC	86,100 82,800 77,000	41 36 35	21 23 22	B B B	ES5PC 16,500 15 11 F OH6NVQ 12,000 12 10 F
G3LTF	907,500	64 19 6	36 15 5	E F B	K6PF EA6VQ	71,300 58,000	31 29	23 20	B B	Single Operator 5760 MHz
		49 54	27 32	D E F	K1CA I3EVK SM5CUI	42,500 41,600 33,000	25 26 22	17 16 15	B B B	WD5AGO 100 1 1 H
WA6PY	643,500	12 30 7 43	11 17 7 26	B D E	PA3CWI AC3A SM7WSJ	24,700 24,000 18,000	19 20 15	13 12 12	B B B	Single Operator 10 GHz OK1UWA 12,000 12 10 I
SM3AKW	414,400	14 5 5 40	11 4 4 27	F I B D	9A9B RU3ACE JM1GSH YO3FFF	16,000 13,500 13,500 13,500	16 15 15 15	10 9 9	B B B	Multioperator Multiband 50 - 1296 MHz Only
W5LUA	96,100	18 11 13 11	16 9 13 11 1	EFEFG	EB1DNK JR3REX WØEKZ K1JT W5UWB N3FA	12,600 9,600 6,000 4,900 4,800 3,500	14 12 10 7 8 7	9 8 6 7 6 5	B B B B B	HB9Q (HB9CRQ, HB9DBM,ops) 2,605,100 103 42 B 95 39 D 41 28 E S53J (S56TZJ, S56TZK, ops)
JA4BLC	56,700	2 4 19	2 4 13	H I E	KJ9I IK1SPR	3,000 2,400	6 6	5 4	B B	231,800 46 25 B 15 13 D YO4FRJ (+YO9AFE)
IK2RTI	25,500	8 6	8 5	E F E	SM1MUT RK6MC	2,400 2,400	6 6	4	B B B	107,300 24 17 B 13 12 E
		6 5	5 5	F	LY2SA WB2SIH YO7IV	1,600 1,600 1,200	4 4 4	4 4 3	B B	JL1ZCG (JA1DYB, JA1MOH, JR4ENY,ops) 39,600 6 5 B 16 13 D
Single Operator Multiband 50 - 1296 MHz Only				JF4TGO/8 WB8TGY WA8RJF	1,200 400 400	4 2 2	3 2 2	B B B	Multioperator 144 MHz	
SV1BTR	806,400	95	40	В	UX3LV W5ZN	400 400 400	2 2	2 2	B B	•
DF3RU	264,600	33 1 27	23 1 18	D B D	HA8V VK4CDI KG6SZC	200 100	2	1 1 1	B B B	IK3MAC (+I3YXQ, I3MEK) 1,008,800 194 52 B I2FAK (+IK2LZT) 837,000 155 54 B
OE5EYM	261,000	35 17 18	23 13 14	D E B D	W6TE	100 100	1 1	1	В	IK1UWL (I1OCQ, I1NVU,ops) 125,000 50 25 B NØAKC (+K9MU) 20,400 17 12 B
EA3DXU	241,800	23 43	18 25	E B	Single Ope				-	F1DDG (+F6HEO, F1UKQ, F5UNH+logger) 9,100 13 7 B
JA6AHB	187,200	19 33 19	14 20 16	D D E	N2IQ DL9KR N9AB	302,400 255,600	84 71 62	36 36 32	D D D	Multioperator 432 MHz
DL1YMK	177,600	18 30	15 22	D E	DJ6MB VK3UM	198,400 176,900 129,600	61 48	29 27	D D	OH2PO (OH2HYT, OH6DD,ops)
UT3LL	46,000	16 7	14 6	D E	KØRZ G4ERG	87,400 74,400	38 31	23 24	D D	316,800 88 36 D DL7APV (+DL7AIG)
JA9BOH	46,000	5 18	5 15	B D	JJ1NNJ S52CW	40,000 39,100	25 23	16 17	D D	172,800 54 32 D SP6JLW (+SP5NHF, SP6GWN, SP6OPN)
DL7UDA	41,800	9	7 12	B D	KE2N SKØCC (SM5L	19,600	14	14	D	40,800 24 17 D K4EME (+KR4V, AD4TJ)
PY5ZBU	35,700	6 15	5 12	D E	YO2IS	18,200 12,000	14 12	13 10	D D	34,000 20 17 D
UR5LX	22,100	8	6	B E	JH4JLV JA2TY	10,000 8,100	10 9	10 9	D D	Multioperator 1296 MHz
Single Operator Multiband 2304 MHz and Up Only				LA9DL UA3DJG DK3FB I1NDP	6,000 2,500 2,000 400	10 5 5 2	6 5 4 2	D D D	SKØUX (SMØMXO, ES5PC, SMØLPO, SMØERR, SMØKAK, SMØSBI,ops) 219,600 61 36 E OH2AXH (+OH2LRE, OH2LH, OH2BDQ) 171,100 59 29 E	
F2TU	92,400	19 3 11	15 3 10	F H	Single Ope	rator 1296 N	ЛHz			W2DRZ (+K2TXB, AK3R, KA2ONY) 150,000 50 30 E
Single Operator 50 MHz				ı	HB9BBD G4CCH K9SLQ	307,500 244,800 241,200	75 68 67	41 36 36	E E E	VA7MM (VE7CMK, VE7CNF,ops) 56,700 27 21 E HA5SHF (HA5AWS, HA5BGL, HA5BMU,ops)
K7BV	1,600	4	4	Α	OK1CA DLØSHF (DF90	225,700	61	37	Ē	46,800 26 18 E ON7UN (+ON4ACA, ON4ALT, ON6LY) 37,400 22 17 E
Single Operator 144 MHz				F6CGJ	205,200 154,000	57 55	36 28	E E E	Multioperator 10 GHz	
W5UN KB8RQ RU1AA F3VS RA3AQ I3DLI G3ZIG RK3FG IK2DDR SP7DCS LZ1DP	1,132,300 988,000 884,000 269,700 234,500 210,800 179,800 163,800 127,400 120,000 103,200	169 152 170 87 67 68 58 63 49 50 43	67 65 52 31 35 31 26 26 24 24	B B B B B B B B B B B B B B B B B B B	K4QI N2UO W9IIX IK3COJ JA8IAD NA4N LA9NEA OM6AA JR4ZZS N7AM WA4OFS JH5LUZ JH1EFA	101,400 93,600 52,000 39,100 28,000 27,000 14,300 14,300 13,200 4,200 3,600 900 100	39 39 26 23 20 18 13 12 7 6 3	26 24 20 17 14 15 11 11 6 6 3		WA7CJO (+W7GNP)  18,000 15 12 I  IQ4DF (I4ZAU, I4TMA, IK4PNJ, IZ4BEH, IW4CJM,ops) 14,300 13 11 I  F6KSX (F6ECX, F5SE, F1EN, ops)  14,300 13 11 I  DLØEF (PA3GLB, DF3GL,ops)  12,600 14 9 I