2005 ARRL International EME Competition Results

Joe Taylor, K1JT and Marc Franco, N2UO

Communication over the Earth-Moon-Earth path has long been one of the most challenging achievements in Amateur Radio. Nevertheless, 160 logs containing 7331 QSOs were submitted for the 27th running of the ARRL International EME Competition. The number of entries is up 22% from 2004, and scores were generally higher as well. Activity levels are still about 20% below the average seen in the 1990s, however. Logs were submitted from all continents, 34 DXCC entities, 24 US states and 3 Canadian provinces.

The contest's three-weekend format (two for the bands 50-1296 MHz, one for 2304 and up) remains popular, and explicit "Single Operator Assisted" categories were introduced for the first time. Stations in these categories were permitted to use spotting aids such as DX clusters and Internet-based loggers during the contest. Of 136 single-op entries, 81 were unassisted and 55 assisted. Of the 85 single-op stations who listed QSOs on 144 MHz, 50 entered as assisted.

Entries were received in a total of 20 certificate categories. The top 10 single-op unassisted and assisted scores and top 5 multi-op scores are listed in the accompanying table, along with all remaining category winners. Scores for all entries are available on the ARRLWeb at **www.arrl.org/contests**.

Gerald, K5GW, posted the top single-op unassisted score, just over 1.5M points, thereby winning the multiband (50-1296 MHz) category. Peter, G3LTF, made over 1.1M points to win the unassisted all band certificate, while Alex, RU1AA, made over 1M points on 144 MHz to take unassisted 2 meter honors. Philippe, F2TU, achieved the excellent total of 101,500 points to take the top multiband (2.3 GHz and up) position. Other single-band unassisted winners were Uwe, DJ6MB (432 MHz), Dominique, HB9BBD (1296 MHz), Viljo, ES5PC (2.3 GHz), and Philippe, F5JWF (10 GHz).

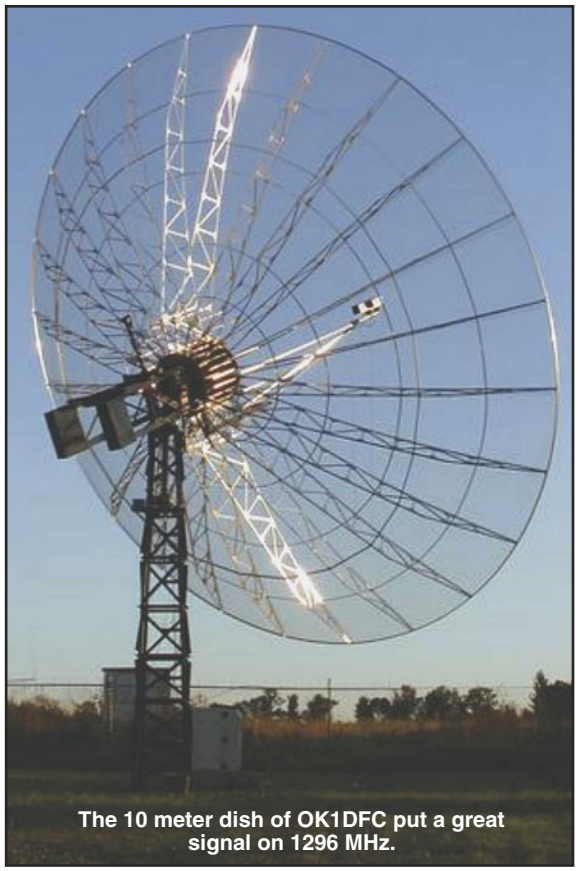
The assisted categories got off to an exciting start with a three-way photo-finish for overall top score. Less than 0.6% margin separates the scores of Dmitry, RA3AQ, Gary, KB8RQ, and Dave, W5UN, each scoring nearly 1.4M points on 144 MHz. Dmitry captured the 2 meter top spot by a whisker. Josep, EA3DXU, made 621,300 points on 144 and 432 MHz to take the assisted multiband (50-1296) honors, while the all-band winner is Al, W5LUA (who used only 1296 and up) with 498,400 points. Zdenek, OK1DFC, scored 332,000 on 1296 MHz alone, and the remaining single-band assisted winners are Steve, K1SG (50 MHz) and Suli, YO2IS (432 MHz).

In the multi-op division HB9Q ran away from the field with over 3.4M points in the 50-1296 MHz category. OK1KIR took top honors at 2.3 GHz and up, while the single-band top multi-op scores were posted by NØAKC at 144 MHz, OH2PO at 432, ON7UN at 1296, and IQ4DF at 10 GHz.

Activity levels on the most popular EME bands were such that the top-scoring stations could work more than 200 stations on 144 MHz, nearly 100 on 432 and 1296, and about 20 on 2.3 and 10.3 GHz. Among the submitted logs 93 show QSOs on 144 MHz, 43 each on 432 and 1296 MHz, and 13 and 11 on 2.3 and 10 GHz. On all bands, about half of the stations who made contest QSOs submitted logs.

If there were a "most with the least" category, we would nominate Peter, G3LTF, Paul, WA6PY, and Josep, EA3DXU. Each made an extraordinary score with relatively modest antennas. We also note that HB9BBD came close to a record number of QSOs on 1296 MHz.

Logging of QSO modes (eg, CW, SSB, digital) was encouraged by the 2005 contest rules, but not required. Available information makes it clear that on 50 and 144 MHz, many stations used digital modes to increase their QSO and multiplier totals. Approximately 65% of entrants used the JT65 mode for at least some of their 144 MHz QSOs. Among the 5 stations with the highest 2 meter totals, Graziano, IK3MAC, made all of his 164 QSOs on CW, while the logs of RA3AQ, KB8RQ, W5UN and RU1AA show a total of 205 CW and 604 JT65 QSOs. QST



The 10 meter dish of OK1DFC put a great signal on 1296 MHz.

Top Scores and Category Winners

This table shows the Top 10 scores of each three operator classes — Single Operator Unassisted, Single Operator Assisted and Multioperator, regardless of bands used. In the Top 10 portion, the winner of one of the band classes (A=50, B=144, D=432, E=1296, F=2.3 G, H=5.7 G, I=10 G), or multiple bands, are listed in **bold**. After the Top 10, other winners that did not make the Top 10 overall listing are shown. Numbers in the table represent the number of QSOs, multipliers and total score.

Single Operator Unassisted				
K5GW	163	94	1,532,200	BDE
G3LTF	136	82	1,115,200	BDEF
RU1AA	179	58	1,038,200	B
SV1BTR	146	66	963,600	BD
IK3MAC	164	53	869,200	B
WA6PY	105	72	756,000	BDEF
SM3AKW	97	60	582,000	BDEF
DF3RU	95	55	522,500	DE
OK1CA	80	57	456,000	DEFI
HB9BBD	97	45	436,500	E
F2TU	35	29	101,500	FHI
DJ6MB	83	37	307,100	D
ES5PC	17	15	25,500	F
F5JWF	7	6	4,200	I
Single Operator Assisted				
RA3AQ	208	67	1,393,600	B
KB8RQ	201	69	1,386,900	B
W5UN	210	66	1,386,000	B
EA3DXU	109	57	621,300	BD
K7MAC	123	50	615,000	B
W5LUA	89	56	498,400	EFHI
EA6VQ	101	46	464,600	B
S52LM	114	38	433,200	B
IK1UWL	99	43	425,700	B
EA5SE	88	44	387,200	B
OK1DFC	83	40	332,000	E
YO2IS	13	10	13,000	D
K1SG	7	6	4,200	A
Multi-Operator				
HB9Q	270	126	3,402,000	BDE
NØAKC	86	41	352,600	B
F3VS	91	35	318,500	B
OH2PO	83	36	298,800	D
YO9FRJ	67	42	281,400	BD
OK1KIR	26	22	57,200	FHI
ON7UN	67	33	221,100	E
IQ4DF	17	12	20,400	I

2005 ARRL International EME Competition Results

Expanded Report

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Logs were received in 20 different certificate categories. As shown in Table 1, 144 MHz was the most popular single band by a wide margin, with 76 entries (26 single-op unassisted, 45 assisted, and 5 multi-op). Next in line were 1296 and 432 MHz with 26 and 19 single-band entries, respectively, followed by 10 GHz, 2.3 GHz, and 50 MHz. Twenty stations entered in the multi-band (50-1296 MHz) category, while two used two or more bands at 2.3 GHz and up, and eight used "all bands". Seven of the available categories had no entries, and six had only one. The assisted categories accounted for 63% of the single-op entries on 144 MHz and 38% of the multiband (50-1296 MHz) entries, but only 5% of the single-band entries at 432 MHz and above.

Table 1. Logs Received
By Bands and Operator Category.

Band	Unassisted	Assisted	Multi-Op	Logs
50	0	1	0	1
144	26	45	5	76
432	13	1	5	19
1296	19	1	6	26
2.3 G	3	0	0	3
10.3 G	2	0	3	5
50-1296	10	6	4	20
2.3+ G	1	0	1	2
All Band	7	1	0	8
Totals	81	55	24	160

Additional information about activity on the various bands can be gained from Table 2, which shows the number of QSOs logged on each band. Slightly more than half of the reported QSOs were made on 144 MHz, while 1296 and 432 MHz make up most of the rest.

Table 2. Total QSOs logged
By band.

Band	QSOs
50	8
144	3913
222	1
432	1141
1296	1978
2.3 G	162
5.7 G	17
10.3 G	111
Total	7331

The hardy souls working on the more sparsely populated bands (50 MHz, 222 MHz, and 2.3GHz and up) managed to make an impressive total of 299 QSOs.

Logging the mode (CW, digital, or phone) of each QSO was encouraged by the 2005 contest rules, but not required. Fortunately most operators did include mode information, and we were able to make informed guesses to classify the remainder. (The instances where we had to guess are marked with an asterisk in the table of scores. Since scoring is independent of mode, any mistaken guesses do not affect the scores or rankings.) The line scores show number of QSOs separately by mode, which provides some fascinating information on operating preferences and adopted strategies. It will be interesting to see how these preferences evolve in future years.

In the submitted logs about 61% of listed QSOs used CW, 38% used digital modes, and 0.3% used phone. Table 3 shows the QSO numbers by mode for the three most active bands, with the 144 MHz band further broken down into unassisted, assisted, and multi-operator categories. It's clear that the majority of digital activity was on 144 MHz, and especially among those entering as assisted. As far as we know, all of the digital QSOs used the JT65 modes — generally JT65A on 50 MHz and JT65B on 144 and 432 MHz. Presumably all of the phone QSOs used SSB, and most of these were on 1296 MHz.

Table 3. QSOs by Mode
Single-Band Entries
Most Active Bands

Band/Category	Logs	QSOs	CW	Dig	Phone
144 MHz U	26	795	604	191	0
144 MHz X	45	2171	208	1962	1
144 MHz M	5	226	106	120	0
432 MHz	20	638	622	16	0
1296 MHz	25	1206	1191	1	14

Although the new "Single Operator Assisted" designation was very popular in the 2005 contest, there appears to be widespread sentiment that the rules governing this category (if it is retained in future years) should be clarified. Just what types of "assistance" should be permitted within the letter and spirit of the rules? Most of the questions surround real-time use of DX clusters, internet loggers, or "chat rooms." Obviously there must be no exchange of information by any non-EME means during a legitimate EME QSO. But what types of liaison (if any) should be permitted during an EME contest? Self spotting? Schedules arranged on the spot, during the contest? If such ground rules were clarified for everyone, would separate "Assisted" categories still be needed or desirable at all? We hope that these questions will be addressed in a timely way by the newly constituted VHF/UHF Contest Advisory Committee.

Many operators kindly sent us pictures of their equipment and comments on their experiences in the 2005 EME contest. We include these contributions in the expanded report on the ARRL Web at **www.arrl.org/contests**, edited slightly to make them more uniform. We look forward to seeing everyone again — and we hope some new blood, as well — in the 2006 event!

Scores

Each line lists call sign, numbers of CW, digital, and phone QSOs, multipliers, score, entry category (U=unassisted, X=assisted, M=multioperator), and for multiband entries the bands used (A=50, B=144, C=222, D=432, E=1296, F=2.3 G, H=5.7 G, I=10 G). Callsigns of category winners are shown in **bold**.

All Band

G3LTF	136	0	0	82	1,115,200	U BDEF
WA6PY	105	0	0	72	756,000	U BDEF
SM3AKW	97	0	0	60	582,000	U BDEF
OK1CA	80	0	0	57	456,000	U DEFI
RW1AW	76	0	0	54	410,400	U DEF
JA4BLC	34	0	0	23	78,200	U EF
IK2RTI	24	0	0	22	52,800	U EFHI
W5LUA	88	1	0	56	498,400	X EFHI

Multiband (50 - 1296 MHz)

K5GW	135	27	1	94	1,532,200	U BDE
SV1BTR	146	0	0	66	963,600	U BD
DF3RU	95*	0	0	55	522,500	U DE
ES6RQ	20	69	0	48	427,200	U ABE
VE6TA	73	0	0	46	335,800	U DE
DL1YMK	69	0	0	45	310,500	U DE
OE5EYM	64	0	0	44	281,600	U BDE
S54T	20	36	0	35	196,000	U BD
UR5LX	33	11	0	31	136,400	U BE
JA6AHB	47	0	0	29	136,300	U BE
EA3DXU	33	76	0	57	621,300	X BD
KL6M	47	0	0	28	131,600	X CD
K5GMX	0	35	0	28	98,000	X BD
UT3LL	16*	0	0	13	20,800	X DE
VK4CDI	0	5	0	5	2,500	X BD
NQ7R	0	4	0	4	1,600	X BD
HB9Q	134	133	3	126	3,402,000	M BDE
YO9FRJ	18	49	0	42	281,400	M BD
SP6JLW	41	0	0	30	123,000	M DE
UA4HAK	0	18	0	15	27,000	M BD

Multiband (2.3 GHz and Up)

F2TU	34	0	1	29	101,500	U FHI
OK1KIR	26	0	0	22	57,200	M FHI

50 MHz

K1SG	0	7	0	6	4,200	X

144 MHz

RU1AA	64	115	0	58	1,038,200	U
IK3MAC	164	0	0	53	869,200	U
IK1FJI	81	0	0	34	275,400	U
W3SZ	22	36	0	35	203,000	U
SP7DCS	65	0	0	28	182,000	U
IK2DDR	35	0	0	19	66,500	U
YO2AMU	33*	0	0	20	66,000	U
K6PF	24	0	0	18	43,200	U
HI3TEJ	0	22*	0	16	35,200	U
LA8KV	7	9	0	13	20,800	U
JHØWJF	15	0	0	12	18,000	U
YO2II	16*	0	0	11	17,600	U
YU7AA	15*	0	0	11	16,500	U
UA9HK	15*	0	0	8	12,000	U
9A9B	12	0	0	9	10,800	U
SM7WSJ	12*	0	0	8	9,600	U
RA3QTT	8	0	0	6	4,800	U
YO8BCF	2	2	0	4	1,600	U
JR3REX	4	0	0	4	1,600	U
HA8V	3	0	0	3	900	U
AD4TJ	0	3	0	3	900	U
PY2SRB	0	4*	0	2	800	U
VA3TO	2	0	0	2	400	U
K5AM	2	0	0	2	400	U
EA1TH	2	0	0	2	400	U
SM1MUT	1	0	0	1	100	U
RA3AQ	16	191	1	67	1,393,600	X
KB8RQ	52	149	0	69	1,386,900	X
W5UN	74	136	0	66	1,386,000	X
K7MAC	1	122	0	50	615,000	X
EA6VQ	2	99	0	46	464,600	X
S52LM	0	114	0	38	433,200	X
IK1UWL	0	99	0	43	425,700	X
EA5SE	0	88	0	44	387,200	X
PA2CHR	7	79	0	45	387,000	X
RK3FG	5	70	0	35	262,500	X
KD3UY	0	62	0	39	241,800	X
EA1YV	0	58	0	36	208,800	X
SM5CUI	5	48	0	33	174,900	X
SP6GWB	5	46	0	32	163,200	X
JH5FOQ	2	49	0	32	163,200	X
RV9JD	0	58	0	27	156,600	X
UA4AQL	4	45	0	31	151,900	X
IK7EZN	3	45	0	29	139,200	X
F8DO	3	43	0	27	124,200	X
K1JT	0	38	0	27	102,600	X
N9XG	0	42	0	22	92,400	X
JM1GSH	6	25	0	23	71,300	X
YO3FFF	10	24	0	20	68,000	X
W5UWB	0	33	0	19	62,700	X
UX3LV	2	28	0	18	54,000	X
K1CA	4	24	0	19	53,200	X
EB1DNK	0	30*	0	17	51,000	X
LU6KK	5	22	0	15	40,500	X
YO3DMU	0	25	0	16	40,000	X
AA9MY	0	21*	0	16	33,600	X
XE2AT	0	17*	0	13	22,100	X
KL7UW	1	15	0	12	19,200	X
SP9TTG	0	13	0	12	15,600	X
RU3ACE	0	15	0	10	15,000	X
9A4QV	1	12	0	9	11,700	X
W1FKF	0	7	0	6	4,200	X
WB2SIH	0	4	0	3	1,200	X
UT6EA	3	0	0	3	900	X
RA3WDK	0	3	0	2	600	X
SM4SJY	0	2	0	2	400	X
HA5PT	0	2	0	2	400	X
EA7TN	0	2	0	2	400	X
W2UTH	0	1	0	1	100	X
HA5OO	0	1	0	1	100	X
G4DBL	1	0	0	1	100	X
NØAKC	3	83	0	41	352,600	M
F3VS	91	0	0	35	318,500	M
F1DDG	3	26	0	21	60,900	M
AA1YN	0	11*	0	11	12,100	M
WW8M	9	0	0	7	6,300	M

432 MHz

DJ6MB	83	0	0	37	307,100	U
N9AB	51	5	0	34	190,400	U
VK3UM	58	0	0	32	185,600	U
DL9KR	56	0	0	30	168,000	U
FR5DN	34	0	0	21	71,400	U
KØRZ	29	0	0	23	66,700	U
UT2EG	26	0	0	22	57,200	U
RW3PX	22	0	0	16	35,200	U
I1NDP	20	1	0	15	31,500	U
JA9BOH	14	0	0	13	18,200	U
SM3JQU	14	0	0	11	15,400	U
JH4JLV	9	0	0	7	6,300	U
W8TXT	6	0	0	6	3,600	U
YO2IS	13*	0	0	10	13,000	X
OH2PO	73	10	0	36	298,800	M
DL7APV	64	0	0	30	192,000	M
JL1ZCG	21*	0	0	15	31,500	M
K4EME	18	0	0	16	28,800	M
DLØGER	11	0	0	9	9,900	M

1296 MHz

HB9BBD	95	0	2	45	436,500	U
K5JL	88*	0	0	42	369,600	U
G4CCH	82	0	2	41	344,400	U
DLØSHF	84	0	0	40	336,000	U
KØYW	71	0	0	40	284,000	U
IK2MMB	60	0	0	33	198,000	U
IW2FZR	46	0	0	29	133,400	U
IK3COJ	47	0	0	28	131,600	U
JH5LUZ	39	0	1	21	84,000	U
LA9NEA	38*	0	0	22	83,600	U
WA1JOF	37	0	0	22	81,400	U
W9IIX	29	0	0	21	60,900	U
WA5WCP	29*	0	0	19	55,100	U
JA8IAD	27	0	0	16	43,200	U
JH1KRC	19	0	2	12	25,200	U
WA4OFS	9	0	0	7	6,300	U
N7AM	7	0	0	5	3,500	U
JH1EFA	4	0	0	4	1,600	U
JA4LJB	4	0	0	4	1,600	U
OK1DFC	80	0	3	40	332,000	X
ON7UN	67	0	0	33	221,100	M
HB9JAW	50	0	0	28	140,000	M
VA7MM	33	1	0	24	81,600	M
HA5SHF	33	0	0	19	62,700	M
W6YX	20*	0	0	14	28,000	M
W6IFE	75	0	4	40	316,000	M#

2.3 GHz

ES5PC	17	0	0	15	25,500	U
OZ4MM	14	0	0	13	18,200	U
WD5AGO	6	0	0	6	3,600	U

10 GHz

F5JWF	7*	0	0	6	4,200	U
SP7JSG	3	0	0	3	900	U
IQ4DF	17*	0	0	12	20,400	M
DLØEF	16	0	1	11	18,700	M
F6KSX	16*	0	0	11	17,600	M

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*Mode of QSOs inferred, not specified in log.
Professional equipment, not eligible for award.