

By Dave Patton, W9QA
and
Billy Lunt, KR1R

1998 ARRL International DX Contest CW Results

It was a great way to spend a weekend—working DX with 5 W!—K8OUA

After the last few years of writing about the dearth of sunspots and poor conditions, the 1998 running of the CW version of the ARRL International DX Contest has provided some actual high-band propagation about which to write! Stations around the world commented on the great improvement of the 15-meter band. Other operators were even more pleased to once again hear old friends across the world who had seemingly disappeared with the sunspots.

Activity was high and scores improved over those from 1997. For those of you who are about to experience your first sweeps through the sunspot maximum, start preparing your stations to really take advantage of 10, 15, and 20! And you might want to revisit your strategy for running stations. The general rule of thumb for a station entering one of the all-band categories is to run on the highest band open to a major population area. So, when sunrise rolls around you will find yourself with a terrific problem—which band to run on? Effectively there will be little time to spend on 20 meters (even though 20 will be wide open!), and while 15 may be the “money” band, if 10 meters opens that may be the place to go. If you have the ability and desire to use another radio simultaneously with your running radio (to find multipliers on other bands, scout another band for propagation, etc) great propagation conditions can be even more fun. Keep in mind that often three bands (and possibly four) may be open to the same area at the same time!

There were some great scores and great battles in the 1998 CW contest. How do you recognize a great score? When you read the contest results and look to the score listings, do you find your score and compare it to the other local competitors and then stop reading? If so, you have a lot more to gain by “looking further into the story!” Besides the enjoyment of understanding how great scores are achieved, you can learn much from the score listings including: which stations have favorite bands or modes; discovering that there really is a huge amount of activity from South America if you know where and when to look; finding that there were no entries from your region on a particular band; or maybe discovering that you too could be very successful on a DXpedition with only a vertical antenna from the Caribbean!

Great scores are those that make top score

boxes from an area that has generally worse propagation than the rest of the world—ie, a station located near the Arctic Circle, North Dakota, or the Far East. Of course, a great score does not have to make a top scores box to be “great.” A low-power station that beats a high-power station, a station that works a tremendous number of multipliers despite bad conditions, stations that used small antennas or emergency power and still turned in a superb effort, are all examples of “great scores.” Some of the best scores come from the battles between stations in the same category such as the multi-op categories. Scores that are close together usually indicate terrific competition! Evidence of that can be found in the USA’s multi-two category battle this year!

Starting with the QRP battles, 1998 saw K3PH take the domestic title with a score approaching 500,000! He finished ahead of N7IR who knocked out 397 kilopoints from out west. Both of these scores handily beat

the top score from 1997 and are a great indication of improving conditions. AJ2U jumped on the QRP bus in Bermuda operating VP9ID to a 1.7 million-point victory from the DX side! He far outdistanced the ever-present HP1AC, G0TDX and I3BBK.

KN4T knocked out over 1595 QSOs in the barefoot category for a first place win! Walt’s Florida location probably helped him extend the band openings on 10 and 15 and beat the stiff competition from W2TZ, K1VUT and VO1MP. Farther west, K5RX came in with just under a million points and a seventh-place finish from Texas. The DX side enjoyed lots of low power activity, but it was KE2VB operating WP2Z who took the crown and the record with a 3.3-million point effort that included over 3740 QSOs! K3DI jumped out of the QRP category this year and took second place from VP2EEL. The “Wisconsin guy,” WI9WI placed third with his effort from C6AJZ. The Bahamas proves

Top Ten

W/VE Single Operator, QRP, CW	W/VE Single Operator, Low Power, CW	DX Single Operator, QRP, CW	DX Single Operator, Low Power, CW
K3PH 468,468	KN4T 1,602,975	VP9ID (AJ2U,op) 1,799,424	WP2Z (KE2VB,op) 3,369,600
N7IR 397,992	W2TZ 1,356,282	HP1AC 172,992	VP2EEL (K3DI,op) 2,422,452
N1TM 362,490	K1VUT 1,242,000	G0TDX 155,568	C6AJZ (WI9WI,op) 1,227,150
W8LVN 322,623	VO1MP 1,223,508	I3BBK 142,884	KP2/K0DI 1,055,700
W4KY 210,000	N8AA 1,148,292	JR4DAH 103,068	9X0A 1,001,478
N1CWR 192,192	NA2U 1,091,718	DL4FN 94,335	L36E 876,345
W8QZA/6 185,277	K5RX 993,300	PY2RNJ 72,765	EA7GTF 779,220
AA1CA 175,422	K4RO 925,704	JA6UBK 68,820	VK5GN 736,020
W3ZZ 170,016	WO4O 910,800	JA9RPU 63,840	ZV8O (PV8ONU,op) 733,026
KD2TT 161,355	WT1O 890,781	WP4JXD 52,272	S57DX 730,944



Dan, K1TO, and Ron, WD4AHZ, are busy working stations at K4OJ’s multi-multi station in SFL.



John, W1BIH, and Jack, W1WEF, celebrate their victory as the first place multioperator single transmitter world winners at PJ9C.

every year to be a great place to operate the ARRL DX Contests. It is easy to get to, warm and radio friendly, and in 1998 there were no fewer than five active C6A stations on the bands! There were also a couple of other terrific low-power scores from places that aren't quite as close as the Bahamas: 9X0A produced a megapoint from Rwanda and VK5GN came out with over 700,000 points from far away South Australia. Operating the ARRL DX Contest from VK5 made Martin really maximize his band openings!

The guys with the kilowatts put on another show this year. W1KM won a repeat victory in '98, but only by 32,000 points over K1ZM! Both of these scores and those from KQ2M and N6BV/1 beat W1KM's 3.16-million point winner from 1997. W9RE came in 7th from Indiana, and N6IG placed W6AX into the number 10 slot from California with over 2 million points. The DX side was won handily by W2SC who once again avoided operating the contest from Kansas, instead taking on the challenge from sunny 8P9JG. Tom almost made it to 6000 QSOs. Following Tom were FM5DN, YV5A (OH0XX), LT1F (LU5CW), and NH7A (N6HR). These guys gave us all lots of multipliers in 1998! The European champion for 1998 is F6FGZ.

The single operator assisted category saw KIIG place KING in the winner's circle again this year, followed closely by K3WW, and eight more W2s and W3s! Obviously the East Coast PacketCluster network works okay! Both KING and K3WW beat W1KM's score and provided solid evidence of the advantage of packet DX spotting assistance.

The single bands were a mixed bag in 1998. The low bands did not perform anywhere near 1997's level, but still great scores abound. W4ZV found 71 countries to win 160 meters from the US, while EA8ZS put his big signal well into North America to win 160 from the DX side. SP7GIQ nearly caught 'ZS with a fine 30,000 score!

Eighty meters saw Rob, W1MK, nearly repeat his score from last year at 274k! K8MK came in second at 173k, and going west, K9DX was third, and K5MR came in at number 5. Way out west, K6SE piled-up 27k from California. The DX side of 80 meters found ON4WW keying OT8T to 121,000 and a win over DF9ZP. In the great score category, KL7RA finished just out of the top 10 with a 32k score from Alaska!

On 40 meters AD6DO abandoned his old KC6CNV call sign, and put up 283,000 points for a terrific winning score over last year's winner, N7DD. One of the C6 stations, C6A/K4PG, produced 227k to win from the DX side. 9A5Y (9A3LG operating) pulled in 2nd worldwide. Interestingly, Europe was a great place to be in 1998 for making the top score boxes. On 160 meters European stations took spots 2 through 10, on 80 they took spots 1 through 10, on 40 they took spots 2 through 10, and on 20 meters, again, Europeans finished number 2 through number 10!

Twenty meters was a battle of zeroes in the US, as W0UA at W0UN took the number one slot over that other "Wisconsin guy" (the

W/V Single Operator, High Power, CW

Call Sign	Score	160	80	40	20	15	10
W1KM	3,742,200	124/51	559/69	788/78	1040/89	599/80	40/29
K1ZM	3,709,221	104/52	312/67	910/83	820/88	827/89	50/30
KQ2M	3,457,458	85/49	510/69	796/76	821/90	723/79	43/24
N6BV/1	3,219,990	80/46	291/62	787/80	1139/82	643/74	25/18
N2LT	3,005,775	75/38	267/54	620/74	815/85	935/94	33/20
K3ZO	2,852,700	72/40	225/57	617/69	880/87	715/84	61/33
W9RE	2,372,931	60/38	140/53	341/70	638/81	941/91	59/30
W4PA	2,290,554	37/27	170/53	525/73	905/88	564/83	25/19
K1ZR (at KB1SO)	2,185,440	39/29	203/55	660/71	1010/84	388/63	20/12
W6AX (N6IG,op)	2,053,716	14/12	106/43	535/70	643/85	742/81	86/31

W/V 160	W/V 80	W/V 40	W/V 20	W/V 15	W/V 10
W4ZV 42,600	W1MK 274,860	AD6DO 283,692	W0UN 495,495	K5TR 343,200	K4JYO 11,931
W2VO 20,955	K8MK 173,826	N7DD 196,416	(W0UA,op)	(at W5KFT)	W9GIL 11,070
K4TEA 16,692	K9DX 132,720	N2PP 188,964	NS0Z 397,188	WW4RR 313,020	W5ZO 9,804
WF2W 15,120	VE1JF 118,188	K4VX 186,186	(W9WI,op)	(N4ZZ op)	KC5QBG 7,695
K3QSX 8,322	K5MR 77,760	(K9BGL,op)	WS1M 277,560	NS5J 298,758	W7USA 5,580
VE3OSZ 7,638	VE3DO 67,776	AA7A 137,124	K1DKX 275,616	(at K5MR)	A12C 5,568
W4SVO 7,104	N2GC 60,450	N2FY 56,283	K2BA 220,806	N4VZ 263,025	K1DII 3,519
W8WEJ 3,219	K3JGJ 60,102	WB8ZWY 33,930	K7ZA 209,250	W9IW 218,160	W1RFQ 1,425
	W1UK 53,856	N8PR 27,048	W9OF 183,456	(ES2RR,op)	N3CZB 12
	W4HM 27,720	W4NTI 22,344	W5FO 166,320	K9QVB 170,748	
		W3KT 20,736	K7ZZ 149,202	W4SO 158,004	
			K9CAN 111,024	N7BZ 155,034	
				N4IR 136,290	
				W6BSY 121,626	

DX Single Operator, High Power, CW

Call Sign	Score	160	80	40	20	15	10
8P9JG (W2SC,op)	5,822,952	269/46	598/57	1198/57	1262/57	1161/56	1376/58
FM5DN	4,275,876	192/37	504/55	893/56	1043/58	1085/59	751/54
YV5A (OH0XX,op)	3,659,880	0/0	352/54	558/55	1100/57	1125/57	1222/57
LT1F (LU5CW,op)	3,534,732	5/5	154/41	807/54	813/57	1007/58	1483/60
NH7A (N6HR,op)	3,172,104	155/42	287/49	842/57	472/54	954/57	679/53
V47KP (W2OX,op)	2,582,139	161/38	296/43	463/48	502/53	891/57	686/48
OA4SS	2,323,785	0/0	194/42	340/52	679/57	759/57	951/57
F6FGZ	2,060,658	147/35	382/43	784/52	933/55	628/54	0/0
OK1RF	2,046,120	122/30	365/43	838/53	829/56	736/54	0/0
S58A	1,883,007	99/29	230/36	821/56	759/56	631/53	43/13

DX 160	DX 80	DX 40	DX 20	DX 15	DX 10
EA8ZS 36,036	OT8T 121,476	C6A/K4PG 226,722	ZF2NE 350,784	FM5CD 326,388	LU3HIP 202,440
SP7GIQ 30,987	(ON4WW,op)	9A5Y 207,081	(W5ASP,op)	PY0ZFO 317,715	PY0FF 145,200
S50U 28,128	DF9ZP 92,355	(9A3LG,op)	SP2FAX 244,260	(W9VA,op)	CX9BT 76,845
S57M 22,134	(K8ZB,op)	S52AW 198,012	OH8LQ 228,420	T17/N4MO 235,809	LU9APM 48,096
I3VHO 18,228	OM5DX 80,511	S53M 196,896	IT9XUC 207,180	HC2SL 217,500	PJ5JP 39,216
HA0DU 15,072	YU1EXY 79,821	(S51TA,op)	S50K 190,878	S50LF 178,350	VK4XA 32,967
OK1AEZ 10,584	OM3PA 66,264	EA7KW 188,442	OM3NA 181,431	OT8A 159,390	CX9BAG 16,920
YU7AU 10,212	DL5YM 65,898	HB5H 187,920	YT1R 174,522	(ON5UM,op)	9A1CAL 252
F6CWA 7,209	YZ9A 57,933	(HB9FAP,op)	(YU1ZZ,op)	PY2XE 136,950	(9A3JI,op)
YZ4IZ 7,062	(YU1NW,op)	YT7A 175,566	DL0DAN 160,215	C6A/N4BP 127,200	ZV2VT 48
	ON4AKL 51,786	YU7KW 166,896	LA8W 144,420	IK4WMM 124,497	JA0RYN/7 42
	S53X 41,769	OT8T 159,318	(LA4DCA,op)	CO8LY 122,907	
	YU1KR 39,975	(DL2CC,op)	OK1FPG 141,288		
		OM5M 146,172			
		(OM2RA,op)			

original Wisconsin guy we must add!), W9WI, who operated NS0Z in Missouri. W9WI is one of the best CW operators in the US, and has quietly compiled nice scores year after year. One can say the exact same thing about W0UA too! Look at these two zero-district scores and understand that you are seeing great scores! W9WI has also won the KC DX Club's CW copying competition at the Dayton Hamvention several times, so obviously that competition truly reveals the best! Other high finishers in the copying competition year after year include K3ZO and K5ZD. Look for their scores very high up in the standings too! From the DX side, Joe, W5ASP, played 20 meters from his favorite ZF2NE spot. Joe repeats his win from 1997 while beating another fine number 2 score from Poland—SP2FAX!

The big story from 1998 was the improvement in conditions and scores on 15 meters. In the early stages of the sunspot cycle upswing, stations in the southern areas of the US, and in fact, anywhere south and/or near the equator really do well on 15 and 10 meters. K5TR put W5KFT's station to good use in winning the US with a 343 kilopoint score over N4ZZ using his funny looking WW4RR club call at 313k. Last

year's winning 15 meter score from the US was 61,000 points! FM5CD beat W9VA who was operating at PY0ZFO for the top honors on 15 from the DX side. To win from Europe ON5UM keyed OT8A to 159k on 15, so the good conditions were enjoyed everywhere!

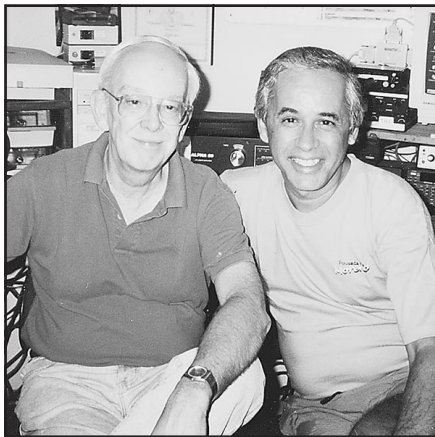
Ten meters just wasn't quite there yet for the US and Canadian stations. K4JYO put together enough QSOs for 11,000 points, which was about 10 times better than 1997! LU3HIP had a much better time on 10 amassing 202,000 points and beating the competition of PY0FF.

The always-competitive multioperator categories provided a lot of fireworks in 1998. The K5ZD station and operators pulled-in with a 4 megapoint score and first place domestically in the Multi-single class just ahead of W3BGN and N2RM. From the ABC islands once again this year came the fight for world honors. PJ9C, with W1BIH and W1WEF at the controls beat P49V and V31TP in a 1-2-3 finish that mirrored 1997. Can this finish order happen again next year? Multi-single in Europe is also very popular and TM9C pulled out all the stops to win from the old continent.

Multi-two saw the best competition in 1998. A mere 351,000 points separated the domestic winner, K1AR, from number four,



Cam, HP1AC, tried QRP and finished in second-place single-operator world QRP.



Bill, PYØZFO (W9VA, operating), and Andre, PYØFF, get together before the contest in Andre's shack.

K1CA. But much closer than that was the distance between first and second as N2NU and crew came up only 10,000 points behind K1AR! Obviously these are great efforts all the way around, and the camaraderie and competition, must have made this contest one to remember. N3RS was sandwiched into third place, but still only 177,000 out of first. A few more QSOs here and there by any of these stations could have made big differences. Keep that thought in mind next year when you have to leave the radio for a bathroom break! From the Caribbean, KP3P piled-up 7.3 million points to win the world in multi-two. As a sign of things to come these guys made over 1100 QSOs on 10 meters. The 6E2L group again finished second followed by a nice effort from Hawaii's KH7R at 5.5 million, and K8CC/C6A at 5.2 million. The European champion of multi-two was G4BUO.

W3LPL again won the battle of the giants nearing 9.4 million points in the multi-multi category. Not far behind were K3LR and K1KI. Both 'LR and 'KI moved up from their 5th and 4th place finishes in 1997—nice job guys! LPL wins M/M for the 4th straight year, and 15th year in a row in either first or second place! The V26B station found itself the "King of the Caribbean" for 1998 with a nearly 10 million-point score that out-

Top Ten

W/VE Single Operator Assisted, CW

Call Sign	Score	160	80	40	20	15	10
K1NG (K1IG,op)	4,145,376	107/56	314/74	774/93	1020/99	687/93	76/49
K3WW	4,034,070	116/58	289/79	839/92	982/100	760/88	29/29
W2GD	3,367,602	92/59	277/72	649/87	821/97	581/97	58/41
K2NG	3,186,366	90/59	292/78	583/90	626/95	640/92	63/49
N2MM	2,736,648	85/44	215/63	640/80	842/92	475/87	35/28
N3AD	2,708,820	83/44	368/73	513/82	756/88	463/82	52/35
K2WK	2,395,176	93/55	200/67	398/81	796/97	339/83	57/41
AA3B	2,182,002	45/36	310/61	503/73	631/79	485/79	52/31
K3NZ	2,091,000	63/51	177/68	270/81	633/95	425/90	72/40
N3RR	1,955,892	70/45	71/48	357/77	612/95	499/88	67/36

W/VE Multioperator Single Transmitter, CW

Call Sign	Score	160	80	40	20	15	10
K5ZD	4,123,434	134/52	328/76	839/82	1048/99	774/93	44/32
W3BGN	4,099,590	130/56	345/77	813/86	1006/98	666/89	70/45
N2RM	3,520,860	72/35	294/66	683/88	853/94	859/94	67/38
W4WA	2,859,291	79/48	201/72	504/90	752/95	591/92	54/40
K1VR	2,761,344	69/46	429/69	800/86	783/82	289/77	27/24

W/VE Multioperator Two Transmitter, CW

Call Sign	Score	160	80	40	20	15	10
K1AR	6,937,098	87/52	610/86	1278/103	1730/112	859/101	70/45
N2NU	6,926,310	147/60	680/90	965/96	1443/107	1199/105	93/52
N3RS	6,759,654	135/58	572/84	1266/98	1328/110	1061/109	91/47
K1CA	6,585,600	105/50	823/90	862/94	1597/111	1012/101	81/44
K8AZ	5,707,065	89/49	427/81	913/97	1449/108	999/105	78/41

W/VE Multioperator Unlimited Transmitter, CW

Call Sign	Score	160	80	40	20	15	10
W3LPL	9,435,786	271/74	967/94	1304/106	1675/122	1206/113	134/57
K3LR	9,006,480	218/69	801/96	1234/108	1755/119	1226/111	127/57
K1KI	8,802,990	222/65	904/90	1280/102	1742/117	1246/107	101/53
K1RX	5,821,920	194/58	605/83	747/87	1637/106	768/99	92/47
K4OJ	5,088,006	74/43	220/66	769/96	1132/98	1364/106	112/53

DX Single Operator Assisted, CW

Call Sign	Score	160	80	40	20	15	10
DK3GI	1,585,950	45/16	367/46	554/47	826/56	633/53	0/0
S5ØR	759,186	0/0	0/0	684/54	617/55	353/45	0/0
IKØHBN	589,536	6/5	179/32	270/39	336/52	307/47	6/3
PA3EOB	558,714	34/13	321/39	104/26	270/47	373/44	0/0
JH4NMT	473,148	4/4	83/19	218/40	298/44	407/48	1/1

DX Multioperator Single Transmitter, CW

Call Sign	Score	160	80	40	20	15	10
PJ9C	5,802,870	254/49	658/54	1114/58	1228/57	949/59	1571/58
P49V	5,480,640	288/44	497/55	1141/58	1217/58	1115/58	1278/57
V31TP	4,783,608	159/39	421/50	1092/57	1055/58	1372/56	947/56
T15N	4,537,128	137/39	543/54	1032/57	1084/56	996/56	994/54
XA5T	4,033,260						

DX Multioperator Two Transmitter, CW

Call Sign	Score	160	80	40	20	15	10
KP3P	7,375,830	264/52	875/58	1534/58	1585/57	1771/58	1181/58
6E2L	6,861,657	358/52	933/56	1617/60	1268/58	1693/58	918/53
KH7R	5,575,344	282/51	611/53	1099/57	1035/56	1743/58	896/53
K8CC/C6A	5,282,760	462/55	815/57	1282/58	1237/57	1082/57	442/47
G4BUO	2,719,317	243/36	686/55	630/50	1146/58	819/55	3/3

DX Multioperator Unlimited Transmitter, CW

Call Sign	Score	160	80	40	20	15	10
V26B	9,781,728	724/58	930/59	1938/57	1767/59	2165/60	1739/59
VP5FXB	8,146,149	783/57	1224/60	1766/58	1767/58	1901/58	522/50
9A1A	3,419,469	322/39	703/53	1164/57	1218/58	843/54	19/6
JA1YFG	1,670,493	31/15	231/42	589/53	761/56	782/52	59/9
UU5J	1,143,882	35/16	289/43	526/48	611/56	381/44	0/0

distanced the G3FXB memorial operation of VP5FXB. 9A1A again won European honors, and JA1YFG pulled in fourth from far away Japan.

SOAPBOX

W/VE CW

Great Contest! The conditions were slow but steady and allowed me to finish the contest this year (N6RV). Bad QRN at the end of the contest resulted from a deadly tornado outbreak 100 miles north, four hours after the contest ended. A little too close for comfort (KN4T). Still no Europe on 10 meters. Maybe next year (N7LOX). This is the first time in 30 years that I didn't have an amp in the shack. I had a ball operating low power and I still managed to beat last year's score when I had an amp (W5CWQ). It was fun to have 15 meters back again! The low bands were hopping the first night (K9MMS)! The QRP fun continues (W9UR)! Wow! What a difference a year makes. It was nice to hear all those European signals on 15 meters (WA7BNM). We had excellent propagation here the first two days. However, I should have stayed in bed on Sunday (K5WO). Nice to find a frequency and run it for a change. Highlight of the contest was running Europe Sun-

day morning, great conditions (KA1CLX). Rain static became bad Saturday evening. When the thunderstorms started rolling in, I decided to pull the plug for a few hours (N6ZZ). All was going well until a powerful El Nino storm blew through. I struggled to operate dodging lightning strikes and trying to hear through rain static (W5UN). Great conditions on all band entrants. Could not believe the DX that answered (W3DA)! The rates were great! Had 149 QSOs in a 60-minute period on Saturday morning. Conditions are getting better (NJ2L)! JA opening at the end of the contest really livened things up (K4OGG)! Sure was nice to have good band conditions for QRP. My best ever QRP effort on 80 and 40 meters (K2JT). Signals from Europe combined with usual USA, overloaded my receiver on 40 meters; had to use Beverage antennas to receive (AA4S). Single band effort on 10 meters was not a very good idea. Thank goodness for science fiction books and automatic keys (K4JYO). Great experience to work the contest from this side of the Atlantic (ES2RR). My first DX contest with a Yagi, they really do work (NØUR)! Eighty meters was superb for hunt and pounce, as DX stations seemed to be every 2 kHz (N4UH). Greatly enjoyed the contest in spite of QRN generated by El Nino fueled storms (W4HM). My antenna was a ground plane in my second floor bedroom! Thanks to all

WVE Region Leaders

Boxes list call sign, score, and power (A = QRP, B = Low Power, C = High Power).

CW

Northeast Region (New England, Hudson and Atlantic Divisions; Maritime and Quebec Sections)			Southeast Region (Delta, Roanoke and Southeastern Divisions)			Central Region (Central and Great Lakes Divisions; Ontario Section)			Midwest Region (Dakota, Midwest, Rocky Mountain and West Gulf Divisions; Manitoba and Saskatchewan Sections)			West Coast Region (Pacific, Northwestern and Southwestern Divisions; Alberta, British Columbia and NWT/Yukon Sections)		
K3PH	468,468	A	N1CWR	192,192	A	W8LVN	322,623	A	N0UR	151,380	A	N7IR	397,992	A
N1TM	362,490	A	WA8WV	137,475	A	W4KY	210,000	A	KI0G	17,919	A	W8QZA/6	185,277	A
AA1CA	175,422	A	K4GEL	37,584	A	K8OUA	112,608	A	N5XJ	12,012	A	WA6TLA	76,719	A
W3ZZ	170,016	A	KE4W	363	A	W9UR	35,955	A	K1EQA	3,564	A	NQ7X	55,176	A
KD2TT	161,355	A				K8UCL	16,380	A	KI0II	1,116	A	N6AZR	50,760	A
W2TZ	1,356,282	B	KN4T	1,602,975	B	N8AA	1,148,292	B	K5RX	993,300	B	W6JTI	805,734	B
K1VUT	1,242,000	B	K4RO	925,704	B	N8BJQ	738,978	B	WD5K	788,310	B	K7ED (WA0RJY)	608,940	B
VO1MP	1,223,508	B	WO4O	910,800	B	WB8YJF	681,615	B	K5WO	365,310	B	K7FR	548,580	B
NA2U	1,091,718	B	K5KLA	784,464	B	WO9S	648,024	B	K5QF	354,432	B	KG7XC	432,066	B
WT1O	890,781	B	K1KY	737,481	B	K9OM	614,421	B	N5HRG	302,328	B	K6WV	378,972	B
W1KM	3,742,200	C	W4PA	2,290,554	C	W9RE	2,372,931	C	W5UN	1,743,048	C	W6AX (N6IG,op)	2,053,716	C
K12M	3,709,221	C	WC4E	1,862,712	C	N9AG (at N8NR)	1,554,021	C	K5YA	1,702,557	C	K6NA	1,528,623	C
KQ2M	3,457,458	C	N4ZR	1,707,300	C	K9MA	1,355,328	C	N6ZZ	1,582,056	C	W2VJN/7	1,289,990	C
N6BV/1	3,219,990	C	K0EJ	1,562,652	C	K78X	1,283,337	C	K5NA	1,499,736	C	K7BG	1,174,068	C
N2LT	3,005,775	C	W9LT	1,305,546	C	K9BG	1,245,270	C	K5YAA	1,180,170	C	N6RV	1,058,583	C

those great DX stations that had the patience to pull my call out of QRM (AA8NT). First time ever in the Multi-two category. We had a great time (N4TO). I was pleasantly surprised at how many multipliers I worked barefoot on 10 meters with an inverted V and barefoot on 160 meters (KQ2M). My first time QRP, and the most amazing thing to me is that you can actually make through some big pile-ups with 5 W (W4KY). I was happy to see the ARRL Executive Vice President K1ZZ operating in the contest and was gratified that he took time out to work me for zero points (K5YP). Best conditions I've heard on 15 meters since the last sun spot cycle. It was lots of fun to be able to run JAs (WW4RR). I was surprised to do better on 15 meters than 20 meters (W0TM). I decided to do an all-out effort. I was surprised at what I could do with a modest station (K6PUD). This contest was lots of fun! You can run a lot with low power, so it's mostly a S&P game, except during prime openings (K4RO). It was nice to hear so many calls on 20 and 15 meters, which I haven't heard in several years. Welcome back friends (N0AX)! Great contest! I did better than I've ever done before, still with only dipoles and verticals (N6NR)! I haven't operated this contest for several years (no antennas). Friday I dug an old 14AVQ vertical out and stuck it in the backyard. Hooked the barefoot TS-930 to it hoping to make a few contacts. 400 QSOs later I'm hooked again (N5AW)! I hadn't been on 15 meters in a while and it was nice to find a variety of good DX on the band (KD7H). The band conditions were better than anything I've ever played in before (K1KY)! I'm 17 years old and a relatively new contester, but I'm learning fast. Thanks to all those who pulled me out to give me a new country or band-country (AA8UP).

DX CW

Very nice contest (ON7CC). EU CQ contesters filled the entire 160-meter band, so it was very difficult to hear US CQ contesters (OZ7NB). Incredible contest! At times I found myself in big pile-ups (IK4ZHH). It's so much fun having contacts with the USA (OH1UP). The sunspots are here again (OH2YL)! This contest was lots of fun! Fifteen meters was wide open (G4KHM). There were big signals on the band, but we couldn't get to the West Coast. We heard Arizona and California, but weren't able to work them. However, I enjoyed myself and that's what really counts (ON4AKL). It was great working the US on 40 and 80 meters and also some new states on 20 and 15 meters (LA8ZJA). The conditions to W6/W7 were beautiful, the first day (OK1FPG)! Another great weekend! See you all next year maybe on 10 meters (GW3SYL). I was pleased with the few 80 meter QSOs I was able to grab on my R7, which is a really poor performer on that band (HO3A). Thanks to all who heard and called my peanut whistle (TI7/N4MO). Working 40 meters barefoot was tough, but it was a lot of fun too (IL3/IK2MRZ)! As usual an enjoyable contest. With more sunspots all the signals rolling in from NA is a lot of fun (DL4AAE). It was obvious that 15 meters was open and playing well. However, there wasn't nearly as much activity on 20 meters as there has been in the past (W5ASP). Very good propagation on 80 meters (RA6LW). Well, the sunspots are coming back, but they're still unpredictable. As usual 15 and 40 meters provided the bread and butter for me (VK5GN). Despite wire antennas, computer problems and low antenna heights I enjoyed the contest (XE2/W5WMU). Fifteen meters was alive, next year I bet it'll be 10 meters! Greater fun to come, see you in 1999 (F6FGZ)! Much better

propagation than last year, but it is tough to compete with the west Europeans in this contest (OK1RF). I entered the contest as 160 meters single band and worked with only 100 W. It was very exciting! I could hear many USA stations, but few people transmit "CQ contest" (JE1SPY). I again found the North American operators to be both patient and courteous (GM3ZAS). My wife only allowed me five hours in the contest. I will make a better arrangement for next year (SM5CIL). I enjoyed the contest; I was able to make a lot of calls on 50 meters with only a fishing rod and whip antenna (JA1MXY). Great conditions; my first call was answered with just 5 W (K3TW)! Many thanks for the contest, unfortunately there were rather bad conditions, at times (SM5ALJ). Very nice propagations and a nice weekend. I was able to work all stations with simple antennas. I worked my first 50 QSOs with an amplifier and all others with only 100 W, without a problem (S57AW). Conditions weren't bad, however I was unable to work a lot of East Coast stations (JA6SHL). As usual a fine contest, but low frequency conditions weren't too good. I was only able to reach as far west as Nebraska on the top band (SM6CPY). Fifteen meters has always been my favorite band. This time around it was fantastic (DL4FN)! Propagation to USA reasonably good for my 100 W and vertical. However, I didn't hear any US on 10 meters (G6QQ). My best effort in ARRL CW! What 100 W can do is unbelievable (EW1NY)! Conditions were nice and to our surprise we made QSOs even on 160 meters. However, 80 meters could have been better (OH5NQ). Had a lot of fun working the contest, even with low power and dipole antennas (DL8ZAW). Tiny contester, but big fun (F6CAV)! Enjoyable contest and good propagation on 15 meters, this year (G3RSD).

WVE Plaque Winners—CW

Single Operator	Winner	Donor
All Band	W1KM	Frankford Radio Club
3.5 MHz	W1MK	Thomas Rylander, SM3DMP
7 MHz	AD6DO	Northern Arizona DX Assn
14 MHz	W0JUN (W0UA,op)	QSLs By W4MPY
21 MHz	K5TR (at W5KFT)	Carl Luetzelschwab, K9LA
28 MHz	K4JYP	Green River Valley, IL ARS
Low Power	KN4T	Dauberville DX Assn
QRP	K3PH	Tod Olson, K0TO
Assisted	K1NG (K1G,op)	Richard Hallman, N7TR
Multioperator		
Single Transmitter	K5ZD	Northern Illinois DX Assn
Two Transmitter	K1AR	Order of Boiled Owls of NY, W2AO Memorial
Unlimited	W3LPL	Alpha/Power, Inc.

DX Plaque Winners—CW

Single Operator	Winner	Donor
World	8P9JG (W2SC,op)	North Jersey DX Assn
Africa	9X0A	Byron P. Peebles, Jr, NZ3O
Asia	JH5FXP	Alamo DX Amigos
Europe	F6FGZ	Jerry Griffin, K6MD
North America	FM5DN	Potomac Valley Radio Club
Oceania	NH7A (N6HR,op)	Steve Franke, K9AN and John Brosnahan, W0UN
1.8 MHz	EA8ZS	Fred Race, W8FR, DL1FF, Memorial
3.5 MHz	OT8T (ON4WW,op)	Jim Knutson, KD0AV
7 MHz	C6A/K4PG	Thomas P. Gannon, W3YX, Memorial
28 MHz	LU3HIP	Ft Wayne DX Assn
Low Power	WP2Z (KE2VB,op)	Jim Stevens, K4MA
QRP	VP9ID (AJ2U,op)	Jerry Griffin, K6MD
Assisted	DK3GI	Willamette Valley DX Club
Multioperator, Single Transmitter		
World	PJ9C	John Brosnahan, W0UN
Asia	JA7YAA	Yankee Clipper Contest Club
Europe	HG1S	The Radio Place
Multioperator, Two Transmitters		
World	KP3P	Tom De Meis, K2TD, Memorial, Frankford Radio Club
Europe	G4BUO	Jim George, N3BB
Oceania	KH7R	Oklahoma Comm Center and AH9B
Multioperator, Unlimited		
World	V26B	H Stephen Miller, N0SM
Asia	JA1YFG	Hajime Kato, JO1RUR/2, KH0G
Europe	9A1A	Texas DX Society
North America	VP5FXB	Alpha/Power, Inc.

Scores

Scores are listed by DXCC Countries and ARRL/RAC Sections. Within each country or section, scores are listed in descending order, by power categories, followed by multiplier operators. Line scores list call sign, score, QSOs, multipliers, reported hours of operation, power (A = QRP, B = Low Power, C = High Power, D = Multioperator), and band. Division leaders are listed in bold.

CW WVE Single Operator

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like WA2VYA, W2EN, WA2C, etc.

Connecticut

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N1TM, N1NO, W0MHK1, etc.

Eastern Massachusetts

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K1VUT, W1T0, W1Z2, etc.

Maine

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N1AFC, N1WL, KA1IS, etc.

New Hampshire

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like AA1CA, K1PTF, N1SNB, etc.

Rhode Island

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K1VJS, K1ZE, AB1BX, etc.

Western Massachusetts

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W1FL, N1LN, KT1M, etc.

Eastern New York

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W2QYA, K2UF, W2ENY, etc.

NYC-Long Island

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K2ZTT, W2HLI, W2HLL, etc.

Northern New Jersey

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K2JT, NA2U, N2ED, etc.

Northern New York

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W2ZT, NT2W, etc.

Southern New Jersey

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K2HPV, K2MK, W2BKOH, etc.

Western New York

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W2QIP, W2TZ, WB2DVU, etc.

Delaware

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W3TT, W3DA, NY3C, etc.

Eastern Pennsylvania

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K3PH, KB3MM, N3NZ, etc.

Maryland-DC

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W3ZZ, W3WJ, N1WR, etc.

Western Pennsylvania

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K3WVP, AA3GM, W3K3WAW, etc.

Alabama

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K3IE, KK4SM, KT4DY, etc.

Georgia

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like KA0GG, N8LM, W1RR, etc.

Kentucky

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W4KY, K1AO, N4XM, etc.

North Carolina

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K4QPL, K4EYE, K5LZT, etc.

Northern Florida

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N4IG, W4CE, W4UE, etc.

South Carolina

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N4GJ, VE7QPN/W4, W3VT, etc.

Southern Florida

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like KN4T, N4PSE, AA0BA, etc.

Tennessee

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N1CWR, K4RO, W0AQ, etc.

Virginia

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K4GEL, K7CWM, K4BAM, etc.

Arkansas

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like KE4W, etc.

Louisiana

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K5KLA, etc.

New Mexico

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K8LJG/5, N5XST, K5AM, etc.

North Texas

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K5RX, W5DK, K5WO, etc.

Oklahoma

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like AA5HV, K5YAA, N5OK, etc.

South Texas

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N5XJ, K5AKLU, N5XT, etc.

West Texas

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K5QF, N5HRG, N5SD, etc.

East Bay

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K6WV, K6WJ, N6NG, etc.

Los Angeles

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like WA6TL, KQ6ES, N6GL, etc.

Orange

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W6HAL, W6JAN, W6ZL, etc.

Santa Clara Valley

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W6IO, N6NF, W6PLJ, etc.

Santa Barbara

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N6AZR, K6N6V, WA6FV, etc.

San Diego

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W8QZA/6, W8QZ, AA6EE, etc.

San Francisco

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W6JTI, etc.

San Joaquin Valley

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N6KF, K6IPG, K6BYD, etc.

Sacramento Valley

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K6SRZ, N6JM, W6AX, etc.

Arizona

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N7IR, NQ7X, K6GXK, etc.

Eastern Washington

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K7GS, K7FR, W7PCE, etc.

Idaho

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like W7LAR, K7TA, KAT7, etc.

Montana

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K7BG, K7ST, K7CUP, etc.

Nevada

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like N7IF, etc.

Oregon

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K5ZM, W7BCY, W2VJN/T, etc.

Utah

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K7NS, K7NS, AK7NS, etc.

Western Washington

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like K7ED, N6AZR, K6N6V, etc.

Michigan

Table with columns for call sign, score, QSOs, multipliers, hours, power, and band. Includes entries like AA8NT, N8KR, K8CV, etc.

