

Results of the 1990 CQ World-Wide DX CW Contest

BY LARRY BROCKMAN*, N6AR/4, AND BOB COX**, K3EST/6

As the contest creeps into the second day, our hero, Homer, is gloating over his fantastic performance. And that new computer logging program—what a great tool that has been! With 22 hours left to go, Homer peers over the computer-generated score on the side of the screen. Wow! DXCC on 10, 15, and 20 meters already, and a cool 3.1M—already 130 zones, too.

Well, he'll show them this time. Those W1's, 2's, and 3's have still got a thing or two to learn. This is going to be Homer's year. He can just feel it. A victory for the suffering 6's in the U.S. at last in the CQ WW Contest. When the JA openings are over on 40 tonight, Homer will be in the uncontested lead! The way 10 and 15 have been, and with the second day coming up, why just think of all those European contacts tomorrow, too. It's always easier the second day with Europe. Then Homer will clean up on the African multipliers in the afternoon as the contest wanes. The perfect strategy for the perfect operator.

Yet even as he daydreams the sweetness of the victory, with all those awards and accolades he's going to receive, slumber begins to take its toll on Homer. The lids droop ever so much as he logs that next JA on 20. "Was that a JA7 or a JE7? Oh, well. Can't stop to ask that question. It would spoil the rate," muses Homer. "Gotta keep going."

An hour later Homer makes the key strategy decision of the contest. Just two hours of sleep, and he'll be fresh as a daisy. Yep, that's the thing to do. An hour or two of sleep, and the rest of his strategy will prevail. Homer will have that clear, sharp, fresh intensity that is the hallmark of an "Olympic" class operator. So Homer does it. He saves his log, pulls the switch, sets all three alarm clocks, and goes to sleep. At first visions of 599 dance through his head. Why a few 59923's even race through his brain. But at last, sleep...

All of a sudden the rude awakening of a chorus of ugly buzzes permeates Homer's mind. What the heck is that? Of course. It's time to get up and finish the test! From the first moment of consciousness the adrenaline flows into Homer as the "perfect strategy" and the success of the first day's operation dawn on him. In a flash, the rig and computer are switched on for the main course. Already the tubes are glowing and the rig is ready to go. He'll just enter the name of the file, and away he'll go.

What was the name of that file anyway? Never mind, he'll just check the directory. What's this? No such file? "What do you mean, no such file? Certainly there is a file by that



John Crovelli, W2GD (left), who placed second worldwide from P40GD in the Single Op category, visits with Ville, OH2MM, of the winning PJ9A Multi-Multi crew just after the contest.



Rich, K1CC, topped all the Stateside boys in the Single Operator category.

name." Homer looks again. And again. Maybe it's on the floppy. So Homer checks the floppy. Again, the impersonal but brilliant computer tells Homer there's no such file. Can it be that the file is gone?

We shall leave Homer at this point. Our hero has discovered that the file is indeed gone. Yes, the whole contest has vanished! Gone forever are DXCC on 10, 15, and 20 in just over 24 hours. The 130 zones are gone. Gone is the 3.1M. Gone is the sweet victory of the West Coast. Gone are the dreams of awards and accolades. Gone is the perfect strategy. Gone is the "Olympic" operator. Wiped out in a magnetic anomaly that surely only happens once in a million: *the file is gone!* All those hard-earned contacts have migrated away into the ether from whence they came, never to be recovered. Not even "Norton" can help our hero. There remains only the sad lesson of history. Homer has learned that no job is complete until the paperwork is done!

Speaking of paperwork, those who kept a paper copy of their logs and sent them to CQ will be glad to know their contacts have not vanished into the ether. We are delighted to report on the winners and losers in the best-ever CW contest.

The All Band Results

The big story this year was the fantastic worldwide conditions that fostered new world records in the Single Operator and Multi-Single categories. First and foremost, CT3M, ably manned by Juha, OH7JT, blew away the 1988 record of 9.6M by FY5YE with a fantastic 10.3M, followed closely by John Crovelli, W2GD, operating P40GD, with a fine 10.2M. Both entries were extremely well balanced in QSOs and multipliers, but Juha's 20 meter and 10 meter QSOs were apparently the difference.

Rounding out the top three was Glenn Rattmann, 9Y4H, with 8.3M. The great propagation

aided John Laney, K4BAI, to better his North American record set last year from 8P9HT with a 7.5M mark from the same station, while Pete, AH3C's 6.8M eradicated the old Oceania standard set by KC6CS in 1988.

The Southern California Contest Club actually placed six entries in the worldwide top ten, as they competed among themselves with two of their own teams for the Team Championship. Our congratulations to number three 9Y4H (K6NA), number four ZD8Z (N6TJ), number five EA9IE (N6TR), number seven ZP0Y (WN4KKN/6), number eight AH3C (KN0E), and number nine HC5Z (N6ZZ) for such outstanding efforts. By the way, it was SCCC Team 1 (VP2VCW, 9Y4H, FR5DX, EA9IE, and ZP0Y) that came out on top in the Team Championship, but the matter was settled by just a little under 1M points out of 33M total. SCCC Team 2 consisted of AH3C, HC5Z, ZD8Z, D44BC, and HC8U. That's 65 million points from just 10 operators!

The best part is that this West Coast contingent also provided all of us other contesters such wonderful multipliers! Keep up the good work, guys.

The Stateside honors went to Rich, K1CC, with a cool 5.3M, not enough to topple the USA record, but enough to edge second-place finisher Andy, N2NT. A few extra multipliers, especially on 20 meters, and a slight edge in 15 meter QSOs were the margin of victory for Rich. The 1's, 2's, and 3's once again dominated the top 10 with 9 of the 10 top spots. Only Pat, WA8YVR, operating W9RE, managed to penetrate the East Coast block with a fine 4.8M fourth-place finish.

The Yugoslavians marched away with the European honors this year, with 4N9UN (4.6M), YT7A (4.4M), and YT90A (3.8M) taking first, second, and third place. OZ1LO and GJ6UW finished in a near dead heat for fourth place with less than 2000 points separating them.

Other all band winners included K3WW in

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the Assisted category with 4.9M, followed by OK1ALW. In the QRP world it was Aki (JA5DQH), operating H18A, who captured the new world record with 2.5M, over twice the old mark of 1.2M by YU3BC in 1988. YU3BC finished second at 1.1M, just ahead of the top USA contender, AA2U. One has to sympathize

with the QRP crowd, a tough task on any band. Yet we just can't believe the devotion some guys have to QRP on 1.8 MHz. As we screened the Russian and East European logs, we couldn't help but notice so many 5 and 10 watt entries on 1.8 MHz from there. Good show, fellows!

The High Band Results

Once again 10 meters dominated the single band categories with phenomenal propagation and even more phenomenal participation. CX0CW—with Jorge Camboni, CX8BBH, at

TROPHY WINNERS AND DONORS

SINGLE OPERATOR, ALL BAND World

CT3M (Opr. Juha Tuovinen, OH7JT)
Donor: Albert Kahn, K4FW
W2AB Memorial

World—Single Operator Assisted
Charles D. Fulp, Jr., K3WW
Donor: Pavillion Software

World—QRP
H18A (Opr. Aki Nagi, JA5DQH)
Donor: Gene Walsh, N2AA

U.S.A.
Richard J. Assarabowski, K1CC
Donor: Frankford Radio Club

Canada
Jim Roberts, VE3IY
Donor: Canadian DX Association

Caribbean/Central America
8P9HT (Opr. John T. Laney III, K4BAI)
Donor: CQ Magazine

Europe
4N9UN (Opr. Boris Germadnik, YU3EW)
Donor: Edward Bissell, W3AU

Africa
ZD8Z (Opr. Jim Neiger, N6TJ)
Donor: Gordon Marshall, W6RR

Asia
Michael Klokov, RZ9UA
Donor: Japan CQ Publishing Company Ltd.

Japan
Tatsuya Sasaki, JH7WKQ
Donor: Japan Crazy Contesters Club

Oceania
Pete Grillo, AH3C
Donor: Maui Amateur Radio Club

South America
P49GD (Opr. John Crovelli, W2GD)
Donor: Venezuela DX Club

SINGLE OPERATOR, SINGLE BAND

World—28 MHz
CX0CW (Opr. Jorge Camboni, CX8BBH)
Donor: Joel Chalmers, KG6DX

World—21 MHz
C56/OH7XM (Opr. Arno Martin, OH7XM)
Donor: Don Busick, K5AAD
N5JJ Memorial

World—14 MHz
E9ED (Opr. Juan M. Chazarra, EA5BRA)
Donor: North Jersey DX Assn.
W2JT Memorial

World—7 MHz
P49J (Opr. Robert W. Brockman, WX4G)
Donor: Alex M. Kasevich, VP2MM

World—3.5 MHz
Jose C. Dominguez, EA9EU
Donor: Fred Capossela, K6SSS

U.S.A.—14 MHz
Paul L. Reiter, WY7I
Donor: Northern Illinois DX Assn.

U.S.A.—7 MHz
Jeffrey T. Briggs, K1ZM
Donor: Jan Perkins, N6AW
W6AM Memorial

Canada (21 MHz)
Kent D. Chown, VE2LJ
Donor: Canadian Amateur Radio Fed.

Europe—21 MHz
OM7DX (Opr. Michal Janitor, OK3DX)
Donor: Southern New England DX Club

Europe—14 MHz
OH2BH (Opr. Pasi L. Aho, OH6UM)
Donor: Al Slater, G3FXB

Japan—21 MHz
Yohtaro Hoshiyama, JA2JW
Donor: DX Family Foundation

MULTI-OPERATOR, SINGLE TRANSMITTER

World
TA5KA (Oprs. TA5C, TA5B, HA0NNN, HA0LC, HA0MM, HA5PP)
Donor: Anthony Susen, W3AOH

U.S.A.
N3RS (Oprs. N3RS, N3RD, WA3LRO, NW3B)
Donor: Douglas Zwiebel, KR2Q

Canada
VE3EJ (Oprs. VE3EJ, VE3CDX, VE3CPU, VE3DDL, VE3ICR, VE3KZ)
Donor: Eastern Canadian DX Assn.

Europe
LZ9A (Oprs. UA1ALZ, UV1AA, LZ2PO, LZ2CC, LZ2DF, LZ2HE, LZ2UU, LZ2PS, LZ2WF, LZ2BE, LZ2XA, LZ2TT, LZ2II, LZ2WM, LZ2UA, Krasl)
Donor: Friends of K3AO
K3AO Memorial

MULTI-OPERATOR, MULTI-TRANSMITTER World

PJ9A (Oprs. OH6DO, OH1LD, OH2JA, DL3HAH, YV5ANT, OH6XY, OH2MM, OH6LI, DL5XX, OH6NU, OH2KI, OH6MW)
Donor: Hazard Reeves, K2GL Memorial

World—SSB/CW Combined
PJ9W/PJ9A (87,131,800)
Donor: Ehrhorn Technological Operations

U.S.A.
N2RM (Oprs. N2RM, WM2H, KA2AEV, KZ2S, N2ME, N4HY, K2TW, KQ2M, KR2Q, KR2J, W2RQ, N2AA)
Donor: Jim Rafferty, N6RJ

Europe
PA6DX (Oprs. PA0CLN, PA0COR, PA0CYW, PA0ERA, PA0JMH, PA0LVB, PA0SKP, PA0SOL, PA0VAJ, PA3AAV, PA3ABA, PA3BAS, PA3BFM, PA3CEF, PA3CTM, PA3DCO, PA3DQW, PA3DWD, PA3EQV, PA3FML, PA3FLS, PA3BZC, PA0ORH, PA0ONZ)
Donor: Finnish Amateur Radio League

Japan
JE2YRD (Oprs. JH1ORL, JA2EZD, JF2XJE, JA2KVD, JR2SCI, JI3ERV, JK3GAD, JR7OMD, JA9SSY, JA9-10148, JF2EOC)
Donor: Nippon Television Network Corp.

CONTEST EXPEDITIONS

World—Single Operator
9Y4H (Opr. Glenn Rattmann, K6NA)
Donor: Yankee Clipper Contest Club

World—Multi-Operator
CN5N (Oprs. F2CW, F5CW, F6ATQ, F6DOW, F6EMT, F6IMS, F6EEM, F6IMS, F9LX, G3SXW, HB9CUIY, K5VT, K7GE, KC7V, N6VI, N7BG, NZ7E, W6OUL, W7CB, YU1RL)
Donor: Bill Schneider, K2TT

SPECIAL SINGLE OPERATOR AWARDS

World—Single Band SSB/CW
CX8BBH/CX0CW
(Opr. Jorge Camboni, CX8BBH)
28 MHz (3,557,247)
Donor: CQ Magazine

World—All Band, Most QSOs
CT3M (5970 QSOs) (Opr. Juha Tuovinen, OH7JT)
Donor: From the 14270 kHz Group
KV4AA Memorial

CLUB
World—SSB/CW
Frankford Radio Club (352,816,404)
Donor: CQ Magazine
Non-USA—SSB/CW
Bavarian Contest Club (59,752,459)
Donor: Northern California Contest Club
N6AUV Memorial



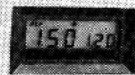
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Cross Needle SWR/Power Meters for All Bands



Model	Freq. Range	Forward Power	Connectors
CN-101	1.8-150 mHz	15/150 W/1.5kW	SO-239
CN-103	140-525 mHz	20/200 W	SO-239 or N
NS-660A/PA	1.8-150 mHz	30/300 W/3kW	SO-239
NS-663BM/BN	140-525 mHz	30/300 W	SO-239 or N type

Digital SWR/Power Meters for All Bands



Model	Freq. Range	Forward Power	Connectors
DP-810	1.8-525 mHz	0-1.5 kW/0-15W	SO-239 or N type
DP-830	1.8-150 mHz	0-1.5 kW	SO-239
DP-820	140-525 mHz	0-150 W	SO-239 or N type

Mobile/Base Cross Needle SWR/Power Meters



Model	Freq. Range	Forward Power	Connectors
CN-520	1.8-60 mHz	200/2000W	SO-239
CN-410M	3.5-150 mHz	15/150 W	SO-239
CN-460M	140-450 mHz	15/150 W	SO-239
CN-465M	140-450 mHz	15/75 W	SO-239

Coaxial Switches

	CS-201	CS-201GII	CS-401	CS-401G	
Frequency:	500mHz	1.3 GHz	800 mHz	800 mHz	CS-201
Connectors:	SO-239	N type	SO-239	N type	
Isolation:	+60 dB	+60 dB	+50 dB	+50 dB	
Power Rating:	2.5 kW PEP 1 kW CW	2.5kW PEP 1 kW CW	2.5 kW PEP 1 kW CW	2.5 kW PEP 1 kW CW	

Power Supplies

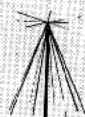


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Model	PS120M	PS140II	PS364	RS3084	RS40X
Voltage	3-15	13.8	1-15	1-15	1-15
Current(I/C)	12A	14A	30A	33A	40A
Current(Cont.)	9.2A	12A	24A	30A	32A
Ripple(Max)	3mV	3mV	3mV	3mV	3mV
Regulation	1%	1%	1%	1%	1%
Cooling Fan	NO	NO	NO	YES	YES
Size(inches)	5x4x9	5x4x9	7x6x9	7x6x9.5	11x5.5x9
Weight(lbs.)	11	11	16	21	22

NEVADA

WB1300
 Receive:
 25-1300 mHz

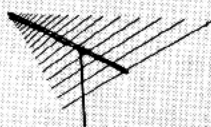


Height: 5'6"
 Weight: 2.2 lbs.
 Connector: "N" Type

The ultimate wide-band omnidirectional antenna. Not only excellent, on receive it will handle up to 200 watts, 50-1300 mHz. All stainless steel for years of reliable service. Great Scanner antenna indoors.



CLP5130-1
 50-1300 mHz



This high gain, wide-band VHF/UHF antenna is excellent for DXing, amateur radio, FM broadcast, scanners, VHF/UHF television, government, cellular and business band use. The forward gain is 10-12 dB, front to back ratio 15 dB, 23 elements, transmit power to 500 watts. Boom length 5.8ft., VSWR 2.0:1 or less, max. Longest element 9.8ft., weight 11 lbs. wind survival 90 mph. CLP5130-2, 105-1300 mHz also available. 19 Element Boom 4.6 ft. Element 4.6 ft.



High grade aluminum Roof Towers for your antenna requirements. Guying is recommended to insure safety.



Model	Height	Base Width	Max. Wind Load Ft ²	Max. Vert. Load Lbs.	Weight
CR18	5'10"	31 1/2"	21 @ 90 mph	440	18
CR30	9'10"	39"	27 @ 90 mph	1,322	33
CR45	14'9"	39"	23 @ 90 mph	881	57



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TOP SCORES

WORLD Single Operator All Band		USA Single Operator All Band		EUROPE Single Operator All Band	
CT3M	10,370,646	K1CC	5,283,486	4N9UN	4,592,406
P40GD	10,211,103	N2NT	5,132,415	YT7A	4,366,230
9Y4H	8,300,853	W1KM	4,777,389	YT90A	3,806,346
ZD8Z	7,772,001	W9RE	4,755,206	OZ1LO	3,323,370
EA9IE	7,733,924	K1TO	4,582,905	GJ6UW	3,321,874
3P9HT	7,478,808	K3TUP	4,448,178	GW4BLE	3,178,194
ZP0Y	7,192,146	K3ZO	4,296,600	LY3BA	2,798,585
AH3C	6,798,363	AA1K	4,199,616	OH6YF	2,514,996
HC5Z	6,749,244	K3OO	4,138,337	OH2PM	2,461,580
CT3T	6,120,420	N2LT	4,052,075	DK8ZB	2,223,554

28 Mhz		28 Mhz		28 Mhz	
CX0CW	1,890,607	W0ZV	506,989	LZ5Z	785,178
ZP5Y	1,643,050	K8CX	489,010	9H1EL	734,880
LU2DJY	1,031,814	N8CXX	449,065	OH0BBF	562,060
EA9EA	873,923	N4ZZ	405,520	OH1HD	556,402
4Z5DX	826,759	W6YA	390,450	DK5P	469,560
KH2D	799,026	K3UA	379,175	EA6/OH1XM	454,710

21 Mhz		21 Mhz		21 Mhz	
C56/OH7XM	1,183,325	KE3Q	753,660	OM7DX	613,236
EA8BPW	1,138,014	W1RM	698,257	I3JSS	542,864
V29W	1,110,512	AA4NC	614,376	OY3QN	478,875
9Y4VU	1,046,920	K6LL	531,000	DK4JN	475,134
CX5AO	999,488	W5WMU	467,754	G4CNY	456,820
EA9EO	950,649	W5VX	431,298	DL0IU	425,140

14 Mhz		14 Mhz		14 Mhz	
ED9ED	1,444,436	WY7I	637,208	OH2BH	915,136
YW1A	1,369,368	KC9T	573,501	OH4NRC	750,120
OH2BH	915,136	N5CR	524,244	UA1DZ	736,968
OH4NRC	750,120	N6GG	276,360	OH7MA	715,658
UA1DZ	736,968	K1XA	229,248	JX7DFA	523,204
OH7MA	720,594	W1YN	224,451	UA4WA	511,286

7 Mhz		7 Mhz		7 Mhz	
P40J	1,022,076	K1ZM	839,520	Y42MK	716,976
K1ZM	839,520	K5GO	542,108	G3FXB	557,151
Y42MK	716,976	W7XR	519,578	LA1EE	494,769
FM5BH	596,883	K4CG	461,005	HA8IE	489,920
G3FXB	557,151	K8PO/1	444,416	YU4CC	465,367
K5GO	542,108	K1ZZI	417,620	IG8R	460,554

3.5 Mhz		3.5 Mhz		3.5 Mhz	
EA9EU	325,170	W1FV	260,406	G3KDB	213,944
W1FV	260,406	W1MK	244,088	OH1WZ	213,642
RL7A	246,312	K7EG	122,943	4N1A	195,664
W1MK	244,088	N2KK/6	106,399	ES5MC	191,160
G3KDB	213,944	KZ3H	101,736	EA6/OH2BCI	168,768
OH1WZ	213,642	WR4K	59,670	SM6MCW	157,885

1.8 Mhz		1.8 Mhz		1.8 Mhz	
UG6GAW	164,430	K5UR	22,824	ON4UN	118,776
ON4UN	118,766	W8LRL	20,000	OK5TOP	54,291
KH6CC	60,352	W8UVZ	12,852	OK3TPV	34,845
OK5TOP	54,291	K4TEA	12,033	SM0AJU	32,612
V73AZ	49,872	N8EA	10,850	YL2PO	31,447
EA9GK	39,270	AB4RU	7,830	RA3DOX	24,614

Multi-Operator Single Transmitter		Multi-Operator Single Transmitter		Multi-Operator Single Transmitter	
TASKA	13,915,044	N3RS	8,024,079	LZ9A	9,308,354
EA8AGD	12,341,047	K5NA/2	7,431,445	IQ4A	9,201,024
RL0L	9,324,916	N4RJ	6,651,957	HG5A	8,963,658
LZ9A	9,308,354	K8AZ	5,880,834	OL8A	8,942,010
IQ4A	9,201,024	K1VR	5,529,447	LY2ZO	8,469,160
HG5A	8,963,058	K1YR	5,447,540	FQ0M	7,948,707

Multi-Operator Multi-Transmitter		Multi-Operator Multi-Transmitter		Multi-Operator Multi-Transmitter	
PJ9A	34,930,548	N2RM	17,282,262	PA6DX	13,363,945
CN5N	33,659,256	K1AR	17,276,544	DA0BV	10,933,510
J6DX	19,361,664	W3LPL	17,108,280	DL0KF	10,241,900
N2RM	17,282,262	K1ST	12,367,632	R6L	8,730,070
K1AR	17,276,544	KY1H	11,424,240	4N2N	5,289,592
W3LPL	17,108,280	K4VX/0	10,924,267	PI4COM	4,789,424

the key—bested ZP5Y's op, arch rival LU8DQ, for the top score 1.9M to 1.6M, and topped ZP0Y's year-old world and South American 1.7M record while he was at it. He was followed by a third South American, LU2DJY, at 1M; Africa's top entry, EA9EA, at 873K; and new Asian record holder Dov at 4Z5DX with 826K. This is Dov's third single band Asian record! KH2D rounded out the top 6.

Bill, W0ZV, nabbed the top slot Stateside at 506K, followed by a cluster of five close scores from K8CX (489K), N8CXX (449K), N4ZZ (405K), W6YA (390K), and K3UA (382K). LZ5Z ran away with the European top notch at 785K, followed by 9H1EL and OH0BBF. Lots of fine scores were submitted in this popular category, many at or above the 100 country milestone. Let's hope the sun blesses us with propagation like that in 1991!

On 15 meters C56/OH7XM's 1.183M just managed to best Tom Warren's 1989 5H3TW African record to claim world high on that band this year. Yet it was a four horse race with EA8BPW just behind him at 1.138M, and V29W (1.110M) and 9Y4VU (1.031M) a close third and fourth. A new Asian continental mark of 875K was posted by 7L1GVE (operated by JA0JCJ), wiping out Aki, JA5DQH's old pace. KE3Q headed up the USA leaders with 753K, followed by W1RM (698K), AA4NC (614K), K6LL (531K), and W5WMU (468K). OM7DX led the Europeans with 613K, with I3JSS (543K) and OY3QN (479K) just behind him.

Usually reliable 20 meters almost seemed dead at times in the middle of the day, but was open well enough for ED9ED's great 1.44M world high score, setting a new African standard. He was trailed closely by YW1A (1.37M) for second place. Guest operator OH6UM took the reins of Martti Laine, OH2BH's superstation to capture a fine third-place finish, setting a new all-time European record at 915K.



That yearly big noise from 8P9HT on Barbados comes to us courtesy of this gent, John Laney, K4BAI.



Here's the welcome visiting Hungarian crew who gave us all TA5KA multipliers this year. From left to right are HA0LC, HA0MM, HA5PP, and HA0NNN. Congratulations on winning Multi-Single worldwide!

OH4NRC was next at 750K, followed closely by George, UA1DZ, with 737K. Sadly, George became a silent key soon after the contest, and we will all miss him. Stateside, WY7I ended up at 637K, a comfortable 100K ahead of nearest rivals KC9T and N5CR in the mid 500's.

The Low Band Results

As the QRM section of this article demonstrates, it was 40 meters that raised all the eyebrows this year with unbelievable propagation—more like 20 meters than 20 meters. It is with great pride that your Director announces that his little brother, Bob Brockman, WX4G, ran away with worldwide honors on that band with a new pace setting World record of 1.02M from P40J! Incredibly, the second high spot goes to the USA's Jeff Briggs, K1ZM, with 840K, good enough for new North American

and USA all-time highs. Y42MK finished third at 717K, wiping out the European standard set by YU3ZV in 1987.

The boys at EA9manned competitive efforts in all single band categories this year, with a high-placing score on all bands and each single band category. Yet it was the 80 meter band that yielded the only first-place finish, as EA9EU's 325K topped the heap. W1FV mustered a QSO career high on that band, finishing second and high for the States, but fell shy of his previous best. G3KDB and OH1WZ battled it out for Europe, with only hundreds of points separating them. Eighty meters was open for hours between North America and Europe, even out to the West Coast, a welcome change of pace.

The top band provided unusually quiet conditions for the faithful, allowing UG6GAW to whisk away the world record from TA2BK with a fine 164K. Meanwhile, world-reknown ON4UN finished above HB9AMO's old Euro-

BAND-BY-BAND BREAKDOWN—TOP ALL BAND SCORES

Number groups indicate: QSO's/Zones/Countries on each band.

WORLD TOP SINGLE OPERATOR, ALL BAND						USA TOP SINGLE OPERATOR, ALL BAND							
Station	160	80	40	20	15	10	Station	160	80	40	20	15	10
CT3M	246/16/50	577/19/60	1016/26/73	1283/30/79	1122/35/95	1726/29/81	K1CC	33/13/29	237/17/62	602/25/77	809/34/100	774/31/96	571/28/91
P40GD	242/14/38	688/22/73	1003/26/83	1019/37/91	1210/31/89	1563/26/79	N2NT	28/11/24	183/16/61	770/25/74	801/30/94	677/30/93	628/27/92
9Y4H	220/12/35	564/21/79	872/29/84	833/34/91	870/33/87	1123/31/91	W1KM	28/10/24	330/17/58	698/28/75	742/31/88	448/31/82	710/30/81
ZD8Z	29/11/21	278/19/51	375/24/63	1033/31/75	1245/33/86	1922/31/92	W9RE	31/12/23	107/19/56	542/29/71	512/33/91	803/34/92	814/28/90
EA9IE	76/10/35	516/20/60	987/24/70	891/29/80	824/27/87	1653/27/79	K1TO	22/7/17	273/15/57	427/24/81	948/30/93	782/31/92	401/25/73
8P9HT	255/12/26	620/19/60	796/21/64	1336/31/89	957/28/76	1322/28/82	K3TUP	30/11/22	100/19/53	552/31/97	618/34/99	667/30/98	569/32/86
ZP8Y	14/8/12	47/13/20	440/24/67	1197/32/84	1212/32/90	2020/28/84	K3ZO	24/10/18	239/22/65	631/28/82	510/28/85	516/31/86	751/25/78
AH3C	107/14/17	543/26/38	823/32/61	856/33/75	899/33/70	1311/34/74	AA1K	48/15/37	182/17/61	610/24/69	616/30/87	448/30/91	608/29/86
HC5Z	27/10/14	368/15/49	596/25/69	828/35/90	890/35/96	1349/29/96	K300	31/11/26	154/17/53	274/24/73	686/32/89	774/32/95	582/29/88
CT3T	28/5/19	371/18/56	685/19/63	882/26/77	1130/30/82	1037/24/79	N2LT	17/7/14	108/14/54	478/29/80	543/33/87	722/32/83	657/29/83
WORLD TOP MULTI-OPERATOR, SINGLE TRANSMITTER						USA MULTI-OPERATOR, SINGLE TRANSMITTER							
TA5KA	181/10/49	962/23/69	2037/31/84	1231/38/96	1518/36/112	1272/37/112	N3RS	24/12/22	244/22/83	729/34/110	967/39/135	854/35/129	714/33/123
EA8AGD	58/9/36	312/17/65	1146/26/90	1742/31/102	1589/34/104	1677/32/107	K5NA/2	46/17/43	180/25/82	709/35/119	1121/39/132	684/35/118	490/31/115
LZ9A	184/17/65	337/22/79	1866/37/121	979/37/129	912/38/110	945/40/114	N4RJ	42/16/41	77/24/74	860/34/108	650/37/108	660/33/118	803/31/117
IQ4A	73/14/56	107/21/77	1590/34/108	988/38/125	1143/39/125	1046/36/115	K8AZ	38/13/34	130/18/65	516/33/105	682/38/125	918/33/113	560/33/107
HG5A	242/10/51	787/22/79	1127/35/114	1035/36/120	1285/37/114	803/37/106	K1VR	35/11/34	254/20/68	733/32/102	539/35/116	651/33/115	509/30/111
OL8A	61/9/48	644/26/83	1610/31/105	757/34/114	780/39/116	1174/39/126	K1YR	19/6/18	139/14/62	678/27/98	630/36/112	707/35/113	630/30/117
WORLD TOP MULTI-OPERATOR, MULTI-TRANSMITTER						USA MULTI-OPERATOR, MULTI-TRANSMITTER							
PJ9A	506/13/45	1873/27/99	2588/35/122	3903/38/139	3689/35/128	2703/36/126	N2RM	96/17/51	622/24/88	1511/34/120	2085/39/149	1495/38/130	1209/37/130
CN5N	453/11/51	1551/23/81	2383/31/104	3936/38/149	3163/39/142	2693/36/122	K1AR	91/16/50	712/24/89	1325/34/122	2109/37/149	1543/36/141	1150/34/132
J6DX	630/14/49	1086/22/79	1658/29/85	2235/33/96	3403/37/113	2456/31/93	W3LPL	147/17/58	605/28/93	1680/33/120	1696/39/139	1563/37/133	1167/34/137
N2RM	96/17/51	622/24/88	1511/34/120	2085/39/149	1495/38/130	1209/37/130	K1ST	110/14/37	387/18/77	1342/33/109	1631/37/133	1339/37/118	807/31/120
K1AR	91/16/50	712/24/89	1325/34/122	2109/37/149	1543/36/141	1150/34/132	KY1H	79/14/37	380/20/75	1052/32/104	1451/38/143	1263/36/124	979/33/118
W3LPL	147/17/58	605/28/93	1680/33/120	1696/39/139	1563/37/133	1167/34/137	K4VX/0	252/17/39	217/22/70	1353/35/112	1347/38/125	1119/35/116	983/32/114

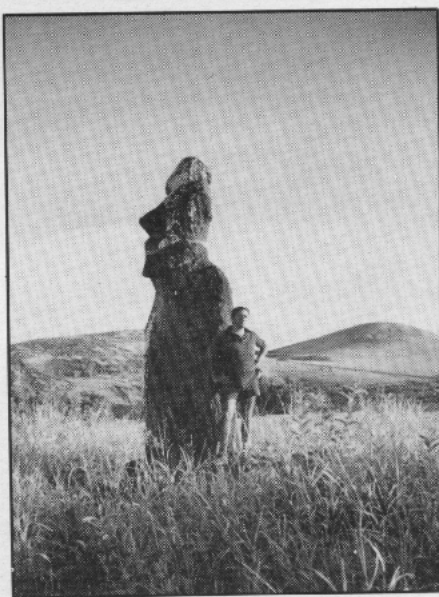
tributors, who opted not to begin the contest in YB-land before leaving there and returning to DL-land in time to finish the contest from zone 14. Although we have made a point of not allowing a single operator to submit more than one log in the same contest (some guys want to work two single band efforts), we saw our way to accepting DL8YR's three separate logs, because we just couldn't figure out what else to do!

Then there were the two zero point entrants, both of them in North America. Just think: No matter what they do next year, they have the potential for an infinite improvement. How many of us can say that!

Another thought occurred to us this year—an observation on the CQ WW Contest process as a whole. It occurs to us that the CQ WW may just be the largest simultaneous worldwide competition of any kind! Imagine any other event that boasts as many as 30,000 to 40,000 simultaneous participants from all over the world all competing for the same awards. We would be interested in your comments on this thought. Perhaps some kind of major publicity worldwide would be in order for the CQ WW 2000 to celebrate the truth of this assertion!

Rules and More Rules

First, a few comments about all the post-contest fuss over whether Y2 and DL would or would not count as two countries. As we explained in our SSB write-up last month, we go by the ARRL and DARC countries lists. So if such a thing happens again in the future, please remember that. What we're saying is



Zone 12 is always tough, and this year was no exception. Jaime, CE0ZIG, shown here with his second op (oops!), blessed some of us with double multipliers from Easter Island! That's zone 12 in style.

that since the ARRL announced before the CW contest that it was retroactively deleting Y2, then Y2 was deleted as a DXCC country before the date of the contest. We tried to be consistent on the scores, but quite frankly, all we guarantee is that the top scores have been adjusted so that Y2, if claimed, was removed as a multiplier.

By the way, there is another problem that didn't get the same attention. Some guys using K1EA have their country data base file recognize all KG4's as Guantanamo Bay, all UA10's as Franz Jozeph Land, and all KC4's as Antarctica. Be aware of such "innocent" mistakes!

Unlike the ARRL and CQ WPX Contests, the CQ WW Contest Committee requires a paper copy of all logs submitted to us. We thought that our rules were clear on this matter; they had not changed in many years with regard to log submittal requirements. However, some 50 of you interpreted the log submittal requirements in such a way that you thought a computer disk was acceptable by itself. Not so. While we encourage you to send disks to us, a paper copy of the log is required. You will note that this requirement has been explicitly stated in the 1991 rules published in last month's issue. There is just no substitute for a hard copy of the log; anyone can read it. Not everyone can read a disk, and even though we ask for disks with MS-DOS compatible ASCII or K1EA BIN files, you'd be surprised at the variations we get.

Please do not interpret this to mean we have lost interest in our computer checking. Quite the contrary. We received about 270 disks for CW this year. We used them to generate our computer data base. Over 160,000 calls were in this year's CW data base alone. It has become an essential tool for our committee to use, particularly on top logs. As we speak, we are working on methods for automatically converting the many file formats we receive to the format we use in our data base; automatic

cross-checking; unique analysis; and the establishment of a uniform procedure for how to use the outputs of the analysis in score adjustments. Yet for the majority of the log checking and analysis we do, the hard, paper copy of the log is absolutely essential. This is particularly true for the CQ WW, because our committee is distributed so widely geographically. It is not centralized in one location like the WPX and ARRL committees are.

Rules changes in recent years have added Single Operator Assisted and, as mentioned last month, a new Low Power category to the contest. We ask you to interpret these new categories in the spirit in which they were intended. To be specific, we are likely to see some of you invoking the "Diet Cherry Caffeine Free New Formula Cola" syndrome. Don't try that, or you'll be disappointed. There will be no QRP or Low Power Multi-Multi, QRP or Low Power Multi-Single, or QRP or Low Power Assisted entries separately listed and certificated, for example. As I ponder the situation, I'm sure I haven't covered all the cola variations in the above statement, but I think you get the point.

And then, of course, after creating a new category which is responsive to contesters' needs—such as the Assisted Category—we want to remind you that you are no longer operating in the old single operator category when using packet. We have begun to receive growing cooperation from many SYSOPs to do special checking in this area.

Credits

Let's not forget to give credit to the great bunch of committee members who helped us compile these official results. For the 1990 contest the committee consisted of Fred Morris, AD6C; Doug Grant, K1DG; John Yodis, K2VV; Bill Kollenbaum, K4XS; Bill Keller, W2RQ; John Kiesel, KE7V; Richard King, K5NA; Ed Moody, N3ED; Jan Perkins, N6AW; Glenn Rattmann, K6NA; Randy Thompson, K5ZD; Gene Walsh, N2AA; Mike Wetzel, W9RE; Jim Sullivan, W7EJ; Pat Barkey, WA8YVR; and Doug Zwiebel, KR2Q. (We were all saddened to lose committee member Homer Spence, K7RA, who became a silent key early this year.) Oh, yes, I almost forgot the person who does the certificates and trophies for us—John Dorr, K1AR. I think you will all agree with me how much improved our certificate and trophy system has become in the last few years, and John surely deserves much of the credit.

These dedicated contesters gave up many a T6 and ZA, and possibly a "sprint" or other contest to help us with these results, so if you see them, tell them how much you appreciate what they do.

CQ WW 1991

As we finish this year's story, we can't help but notice that preparations are already underway and are being talked about for the next "Big One." As you read these long-awaited results, surely you cannot remain passive to the lure of the test. Why it may even be the advent of that late October evening when once again the world's premier operating event commences. See you in the pile-ups.

73, Larry, N6AR/4 and Bob, K3EST/6

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USA QRM

Let's hope the sunspot cycle stalls forever! ... *N2UN*. Whew! CW contesters take no prisoners! ... *N4GVF*. This contest was perhaps my worst ever visit from Murphy ... *N4ZC*. Not serious, just dining on available DX ... *N6OU*. Packet is a big, big help ... *N8BC*. Forty meters was incredible! First time ever with more QSOs on 40 than 20! ... *NC7K*. My only rig failed at beginning of the second day. It was fun while it lasted! ... *ND0F*. Can't believe I worked KH6CC on 160 meters using 100W and inverted L at 25 ft. ... *NK3U*. Ten meters was very disappointing in the Northwest, especially on Saturday ... *NK7U* (Opr. *KY7M*). Was Asia closed for the weekend? ... *NQ1W*.

Conditions on 40 were unbelievable! ... *WA8LLY/6*. My first effort at CW contest. Worked OH0, D44, ZS9, and 9L on my first call. Not too bad for 100 watts and an indoor dipole ... *WI2T*. Best contest I have participated in the 23 years of contesting. I have never heard 40 that open at dusk ... *WK6V*. Murphy's Law kept the operating hours down to a minimum! ... *WM2D*. Had a great time with old pals *WA3LRO* and *N3RD* from the *W3WJD* team of the 1980s ... *N3RS*. It took a heart transplant and ops to finally break 2 Meg ... *NU3Y*. We are not competitive without larger packet networks ... *N4WW*. After using *K1EA*'s CT, the old timers put away their bugs ... *W4PRO*.

Twelve straight run hours on 40 meters to EU and Asia on the second night! ... *N3BB/5*. Eighty MPH wind took down one end of Rhombic, and a 6-element 15 meter Yagi 4 hours after the contest ... *W6BA*. Best 160 meter conditions we can ever remember in a contest! ... *WD8LLD*. 160 Meter QRP builds character! ... *K10G*. An hour after contest was over I worked Zone 23 (rats)! ... *WB9GR*. Beat my own best score by 200 QSOs ... *WB8YJF*. Best contest of the year—first RF to antennas was in Thanksgiving morning ... *K8GL*. Better condx than last year ... *W8UVZ*. Can't wait till next year! ... *WB3KX/8*.

Condx were the best I have ever seen ... *K8RWL*. Enjoyed test but ran out of wind ... *WA8IGG*. First time I could handle the CW. Now I'll never go back ... *N8LCI*. Good opening to EU at end of test ... *NZ8O*. I claim a multiplier of 2, the age of my toddler ... *K8SJ*. My apologies to the stations whose calls I mangled ... *N8JEC*. No Africa on 40, good openings to JA on Sunday AM ... *K8MNG*. Thrill was working KH0AM on 40 with 100 watts ... *WA8MEM*. Winds of 85 mph modified antennas and entry to 3.5 only ... *W9LT/8*. Little pistols of ham radio unite! ... *WD9GGY*. Let down when KW blew up! ... *K9QVB*.

It's tough to do well when you sleep through the opening to Europe ... *KE9U*. Incredible propagation on 7 MHz—my best band with dipole! ... *N0FFZ*. If anyone thinks CW is a dying art, they ought to tune in to the test ... *W9GXR*. How about changing the weekend so it doesn't coincide with Thanksgiving? ... *K9MMS*. Great JA opening—three new ones! ... *KG9N*. Forty meters sounded like 20 should have! ... *N9XX*. First contact was BY1PK! Post holiday chores kept operating down ... *N9GT*. Achieved two goals—DXCC in one weekend and broke 1M ... *WB9HRO*. When stations are running without IDing, they can't complain about dupes ... *KD0ZR*.

Very impressive JA opening on 160 second morning ... *K0CS*. Really enjoyed the contest. Came close to working 100 countries ... *WD0AVV*. No Australian stations! ... *W0SEI*. My second contest ever—lots of new countries! ... *WB0LQK*. Improved score 100% over 1989! ... *K0II*. A sheep knocked down my antenna—Murphy ... *K7OA*. Amp crashed with 2 hours to go ... *KV7L*. BV2A answering CQ at 2355 last day ... *W7KKR*. Can't believe how hot 40 meters was for the contest ... *KS7T*. Extra class upgrade this year. Those extra 25 kHz are worth gold ... *AA7FL*. First time to QSO by since 1955 on 80M ... *N7RM*.

Frustrated by failure of some stations to ID ... *W7IIT*. I did upgrade from Tech to Advanced Saturday so it was a great weekend ... *N7PTP*. The good DX ops identified each QSO—nice ... *KG7D*. Winds (78 mph) and fires around city made Friday a tough nite to work ... *K7ABV*. Worked 3A0AA!! ... *KA7T*. Worked VK6 LP on 20 just before end of test ... *K7UOT*. Working Colvins in ZS9 ... *KX7J*. Forty meters was awesome! ... *K7LXC*. The Faraday curtain fell on Zones 16, 17, and 18 from my QTH ... *WJ7R*. Heard ZD8LL and ZD8Z from sun up to sun down—great sigs ... *N7RO*. Heavy storm and lost power for 4 hours ... *WC7Q*.

I think you need a low-power class in the contest ... *N10G*. Had a good time on 10 meters working lots of countries! ... *NR0E*. Glad to pick up the 3W for zone 26 ... *KW0A*. First time as a 0. Is it always this bad from here? ... *KT2D/0*. First entry in any contest. Had a great time! ... *WY0B*. Excellent band conditions—some of the best I can remember ... *NS0B*. Spent 25 hours contesting and 10 hours troubleshooting half-dead receiver! After the contest turned rig upside down and it started receiving well again. Loose fuse bulb in antenna circuit ... *W3HVQ*. Most 80 meter QSOs ever, but 10K short of my USA record ... *W1FV*.

DX signals too weak, and most too fast. How many people can copy 25-35 WPM anyway? ... *WB3ANZ*. D68GA calling CQ on 10 and no takers. I made it! ... *NA2Q*. First single op contest on CW—great fun ... *K2TCK*. TH6DX balun died. Surprised at the performance of 20 meter dipole at 30 feet ... *K3UEI*. First CW test. Boy, are those guys fast; be back next year and faster myself ... *KB2SE*. Thanks to N8RA for the use of his great station, and, of course, *K1EA* ... *NJ2L*. Had to build an input circuit that worked for the MLA2500 (my Alpha was in for repairs, hi) one hour before the contest ... *W2FCR*. Helped get code speed up ... *WA2UZI*.

Great conditions. Too bad I got called to work Saturday! With family obligations, I could only muster 6 hours but had fun ... *K3YDX*. What is V51? My DXCC list is 5 years old and my Callbook is from 1975 ... *WB2DVU*. Achieved my goal of finally breaking 1 Meg from the USA ... *K3MD*. Amazed after years of beams and amplifiers at what 1 watt and a wire can do! Maybe we should all try this. It solves a lot of QRM and TVI. The Carolina windom is amazing ... *WA2ASQ*. "JA" run Saturday (40 meters) at 0600Z-1300 Z—fantastic! ... *K1ZM*. Murphy struck my 40/80 antenna the first night. Still my best CW score ever ... *KF2O*. Biggest thrill—when the Eagles beat the Giants ... *K3II*.

My heart just wasn't in this one. Need to practice my CW abilities ... *N2MR*.

Nice to have a new 40 meter antenna ... *K3LR*. What a great contest! I didn't want it to end; I wanted to make 3000 Qs; I wanted to break 5 Meg (next time); and I wanted conditions to last forever. Wish all the ops would sign their calls as often as *P40GD*; wasted 10 minutes waiting to figure out who belonged to the new zone 39 I had worked ... *W1KM*. Working Svalbard and Franz Josef Land ... *N4UZ*. Working HZ5A, but can't find QTH to QSL. This is my first CW contest ... *WA4FTM*. Why does the electricity always go off during contest weekends? ... *WM4Z/5*.

When I got on 40, the neighbor's lights came on! ... *W4GTS*. Was nice to get a few minutes on 28 MHz. Good condx! ... *W4YN*. Very enjoyable for my first one ... *K4WU/6*. Upgrading to Extra the second day of contest at age 13 years old. New call *AA5WQ* ... *K15FI*. Too much DX, too little time! ... *WD4JNS*. Time was limited. Had to leave for Tenn. Sunday, so could not stay up late Saturday night ... *AB4RU*. The XYL says I'm crazy to keep doing this at my age (73), but I'm like an old fire horse when the bell rings! ... *W3V7/4*. S-5 noise level dampened things ... *WB5UDX*. Still worked 36 zones after missing 12 and 13! 40 was FB! ... *WA6AUE*.

Picked up 15 new countries ... *AA4Q/6*. Personal best single op score here. Thought 496 multipliers with no packet or computer assistance was decent ... *AA4S*. Need better 40 meter DX antenna ... *W6JTA*. Nearly ripped my face off on briars installing 1000 foot beverages in dense woods ... *WM5K*. My first CW contest. Used my old Collins S line and a GAP DX vertical antenna ... *KC6EYZ*. My first CW contest! ... *N6VMS*. Missed zone 10 and 11 but still got my highest score ever thanks to VEs ... *AA4MM*. Low bands took gas, 15 and 10 super! ... *K4PQL*. Lots of noise, mostly local ... *WA6VNR*. Lost hours getting computer program working ... *W6MFC*.

Lessons learned: Don't rearrange station in the week before a contest ... *KM4YY*. Keyer blew 10 mins into contest. Lucky I had a spare! ... *NU6S*. Just enjoyed the contest ... *KQ4G*. I would like to dedicate this effort to my father who passed away during CQ WW ... *W6UE* (Opr. *KA6SAR*). I used a straight key, next year a keyer! ... *WA4SVO*. I still do not see how you can classify a single operator who uses assistance as anything other than multi-single! ... *W6YA*. I returned from the hospital on Wednesday night before the contest ... *W5FO*. I love being a General now—where was zone 40? ... *KA5VOZ*. I just spent my time hunting for new ones. Worked six new DXCC countries ... *N6YEU*.

Great openings to all parts of the world on Sunday afternoon on 20 meters! ... *K6ETM/4*. Great contest. Hope to have more time to work it next year ... *KB5GON*. Good conditions on 10 meters, and great software by *K1EA*! ... *W6RCL*. First time using computer log. Great fun; will do more operating next contest ... *W4OVU*. Failed to work my own zone again! ... *KK4SM*. Fabulous conditions ... *AA6EE*. Entered contest to make personal goal of DXCC in one weekend—worked 111 countries ... *AA5MH*. Contest logging and scoring courtesy of *K1EA*. Many thanks! ... *WA5GJK*. Conditions were fabulous. Forty meter sigs worldwide sounded like 10 ... *W6BIP*.

Computer logging at least got rid of the pile of eraser dust on my desk ... *N4UA*. Best short path to EU in a contest on Saturday night—EU in all night! ... *N2KK/6*. Believe every DX station that does not give their call after every QSO should be disqualified. It only adds to confusion, chaos ... *N4CT*. Band conditions generally excellent, but rapid downward changes in propagation ... *K6DR*. At first, having to listen 7 or 8 times to catch call signs; at end, only 1 or 2. Good training! ... *AB4YC*. A lot of US stations seem to need California. This KG6 call is a real handicap! ... *KG6AO*. Forty meter openings to Europe were a surprise ... *K6ZUR*.

Forty meters hot Friday night, but operation curtailed by TVI complaint ... *K6MA*. 3W8VL really got the pot boiling on 15 during last hour of test ... *N4MO*. Twenty closed at night, so everybody had to compete with the east coast on the low bands ... *AD5Q*. Two new ones on 80 meters ... *WC5D*.

DX QRM

Special thanks to my friend Vasek, OK1ADM, my "multipliers watchman" during this contest! ... *OK1ALW*. Special apologies to my USSR friends (no QSOs allowed). Hopefully the world will change for the better ... *BV/K1RX*. Many power outages—perhaps Murphy winters in Sierra Leone ... *9L1US*. Very poor conditions into Europe, Africa, Western Asia, and the East Coast of the U.S. on 20 and 40 meters ... *9M2FK*. Prefix was a first, but had to keep explaining where I was ... *9W2ZR*. Biggest thrill of the contest was having HZ1HZ call me in a pileup ... *ZK1OM*. After only 80 QSOs on 20 meters, the rig froze up (groan). Had to go on other bands ... *4X/AA4KD*.

This is my honeymoon ... *AH0J01CRA*. Getting too old for all band; how about a senior's division ... *KG6DX*. Congrats to KH6CC ... *V73AZ* (Opr. *NZ8B*). Enjoyed it very much ... *YC3OSE*. One-way skip on 15 for 4 or 5 hours ... *5W1RA*. Very good propagation ... *EAB8LC*. Contests are for bachelors only! ... *ZS6ME*. Car battery power only here. Most of log was written by candlelight during the many blackouts we had in the contest ... *C56/G4ODV*. Everything went wrong ... *C6AFQ*. We will be back next year! ... *JA7YAL*. We had a happy weekend because we took part in contest and had a wedding of a club member ... *JE6ZIH*.

Murphy struck in the way of a snowstorm. Operators spent more time getting towed out of the snowdrifts than they operated ... *VE7ZZZ*. Had a lot of fun down here. Looking forward to next year ... *VK6LW*. Worked V73AZ on 160 with a sloper at 30 feet ... *ZF2PR*. We operated from a small desert island—cactus everywhere, wind, rain, black flies, and rattlesnakes; poor propagation; what a contest! ... *4B1PAZ*. It was nice to be working CW contest back in Finland after PJ9W trip ... *OH6YF*. I was hunting new ones all band. I got 15! ... *OH3JF*. Late aurora opening to West Coast over the North Pole made me happy! ... *OH3TY*.

A pleasure working so many good operators ... *OH1WZ*. I enjoyed it again but did not have enough time as I liked ... *HA0HW*. The contest and a DX-propagation was a beautiful! ... *HA4FF*. Ten meter band open very good, but old transmitter only 40W power! ... *4N4DXZ*. Big fun again! ... *PA0DIN*. After quite a few years

with very little serious contesting being carried out from the club, we thought that it was about time we did something about it. We hope to see you all next year in many contests. We will aim to again be a top European station in the future ... **GU3HFN**. Poor DX condx but most enjoyable contest as usual ... **E17M**.

The high bands were closed so early that our 40 meter beam was very busy especially in the NW direction ... **LZ9A**. I missed a QSO with JA on 10 meters! ... **JH7WKO**. Looking for Zone 40 on 10 meters (also zone 2 is rare) ... **JA20DS**. CW Contest not so active this year ... **JH7LJG**. I got my best score in my ham life ... **7K1NUX**. I suffered from amplifier phase noise from local club station ... **JQ3UDL**. Sun down so 7 MHz a good band ... **JA8HBO**. Worked many USA stations on 1.8 MHz but too tired to get up early for EU window ... **JA9BOH**. Most EU came through on 28 MHz from southwest by scatter ... **JH2QXG**.

The lower bands were open worldwide! ... **JA1NUT**. Five new countries for my 160 meter 5BDXCC ... **JE2LPC**. Hope to see you again next year from Africa? ... **JH4NMT**. Bad power line noise hurt on the low bands ... **KL7AF**. Me, too ... **CA6/N4RP**. No noise here, but nobody could hear me! ... **V31YZ**. One hand on the keyboard, the other on the paddle; next year both hands on the keyboard ... **VO1MP**. Hats off to K1EA ... **VE2FFE** (and many others said the same thing—ed). Unexpected visitors dropped in; sure hurts operating time! ... **VE3NYT**. My last one from zone 2—thanks, guys ... **VE2LJ** (Thank you, Kent!—ed).

It's impossible to beat VE1ZZ on 160 ... **VE3DO** (Look again—ed). Thanks **CQ** for another great one ... **VE4VV**. RFI next door reduced score ... **VE6BF**. Had to take in wet victims of serious flooding nearby ... **VE7UF**. The last 6 hours my arm did not do what I wanted, hi ... **XF1C**. Interrupted operation twice to play Brahms 1st Symphony with the Mexico City Philharmonic ... **XE1AA6RX**. Sidetone failed; had to send CW by watching the wattmeter ... **VP2ML**. A phone man like me appreciates the patience demonstrated by all you CW guys—thanks ... **V47KP** (Cpr. **K2DOX**). In the end of the test we were sleeping in our headphones, hi! ... **UZ3DWW**. Think this is my last contest—73 and good day, friends ... **UA3GM**.

STATION OPERATORS Multi-Operator Single Transmitter

3W4YL: RW3DX, UA3DK. **4B1PAZ**: XE2EJ, XE2JNE, VE2DP. **4U1ITU**: H99CIP, H89AM0, H89BL0, H89AFI, H89B2A, H89CXZ, H89AYX, H89DBC, UZ3DXH. **AA8AW** & **AA0BY**. **AA9A** & **WJ9W**, W89SAU, W99SRW, K89XG. **AH8EE**: W0ZZ, W6XB. **BY1PK**: BZ1AA, BZ1AB, BZ1HAM, BZ1AI, BZ1AG. **BY4AA**: BZ4AA, BZ4HU, D7BU. **BY4SZ**: BZ4SAA, BZ4SAB, BZ4SBD, BZ4SBC, BZ4SBG, BZ4SBP. **C6AFD** & **KR1S**. **DF8RR**: DL7ALM, DL7ON, DK1PD, DL4EBY, DL7AKC, DL7SI, DL7AEN, DL7APU, DL7UX. **DK0MM**: DJ7IK, DJ9VL. **DL8ER**: DK7F, DL1EFD, DL1EFO, DL9XY. **E43KU** & **E43AI**, E43AV, E43DWW, E43DD, E43FER, E43LL. **E8A8G0**: OH1EH, OH1HS, OH1NOA, OH1NSJ, OH6OS, OH6UI, OH3MDX, OH8PF. **ED4CW**: E44AD, E42AEK, E47CEZ.

E17M: E13DP, E14BZ, E16BT, E18GS, E17DNB, Dave. **E54X**: E54AA, E54DX, E54MM. **FF1LE0**: Club. **FF6QP**: F6DZD, F6ETI, F6GQK, F6IWP, F6CTS, F11HMB, F11HME. **F08M**: F5IN, F6AR, F6IRF, F1LGE. **G3LNS** & **G3HCT**, G3MXJ, G4BU0, G8AYN. **G3SZA** & **AA6CM**. **GU3HFN**: GU3MB5, GU4CHY, GU4NY, GU4XM, GU4WRP, GU4Y0X, GU6JCI. **GW8GT**: G30AY, G4BK1, G4IFE, G3SXW, G4VXE, G4WXL0, G4W4TU, G4WMAW, G4W3NWS, G4W4JBO, G4W3KYA, G4W5NF, G4W6CJD, G4W6ZUQ. **GX3VER**: Club. **HABK8C**: HA8EK, HA8FW, HA8KH, HA8DZ, HA8FT. **H84FE/P**: H89AMA, H89APJ, H89ARL, H89BEK, H89B9E, H89B0W, H89BCH, H89BPU, H89BPM, H89BWW. **H89LF**: DF5UL/H89, DF5TS/H89, H89B8Z, H89B00, H89CEY, H89CRV, H89DDZ. **H81S**: HA1TJ, HA1TD, HA1SV, HA1DAC, HA1AH, HA1DAE.

HG3G: Jozsef, Gabor, Pal, Imre, Attila, Lajos. **H64P**: HA4ZZ, HA4XR, HA4DP. **H65A**: HA5GF, HA7RY, HA5IV, HA5ML, HA5OM, HA5MK, HA5BNL, HA5FM, HA5AWH, HA5WV, H1XPU, I2VXJ, IK10W, IK2EGL, IK2GSN, I2A0X, I2E0W. **I04A**: I4IND, I4VED, I4EAT, I4TJE, I4IKV, I4F6G, I4LCK, I4K0CT, I4K0ZF, I4K4CF, I4W4ANU. **JAB7AK**: J170ED, J80FOM, J80HYT. **J42YV**: S. Sakakibara, K. Trai. **JA3YQD**: J03JYE, J66MYI, Akio. **JA3ZKK**: J44ABC, J44PUL, J43LLK. **JA6YJ**: J51PMV, J47ENY, J4F6K, J44DX, J46TA, J46IK, J46PB, J46NGS, J46DS, J47ALY. **M**: Ohkido, J47NW, J47VX, J46NKV. **JA8BYJ**: J01DFG, J86JNE, J86CTG, J86GM, J86LPB, J86NFE, J86DHA, J86JWS, S. Teguka.

JA9YAV: JH9ETC, JH9AGV, JH9FNN. **JE6ZIH**: J66GKT, J66DEA, J66GNN, J66BRB, Naruma. **J61ZKO**: J11XOX, J11DHI, J11JQO, J11NDY, J11MVI, J11HJG, J11APN, J11NAL. **JR1ZTT**: J11MS0, J16PLH, J17FWD. **JT1T**: J15AA, J11CF. **K1IU** & **KD2SX**, N51I. **K1ULI** & **K1IM**, WAIUXA, N01V, K2TE, K8LT. **K1YR** & **AD1C**, N11R. **K1YR** & **K1RU**, K2SS, WJ1U, WAIU. **K20WE** & **W2GSN**. **K2SG** & **W2ASRP**. **K3DI** & **WG3J**, W83W, N83V, W31CM, W40IEH. **K3IE** & **NA3K**. **K4PB** & **W4E4Y**, W4CWD, **K5NA/2** & **KU20**, W82Q, N2EK, N2KA, K2EK, N1CC, K5ZD, W42ST. **K8AZ** & **K8NZ**, W8KIC, W8CAR, N8AA, K08M, W78C. **K9FN** & **W89TOW**, N9NC. **K9UWA** & **K9SA**, K9RU, N09H, W9FC, K9CLA, W9HLY. **K11VNH** & **W11PMA**.

K81H & **K1GK**, KR1U, W11HYN, K21M, W11RLV, K81RI. **K83MM** & **W83FIZ**, W83SHA, W83LFZ, K83GK, W83KAM. **K85DZ** & **N85E**, **K86DW/6** & **N86G**. **K8JG** & **W7XG**, K8GAS. **L1K1E**: L1APU, W84UGA. **L2Y2W**: LY2BJ, LY2BKW, LY2PX, LY2BMW, Remigijus, Eimantas. **LY2ZD**: LY2NK, LY2BFN, LY2BKZ, LY2BMY, LY2BDA, LY2BTD, LYR-346, LYR-1751, LYR-1853, UC210. **LZ1KNP**: LZ1IN-143, LZ1N-151. **LZ1KSZ**: LZ1MC, LZ1DQ, **LZ1KVZ**: LZ1NK, LZ1FI, LZ1G6, LZ1PZ, LZ1ZF, LZ1WR, LZ2DX, LZ1F-47U. **LZSP**: Vasco, Petrov, Todorev, LZ1EA. **LZ9A**: U1A1LZ, U1V1AA, LZ2P0, LZ2CQ, LZ2DF, LZ2HE, LZ2LU, LZ2PS, LZ2WF, LZ2BE, LZ2XA, LZ2TT, LZ2H, LZ2WM, LZ2UA, Krasi. **N3BB/5** & **N5GM**. **N3HW** & **N3RW**. **N3RS** & **N3RD**, W3ALRO, W3B8.

N4AR & **N4TY**, K4FU, K4VH, N40BW, W4F0T. **N4RJ** & **KM9P**, W8ZF, AA4GA, N4PN, K4PI. **N4WW** & **K0LUZ**, W46DGX. **N5EA** & **W5ASP**, W5VAH, W5VWN. **N6R0** K3EST, N6IG, W6R6G. **N6TIB** & **W6REC**, W6VU, N6G0, N6KZW. **N6VV** & **K6XV**, K6R9Y. **N7MPS** & **AL7CO**, K87GZU. **N8IUM** & **K8F8F**. **NF6S** & **K66VU**. **N04I** & **N4FD**, W1UA, K84HZ, K54Q, W4R, K4M4H. **N0JY** & **K43PIT**, AB2E, KY2T. **OE3XCV**: OE3PUW, OE3MDC, OE1GAS, OE3CHC. **OH2AG**: OH2GI, OH2QD, OH2SS, OH2LU. **OH2HE** & **OH2BK**, OH2BZ, OH6DD. **OH4AB**: OH4YR, OH4NEW, OH4EA, OH4MDY, OH4TY. **OH7NTM**: OH7MS, OH7WV, OH7MHL, OH7BNK, OH7MCA. **OK1KQJ**: OK1AYP, OK1BY, OK1CM, OK1IMR, OK1DLE, OK1VXK. **OK1KSL**: OK1BSP, OK1F0Z, OK1F1L, OK1DSL, OK1FEL, OK1FMI, OK1AHG, OK1AQ, OK1FAK, OK1-23544.

OK1KU0: OK1FZY, OK1FFC. **OK10FM**: Club. **OK2KDS**: CLUB **OK2KMR**: OK2BUZ, OK2-310 97. **OK2K0D**: OK2BDI, OK2BGR, N4W4Y. **OK2KPS**: Club. **OK2KWS**: Club. **OK2KYC**: Club. **OK3K6D**: OK3ZCD, OK3ZAR, OK3CLL. **OK3KTR**: Club. **OK3KUN**: Club. **OK3RRC**: Club. **OL8A**: OK2PZV, OK3EA, OK3RM, OK3GI, OK3YX, OK3PC, OK3LU, OK3CLU, OK3NA, OK3CBU, OK3CQD, OK3EI, OK3JW. **OM5W**: OK1AEZ, OK1CF, OK1JUB. **OK1JKT**: OK1WT, OK1AI. **ON5EU** & **ON4KRW**. **ON7LR**: Club. **OT6AH**: ON6AH, ON5O, ON6OR, ON6VL, ON7PC, ON7ZV, ON6CMB. **OZ1AXG** & **OZ1HDF**. **OZ2KAT**: OZ4UN, OZ1EE, OZ1CBW, OZ1DCA. **RB4IWE**: UT5SI, UB4RI, UB5-073-4328. **RB4IWM**: Nick, Alex P, Alex I. **RB4IYJ**: UB5-073-3972, UB5-073-4364, RB510D.

RL8L: RA9AD, UA9SA, UA9TX, UL7LEB, UL7LFZ, UL7LT, UW9AR. **R09Q**: YL2AG, UQ20C, RQ26G, UQ2-837-83, UQ2-837-116. **RS3A**: UA3-170-126, UA3-170-210. **RA3DUU**. **RT1U**: UT4UZ, UT5UGR, UT3UA, U85CGN, UL8B8K, RV1AW, UL7-179-190, UA1KAC, UA1ARL, UT4UX, UT5ULY. **RZ6A0**: RA6AG, UV6A0W, UA6AS, UV6A0B, UV6A0E, UV6A0K. **SJ9WL**: SM7BUA, SM6DYK. **SK5AJ**: SM5AD, SM5CBN, SM5CND. **SK5WB**: SM5INC, SM5NUZ, SM5PPS. **SL8CB**: SM3LGO, SM0MLL, SM0MX0,

SM5NZY, SM7TF5. **SN3A**: SP3GEM, DJ0IF, SP3ASN, SP2FWC, SP3HLM, SP3RBI, SP3GUA. **SN3N**: SP3FLR, SP3LPR, SP3JHT. **SPAKTD**: Club. **SP2ZHR**: SP9EMI, SP9-4315-KA. **TA3D** & **TA3B**. **TASKA**: TASC, TA5B, HA0NNN, HA0LC, HA0MM, HA5PP.

T6VMN: F6IIE, F6B0Y, F6HBR, TK5LD, FD6CTA, FD10YC, F6GKB, F6HEW. **UB4EYT**: Sergej, Oleg. **UB4JJK**: UB4JJK, UB5JIB, UB5JCF, UB5-067-303, UB5-067-7595, UA6-150-1086, RB5J1, YL3R. **UB4LWB**: Oleg, Vadim. **TOly**. **UB4MPY**: Ivan. **UB4MWU**: UB5BMM, UB5MFE, Oleg, UB4MWU, RB5MRE. **UB40WW**: RB50NA, RB50RW, UA40W, UB5-064-866. **UB45WK**: Mike, Vlad, Oleg. **UB4WZA**: UB5WXC, UB5WBY, RB5EX, UB5WCL, UB5WCV, UB5-068-996, UB5-068-997. **UB4XWK**: Club. **UC1AWC**: UC2CFP, UC2SDJ, UB5AMC, UC2-005-283, UC2-005-323. **UC10WE**: UC2OHT, UC2OHF, UC20GB, **UC10WF**: UC2XW, UC2WY, UC2-006-121. **UL8CWC**: Club. **UL8CWCW**: UL7CC, UL7CA. **U08A**: YL2GM, YL2KL, YL3GN, UQ2GID.

UZ8CWW: UA0CHW, UA0CF, UW0CQ, RA0CO, UW0CR. **UZ8CXD**: UA0CR, UA0CJD, UA0CKA. **UZ8OWA**: UA0DLD, UA0QN, UA0-098-203, UA0-098-113, UA0QAS. **UZ8SXF**: UA0SLT, UA0-124-44, UW0SN, UA0-124-494. **UZ1AW0**: UA1AQF, UA1-169-900, UA1-169-2391. **UZ1AWT**: UA1-169-2475, UA1-169-823. **UZ1AWY**: Y. Kuznetsov, D. Kucherlin, S. Gorbunov. **UZ1TWC**: Alex, Dimitry, Sergey, Alex. **UZ1FV**: UA11FN, UA11AN, UA1-144-1068. **UZ1TWW**: UA1TGO, UA1TAL, UA1TIE. **UZ2FHW**: UA2FF, UA2FJ, UA2FM, UA2FZ, UA2FE, UA2FA. **UZ2FVN**: UA2-125-1218, UA2FDH. **UZ3AXH**: Slava, Vad, Alex. **UZ3AYT**: UA3-170-1146, UA3-170-17, RA3APN. **UZ3DWW**: UA3-142-998, RA3ABV. **UZ3GYM**: UA3GMM, UA3GFO, UA3GCH, RV3GW, RV3GJ, RA3GJ, RA3GAX, UA3-137-1053.

UZ3QWX: UA30W, UA3-121-61, UA3-121-62. **UZ4FWE**: UA4FU, UA4-148-806, UA4-148-807. **UZ4HXK**: UA4HDX, UA4HVX, UA0LDM. **UZ4PWW**: RA4P0, UA4-894-976, UA4PBZ, UA4-894-975. **UZ6HWA**: UV6HTR, UV6HTR, UV6HDI. **UZ6PWJ**: Alex, Dimitry, Sergey, Alex. **UZ9CKE**: UV9CP, UA9CAM, UV9CCY, RA9CIB. **UZ9CZD**: Club. **UZ9DWA**: UA90A, UV9QR, RA90AA, UA9R0. **UZ9XWT**: Vitalij, Sergej. **UZ9XWV**: UA9XC, UA9-090-1053, UA9-090-1088. **UZ9XYV**: Kostya, Serg, Max, Dima, Andy. **VE3EJ** & **VE3CDX**, VE3CPU, VE3DDL, VE3ICR, VE3KZ. **VE7SV** & **VE7AGC**, VE7AHA, VE7CC, VE7CT, VE7FJ. **VE7ZZ**: VE7ARS, VE7AV, VE7DRS, VE7HGO, VE7RBL, VE7SK. **VK6LW** & **VK6BB**. **VP5P** & **WS4E**, W2MC2.

W0KEA & **W1XE**, KR0U. **W0NA**: W0AR, W0CV, W0CY, K80U, N9BA. **W1AF**: K010, N21W, W01Y, K3UUC. **W1BK** & **W1UAR**, K1TXH. **W1FEA/6** & **K2BA**. **W1FJ** & **K1KJS**, W010. **W2REH** & **KE2PE W2UI** & **N3KR**. **W2VJN** & **N2EA**, K2BMI. **W3GG**: W3NX & **KN5S**. **W3XU** & **K3WJV**, W3YJ. **W4ADL**: K0DI, N4CXF. **W4DW** & **N4T0D**, N9XT, AA4NC. **W4RP0**: W8BHD, K4IX, W4DZ, N4PUV, W40DH, K00R, K40VR0, W4RP0, W46BA & **NGAW**. **W6PK**, N6FH, K7JJE. **W6WX**: W6QNS, W60AT, N6BT, K4TKM, AF6S, K66GM. **W7HI** & **A17B**, K7W7. **W8FN**: Club. **W8G1E** & **W2KVA**, W8KVV, N8NMH, K86BK, N8TNC, W6TKF, W86BC, N7LTO. **W8TDB** & **K8JL**. **W8BK** & **W8LD**, W8UGU, W8CZN, W8UNB, W8GMH, W88RCN, W88BN, W88MEM, N8DCJ, N8ATR, W88VPA. **W8DLD** & **N8FIS**, W8M8, W80AUB.

W83L & **W83M**. **W81Q**: Club. **W82Y** & **N2NU**, K2WI, G4FRE, W42D. **Y33VL**: Y26BL, Y33TL, Y33UL, Y33VL. **Y41CM**: Y41VM, Y41VM, Fritz, Thomas. **Y44C0**: Y24A0, Y44N0, Y44X0. **Y56CE**: Y25NE, Y21ZE, Y260E. **Y58C0**: Y58Z0, Y31X0, Y58I0. **Y2TR**: YU2D0, YU2MM, YU2H0, YU2NJ, YU2I0, YU2MP, YU2MY, YU2G0, YU20G, Y27FI. **Y77A**: Y77WA, YU7BJ, YU7G0, YU7GW, Eddy, Ivan, Arpy, Roby. **YU4CYL**: YU4MA, Vuchko, Chedo. **ZF2PR**: K1XM, KM3T, KQ1F. **ZS9/W6K6**: W6KG, W6QL.

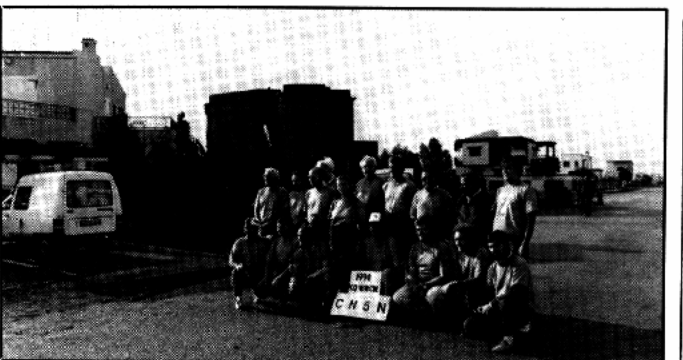
STATION OPERATORS Multi-Operator Multi-Transmitter

4N2N: YU2NK, YU2VR, YU4DU, Y2L6G, Y21B, Y21NM, Miso, Esc, Pero, Sasa, Kreso, Stiv, Darko, Marko, Paul, Ivan, Sale. **CN6N**: F2CW, F5CW, F6ATQ, DOW, EMT, IMS, EEM, IMS, F9LX, G3SXW, H89CUI, K5VT, K7GE, K07V, N6VI, N7BG, NZ7E, W6UOL, W7CB, YU1RL. **DABBY**: Y21RM, DL7AV, DL1MFL, DJ0UJ, DK5WL, DK20Y, DK3GI, DL2NB0, DF7R8, DL2MEH, DL4MCF, DL5MAE, DL6RAI, DL7MAE, DJ10E, DL3MAA, DG6MGP, LX1II, DL1MAJ, DH5MBB. **DF30G** & **DJ1FC**, DK2YI, DL8KF: DF3LZ, DF6PA, DF5LS, DF6LI, DH1LA0, DJ2BV, DJ3UL, DJ4FZ, DJ6TK, DJ6TN, DJ7SW, DJ9MT, DK9AV, DL4LBK, DL8PY, N21CW, Y25TG. **J6DX**: DCJOS, K9BL0, K86ZBI, N9AG, W8ILC, W80K, W8PR, W8QID, W8B8NR, W8DIXE. **JA3YBF**: JE1TND, JJ2ICA, JF3PGA, JJ3IMX, JJ3KGS, J03VJZ, JH4IFF, JR4AGT, JF4FVJ, J64LCU, JA9T0Z.

JA3YKC: JF3VYV, J66VTM, JG3W0N, JR5ARQ, JG3MRT, JG3CPF, JH4RHF, JL3MCM, 5H1HK. **JE2YR0**: JH10RL, JA2E2D, JF2XJE, JA2KYV, JR2CJI, JI3ERV, JK3GAD, JR70MD, JA95SY, JA9-10148, JF2E0C. **JH8YCT**: J8XWU, J8JZX, J8WWRM, J8Q8MM, JM3GZD, JF7LGH, JH8W4H. **K1AR** & **K1EA**, N6BV, K1G0, K1D6. **K1ST** & **N81H**, N81H, N81L, K1MM5, K1FWE, N21Y, W11HN. **K2TD** & **W82Y0F**, W82R, W83T, N83W. **K4XV/B** & **K4XU**, N4CC, K9Z0, AG9A, K9BGL, K10W, N9JF, N50Z, K090. **K6UA** & **KR6X**, W8UA, W8UQF, K8RF, K6SSS, KA50, W8CQP, K6VI, K1ZKM, K8D8M, K06LJU, W8LUT. **K8AQM** & **K8BD**, W8IQ. **K53F** & **NE3F**, N83Z, W3AP, KY3N. **KY1H** & **W11W**, N81Y, KM1P, KD2RD, K81W, KY1K, N2MG, N51M, N21X, NU1P. **N2MM** & **NF2L**, N3RG.

N2RM & **W2M2**, KA2AEV, K2Z5, N2ME, N4HY, K2TW, KQ2M, KR20, KR2J, W2R0, N2AA. **N3LR** & **W3E**, N3HKU, W3V9, N3W3. **N6CQ/3** & **W03U**, W3FT, NY3G. **N6DX** & **AD6G**, W6R9, N6IC, W427T, AC6T, W77F, K1TKL. **N6ND** & **N16W**, K6XT, K6ZH, K09E, K6STI, K1GZH, K86BB, K6C8NV, K6JYO, W6TMD, W46D8C, W6N6K, W6UJ. **NL76** & **KL7HF**, KL7FA, KL7PJ, KL7Y, KL7U, KR8V, NL7G, NL7GP, W8LU, WL7E. **PA6DX**: PA0CLN, PA0COR, PA0CVY, PA0ERA, PA0JMH, PA0LVB, PA0SKP, PA0SOL, PA0VAJ, PA3AAV, PA3ABA, PA3BAS, PA3BFM, PA3CFE, PA3CTM, PA3CDD, PA3DDP, PA3DWD, PA3E0V, PA3FML, PA3FLS, PA3BZC, PA00RH, PA00NZ. **PIACOM**: PA3ALP, PA3BLU, PA3BBP, PA3BD, PA3BWD, PA3CAL, PA3DHR, PA3DMH, PA3ELX, PA3ERC, PA3EWP, NL18373. **P19A**: OH6D0, OH1LD, OH2JA, DL38AH, YV5ANT, OH6XY, OH2MM, OH6LI, DL5XX, OH6NU, OH2KI, OH6MW.

RE6L: UA6L0, UA6LV, UB5ITW, UA6-150-1070, UA6-150-1104, UV6PLU, UA6-150-1060. **UB5ISX**. **V51Z**: N7NG, V51DM, OH2BH, OH2RF. **W3LPJ** & **W82EKL**, N3DA, W3EKL, W83FIB, W83JRU, K3R4, K3S0, K3TY, W40AXM, N8II, W8AMZ, K09J. **W8AH/9** & **N8NO**, K8PVYV, N9KAU, KS0T, K0RF, K80V, K89RW, N8AT, K80GJ, K0EL, N80SH, K8M0, W8BRW. **W3KV**: W3G0U, W3K1 & **WC1D**, N1AU, W41TTV. **Y15R**: YU5GX, YU5JR, YU5G5, YU50C, 4N51E, 4N5BFC.



The number two Multi-Multi, CN5N, sent us this fine picture of the crew. Well done, guys and gals.

WORLD TOP 10 QRPp
All Band

1. HI8A	2,549,592	6. K5RX	756,952
2. YU3BC	1,056,261	7. N4KG	748,410
3. AA2U	1,039,678	8. NX7K	709,665
4. NM2L	914,034	9. K1CGJ	701,838
5. W2TZ	801,568	10. W0UO	675,840

TEAM CONTESTING

1. Southern California Contest Team #1, 33,817,592. By VP2VCW (N6CW), 9Y4H (K6NA), FR5DX (N6AA), EA9IE (N6TR), and ZP0Y (WN4KKN/6).
2. Southern California Contest Team #2, 32,997,023. By AH3C (KN0E), HC5Z (N6ZZ), ZD8Z (N6TJ), D44BC (W6NV), and HC8U (WA6OTU).
3. North Coast Contesters, 11,228,482. By WB3KXK/8, K3LR, K8CX, and K3TUP.

Number groups after call letters denote following: Band (A = all), Final Score, Number of QSOs, Zones, and Countries. Certificate winners are listed in boldface.

CW RESULTS
SINGLE OPERATOR
NORTH AMERICA

UNITED STATES

K1CC	A	5,283,486	3028	148	455
W1KM	"	4,777,389	2956	144	412
K1TO	"	4,582,905	2853	132	413
K1ZZ	"	3,892,860	2228	144	436
W1PH	"	3,326,015	1959	147	436
K2SX/1	"	3,085,130	2027	140	390
N2BA/1	"	3,106,944	2151	130	365
		(Opr. K8HVT)			
W1WEF	"	3,090,109	2058	130	387
NJ2L/1	"	2,727,197	2068	116	335
K5MA/1	"	2,233,764	1609	127	354
N4XR/1	"	1,567,020	1117	128	362
W1NG	"	1,189,929	847	136	371
K1YRP	"	631,866	698	90	228
NU1E	"	531,912	616	79	217
K1CLN	"	506,010	542	94	241
KS1L	"	438,180	477	94	241
K1BW	"	409,630	534	83	191
W1XN	"	350,336	514	73	165
NTZ	"	242,420	288	94	216
W6GG/1	"	225,302	384	62	147
NY1L	"	214,802	331	66	163
W1SD	"	180,027	289	77	164
W1CNU	"	168,324	388	58	108
KA5GSI/1	"	113,928	217	59	129
K1MBO	"	88,086	194	52	107
W1UN	"	62,643	143	43	90
KB1VL	"	44,744	148	34	72
K1FR	"	36,075	123	38	73
AK1L	"	33,252	110	28	74
KA1UKR	"	8,016	61	13	35
W1B1H	28	238,654	603	32	106
K1VUT	"	117,936	353	29	88
N1HHR	"	456	18	5	7
W1RM	21	698,257	1488	36	125
KM1X	"	317,016	808	32	104
WA1FCN	"	155,622	506	29	83
NW1U	"	138,992	440	29	83
NX1P	"	72,480	213	32	88
K1XVL	"	34,410	169	24	57
K1VA	14	229,248	627	31	90
W1YU	"	224,451	504	35	118
K1UO	"	100,170	256	35	100
W1LQO	"	95,040	280	29	91
NT1Q	"	15,198	100	"	37
		(Opr. W1XG)			
K8P0/1	7	444,416	1204	29	99
K1MM	"	381,600	887	36	114
KC1XX	"	343,850	1040	28	87
K1WGM	"	189,540	568	30	86
W1B1H	"	185,592	570	30	81
W6MHK/1	"	31,360	139	19	61
W1FV	3.5	260,406	846	25	86
W1MK	"	244,088	821	27	77
W1BWS	"	18,333	198	13	50
K1IK	1.8	6,566	56	12	37
W8LY/1	"	4,002	36	14	32
W1FL	"	2,304	33	10	22
N2NT	A	5,132,415	3097	139	438
NZLT	"	4,052,075	2525	144	401
K2PS	"	2,522,640	1586	134	360
KU2C	"	1,882,383	1373	123	334
W2WZ	"	1,211,826	1150	107	259
W2WT	"	1,218,824	1013	113	299
KN2O	"	1,035,604	1022	92	264

N2WM	"	1,023,801	886	115	296
K3JG/2	"	928,613	871	107	264
KF2O	"	791,352	798	96	252
K2NV	"	750,832	765	85	254
WA2VYA	"	650,885	629	105	268
K2JLA	"	408,576	478	92	212
W2MT	"	390,486	461	87	215
WA2AXJ	"	353,220	427	83	207
K2PF	"	352,514	383	82	212
WJ2O	"	335,907	461	76	185
W2TF	"	323,202	443	73	176
N2MR	"	316,440	416	79	191
N2OY	"	301,301	363	90	211
WA2ORX	"	291,058	387	85	184
WA2ASQ	"	286,491	387	78	191
W2FR	"	286,426	361	80	207
NW2J	"	285,912	420	69	159
WA2VZQ	"	259,096	391	78	155
W2TO	"	250,306	334	83	183
N2AIF	"	248,325	326	85	190
NQ2O	"	208,896	287	88	184
W5K1/2	"	202,055	302	76	175
K2SWZ	"	152,157	271	64	137
K2AIO	"	152,096	239	67	157
W2ASM	"	126,852	239	58	128
W2KHQ	"	122,140	223	58	139
K2TKZ	"	112,112	206	68	140
K2IJ	"	103,512	236	42	110
KE2WK	"	84,762	200	49	104
N2GST	"	79,827	164	57	120
K2QNP	"	73,876	185	49	97
WA2UDT	"	71,526	156	67	115
W6ZDVU	"	67,670	183	38	96
W2FP	"	58,450	127	56	111
W2MU	"	46,170	123	47	88
W2AWF	"	39,257	263	65	132
W2FU	"	37,840	151	20	66
NA2U	"	35,055	114	47	76
NA2M	"	32,010	105	39	71
K2JF	"	31,916	116	32	69
W2GKZ	"	29,088	111	39	62
W2HCA	"	28,659	96	51	72
K2BN	"	26,077	102	29	60
K2BNU	"	20,306	96	19	52
K2UFT	"	18,616	81	32	52
KA2AOV	"	18,648	56	27	57
W2AOY	"	7,956	54	21	31
N2BIM	"	6,552	37	28	35
K2BSE	"	5,408	41	18	33
K2MFY	28	152,856	402	30	102
W2					
/JL1MUT	"	30,240	137	21	59
KM2X	"	28,589	41	11	23
KA2HSK	"	3,094	40	6	20
WB2YQH	21	166,797	448	34	95
W2FXA	"	94,022	304	29	77
KD2HE	"	26,250	140	23	47
WA2UZI	14	28,294	116	26	60
AE2N	"	6,222	83	12	22
W2VB	"	4,375	44	7	28
K12M/2	7	839,520	1783	34	125
K2QM/F	"	47,895	166	27	76
W2GGE	"	8,064	36	21	29
NS2W	"	27	3	1	2
K2RR	3.5	40,138	152	21	73
N2KA	"	17,918	103	15	47
KW2J	"	8,256	108	14	18
W2FCR	1.8	4,410	48	13	29
W2BN	"	1,404	28	4	17
K3TUP	A	4,448,178	2536	157	445
		(Opr. KC1F)			
K3ZO	"	4,296,800	2671	144	414
AA1K/3	"	4,199,616	2512	145	431
K3OO	"	4,138,337	2501	145	424
K3LR	"	4,018,014	2505	145	400
W3BGN	"	3,710,371	2478	135	376
K3NA	"	3,038,500	2066	140	375

WA4FTM	"	112,591	254	58	121
K4QO	"	85,225	189	63	112
KQ4G	"	82,062	202	48	93
WS4G	"	81,928	191	53	101
W4RW	"	77,672	183	41	105
KN4BP	"	50,264	140	41	81
KJ4KB	"	47,601	134	51	78
AB4YC	"	46,494	150	50	73
W4TYU	"	45,890	138	52	78
W4YN	"	42,180	136	46	88
N4LJS	"	41,922	175	47	90
AA2X/4	"	40,848	98	54	94
W4OVU	"	34,243	104	48	73
N04J	"	30,875	91	49	76
NU4Y	"	27,911	85	43	70
WD4JNS	"	15,570	66	40	50
K4FOY	"	12,520	60	34	46
NA4UZ	"	9,072	60	17	39
AA4EL	"	8,772	52	29	39
W4FDA	"	7,169	42	33	34
WB4RDV	"	5,928	42	22	30
AA4LR	"	668	15	4	12
NAZZ	28	495,520	959	34	114
WB4TDH	"	197,516	505	31	103
AA4NC	21	614,376	1310	38	123
N4MO	"	314,678	817	32	101
K4NNQ	"	25,116	129	22	47
K4AMC	14	213,210	547	35	103
K4CG	7	461,005	1143	33	104
K1ZZI/4	"	417,620	1003	30	103
N4UA	"	233,553	648	32	95
WA4SVO	"	74,793	252	28	79
WB4UBD	"	10,759	71	16	37
W4KMS	"	9,800	71	13	37
WR4K	3.5	59,805	215	25	76
K4TEA	1.8	12,033	79	17	46
AB4RU	"	7,830	56	18	40
KG4W	"	7,150	63	14	36
NA4UH	"	4,730	51	13	30
NA4VYZ	"	1,210	30	8	14
N5RZ	A	3,905,275	2240	158	447
AD5Q	"	1,934,544	1443	141	351
KM5G	"	1,132,115	1238	95	228
NS5W	"	1,046,661	775	134	349
N5HB	"	609,582	601	108	251
K5KLA	"	582,120	616	101	229
K5FUV	"	379,692	438	104	

G4BUE	456,112	1706	30	86	F1MGZ	9,804	83	16	41	DFBWS	271,215	868	34	89	ITALY	1,010,414	1204	100	279	SP4EEZ	223,652	658	37	106
63KDB	213,944	1262	20	74	F90E	9,455	58	26	36	DL4UL	145,476	530	31	67	I2SVA	470,721	846	81	186	SP9NLI	25,854	177	18	44
G4ARI	44,226	553	9	45	FD1NLX	5,400	74	16	34	DJ7MG	115,584	429	31	75	IK8FWI	420,993	762	74	187	SP2NBP	21,629	216	13	30
FAROE ISLANDS					FB10MN	5,232	55	21	27	DL8LA	110,335	420	33	72	IK2AAB	337,610	621	66	179	SP8HKE	14,790	122	16	35
OY1CT	565,360	1066	77	219	FB1P0G	3,240	40	18	18	Y37ZE	106,750	331	33	89	IK1NDB	298,540	662	64	172	SP3LYM	2,142	48	7	19
OY3QN	478,875	1873	33	92	FI1LY	89,105	284	29	56	DL1EFW	70,343	340	27	59	IK8EJN	152,830	429	52	118	SP3AOT	91	9	3	4
FINLAND					FI1JDG	58,616	390	22	46	/P	42,725	212	23	60	IK8LVH	114,422	336	51	103	SP5CJT	105,630	529	29	76
OH6YF	2,514,966	2427	120	318	FC6XJ	46,020	245	23	55	DF7TU	42,265	211	26	53	IK3FZD	114,208	340	53	113	SP6PFC	63,101	420	21	67
OH2PM	2,461,560	2008	133	280	FE1LHI	33,534	325	22	32	DL8WN	38,857	243	21	40	IK0FUH	103,824	239	61	107	SP2JGK	37,855	302	18	49
OH1AF	2,107,577	2301	109	300	FGFKL	7,733	87	14	23	DJ2IB	35,670	171	26	61	IK7LMR	74,976	257	48	84	SP8BAB	34,808	174	24	52
(Opr. OH1MNR)					FF6KFR	361,020	1172	35	97	DL1EAL	27,010	133	24	49	IK0UFZ	27,039	189	55	122	SP8LZC	32,300	273	18	50
OH8LG	1,264,290	2262	70	185	F6FJE	68,495	293	27	68	Y22UB	23,750	92	31	64	IK50QV	64,371	251	41	88	SP8HXN	20,280	173	17	48
OH6VR	984,312	1023	102	290	F9DK	62,424	403	25	47	Y38YE	21,900	162	18	36	IK2ECP	52,932	322	45	87	SP4GHL	18,420	146	17	43
OH6NEV	380,952	514	89	244	FVBNDX	431,964	1533	36	106	DL50BD	21,518	129	20	38	IK1GPG	52,855	145	57	98	SP6PAX	8,235	151	10	35
OH1TN	357,960	571	90	224	F6DKV	237,456	1235	25	77	DK0TZ	21,488	119	25	43	IK0FEC	47,886	142	56	82	SP9M CZ	4,032	100	8	20
OH2LP	342,236	613	69	202	FD1LMJ	26,970	254	16	46	Y23IL	20,703	121	23	44	IK0HBN	43,248	165	41	61	SP8KEA	2,800	61	12	16
OH3NM	235,296	379	78	210	F6BJC	13,566	131	15	36	Y21JH	7,421	61	17	24	IK3HHY	25,234	139	29	45	SP3KPN	162	8	4	5
OH80T	177,408	360	59	133	F6AML	18,639	300	9	48	Y25GH	7,141	72	14	23	IK0JHW	5,234	139	29	45	SP5W	459,720	1892	32	88
OH9EVL	156,800	474	51	124	GERMANY					Y25YA/A	4,371	49	13	18	I2HVE	129,090	543	36	94	(Opr. SP5JTF)				
(Opr. OH6CD)					DK9ZB	2,223,554	1875	141	327	DL9SD	4,200	49	11	19	IL3GR	9,384	66	20	31	SP8GQU	176,295	779	27	78
OH4M CV	149,205	332	68	135	DJ2YA	2,027,046	1391	151	427	Y62UA	4,128	72	10	14	IJ9SS	542,864	1468	38	110	SP7LDB	66,130	440	25	60
OH3JF	131,906	271	76	126	DJ5JH	1,429,740	1360	123	347	Y25DA	2,220	27	12	18	IN3NJB	124,589	776	25	76	SP3JZD	40,584	226	23	66
OH7NW	116,958	348	52	141	DL20BF	1,370,502	1339	115	332	DK4JN	475,134	1426	35	103	IK8ADY	33,120	244	23	57	SP9UMX	17,249	216	11	36
OH2VZ	95,880	216	71	117	OF1XC	1,152,576	1118	108	356	DL8IU	425,140	1148	38	107	IG8R	460,554	1939	33	85	SP9MJK	133,480	852	15	56
OH2BFL	91,701	169	76	131	DL1JF	933,660	1173	96	294	Y53YN	69,139	360	25	58	IGVHO	86,358	862	18	56	SP9AAB	30,668	358	11	57
OH3YM	81,072	309	42	102	Y42DA	892,316	1001	108	290	DJ4WS	63,232	832	24	52	IGFUM	4,996	110	7	35	SP9MJB	17,524	273	10	42
OH2RL	59,015	199	48	97	DL3YBM	888,404	1218	92	239	DL3MCG	27,755	186	17	44	IK5BCU	9,471	225	6	35	SP9NLK	9,200	171	10	31
OH200	32,745	185	47	130	DJ4AX	837,612	838	126	351	Y26S0	24,288	154	19	47	IGVHO	86,358	862	18	56	SP3DFB	4,140	112	5	31
OH4NS	29,498	106	35	63	DJ20BF	826,324	1264	78	259	Y21YT	53,508	352	21	57	IGVHO	4,996	110	7	35	SP8FNA	3,608	48	11	30
OH1YM	22,936	98	41	81	DK70B	777,420	1034	85	230	DL2SBY	52,851	330	20	59	JX7DFA	523,204	2338	29	42	SP4LDT	285	17	3	12
OH2BYS	18,256	71	43	69	DK70B	621,138	933	86	236	DL2ATJ	23,790	197	17	44	IX2AA	13,279	279	13	36	SP5GH	4,876	57	14	46
OH5FA	16,150	188	22	63	DL3LQU	529,971	640	103	278	DL1D5	10,540	170	17	48	IX2AA	13,279	279	13	36	SP5TT	4,387	96	7	34
OH7AA	16,056	101	30	42	DL90E	527,460	840	83	215	Y23HN	12,243	133	15	38	PORTUGAL									
(Opr. OH7NRW)					DLZCF	467,088	681	86	210	Y26DM	11,067	94	9	41	CT1CWT	121,088	337	52	120	(Opr. CT8D)				
OH8MIL	12,160	89	22	42	JF1SD	445,686	617	94	252	Y23JRJ	8,950	79	13	37	CT8D	139,461	831	22	65	(Opr. CT12C)				
OH7SM	7,938	82	11	53	DL80S	435,210	675	85	241	Y23BF	1,075	18	10	15	CT12C	6	1	1	1	(Opr. CT4DX)				
OH2BN	5,546	44	20	27	DL1TH	418,026	734	79	190	Y42MK	716,976	2051	36	108	IX2AA	13,279	279	13	36	ROMANIA				
OH1PY	4,462	36	19	23	DK5AD	391,149	652	85	212	DA0DX	452,723	1451	33	106	3A9BF	29,841	266	59	87	(Opr. Y02DFA)				
OH2KU	186	17	3	3	DK3YD	331,344	690	67	169	DF0DF	403,788	1350	32	100	NETHERLANDS					Y02DFA	553,355	971	93	230
OH2BFS	224	10	4	10	DK3YD	322,660	495	87	205	DJ5GG	50,232	289	23	61	(Opr. PA3BTH)					Y08MI	72,588	324	39	99
OH2HD	556,402	1388	36	118	DK8KC	320,274	612	71	172	DL3DA	43,213	277	17	62	(Opr. PA3BTH)					Y09AHX	48,190	252	36	88
OH1AJ	220,077	595	36	107	DL1IAO	294,265	630	74	155	DJ7RJ	40,670	238	23	60	(Opr. PA3FNE)					Y06ADW	40,833	214	34	79
OH3TY	165,150	433	37	113	DL9EY	292,094	517	78	164	Y23CM	19,234	143	14	45	(Opr. PA3BNT)					Y03CR	36,075	195	32	79
OH1BJ	80,855	337	29	74	DL2HQ	273,672	604	63	153	DJ2YE	9,072	91	10	32	(Opr. PA3DKX)					Y07ARZ	13,570	125	15	44
OH8MIZ	63,030	468	21	45	DJ1YH	252,168	420	74	192	DK3LM	3,910	115	11	23	(Opr. PA3GIN)					Y080H	4,860	138	8	28
OH2MPO	46,640	217	27	61	Y27EO	248,864	515	66	136	Y24ON	3,154	65	8	30	(Opr. PA8KHS)					Y06FGN	3,871	66	15	34
OH5PA	32,400	145	26	64	DF4ZL	246,100	506	69	161	Y24ON	1,102	32	6	13	(Opr. PA8GIN)					Y08RL	3,366	43	18	33
OH2YL	5,005	55	15	20	DL9NC	230,420	503	62	143	Y21CL	920	19	14	14	(Opr. PA8YIN)					Y06BTY	2,652	76	11	23
OH6NID	414,306	1325	32	98	DL9NC	228,818	491	63	128	DL2SAX	113,646	910	17	61	(Opr. PA8YIN)					Y03FRI	1,543	52	8	23
OH5MQE	115,566	549	28	75	DL4FJ	224,536	527	64	157	DL1HBT	91,492	684	20	69	(Opr. PA8YIN)					Y09DLBYR	255	12	6	9
OH3MC	100,122	361	33	76	Y25OF	222,955	553	68	147	Y25ZN	27,360	394	10	47	(Opr. PA3BNH)					/M	255	12	6	9
OH8NLC	74,430	349	25	65	DL1ZQ	219,440	446	63	145	DK2GZ	21,560	337	10	45	(Opr. PA3CNI)					Y05BRZ	84,148	300	32	77
OH7NGM	57,720	222	23	65	DL4ZBY	218,250	492	61	133	DJ3TF	14,100	141	12	48	(Opr. PA2REH)					Y06PA	68,174	397	25	64
OH8LC	52,532	300	27	65	DJ5AV	200,838	525	57	130	Y28GN	2,775	81	13	24	(Opr. PA3ADJ)					Y09HP	397	25	64	
OH3MC	38,364	196	30	62	DK1II	193,454	581	49	148	Y34SE	17,170	346	8	47	(Opr. PA3ADJ)					Y04BBH	8,600	100	13	30
OH1FQ	34,383	213	21	52	DL780	178,716	490	62	150	Y1JSL	10,123	175	8	45	(Opr. PA3ADJ)					Y05BEU	1,540	35	8	12
OH2BNT	30,540	220	18	42	Y23TL	169,834	804	27	71	Y22PE	5,480	143	6	34	(Opr. PA3ADJ)					Y08BG	116,503	641	28	85
OH6MBQ	30,012	235	18	43	Y22RE	164,982	363	60	126	Y24OL	580	31	3	17	(Opr. PA3ADJ)					Y04BEX	11,232	102	17	37
OH400	20,075	108	22	51	Y25YI	156,180	234	90	195	GREECE					NORWAY	1,007,041	1251	75	205	Y03BWK	4,900	40	19	31
OH7NVU	16,390	187	15	34	DF2UU	153,000	231	208	510	(Opr. SV1RP/2)					LA66F	730,565	871	95	264	Y04FSJ	55,752	525	15	54
OH7MKR	15,925	126	15	34	DL8MG	150,539	360	30	149	(Opr. SV1RP/2)					LA9WH	570,110	1072	70	165	Y08YD	32,193	203	22	51
OH2BH	915,136	2454	36	122	DL8MG	1																		

ICOM	
IC-735 HF Xcvr./Gen. Cov. Rcvr.	\$939.00
PS-55 AC Power Supply	196.00
AT-150 HF Automatic Antenna Tuner	369.00
AH-2A HF Automatic Antenna Tuner	479.00
SM-8 Desk Microphone	89.00
HP-2 Communication Headphones	43.50
IC-R7000 Communications Receiver	999.00
IC-28H 2-Meter, FM, 45 Watt Xcvr.	399.00
IC-228H 2-Meter, FM, 45 Watt Xcvr.	419.00
IC-229H 2-Meter, FM, 50 Watt Xcvr.	359.00
IC-2GAT 2-Mtr., FM, Handheld With T-T	364.50
IC-2SAT 2-Mtr., FM, Mini Handheld W/T-T	309.50
IC-24AT 2-Mtr./440-MHz., FM, Mini H-H W/T-T	399.50
IC-W2A 2-Mtr./440-MHz., FM, Mini H-H W/T-T	519.50
BP-4 Battery Case	16.00
BP-5 10.8 VDC, 425 mA AH., Ni-Cad Batt. Pack	65.00
BP-7 13.2 VDC, 425 mA AH., Ni-Cad Batt. Pack	79.00
BP-8 8.4 VDC, 800 mA AH., Ni-Cad Batt. Pack	79.00
BP-83 7.2 VDC, 600 mA AH., Ni-Cad Batt. Pack	49.00
BP-84 7.2 VDC, 1000 mA AH., Ni-Cad Batt. Pack	75.00
BP-90 Battery Case	16.00
BC-16U AC Wall Charger For BP-7, 9	21.25
BC-74A AC Wall Chg., BP-81, 82, 83, 84, 85, Int.	21.25
BC-35 Drop-In Rapid Charger; BP-2, 5, 7, 8	79.00
BC-72A Drop-In Chg., BP-81, 82, 83, 84, 85, Int.	99.00
CP-1 Cigarette Lighter Cable	13.65
CP-11 Cigarette Lighter Cable W/Noise Filter	18.99
CP-12 Cigarette Lighter Cable W/Noise Filter	18.49
CP-13 Cigarette Lighter Cable W/Noise Filter	18.49
AD-12 External Power Adapter For IC-2GAT	24.50
BA-12 Bat. Chg. Adap.; IC-2SAT/Int. Bat./BC-72A	16.99
HM-46 Speaker/Microphone	31.99
HM-54 Speaker/Microphone	47.00
AEA	
IsoPole-144 2-Meter Vertical Antenna	\$49.95
MM-3 Memory Keyer	179.95
PK-88 HF/VHF Packet TNC	124.95
PK-232MBX Multi-Mode Data Controller	319.95
BELDEN	
8000 #14 Stranded Copper/Steel Antenna Wire ... \$/Ft.	15/
8214 RG-8/U Foam Coax Cable	52/Ft.
8240 RG-58/U Coax Cable	18/Ft.
8241 RG-59/U Coax Cable	17/Ft.
8448 8-Conductor, 6-#22, 2-#18, Rotor Cable	38/Ft.
8484 4-Conductor, #20, Rotor Cable	20/Ft.
8485 5-Conductor, #20, Rotor Cable	25/Ft.
9258 RG-8/X Foam Coax Cable	24/Ft.
9913 RG-8/U-Type Low Loss Coax Cable	58/Ft.
83242 RG-142B/U Teflon/Silver Coax Cable	1.30/Ft.
CUSHCRAFT	
A3S 14, 21, 28-MHz., 3-Element Beam	\$312.00
AP8 3.5, 7, 10, 14, 21, 24, 28-MHz. Vertical	179.00
APR18 Radial Kit For AP8	44.00
R5 14, 18, 21, 24, 28-MHz. Vertical	252.00
ARX-2B 2-Meter, Ringo Ranger II Vertical	46.00
ARX-450B 450-MHz., Ringo Ranger II Vertical	46.00
124WB 144 to 148 MHz., 4-Element Beam	46.00
215WB 144 to 148 MHz., 15-Element Beam	98.00
A147-11 146 to 148 MHz., 11-Element Beam	60.00
A449-11 440 to 450-MHz., 11-Element Beam	53.00
ASTRON	
RS-7A 13.8 VDC, 7 Amp Int., 5 Amp Cont.	\$48.94
RS-12A 13.8 VDC, 12 Amp Int., 9 Amp Cont.	70.54
RS-20A 13.8 VDC, 20 Amp Int., 16 Amp Cont.	88.14
RS-35A 13.8 VDC, 35 Amp Int., 25 Amp Cont.	140.94
RS-12M Same As RS-12A, With Meters	81.34
RS-20M Same As RS-20A, With Meters	107.34
RS-35M Same As RS-35A, With Meters	158.94
RM-35M Rack Mount Version Of RS-35M	225.94
VS-35M Same As RS-35M, Adj. Volt./Curr.	170.74
VS-50M 13.8 VDC, 50A Int., 37A Cont., Adj.	234.34
UPS/Insurance Charges Are Additional MC And VISA Orders Are Accepted Prices Subject To Change Without Notice	

LaRue Electronics
1112 GRANDVIEW STREET
SCRANTON, PENNSYLVANIA 18509
PHONE (717) 343-2124

CIRCLE 90 ON READER SERVICE CARD

WA7BPI	**	884,425	745	128	297
W7WHY	**	387,296	480	104	200
N7KZN	**	366,360	477	103	181
K7RO	**	339,160	529	81	163
WA8RJV	**				
/7	**	241,713	363	86	165
KA7CSE	**	158,238	324	75	122
W7MCU	**	130,680	198	105	159
K8MR	A	2,157,791	1407	146	383
NG8D	**	1,505,520	1179	120	339
KE8M	**	808,311	778	116	311
N8BC	**	413,490	437	102	256
KB8FJ	**	62,250	156	54	96
WB8WTS	**	30,989	96	46	87
KK9V	A	2,024,494	1321	144	394
NG9W	**	375,570	425	101	220
WE9R	**	152,308	296	66	136
W9XT	28	345,233	806	35	114
K9OSH	14	12,000	73	16	44
N9AU	7	97,042	287	30	91
WA9MAG	**	80,964	244	27	90
K9GS	**	26,322	117	20	62
WW9L	3.5	13,376	99	17	47
N2IC/B	A	3,728,264	2167	161	432
W0PC	**	864,006	748	137	281
ND0F	**	153,512	290	87	161
N0AT	**	64,713	142	66	93
WB9ZRL	**				
/0	**	52,052	130	41	102
WBIZ	7	32,775	107	30	85

ASIA

JAPAN

JE7WB1/A	A	627,075	972	86	139
JE4WSA	**	548,376	695	105	187
JA40PW	**	230,808	374	89	147
JA1YEW	**				
/3	**	25,308	85	53	61
7L16VE	21	875,945	2173	37	108
			(Opr. JAKJCJ)		
JL2LPX	14	17,550	125	24	41

EUROPE

AUSTRIA

OE1TKW	A	26,890	100	43	97
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BELGIUM

ON4AMT	A	414,729	700	68	193
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CZECHOSLOVAKIA

OK1ALW	A	4,502,748	2896	156	452
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DENMARK

OZ7NB	A	23,822	164	30	156
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ENGLAND

G4GIR	21	88,825	456	25	76
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GERMANY

DL6FBL	A	3,358,345	2125	164	503
DJ2YA	**	2,027,046	1391	151	427
DL1SBR	**	185,656	416	64	120
DL5ROD	28	240,983	715	34	103
DL4EAL	**	27,010	133	24	49

ITALY

I2UIY	A	569,184	775	92	216
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NORWAY

LA9VDA	14	209,070	1045	26	75
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SWEDEN

SM3SGP	A	1,071,115	1180	104	311
SM6LPF	**	269,059	424	89	200

ORP

H18A	A	2,549,592	2698	116	292
			(Opr. JA5DOH)		
YU3BC	**	1,056,261	1122	109	308
AA2U	**	1,039,678	894	112	297
NM2L	**	914,034	886	103	260
W2TZ	**	801,568	937	82	214
K5RX	**	756,952	692	116	276
N4KG	**	748,410	691	114	276
NX7K	**	709,665	743	113	234
K1CGJ	**	701,838	673	97	272
WB0U	**	675,840	588	110	242
SM0DJZ	**	627,300	833	94	246
KN1M	**	490,314	551	87	236
K2WK	**	452,518	518	94	213
N1AFC	**	426,388	551	72	196
N7IR	**	413,174	552	86	176
Y25NA	**	365,820	642	73	187
SM5CCT	**	339,300	648	72	188

UB4IM	**	299,054	622	81	206
DL2HQ	**	273,672	604	63	153
OKBALU	**	270,300	568	71	184
UA4LDJ	**	264,000	627	71	179
KB9S	**	233,772	362	75	166
UA6LIG	**	201,160	666	56	158
SM0BYD	**	197,400	525	58	142
UA9SG	**	195,392	520	52	120
SM6BSK	**	187,275	418	63	186
DK3CUG	**	182,160	498	56	164
Y23TL	**	178,716	490	62	150
NJ1T	**	176,484	278	65	166
OK2PCN	**	172,710	457	57	145
JA4YJ	**	168,034	413	61	162
IS0LYN	**	149,872	308	68	164
UB5PCS	**	125,001	428	37	116
K9PNG	**	118,728	229	72	122
Y26JD	**	112,500	396	42	108
W9LNU	**	110,722	242	60	105
SP2GUC	**	96,195	249	60	105
PA0ADT	**	94,640	338	42	88
LA2HFA	**	92,264	301	42	110
GM4HGF	**	90,981	379	35	64
LA1XDA	**	87,642	291	54	108
W4DFC	**	82,665	194	55	110
4N4AE	**	82,582	252	46	111
SM5DD	**	73,164	281	44	112
OM6HR	**	69,977	289	34	83
KE0UI	**	62,150	197	36	74
UQ2GTW	**	58,310	497	17	81
W3ZZ	**	57,216	156	34	94
EA1GT	**	57,024	315	31	65
DL4GBR	**	56,832	276	38	73
UQ2GSW	**	49,569	247	40	83
WT5U	**	48,177	167	32	69
W0NGB	**	44,238	156	33	68
DK4CU	**	40,845	164	31	74
Y06ADW	**	39,437	215	34	79
Y03CR	**	36,075	194	32	112
UB5ZME	**	34,435	255	18	53
W09IWP	**	26,936	96	41	63
W7PDE	**	24,992	101	31	57
UQ50UL	**	23,328	129	31	77
VE7HR	**	21,168	168	28	26
PY2IAX	**	19,074	106	26	40
Y06FPZ	**	15,795	144	21	60
PA0TA	**	15,106	110	32	59
N7EPD	**	11,214	66	28	35
Y08KOS	**	10,919	162	26	45
K3YD	**	10,240	56	39	41
N9GPF/8	**	9,717	58	34	45
VK2FCA	**	9,408	60	28	36
SM7CZC	**	9,176	70	26	48
DL5OK	**	8,932	68	27	50
VE2BLX	**	7,728	52	27	29
UA1NEJ	**	6,993	100	12	25
J7JAGQ/2	**	6,304	69	16	16
			(Opr. N6IP)		
EA30FW	**	5,568	52	16	32
Y43Z1	**	5,586	36	23	34
VE2ABD	**	2,750	65	10	15

Y24XH	**	2,301	44	15	24
U70XWA	**	1,206	52	9	9
NF9X	**	1,056</			