

Results of The 1990 CQ World-Wide DX SSB Contest

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

Looking back over the last year with dramatic change and turmoil in the world almost every day, it is hard to imagine what else lies around the corner. As I sit and write this article, the moon is eclipsing the sun in northern California. Everyone along its path has temporarily forgotten their troubles, and they are focused on a common event. Just like last year, we are all forgetting about our troubles and are joined in a worldwide engrossing event.

Here are a few comments that stand out: "Never had more fun in my whole life" . . . 9M6HF. "Ham radio is like golf. You don't have to be good at it to have fun" . . . KI6PG. "Anyone who doesn't work this contest is brain dead!" . . . N6VMS. Thanks for a once-in-a-lifetime contest. CQ WW is the best! . . . KRØY. "Over 100 countries on one band in a contest for the first time" . . . N2UN. "This was my first contest 'without pencil'" . . . OH1BV. "Many hams, much QRM, big pleasure" . . . YO3DCO.

Everyone was hoping that cycle 22 would hold on long enough for the 1990 fall season. It looked like the cycle was declining slowly and that great conditions on the high bands would soon be put to bed for another 11 years. Contesters from Novices to old timers kept their fingers crossed. DXpeditions were heading out to the far corners of the world, the result of months of planning by American, Japanese, Finnish, French, German, Hungarian, and English hams. As the clock ticked toward 0000Z, anyone who tuned the bands could hear the encouraging number of stations from all over the world testing out their signals. "CQ, this is CN0A. Anyone copy?" The roar on the frequency was encouraging. CQ, this is it. This is the fun that novices and experts both share. Stay tuned for the results.

All-Band Results

If it's true as KI6PG commented that ham radio is like golf, then this year's winner finished far under par. Martti Laine, OH2BH, operating from CT3BH, took his way to a new world record that makes everyone take notice. Martti asked, "Where is the world's best location? Many people go too far out for fishing." Martti sure found the best fishing for the 1990 contest, reeling in over 7000 QSOs. Combining good multipliers on the low bands because of his proximity to Europe with high rates on the high bands, he broke his old record by 2 million points.

Over in the Pacific Ocean, Rich, N6KT, was also looking for that same special location. He traveled down to HC8A, where after a week of hard work rebuilding antennas, he finished

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The operators of PJ1B, new holders of the world multi-multi record. Left to right standing K2EK, W3HHG, N4RV, KB2XZ, NL7GP, WW2Y, K2SS, K3EST, W3BSY; kneeling N3ED, N7ZZ, WA3LRO.

second in a close race with FG5R operated by Jim, W7EJ.

Go west, young man. That is exactly what the USA top scorer did. Hitting the ground running after his fine finish in the Goodwill Games, Jeff, KRØY, steered WM5G to the USA championship. Combining the best of JAs and Europe openings made for a Texas-sized score.

Before the European signals made it to Texas, they had to pass through K3OO's OTH. Rick caught enough of them to take second-place honors. As Yugoslavia tries to sort out its problems, our man in Slovenia, YT3AA, had no trouble in setting his sights on establishing a new European record. He did just that. Tine handed out YT90A enough times to walk away with 7 million points and the European crown. Second place goes to Steve, GW4BLE.

High-Band Results

"Very nice to work CQ WW like inside a mosquito cloud. Hi! Hi!" . . . 4D. Well, that about sums up the activity on 28 MHz this year. From 300 to 900, the band was humming. A new world record was established by ZPØY operated by Luis, ZP5JCY. Putting 5400 QSOs in the log is not an easy task even for an all band entry. That is just what Luis did to end up on top of PQ5C and LS6T. In the US, NR5M from Texas ran away from the pack to take top 28 MHz honors. The scores on 10 reflect the widespread band opening from 1- to 7-band in the USA top six. Bill, WØZV, from Colorado, finished second over Doug, K1DG, from New Hampshire. Except for 4N3AA, 28 MHz was a North/South American contest. He just edged out LZ1KOZ for the high European score.

Fifteen meters was greatly improved over the previous year. Three stations broke the 2 million point barrier. K4UEE operating from P4ØR set a new world record. He sure likes to set new records. Every year he seems to set another one. Frank, 9Y4VU, pushed the gasoline pedal down and finished second with a fine 2.2 million points. In the US it was a northeast competition for top honors. The spot goes to NG2X, who ran away from the pack. NB2P finished second with a fine effort. Reflecting the worldwide great conditions on 21 MHz, CQ4A operated by CT1BOP finished the test with 1.7 M points for a new European record. YU3PV operating from a mountain in Slovenia drew a second-place finish.

Looking at the results on 14 MHz does not show the hard work it takes to stick with the effort in spite of the continuous QRM. Sometimes the band was open to every continent at once. If you called CQ, a JA, SV, KP4, and ZS might call you at the same time! After the dust settled, the world winner was YV3A operated by YV5IVB. Not far behind was CQ Contest Hall of Famer, AI, G3FXB. He finished as top score in Europe. Second in Europe was the famous club station YU1EXY operated by YU6AR. Finishing first in the US but just missing the US record was John, W1RR. John finished ahead of another John, K2VV.

Low-Band Results

This was quite a year. Not only were the conditions on the high bands great, but the conditions on the low were also outstanding. Over 150 countries were available on 7 MHz if you could have worked them all. The single op who



Always a big signal by the boys from RT1U, the #1 UB-score. Left to right: UT4UZ, UA9CSS, UT5UGR, UV9CP, UT3UA; front UB5CGN.

put together the best combination of QSOs and countries was ZF2JR operated by N6RJ. Jim set a new world record. In his log you could see where he checked into daytime nets to work strings of Cubans and other Caribbean stations. Second place goes 4000 miles farther east to IK5BAF, who took the European title. Second in Europe goes to avid contestor DL3OI. KVQW was doing something right. It is not easy to win this band from the west, but that is just what he did. NQ2D and W2SC/1 finished second and third, respectively.

Wow! The scores on 3.7 went through the ceiling. HA8IE was not satisfied with just breaking the European record. He set a new all-time world record as well. GW4OFQ took both second in the world and Europe. In the States, Bob, W6RJ, continued to astound the competition by finishing third in the world and number one in the USA—quite an effort from the west coast. The long-path opening to Europe must have been good. Moving up to fourth in the world and second in the US was N2KK.

Taking advantage of good top-band conditions and looking into Europe, UG6GAW more than tripled the next highest score. Of course, it is not so easy to get multipliers and QSOs from Nova Scotia. That is where VE1ZZ took second place. Once again the US's outstanding 160 meter operator is Rick, K5UR. He sure appears as the first W in a lot of DX logs. He was followed by W2FCR. In Europe UT5DK took the top-band honors by beating OM6JDX.

Multi-Op Categories

In a year with so much activity from everywhere it was not surprising to see so many high-scoring multi-single scores. The top four teams were from four different continents. The Italian team of IQ4A out-distanced the rest with an outstanding score of 17 M. Finishing second was 8P9X, a bunch of great ops who every year go on their "fishing trip" to catch the big one—the CQ WW. A joint Hungarian and Turkish team made everyone happy with YM5KA. Finishing second in Europe was the familiar club call of LZ9A.

In the USA the team of K1AR set a new US record. They did not just set the record, they exploded the old record. Using K1EA to its highest efficiency, they racked up an unbelievable multiplier. Look at their band-by-band breakdown and compare that against the multi-multi.

The multi-multi category was unbelievably fought over. All the top six world scores have a special story to tell. They brought out the best in contesting with hard work. The two South American giants, PJ1B and PJ9W, fought it out in true contesting style. Both stations were erected just for the contest. All the antennas, cabling, and electrical supply had to be put up just before the test. And these were not just little stations. PJ9W erected a station which might have been the largest ham radio installation anywhere just for the two CQ WW test weekends! For example, 24 elements on 28 MHz was just the main antenna. PJ1B was not far behind with 8 elements on 14 through 10. All PJ9W's antennas as well as their towers were homebrew!

The team of KH0AM carried all their antennas and equipment to Saipan the week before the test. After setting up on the roof of a hotel, this all-Japanese team waited to see how they would do against the Southern California Contest Club's effort at 5W1.

Meanwhile in the States, N2RM was getting ready in a small room in eastern New Jersey to try to break W3LPL's record. N5AU and W3LPL both tried to assemble the best operators they could find to operate their well-planned stations. Out in the far northwest W7XR was taking up the tradition from the Seattle area trying to win or put a scare into the east coast boys.

As the contest approached, strategy at all the multi-multiples was kept very secret. What was the advantage of each of the other's band setups? Who were the other teams' operators? What were their weaknesses? How can we take advantage of the team's weak points? . . . and then the contest began. After the test was finished, the new world champion was PJ1B, setting a world record that may last until the next sunspot maximum. Their 57M+ points involved great skill in passing multipliers from band to band. If you look at their multipliers, you may wonder how such a large multiplier can happen. It doesn't happen just by looking for mults or calling CQ. It means that everyone operating must know at all times which mults are needed on another band and they must know to pass them at the right time.

Fifty miles away PJ9W settled for second place in the world with 51 M points. Setting a new Oceania record was KH0AM. Trying to get as many QSOs as possible, they were even working JAs on 10 meter FM! In the US N2RM apparently found their cramped QTH to their

liking by setting a new US record. Second place went to the boys from Texas. The number one score from Europe was IQ3A on a mountaintop in northern Italy.

QRP Results

Three stations topped a million points this year. Some of the operators could run stations at 60/hour for a while. The QRP category also had the lowest unique rate of anyone in the contest—less than 1%. It shows that when you call someone, you probably will have their call right. The number one score in the world this year goes to Doug, KR2Q. Operating from northern New Jersey, he operated almost the full 48 hours to edge out 4M1G. Number-three K5RX had the largest QRP multiplier in the world.

Assisted

This category continues to grow each year. Participation from Europe and Japan is growing. It appears as if the Yankee Clipper Contest Club packet system is very effective. Almost all the top ten scores are from that area. The winner of the world crown is Jeff, K1ZM, who was followed closely by K1TO. The top non-W score comes from Ulli, DJ2YA.

New Records

The following stations enter the All-Time Records list found in the October issue of *CQ*.

World. All Band: CT3BH (Opr. OH2BH); 28 MHz: ZP0Y (Opr. ZP5JCY); 21 MHz: P40R (Opr. K4UEE); 7 MHz: ZF2JR (Opr. N6RJ); 3.7 MHz: HA8IE; Multi-Multi: PJ1B.

North America. All Band: FG5R; 7 MHz: ZF2JR (Opr. N6RJ); Multi-Single: 8P9X.

Europe. All Band: YT90A (Opr. YT3AA); 21 MHz: CQ4A (Opr. CT1BOP); 7 MHz: IK5BAF; 3.7 MHz: HA8IE; Multi-Single: IQ4A.

Asia. 21 MHz: 7L1GVE; 7 MHz: JA8IXM; Multi-Single: YM5KA.

Africa. All Band: CT3BH (Opr. OH2BH); 14 MHz: EA9LZ.

South America. 28 MHz: ZP0Y (Opr. ZP5JCY); 21 MHz: P40R (Opr. K4UEE); Multi-Multi: PJ1B.

Oceania. All Band: YJ1A (Opr. OH1RY); Multi-Multi: KH0AM.

USA. Multi-Single: K1AR; Multi-Multi: N2RM.

Congratulations to these fine operators.

Comments

It should be remembered that the CQ WW multipliers are determined by the DXCC and WAE country lists. Last year after the SSB test the ARRL decided that East and West Germany count as one country, Germany. The new German country was credited before the SSB test! However, when the contest took place, there were two Germanys. When the contest begins the list is the list. I guess someday we will have to face the problem of a new country occurring during a CQ WW test.

Please take a careful look at the rules this year. After receiving letters and through conversations with hams from around the world, it has been decided to start a new low-power cat-



Where are all the young hams? They have a good foothold on Cyprus. All the operators at 5B30ES were 17 years old. Left to right: 5B4WN, 5B4XF, 5B4XN, 5B4WS.

TROPHY WINNERS AND DONORS

Single Operator, All Band World

CT3BH (Opr. Martti Laine, OH2BH)
Donor: Dave Rosen, K2GM
WA2RAU Memorial

U.S.A.

WM5G (Opr. Jeffrey Steinman, KR0Y)
Donor: Potomac Valley Radio Club
KC8C Memorial

Carib./C.A.

FG5R (Opr. Jim Sullivan, W7EJ)
Donor: Alex M. Kasevich, VP2MM

Europe

YT9BA (Opr. Tine Brajnik, YT3AA)
Donor: Potomac Valley Radio Club
W4BVV Memorial

Africa

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

Asia

L.V. Welikanov, RL8O
Donor: Japan CQ Publishing Company Ltd.

Oceania

YJ1A (Opr. Pekka Kolehmainen, OH1RY)
Donor: Northern California DX Club

South America

HC8A (Opr. Richard Smith, N6KT)
Donor: CQ Magazine

Japan

Akira Asai, JA8RWU
Donor: Japan Crazy Contesters

World—Single Operator Assisted

Jeffrey Briggs, K1ZM

Donor: Pavilion Software

World QRP

Doug Zwiebel, KR2Q
Donor: Milliwatt Books, W0RSP

SINGLE OPERATOR, SINGLE BAND

World—28 MHz

ZP8Y (Opr. Luis Kemper, ZP5JCY)
Donor: Joel Chalmers, KG6DX

World—21 MHz

P48R (Opr. Robert Allphin, K4UEE)
Donor: Peter R.D. Munroe, WB1DQC

World—14 MHz

YV3A (Opr. Pablo Alonso, YV5IVB)
Donor: North Jersey DX Assn.
K2HLB Memorial

World—7 MHz

ZF2JR (Opr. James Rafferty, N6RJ)
Donor: Fred Laun, K3ZO
K7ZZ Memorial

World—3.7 MHz

Ferenc Deim, HABIE
Donor: Fred Capossela, K6SSS

U.S.A.—28 MHz

George A. De Montrond III, NR5M
Donor: Donald Thomas, N6DT

U.S.A.—21 MHz

Bradley Petersen, NG2X
Donor: Bill Gioia, K2EK

U.S.A.—14 MHz

John Kenny, W1RR

Donor: Southern California DX Club

U.S.A.—7 MHz

William Johnson, KV8Q

Donor: Stanley Cohen, WD8QDQ

U.S.A.—3.7 MHz

Robert Ferrero, W6RJ

Donor: Arnold Tamchin, W2HCW

Caribbean/Central America (21 MHz)

Franklin Brooker, 9Y4VU

Donor: Pedro Plaza, Jr., NP4A
KP4ES Memorial

Europe—28 MHz Zone 14

DF8SSB (Opr. Hans-Joachim Burger, DF9ZP)
Donor: A.G. Anderson, GM3BCL

Japan—28 MHz

Tadao Katsuta, JH7DN0

Donor: Take Yokoyama, JL1BLW

Japan—21 MHz

Hiro Shiozawa, 7L1GVE

Donor: DX Family Foundation

MULTI-OPERATOR, SINGLE TRANSMITTER

World

IQ4A (I4AVG, I4EAT, I4EWH, I4IKW, I4IND,
I4LCK, I4LEC, I4TJE, I4VEQ, IK4AUY, IK4CZF,
IK4DCT, IK4EWK, IK4JSI, IK4NPD, IW4ANU)

Donor: Southern California DX Club
W6AM Memorial

U.S.A.

K1AR (K1AR, K1EA, KM3T, N2IC, N6BV)
Donor: Carolina DX Assn.

Europe

LZ9A (LZ2BE, LZ2CC, LZ2DF, LZ2ES, LZ2HE,
LZ2II, LZ2PO, LZ2PS, LZ2TT, LZ2UA, LZ2UU,
LZ2WM, LZ2XA, LZ2-E-41, LZ2-E-72)

Donor: Bob Cox, K3EST

MULTI-OPERATOR, MULTI-TRANSMITTER

World

PJ1B (WV2Y, N3ED, WA3LRO, K2EK, N7ZZ,
K3EST, N4PV, KB2XZ, K2BS, KT8Y, W3HHG,
K1KT, NL7GP, W30M, PJ9EE, K26B)

Donor: CQ Magazine
W1WY Memorial

U.S.A.

N2RM (N2RM, N4HY, WM2H, KZ2S, N2AA,
K2TW, KQ2M, N2NT, K3UA, W2RQ)
Donor: K4VX/0 Operators

Europe

IQ3A (I3MAU, I3EVK, I3ON, I3JSS, I3QJZ,
I3KVW, I3FIY, I3VHO, I3JVW, I3VRD, IK3HRZ,
IW3FCG, IK2BHX, IK2NCJ, I1POR, K1RX,
I6FLD, I6NOA, IK3NXF, IV3PRK, IV3YYK,
IV3WMP, IV3ZCS, IV3TQE, IN3BYV)

Donor: Finnish Amateur Radio League
JL1ZCG (JO1BMV, JO1RUR, JF2IWL, JN3PYQ,
JH0NZN, JH0SPE, JR0IRZ, JA9VDA, JS1INN,
JQ1UXN, JI1UTP, JK3GRR, JP1OGL, JK1JEO,
JR0JFM, JR5KDR)
Donor: Nippon Television Network Corp.

CONTEST EXPEDITIONS

World—Single Operator

V63DX (Opr. Shoji Igawa, JA7HMZ)
Donor: Stuart Meyer, W2GHK

World—Multi-Operator

YM5KA (HA0LC, HA0MM, HA0NNN, HA5PP,
TA5B, TA5C)
Donor: The German CDXG & SDXG
(DJ3NG & DJ4EI Memorial)

CQ Special Recognition Trophy

PJ9W (OH6NU, OH6MW, OH6RM, OH6FT,
OH6JW, OH5BM, OH6YF, OH6DO, OH2MM,
OH5NZ, OH2BAD, OH6XY, OH3UU, OH2KK,
OH1XX, OH6IG, OH3NJZ, OH1MA, OH3XA)

Donor: CQ Magazine

egory. This new category allows 100 watts out. It is hoped that this new category will encourage activity. Also note that we require a paper log from you. When you send us a disk, please don't forget to send a paper log. Most of the computer contest software forgot to include club affiliation on the cover sheet. Remember to add your club name if you want credit for your club. The new categories of assisted and low power have not yet been added to the cover sheet for this year. If you enter the assisted category, you can help us a lot by adding the word "assisted" next to your call. Please add

the letters "LP" next to your call for the low-power category.

It is with sadness that we report the passing of several famous contesters over the past year. One of our committee members, Homer, K7RA, always had a vision of what contesting could become, and his thoughtful comments and hard work will be missed by all of us. George, UA1DZ, became a Silent Key late last year. Besides being the RadioSport champion of the USSR, he was always very active in contests. Phil, K6ZM, was an inspiration to all the operators who passed through his station. We

will miss their signals on the air.

Our experts who scored and submitted the results you see on these pages are W9RE, N3ED, AD6C, K4XS, K6NA, W2RQ, K1DG, K2VV, N6AW, KR2Q, N2AA, W7EJ, K5NA, K5ZD, WA8YVR, and KE7V. A special thanks also goes to KB3MM, who helped develop software to read your disks, and I2UIY who helped with Italian data bases. Also DX members of the committee YT3AA and JE1CKA contributed information for the grading of the scores.

Congratulations to all the winners.

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

DX QRM

We enjoyed working many stations, especially with W's... *JASExW*. I was testing the K1EA log program for the first time in CQ WW. It was GREAT! ... *OH1MDR*. Every contest should have Assisted category ... *SM3SGP*. Lost my quad in storm. My first contest ... *PY2NY*. Really good propagation on especially the South Pacific ... *LP3F*. First contest, wonderful propagation ... *YV5JDP*. Need a category for South America minus the Caribbean islands; it's so difficult to compete with them ... *OA4ZV*. My last QSO in the test was my father, *WR9X* ... *AL7KS*. Usually 40 meters goes to sleep; this time the operator went to sleep ... *KL7U*. After 45 years off the air, it was a challenge to face the pile-ups from Antigua. Hope to return next year! ... *V2/G6QQ*.

My first contest. Had a ball with my special prefix ... *VO7TM* (*Opr. VO2TM*). My age is catching up. The new guys are taking over ... *VO6AW* (*Opr. VO1AW*). The old Drake B-Line did it again, trouble-free ... *XMX31Y*. Still like CQ WW best of all ... *VE3FJX*. Fun trying to get the last "thank you" with a Japanese operator; he won, 3 to 2 ... *VE3OMU*. WOW, *SW1JJ* on 160 ... *VE3DO*. Good thing it rained; no noise the second night ... *ZF2JR*. Rig problems again this year ... *T12OB*. Enjoyed my first contest. (*Check his score listing, a super job—ed.*) ... *XE2BEU*. My great pleasure to work on 40 meters with my special call ... *6GQV* (*Opr. XE2GV*). Too many parties and weddings, but got on 160 for a while at least ... *XE1VIC*. Operating table was 25 feet from mats where a karate meet was held. Couldn't tell the difference between the yells, howls, and grunts with the headphones off or on ... *4U45UN*.

First CQ WW DX contest. Very happy and we hope next year to have more operators with more experience ... *CE2GVM*. Only one word—fantastic!! ... *CN0A*. Only our second contest and first with computer logging—very nice. We would really like to have the full reciprocity and full French calls, as we are residents of French Guiana. This call quite a mouthful for contesting ... *FY1KD3FK*. Thanks, Pedro (my brother) for your fantastic antenna work ... *CQ4A* (*Opr. CT1BOP*). Thanks a lot, guys! Next year I will be there again, with all my power ... *CT1CLR*. Bad QRM, best band for me was 28 MHz. ARS since 1937. My age is 77 years old. Best 73 ... *CT1QF*. Thrilling contest. Considering the antennas I was highly surprised about the score. It takes a very long time to see the contest results ... *DF1IK/p*. Can't compete with *DF0SSB* ... *DA2AA*.

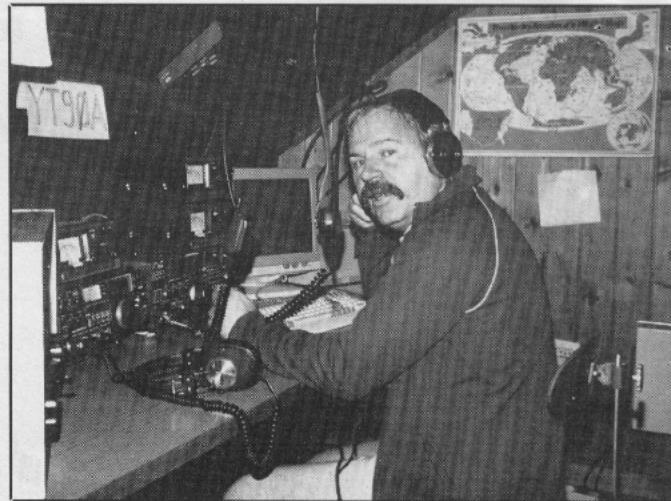
What a great contest. Using club radio station I was hunted instead of the hunter ... *DA2CF* (*Opr. VE2UJE*). To all of you Merry X-mas and specially a very healthy, happy, and peaceful New Year 1991 in prosperity ... *DJ2UU*. My power and antenna were too poor to break through the pile-up around KH0AM, KH2/N3EMA, and TY2FG, who would have been new countries for me ... *DJ3DE*. In spite of a hoarse voice after the contest I enjoyed my 40 meter single op so much ... *DL3OI*. Three weeks before the contest started the new 6 over 6 quad was ready for new motivation ... *DJ4PT*. Output 12 volts from car battery; antenna was mounted with magnet on the roof of my car ... *DL6AM/M*. I had some visitors. Therefore, no more time to work, but very good conditions on 10 meters ... *DJ6TK*.

Always a joy, but a lot of QRM. Best contest ... *DL8PC*. Problems with my rotator—antenna mounted on a living tree ... *DJ8UV/p*. Started a new rig in the middle of the test and it did well ... *DF8WS*. We had an emergency-power engine which powered the battery. It was old army stuff and smoked like a broken oven, hi. We had too much beer, too much company, no drinking water, no electric power. Great hobby ... *DL0SG*. Good conditions on 40, 80, and 160 ... *EA1CON*. Amazing, lots of new ones to me!! Ole!! ... *EA1DCQ*. QSL 100% ... *EA1IF*. This is my first contest. I've been licensed for 2 months ... *EC2AUS*. Very happy to be in contest! Many zones and good participation ... *EA1GCJ*. Please be here in the next contest, see ya ... *EA3NY*. Computer problems ... *EA4DX*.

Enjoyed the contest very much, fantastic propagation and activity ... *F1HWB*. A great contest as usual ... *F1JDG*. Many thanks for this contest ... *FE1JND*. I am 16 years old and this is the second WW contest. Very fine ... *FB1OMN*. Always a pleasure. I hope to be better than last year ... *F2EE*. Big TVI troubles with my neighbor. Next year I'll have a new location and a new antenna ... *F6FGZ*. Very happy to QSO three BY stations during the contest ... *FE6FNA*. First try on mono-band—fun ... *FF6KAW*. If I'm really 59, how come so many get my callsign wrong? An honest report conveys the need to take care in transmitting information. I'm sure there were lots of incomplete QSOs. Or is it ESP? ... *G3JKY*. This is the first contest I've entered as single op. I even managed to get rid of the family for the weekend ... *G3XSV*.

Lost delta loop on Saturday night in high winds, if found in USSR, I'm OK in Call-book! ... *G4PKP*. Biggest thrill—having 78 QSOs on 15 in 1 hour. Best propagation ever ... *G4XKR*. My first SSB contest since 1980. Made more QSOs during contest than on SSB during last 10 years ... *GB0DX* (*Opr. G4BUE*). DX stations should give their callsign a little more often. I enjoyed the contest as always ... *GJ3XZE*. Some stations use up to 10.5 Kc of band and call without listening. This gives QRP stations little hope. This Shetland Islands station was called by some 300–400 high-power bad-signal stations none of which were answered. Why not monitor this contest and disqualify any bad operators for bad use of equipment, etc.? ... *GM0AVR*. K1EA should get a medal ... *GM3BCL*. Condx quite good except to Asia. Wish some DX stns would send their calls more frequently ... *GM3CFS*.

Antenna was "dipole of delight" ... *GM4HQF*. Rotator damaged in gales ... *GM4WEW*. My first-ever entry, but much reduced score due to serious laryngitis coming on 48 hours earlier ... *GM4XTA*. My first-ever attempt at all band single op. Wait til next year when I get it all sorted out. Best fun I've had for weeks ... *GM0ECO*. Sorry to have missed last year's. Thanks for great contest ... *GM0DBW*. Had to wind down tower at 4 PM local time Sunday due to strong winds ... *GW4BLE*. First CQ WW contest I have entered. Became ill near the end. Will try again next year ... *GW4OFQ*. Nice to work US pile-up ... *HB9CJG*. Great con-



Here is a voice everyone has worked, Tine, YT90A, with his special call YT90A on his way to a new European record.

test—always look forward to CQ WW contests ... *E14DW*. Excellent condx. The CQ contests certainly bring the DX out of the woodwork. Really enjoyed myself ... *E19FK*.

First time in this contest. Old Atlas 210 still doing a fine job ... *HB0DL4ZBC/P*. My first contest ever ... *LA4PHA*. Nice to be in this test again! Nissed some multipliers because it didn't make it through the pile-up. I wish I had more power ... *LA9DFA*. My best result in CQ WW contest—one month preparation, mental, physical, technical, hi ... *LN9DX*. Very poor condx on 10. My time was too short. Better next year ... *ON4ACB*. Wish I worked everything I've heard—enjoyed it! ... *ON4APU*. My first participation in this contest. It was very nice. See you in 1991 ... *ON7RN*. Hope you will soon change points so we have same rules as for CQ WW RTTY Contest ... *GY9JD*. It's not always easy with 100 watts and dipole on 40 meters. CU AGN next year ... *OZ3ABE*. I worked my first zone 5 (CY9CF) on 160 meters ... *OZ3SK*.

Many thanks for another FB DX contest. Very happy to work 4U45UN and CY9CF for new countries ... *OZ6PI*. Part time only, but I enjoyed participating ... *OZ7AX*. First time I use K1EA log program. It's a great help. Condx the best ever ... *OZ7HT*. Again FB! Worked DXCC within 30 hours ... *PA3ELD*. I enjoyed the contest greatly despite a breakdown in the 21 mc dipole which resulted in no activity on that band ... *PA0DOM*. I could only partly participate due to our national annual amateur meeting on Saturday ... *PA0HML*. Condx good, JAs on 7 mc, fine test, hope better next year ... *PA0KDM*. A lot of QRM on 15 and 40 meter bands but 10 was clean, so I worked some nice stations and new countries ... *PA0MVW*. Contesting remains an enjoyable aspect of our hobby. Keep organizing them ... *PA0YN*.

Nice contest. See you next year ... *PA0ZH*. Thanks for the contest, CU AGN ... *SK3AH*. My first big test ever ... *SM3EDF*. Got my license only 6 months ago and it was very nice to work many new countries ... *SM3TLG*. Good condx but there are many better QTHs for the contest ... *SM0SAJU*. Sorry could only spend a few hours on the contest ... *SM7TV*. Found the CW contest more rewarding as per QSOs with a beam up again instead of dipoles ... *SM0BDS*. I propose two new classes: 160, 80, 40 and 20, 15, 10. This would make a station with only a triband Yagi more competitive ... *TF1MM*. Still using a new prefix for each CQ contest. SA90 prefix was used for first time ... *3A90F* (*Opr. 3A2LF*). First try in this category. Wish propagation had been better. Will be there next year ... *H0CE*.

We must stay in same grace of school next year on account of this contest ... *JA3YBF*. Wish we could QRV for 48 hours ... *JASZB*. Very enjoyable contest. Our low-band antenna is not so good ... *JJ3YBB*. Thanks again for lots of fun. Did have a good time even if 10 meters goes dead at seven and 75 never opens to anywhere but lower 48 ... *KL7TG*. Very nice to work CQ WW like in a Field Day, of course inside a mosquito cloud HI!HI! ... *L4D*. Need bigger antennas ... *P40T*. Really missed out on mulls on 10 meters ... *V31K*. First try at multi-op contesting. Had great fun and will be back next year ... *VE1AUE/1*. Good conditions for a change ... *VE6AO*. New location, new callsign, new group of operators—and next year better score! ... *VE6SV*. Loved tuning the 160 antenna at 3 AM with a flashlight in the rain ... *VE7GFC*.

Amplifier died twice the first day, then dumped the keyboard and lost 150–200 QSOs from 0001–0800 on 28th ... *VQ9CQ*. Our pet peeve: The KL7 who refused to log us because "Sure your call is VY2CA, all VY's are in zone 2, not zone 5!" Everyone loved Prince Edward Island's new prefix. Next year bigger antennas and more efficient use of our multiplier station ... *VY2CA*. Kicking computer for lost Q's with six power outages during test ... *XE2/N6IC*. First CQ WW with this special call. Problems on 80 and 160 meters with bad propagation and bad antennas. For next year better antennas and we will ask God for good propagation on 80 and 160 ... *ZW0JR*. It was very fine propagation on 10 meters and I got a new country (TY2FG) ... *J01DFG/8*. My first contest. Only 10 watts and antenna is homemade 4-element Yagi ... *JK6ISK*.

If I had a big antenna and power ... *JG1BPS*. What fun! I'm writing this in HB9 before being QRV from 6W1 in CQ WW CW ... *JABRWU*. Biggest problem was

to other commitments. Bands seem to be wide open! ... **WW6O**, Is there a low score award? ... **N6TPT**. Great to work XU8DX barefoot on 10 meters with antenna only 5 feet above roof! ... **NE6I**. This was my second CQ WW DX Contest. I more than quadrupled my score from last year! Anyone who doesn't work this contest is brain dead! ... **N6VMS**. Overall, the best-ever CQ WW phone conditions! ... **N6AW**. Condx were very good, and so were the computers. (*We all will miss Phil's call on the bands—ed.*) ... **K6ZM**. At 16 years old, I was more concerned with just having fun, than how many points I scored ... **KC6FZU**. Op WA2MKM collapsed a folding chair while operating—didn't miss a beat! ... **KQ2O**.

Nice to have 10 meters as biggest point getter ... **N7RO**. This was the club's first contest. We all had fun watching the neon lights modulate to our voices ... **W5KS**. First serious attempt for most of us. Great time. Looking forward to next year ... **N7QQ**. Biggest thrill was working JT1CO barefoot on a vertical ... **WA6SDM**. Very glad the woodpecker died! ... **WC6H**. Europe tough from U.S.A. west coast with low power ... **KB6RMN**. Thanks for a once-in-a-lifetime contest. CQ WW is the best! ... **KR0Y**. Search and pounce is the only way to go with 100 watts into a vertical! ... **K09Y5**. Because of similar calls, having N14M and NR5M in the contest makes life interesting! ... **N15M**. Working D68GA on two bands cost lots of time, but was a great thrill ... **W5QZ**. With a couple of exceptions, the efficiency of DX operators and courtesy of U.S. ops seemed better this year ... **W5AE**.

Worked all continents in less than 21 hrs. It took 11 months to get WAC last year! ... **W9CNF/4**. Over 100 countries on one band in a contest for the first time ... **N2UN**. You know it's getting too easy when you start thinking about getting a faster printer because it takes 30 minutes to print the logs ... **AB4RU**. Always have a backup rig—lost 16 hours of operation ... **WB2ULI**. First contest with new sfn design, new team. Wait 'till next year ... **K1NG**. Five Soviet hams operated as members of our team ... **W1AF**. Our first contest where nothing broke—the only way to fly ... **W1BK**. Finally nothing broke, FB test ... **K2OWE**. Great fun. First contest ever. Will be back ... **KE2TW**. Murphy stayed away. The amplifier kept the shack warm ... **WB2JTE**. One YL has about 40 dB gain. "The YL go ahead" ... **K3YL**.

Let's all pay homage to K1EA ... **K3NZ**. Biggest Plus: K1EA. Biggest Dud: 10 meter antennas at 100 feet ... **W4PRO**. Pile-up after pile-up—WOW what a weekend! ... **W4AQL**. This was our first attempt at CQ WW. We are hooked ... **W9NQ**. Worked Z7 and XZ after looking for them for 10 years ... **N07F**. Too many relatives and interruptions. When JA's in we had a big reunion of family and friends ... **K7ABV**. Still trying to build antenna system that works ... **K9UWA**. Glad to meet JF1SEK, JR3NZC, and KH6BZF ... **K47FEF**. Great time. Next year will have antenna for low band ... **N7MVX**. Just starting to work on 5BDXXC, and this looked like a way to do it ... **WK7Z**. Conditions better than I had expected. Only thing missing was Eastern Europeans and Scandinavians ... **W7FP**. One-and-a-half-hour power failure one hour into contest ... **NN7L**.

My first entry into CQ WW. Couldn't get going on 10 meters calling CQ Contest when Stateside stations called for QSO for WAS ... **W7CFL**. Down 3 dB in power and down 3 dB in antennas didn't prevent me from having a blast ... **K7LXC**. Great conditions for the contest this year ... **N7MPS**. Big problem with equipment this year—standby light in linear burned out ... **WA7FAB**. My very first SSB contest ... **K7JYE**. Band conditions good ... **W7QN**. Seemed like fewer multipliers this year ... **WG7A**. My 10-year-old son insisted on sending in this log—my first one ... **KY7H**. Tried to break pile-up to TF for 30 minutes with no luck ... **NW7Q**. Great fun. My first CQ WW and certainly not my last ... **KE7UH**. Missed VQ9CQ AND D68GA Saturday only to wake up and work both on Sunday ... **K7FD**.

Biggest thrill was working the TY station ... **WB7VUB**. K1EA program crashed and ate my log ... **K7LZJ**. My score was over a million for the first time—thanks to all the DX stations that were on ... **K7WK**. The whole event was very exciting as my first contest; been in radio one month ... **KA8UBK**. First DX contest. Can't wait till next one ... **KB8HMA**. Don't know how the real contestants do it ... **KD8EU**. Must be getting old. XYL said I looked like a zombie Sunday ... **N9CIC**. Very happy to work BY4SZ with 42 minutes left in test for a new one ... **WG8Y**. Realized I had a chance to meet my goal of 1 meg, given my modest station and fact that 98% of QSOs were hunt and pounce ... **KC8FS**. My first contest. Can't wait till next year ... **KF8IF**. Nothing broke ... **N8EXS**.

Couldn't believe I worked BY1PK then turned around and worked a 5N ... **KE8FO**. It's fun to work enough countries for DXCC in a few hours ... **NC8V**. First time I ever kept score and submitted a log. Have to admit I had a blast ... **KE8OQ**. My first contest. Was a lot of fun ... **N8MMB**. Hate having to ask for a call ... **WZ8T**. Good propagation. Sorry I couldn't work all 48 hours ... **KE8NH**. I had hoped to work the whole period, but got sicker than a dog. Still had a great time ... **N8KSO**. Enjoyed the contest and great conditions on 21 MHz ... **KF8K**. Like to say thank you all for the fun and all the nice contacts. See you next year ... **KA8VPL**. My first ever CQ WW and really enjoyed it, but next year I hope to have an amplifier so TF1DD in zone 40 will hear me ... **NW8F**. Worked 9 new countries ... **WB8MKO**.

Erected 40 and 160 dipoles Saturday during test then had to repair wind damage on Sunday. This isn't good for single op ... **K3ZJ/8**. Beat last year's score by 1.5 times ... **WD8EOL**. Fun digging out contacts in mess of kws. At age 83 don't burn the midnight oil any more. (*Always a pleasure to hear you.—ed.*) ... **W8YGR**. Had a ball this year with the good conditions. Looking forward to next year ... **WA8NDE**. Working DXCC in less than 48 hours ... **WI9H**. First time I worked contest. Wished I had more time for it ... **N9IHW**. You can't lose when your having that much fun. TNX for a great contest ... **KA9WBX**. Had my best contest. Can't wait till next year ... **KD9MF**. Last year without a computer ... **KK9L**. First time I worked over 200 contacts. Worked 10 new countries ... **KB9CRJ**.

Nothing broke for a change ... **K9QVB**. Too many stations not identifying ... **WU9D**. My first contest. Wish I had a filter for QRM from XYL ... **N4XMV/9**. Multipliers from dawn until midnight—from one end of the band to the other ... **N9AG**.



Jim, N6RJ, decided to try 40 meters from ZF2JR. He now owns the new world 40 meter SSB record.

Station that said I was loudest station on band, I was barefoot ... **WD9DYR**. Used my new voicebox ... **WD9GGY**. Ten meter contest are always terminated by the Chicago Bears football games ... **K9MDO**. Had a good time. Wish I could spend more time at it ... **N19C**. Too much machine operation ... **W9GIL**. Beam went bad after 12 hours. Finished with dipole ... **K9CLO**. Fortunately my neighbor waited til 15 minutes before end of test to tell me I had been wiping out his TV all weekend ... **KK9L**. Low power and low antenna make for low score still had most fun in years ... **N9RO**.

Thanks to KD8PQ and WS8Q for all the antenna help that made it possible ... **W0CG**. The JA pile-up working the station in ND and one op asking if he was an expedition ... **KA0ZPP**. More than doubling my country count ... **KA0ZIA**. Never enjoyed a contest so much—thanks to band conditions and K1EA software ... **W0YA**. Have been working CQ WW since 1976 and love it more each year ... **WA0DCB**. Catching CE and HC on first call for two new ones ... **N0LYK**. ST2SA called me. First CQ WW and should have done better ... **K4VX/0** (Opr. WX9E). I'll be back next year for serious try ... **KA0KHE**. Computers don't like special calls any more than humans do ... **WB0YW0**. By1QH and UJ8JCQ and about 95 percent of all calls were from my CQ ... **W0ACT**. Awesome contest ... **KA3DRR/0**.

Best effort yet and still got two good night's sleep ... **WK0F**. Really glad to hear a lot of stations on this year. Hope they continue ... **K9BQL**. First contest ... **N0HCH**. While running JA's 9L1US called me on 10 meters for a new one ... **KA0ZFX**. Smoked linear and limited time equal low score ... **KM0L**. Happiness is beating last year's score by 400 Q's and 146K ... **KD0ZR**. I just couldn't find a frequency to call CQ! ... **K1VR**. Got computer two days before the contest. Loved it! ... **K3ND**. After years of meaningless 59 signal reports, decided to give out meaningless 57 signal reports. Fun screwing up all those computers that assume a 59 report! ... **K8MR**. What a great way to learn the controls on a new radio ... **K9OSH**. Used CT program and packet for the first time—WOW! ... **KB8FJ**.

Would have broken million but some unwanted RF in the shack late Sunday morning wiped out about 100K ... **KF2U**. Used CT and packet for first time & had a ball. Trx to K1EA ... **K3L/5**. This was my first contest attempt. Worked 28 new DX countries ... **K15GX**. Ham radio is like golf—you don't have to be good to enjoy it ... **K16PG**. Was going to multi-op with XYL but she got busy so ended up running single op with her call ... **N0IDR/5** (Opr. W0VX). My first CQ WW ... I'm hooked ... **N4GVF**. PJ9W was everywhere ... **N4XMX**. The CT software takes the drudgery out of keeping the log ... **N6ST**. XYL didn't let me know of neighbor's TVI problem until after test—that's love ... **N7IRR**. Operating this contest barefoot with a dipole is an experience in being ignored ... **N7KZN**. My first try with packet. Lots more mulls available ... **N8BJQ**.

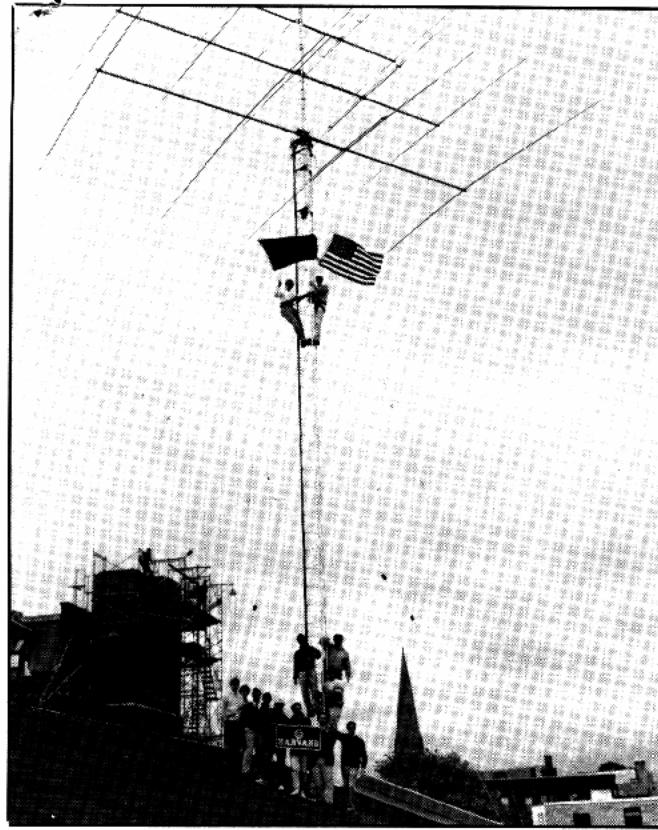
My biggest score and I even slept 8 hours a night and watched softball Sunday afternoon ... **NE9U**. Packet + Computer logging + Superb conditions = One great contest ... **W2GD**. Hats off to the YCCC Packetcluster ... **W2HG**. Too bad I had to paint the garage on Sunday ... **WA4CTC**. Simply incredible! Nothing broke and the neighbors waited until after the contest to complain ... **WB2K**. Power outage spoiled my Saturday AM run—reset the electronic alarm clock ... **WE9R**. Doubled last year's score using CT for first time. Wow! Throw away the pencils ... **WG2E**. What other hobby marries all of man's obsessions? Now I can play on the computer, contest, chase DX, and watch packet all at once! ... **WK6V**. Working CY9CF on 40 meters with only 110 watts for a brand spanking "new one" ... **WM2D**. This was my first contest ... **WV9Q**.

STATION OPERATORS

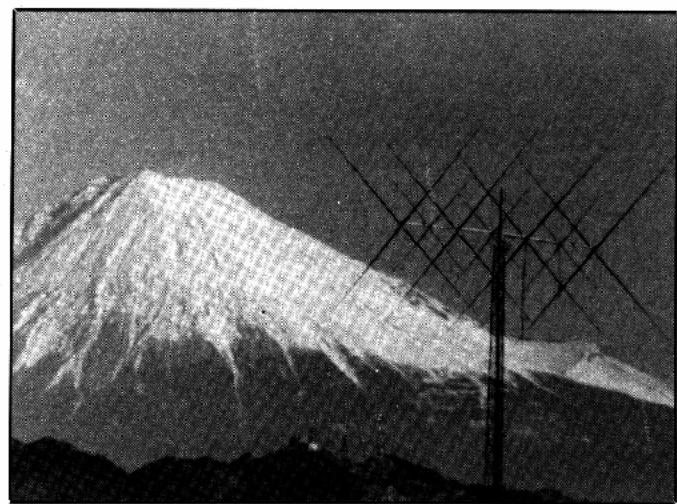
Multi-Op Single Transmitter

4D1P: DU1CEY, DU1DDP, DU1EGA, DU1EIB, DU1ELB, DU1ELI, DU1EUV, DU1EMG, DU1MSD, DU1NGE. **4N4U:** YU4ENS, YU4NS, YU4RS-4000, YU4RS-4004, Dado, Danny. **4N7M:** A1, Bob, Gaby, Zoran. **4U1ITU:** OK3JW, OK3LZ, OK3PC. **4U45UN:** JA6TIT, K2GM, NA2K, W6ISQ. **4Z7M:** 4X10M, 4X4YM, 4Z4KM, 4X6MI, 4X6UT, 4X6ZI. **5B30ES:** 5B4WN, 5B4WS, 5B4XF, 5B4XN, Charalambides, Georgiou. **6D2X:**

TOP TEN SINGLE OP ASSISTED	
All Band	
1. K1ZM/2	4,405,350
2. K1TO	4,088,154
3. AG1C	3,700,400
4. K3WW	3,580,653
5. K8MR	2,853,600
6. WB2K	2,805,712
7. W2GD	2,744,946
8. K1VR	2,625,952
9. K1CC	2,392,590
10. K4JPD	2,332,934
LIECHTENSTEIN	
A 52,992 248 36 102	
LUXEMBOURG	
A 2,446,229 2713 105 304	(Op. LX1EA)
" 1,869,758 2026 95 311	(Op. LX1GO)
MONACO	
A 232,190 625 56 161	
NETHERLANDS	
PABIJM A 1,751,904 2551 78 238	
PI4DEC " 1,577,673 1937 84 223	
ITALY	
IABA A 4,449,648 3348 136 396	(Op. IBCZW)
I2SVA " 3,228,120 2581 123 381	
I2KGSN " 2,144,240 1585 130 417	
I2X1MC " 209,070 494 59 171	
I08J00 " 1,713,582 1392 97 254	
I5KACO " 1,032,004 1258 99 268	
I00ZH " 217,259 350 74 213	
PA0KDM " 142,131 366 66 153	
PA0ELD " 103,935 260 63 132	
PA0BZV " 92,512 184 70 154	
PA0UV " 18,492 107 111 21 48	
PA0HML " 15,210 110 25 40	
PA0YHN " 9,945 102 15 30	
PA0MVW " 9,490 72 25 48	
PA3ENK " 8,820 75 24 36	
PA0ODOM " 8,325 65 15 30	
PA3CLD " 6,900 65 21 39	
PA3BNH " 6,213 77 18 39	
PA2SWL " 72,726 298 27 75	
PB0AFZ " 22,638 159 19 47	
PA3DWD " 878,256 2065 38 133	
PA2REH " 164,416 642 28 84	
NORWAY	
LJ2I A 529,480 720 83 222	(Op. LAGGF)
LA9WD " 522,546 924 79 203	
LA4YW " 282,960 596 68 172	
LA4GYN " 216,690 599 59 174	
LA2GCA " 130,232 429 45 101	
LA5UHA " 119,394 369 49 113	
LA2IR " 103,845 284 48 113	
LA2T " 91,204 249 52 99	
LA4KGA " 54,875 272 40 85	
LA6OV " 53,924 126 42 80	
LA1KQ " 50,736 242 34 78	
LA6BBA " 48,800 167 44 78	
LA1PHA " 30,498 125 42 60	
LA2AD " 15,504 132 20 37	
LA4PH " 10,270 90 26 53	
LA6ZFA " 4,305 72 14 27	
LA9HW " 476,762 1311 34 109	
LA7MFA " 157,960 595 27 83	
LA9DI " 85,995 330 30 75	
LA9CQ " 20,460 190 15 29	
LA9HFA " 8,904 88 15 27	
LA5RBA " 4,182 44 13 21	
LA9DFA " 21 169,094 682 28 90	
LA8RL " 14 64,024 257 27 79	
POLAND	
SP9FIN A 2,014,408 1734 119 385	
SP8GNF " 292,388 500 78 190	
SP3IDE " 139,055 416 58 145	
SP1AEN " 126,027 345 57 144	
SP4BPH " /A 105,138 375 41 121	
SP9JAC " 87,016 284 54 95	
SP9DW " 85,008 276 60 116	
IN3ZNR " 164,391 874 26 85	(Op. IZRIZ)
SP4CJA " 54,125 271 37 88	
SP7MUG " 48,994 284 34 97	
SP9MOH " 42,007 130 44 75	
SP9AGS " 37,828 294 23 75	
SP9DG " /A 37,120 117 42 74	
SP2JMR " 32,816 124 39 73	
SP3JHY " 29,900 111 44 56	
SP9DEM " 25,172 85 41 75	
SP7FOI " 24,934 215 19 72	
SP3IBS " 23,184 78 44 68	
SP9AVZ " 18,348 215 15 51	
SP1RWK " 15,960 119 26 50	
SP9JBX " 13,160 70 33 37	
SP3IBM " 5,830 38 20 35	
IRELAND	
E14DW A 627,006 1255 54 132	
E19FK " 352,896 1202 33 95	
JERSEY	
EJ3XZE 28 74,800 352 25 63	



Harvard, that center of knowledge, teaches cooperation between the USSR and the USA as a joint team made up of Soviet and US amateurs fired up W1AF.



JA2JSF's QRP effort gets some special help from Mt. Fuji in the background.



Guest operator SP5DDJ (right) found an interested new contest in Alex, 9V1XR.

CHECK LOGS

Our thanks to the following stations who sent in checklogs: 905TE, A16Z, CE1YI, CE3ZI, CS0CDP, CT1BY, CT1DJE, CX2PI, DJ0MBF, DJ3VC, DL2SDO, EA1CYL, EA1DVY, EA2BOT, EA2BXJ, EA3CVI, EA3DKF, EA3FIM, EA3FYD, EA3GCV, EA5BZS, EA5EGT, EA5SS, EA5UB, EA7/EA5EGD, EA7DLC, EA7LD, EA7DUD, EA7F2R, EA7TK, EA8YG, EC1CZU, EC5CON, ED5CGU, ED5CXL, ES1RRM, ES2RMP, ES6EA, ES6W/YU5AU, F11COA, F6QOS, G/0ZTSM, G30BB, GM0AVR, HL9TY, IT9ZGY, JA9BOH, JF1SQC, JT1-184, JY9SR, K1ER/0, K6FM, K6FM, K9PNG, KA9KHE, KG7AY, KJ4EK, KT2D/L, LA0BX, LA1FW, LA1HCA, LA2DQA, LA2IZ, LA2OG, LA2OH, LA2PC, LA3JT, LA3WBA, LA4BQ, LA4OGA, LA4RQ, LA50GA, LA5RBA, LA6PBA, LA8LA, LA8XM, LA9FA, LA9HF, LA9NM, LA9O1, LY1BYK, LY28AG, LY2BPO, LZ1KBG, LZ1KVZ, LZ1OO, LZ3BS, N0GOS, N4XPE, N5QIL, N8LBI, O61IMD, OH0MLG, OH0NJI, OH1PY, OH2/ES2RR, OH2AA, OH2RN, OH2WD, OH2QF, OH2KU, OH2NBO, OH2V0, OH3BI, OH3HF, OH3HS, OH3TT, OH3WR, OH2AD/5, OH5FA, OH5MMG, OH5PT, OH5WL, OH7AA, OH7TO, OK1ALW, OK1TW, OK2PLH, OK2SG, OM2BR, OM6AD, OM5FV, OZ1BUR, OZ1LEE, OZ2TH, OZ6IC, OZ7BW, OZ7FI, OZ7JU, OZ9RU, PA0CYW, PA0RWS, PA0ZGD, PA2NJJ, PA2SWL, PA3CWR, PT2NP, PY3BD, PY4KB, RA1AI, RA1W0, RA3AGN, RA3AL, RA3DU, RA3DJ, RA3DPD, RA3DSK, RA3GJ, RA3NC, RA3OC, RA3ZM, RA4PIO, RA4PKA, RA4PKL, RA4PL, RA6LA, RA9JB, RA9SD, RA9SH, RB5LWX, RB5UU, RL7AC, RV6AF, RV6LD, RW3DM, RZ4PWO, RZ9UWH, SK0BL, SL5ZYB, SM0CSX, SM0MC, SM4PDD, SM4SET, SM5CVC, SM5DAC, SM5EMR, SM5GA, SM5SVL, SM5UF, SM6BSK, SM6BW, SM6NJ, SM7CNA, SM7EJ, SP2AHDA, SP2DWA, SP2ERZ, SP3BV, SP3CDQ, SP3KCK, SP3RAV, SP4AS, SP4GDC, SP4PIN, SP5ENA, SP5ILO, SP5NOG, SP5UAF, SP6CZ, SP6FB, SP6HTQ, SP6TGD, SP7-1248-LD, SP9AHB, SP9DFH, SP9IMA, SP9PRO, UA0BBS, UA0BBO, UA0BCA, UA0ZDD, UA2FEA, UA2FGG, UA3AHA, UA3MFY, UA3PB, UA3QLJ, UA3QOD, UA3SB, UA3XB, UA4ATB, UA4CDL, UA4HRZ, UA4PKN, UA4UDC, UA4ZA, UA6HON, UA6LB, UA6LQZ, UA6WCQ, UA9AKW, UA9JFR, UA9LAC, UA9LFI, UA9OS, UB4CQ, UB4LWC, UB4LXD, UB4MXE, UB4QZ, UB5ECE, UB5II, UB5IPN, UB5LQ, UB5QFJ, UB5QJA, UB5VAF, UB5XAN, UC1AWZ, UC2AJW, UC2CEI, UC2LB, UL7FCW, UL7JHP, UL8BW, UO5DC, UO2GRX/A, UT4UH, UV3DRU, UV3DTJ, UV3NB, UV6HFG, UV6HP, UV9FG, UW0CF, UW3RR, UW6HD, UW9CL, UW9UD, UW9UE, UW9YM, UZ1AWT, UZ1OWZ, UZ3MW, UZ3OZ, UZ3RZ, UZ3SWX, UZ4AXN, UZ4FWJ, UZ4HW, UZ4YWY, UZ6HWE, UZ6HKK, UZ6LWW, UZ9FZD, UZ9FZ, UZ9LWE, UZ9SWR, UZ9YWA, VE1RJ, VE2LJ, VE3WJ, VE3XO, VE4AAU, VK5AKY, Y23AC, Y25SA, Y26XF, Y28WG, Y35WF, Y53YN, Y54TO, Y54WM, Y66YF, Y670G, Y75YL, Y02QY, Y06ADM, Y07LCD, Y08AI, Y08R00, YU3XU, YZ9BS, Z21BL, ZP5XHM.