Results, 18th ARRL 160-Meter Contest

What's this-a host of S9 CW signals on 160?

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ad conditions, storms, high noise levels, no DX, QRN, QRM-the normal and expected low-band contest complaints didn't suppress the activity or the upbeat mood for this year's 160-Meter Contest. Not only was activity at an increased level, but conditions were reported as being at least good, if not great, from nearly all areas! The number of newcomers to the band has steadily increased, partly because 160 meters is within the capabilities of most transceivers today. Also, the number of "tall towers" that can be shunt fed, or support dipoles and inverted-Vs, are forever increasing. With the new technology that is available today in combination with large antenna farms, a multitude of "super stations" are emerging on the horizons creating a high level of competition on 160 meters.

Although the top scores were down a bit from the previous year, this didn't prevent three new division records from being set, one single op and two multiop. Check the Division Leaders box for full details. This year, a total of 422 entries for the 160-Meter Contest were received by HQ, up slightly over the 405 logs received for the 1986 contest.

QSOs were plentiful! The top scoring stations had QSO totals into the 900s. The single op QSO leader was K5NA, who completed a total of 988. Not far behind was WØEJ, who contacted 935 stations for the second highest QSO total. Just behind Wade was the third place contender, W3LPL (KM3T, op), with a solid 928 QSOs. WØAIH/9 led the way amongst the multiop stations for the highest contact count by mustering 1009 QSOs. KØDD placed second with 994 QSOs while W8LT showed a strong third with 947.

Multiplier hunting is an art for some and for others it is a reality which comes readily when piling up high QSO totals. The single op station that was the most successful in hunting multipliers was KM1H (KQ2M,op) with a total of 102. Just behind Bob was K5NA, digging out 100 multipliers. Next with 99 multipliers was Dave, KM3T, guest operating at W3LPL. W8LT collected 91 multipliers among the battery of multiop stations for the top multiplier leader. With only one multiplier separating the top spot, KS8S claimed a strong second place with 90 mults. K2WI and crew produced the third highest count with 84 multipliers.

Eastern New York "Superstar" Richard, K5NA, scoring 221k points, returned this year for another first place victory over all other single-operator stations. Dave, KM3T, piloted "super station" W3LPL to the second place spot with a total of 206k points. Close behind was KM1H (KQ2M, op) with 192k points for the third place position.

On the multiop scene, the crew at the Ohio State University club station, W8LT, snuck past the KS8S threesome for the first place win by a little over 6k points. The Wisconsinbased multiop station WØAIH/9 edged out KØDD and his four South Dakota counterparts by only 124 points for their third place triumph.

League HQ received a total of 12 DX logs

Top Ten			
Single Op	erator	Multiope	rator
Call	Score	Call	Score
K5NA W3LPL (KM	221,900 3T,op) 206.019	W8LT KS8S WØAIH/9	181,090 174,780 160,844
KM1H (KQ2		KØDD K2WI	160,720 141,624
AA1K WØEJ	159,774 147,498	W9AZ KA8HFO	134,400 118,404
K3KG (KM9	142,128	KC5DX N4XM	111,840 109,650
K4LTA N4ZZ	124,986 124,616	WØBXR	94,316
WN4KKN/5 W9YSX	123,880 121,891		

from around the world this year. G3RZP was the top scoring single op DX entrant. He worked a total of 43 QSOs and 24 mults in a 9-hour period. The top DX multiop station was J6A from the island of St Lucia. The five-stateside-man DXpedition had many propagation problems but managed to work 94 QSOs and 44 mults for their multiop triumph.

Congratulations to all the participants of this year's contest for their valiant effort on one of the most trying bands to work-160 meters. We are looking forward to seeing everyone again Dec 2-4, 1988 for the 19th running of the ARRL 160-M contest. Special thanks to Contest Assistant Mark Gamble for his help in preparing the results.

Soapbox

We could only operate the first night with hopes to do well with the special call sign, but conditions were very poor. Many stations had trouble with the call and some even sent back W6A?? and asked for our section. Hi! (J6A). The first night was terrible due to a storm. Only the strongest signals could be heard. The second night things were better and we didn't give the DX boys a chance to break through our domestic phalanx. Some still succeeded ... ! (W1PL). Never called CQ, just answered them. Most QSOs were made with 25 watts output. Lots of fun! Worked several new states on 160 (KT1H). Where were all the 6s and 7s? Glad to hold frequency with my 100 watts and pick up 36 states in 5 hours (KZ2H). Where were the VE2s this year? Didn't hear any of them during the entire contest.



Relaxing after their first-place multiop victory in the Georgia Section, Bill and Bill, operators of W4FGH, kick back and pose for this photo. Bill, W4FGH, is on the right and Bill, WI4F, is on the left. From April 1988 QST © ARRL



Rus, NJ2L, secures his position as top single op of the Connecticut Section for the 160-Meter Contest.

What section will be vacant next year? VE4s? (K2WI). A 10-percent dupe rate in response to my call is ridiculous! (KW2J). No foreign contacts (W2GJ). My 90' wire at 15' is the equivalent to using a 6' wire 1' off the ground on 10 meters! Had a lot of fun, though (WB2EKK). Non-DX in 1830-1850 was not followed by anyone (K3MD). Still looking for WY and KL7. Guess I will have to go the linear route. Heard them but couldn't break through (W3HDH). Biggest thrill was working ZL3GQ at 0815 UTC (N4UZ). Small antennas and 100 watts, but still had fun (KY5N). Thanks to all who strained to hear my 100 watts! (W6JTI). I don't feel right giving everyone I work a 599. Most reports to me were 599 which I do not really appreciate as I know it's not true. Let's all give true reports next contest even though it takes a few seconds longer (W7IWU). My entire station was borrowed for the contest. I do not own a rig with 160 meters, but that will change! I was amazed what my 100-watt signal could do! I will be back next year! (NC7K). My ham shack is located in an old shed behind my house near a corn field that was recently plowed, which left many field mice homeless. Where did they go? Why, to my shack of course! Between contacts my son's BB gun was put to good use! (WA7HQD). First time ever on 160

Division Leaders

Call	0			tor
	Score	Division	Call	Score
VE3KP	94,004	Canada	-	-
W3LPL (KM3T,op)	206,019	Atlantic	K2WI	141,624
W9YSX	121,891	Central	WØAIH/9	160,844
KØPK	104,400	Dakota	KØDD	160,720
K4LTA	124,986	Delta	_	_
W8FN	82,002	Great Lakes	W8LT	181,090
K5NA	221,900	Hudson	_	-
NØEJ	147,498	Midwest	WØBXR	94,316
KM1H (KQ2M,op)*	192,780	New England	N1BVY	10,850
CE7X	68,103	Northwest	_	-
N7XV	69,486	Pacific	KV6H*	80,811
K4XU	110,625	Rocky Mountain	ADØO	63,280
WA8MAZ	103,293	Roanoke	-	_
K3KG (KM9P,op)	142,128	Southeast	NC1R	74,830
K7OX	76,320	Southwest	N6DX*	71,700
WN4KKN/5	123,880	West Gulf	KC5DX	111,840
G3RZP	2,064	DX	J6A	8,272

Antennas Used by the Top Scorers

Single Operator	
K5NA	Inverted-V at 125 ft and a 155-ft shunt-fed tower.
W3LPL (KM3T,op)	1/4-wave wire vertical, delta loop at 195 ft, sloper off 200-ft tower and an 800-ft Beverage.
KM1H (KQ2M,op)	Vertical, shunt-fed tower and inverted-V at 140 ft.
AA1K	113-ft shunt-fed tower with 200 radials and six 600-ft-long Beverages.
WØEJ	1/4-wave sloper and 1 Beverage.
Multioperator	
W8LT	40-ft vertical and 2 wire Beverages.
KS8S	Phased verticals.
WØAIH/9	Verticals, dipoles and Beverages.
KØDD	130-ft base-insulated vertical and 1000-ft Beverage.
K2WI	Inverted-L and two 500-ft Beverages.

CW. I really enjoyed the contest even though I had an antenna that wasn't supposed to work. I will be ready next year! (NZ8J). Lots of activity but no DX to be heard from the Midwest area. KH6 was the best we could do (W9LNQ). Not bad for going QRP to an unmatched 40-meter sloper! A lot of guys have good ears (NU9R). Excellent conditions even for my simple station. Six new states...can't wait for

next year (KØOST). I'm amazed at my results using only indoor antennas and 100 watts. Special thanks to all the stations that strained to copy my weak signals (KU7U). I hear the moonbounce guys had a pretty rough weekend also; the aurora was pretty bad (KØDD). Saturday night conflicted with the annual office Christmas party-missed nine primetime hours, but it was a good party! (VE5UF).

Scores

Scores list call sign, final score, total QSOs, total multipliers and hours operated (if given). Example: EI9J scored 108 points, with 9 QSOs and 6 multipliers in 2 hours of operation.

DX	Poland	KA1CLV 6,976- 109- 32-10	Western Massachusetts
Bahamas	SP5GH 390- 15- 13-	K1XM 6,588- 90- 36- 3 W1HWU 5,394- 87- 31- 6	KY1H (N1EMG,op)
N4RP/C6A 792- 22- 18-	West Malaysia	AK1P 3,538- 61- 29-	67,000- 485- 67-16 KZ1M 11,760- 168- 35- 7
Ireland	9M2AX 120- 10- 6-	KQ1F 2,726- 47- 29- 2 KQ1V 990- 33- 15- 2	W1JP 2,760- 60- 23- 3
EI9J 108- 9- 6- 2	W	New Hampshire	2
England G3RZP 2,064- 43- 24- 9 Dominican Republic	1 Connecticut	KM1H (KQ2M,op) 192,780- 795-102-34 N1ACH 106,622- 542- 89-20	Eastern New York K5NA 221,900- 988-100-38 NA2M 40,768- 317- 64-
HIBLC 1,200- 30- 20- St Lucia	NJ2L 77,200- 439- 80-10 N4XR 53,747- 365- 71-14 K1TO 36,394- 289- 62- 5	WA3ECT/1 23,056- 256- 44-23 AK1L 21,560- 245- 44-12 W1FJH 18,616- 173- 52-10 W1FZ 8,844- 134- 33-	KN2Q 13,455- 171- 39- 6 WA2IKR 12,240- 153- 40- WB2PUH 2,500- 50- 25- 4
J6A (K6GXO,N8BJQ,NC8Q,W8ILC, WD8IXE,ops) 8,272- 94- 44- Japan	W1BIH 28,443-242-57-6 W1WEF 12,138-119-51-2 KBSNM 9,180-135-34-5 K1YRP 8,092-119-34- AA2Z 3,718-70-26-1	KAILMR 3,770 65 29-13 KTIH 3,672 68- 27- 5 AC1J 2,508- 66- 19- 4 KAINXT 2,100- 50- 21-11	NYC-Long Island N2KA 28,320-237-59-12 NR2L 11,356-167-34- W2KTF 11,232-144-39-5
JA8RWU 1,122-33-17- JA7YAA (JN1VYN,JG3JRM,JJ3CNL, JE7QCQ,JR7DRV,ops) 324-18-9- JA1YHA (JQ1HKA, JS1s ERB,DCT,	W1QV 2,058- 49- 21- 3 WA3VIL 220- 11- 10- 2 KH6CP/1 2- 1- 1 Eastern Massachusetts	Rhode Island K2MN 18,952- 206- 46-16 K1IU 15,664- 169- 44- 5 WA1HYN 8,320- 130- 32- 4	W2KTU 8,100- 135- 30-12 WB2DLA 3,840- 80- 24-10 W2GKZ 2,288- 44- 26- WA2YEI 1,634- 43- 19- 4
ops) 240- 12- 10-		K1DT 7,070- 101- 35- 6	Northern New Jersey
JA9YBA (JA9s VDA,-10148,-IH9VSF, ops) 60- 6- 5- Finland OF3GD 2- 1- 1-	KA1DWX 44,488-311-67-13 W1TR 30,195-273-55-14 W1FJ 16,100-175-46- W1AX 15,300-150-50-5	N1DM 1,620- 45- 18-12 N1BVY (+WB1DEZ) 10,850- 155- 35-12 Vermont	W2GD 113,645-625-85-14 WA2SRQ 109,824-677-78-27 K0DI 75,636-567-66-29 K2STO 20,915-221-47-24 K2ZH 16,212-184-42-
	AA10 AI3E 13,940- 170- 41- 8,172- 112- 36- From April 1988	WB1GQR 95,100- 610- 75-26 K11K 79,570- 533- 73-22 QST © ARRL	April 1988 9

Southern N K2FL	13,912- 1		47-8	
K2WI (+WA2				
Western Ne	w York			
KW2J K2KYH	38,700- 3 22,440- 2	387- 201-	50-12 55-10	
W2TZ NA2Q	20,196- 2	85-	43-11	
KK2B KU2A W2GJ	7,200- 1 7,062- 1	07-	33-9	
K2MPE W2OMV	5,432- 4,872- 1,800- 576-	84- 36-	29-13 25- 5	
W2MTR	576-	18-	16-	
3 Delaware				
AA1K	159,774- 7		93-19	
Eastern Per W3TS	nnsylvani 101,871- 6		77-	
W3UM K3IPK				
W3BGN WB3FAA	87,780- 4 49,302- 4 22,134- 2 18,480- 2 15,224- 1 7,000- 1	214- 231-	51- 5 40-12	
WA3YON W3CNS K3WW	15,224- 1 7,000- 1	00-	44-10 35-4	
K4JLD KI3S (+NF3P	6,732- 1 5,781-) 42,336- 4	69-	41-	
Maryland-D				
W3LPL (KM31	206,019- 9	28-	99-	
N3CXV W3HVQ	120,960- 6 48,832- 4	90- 133-	84-22 56-14	
WB2EKK W3TFA	48,832- 4 10,530- 1 9,648- 1	35-	39- 36-	
W3GN K3AA KB3HH		82- 34-	34-5	
WB3JRU (+K	C3AJ)	76-		
Western Pe	ennsylvan	ia		
W3QM K3UA	101,232- 6	94- 156-	72-28 76-12	
K5ZD/3 K3MD W3HDH	24,708- 2 22,360- 2 14,076- 1	213-	58-4	
W3KWH (N3E	QF,NG3H,o 31,512- 3	ps)		
4				
Alabama	50 389. 3		69.12	
Alabama N4JF WB4CSK	50,388- 3 16,400- 1 10,704- 1		68-12 50- 48- 2	
Alabama N4JF WB4CSK WZ4F Georgia	50,388- 3 16,400- 1 10,704- 1		68-12 50- 48- 2	
Alabama N4JF WB4CSK WZ4F Georgia K3KG (KM9P,	op) 142,128- 8	866- 164- 110- 810-	84-	
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Alabama N4JF WB4CSK WZ4F Georgia K3KG (KM9P, K14B W4DXI N4UZ AA4EH W4FGH (+ W/ Kentucky KK4Q	op) 142,128- 8 40,260- 3 28,536- 2 21,033- 1 13,770- 1 13,770- 1 4F) 37,816- 3 45,714- 4	866- 64- 110- 334- 243- 83- 26- 823- 801-	84- 60-31 58- 57- 54-13 58-26 57-10	
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Alabama NAJF WB4CSK WZ4F Georgia KSKG (KM9P, KN4B W4DXI NAUZ AAAEH W4FGH (+W/ KA4Q WA4EBN WAFGH (+W/ KK4Q WA4EBN WB4FDK NAXM (+KD4 North Caro WA8MAZ KAPB AAANC Northern FI WA4JXI (WA4 W4HBK W1XO W4HBK W1XO W4HKQ NC1R (+KB4	op) 142,128- 8 40,260-3 28,536-2 21,033-1 13,770-1 45,714-4 25,186-2 11,088-1 U) 109,650-7 lina SVO.ph 95,590-5 54,145-4 10,530-1 6,208-1 LTQ,W(S4Y) 74,830-5 lina 52,290-4 39,4221-2 lina	866- 64- 10- 334- 83- 223- 83- 223- 801- 225- 222- 744- 846- 257- 75- 115- 115- 117- 97- 97- 925- 227- 925- 227-	84- 60-31 58- 57- 57- 57- 58-26 57-10 49-30 44- 7 75-28 69-24 45- 47- 5 79-20 65- 47- 5 79-20 65- 47- 5 79-20 65- 47- 5 70-33 63-15 60-9 61-18	
Alabama N4JF WB4CSK WZ4F Georgia K3KG (KM9P, KN4B W4DXI N4UZ AA4EH W4FGH (+WW Kentucky KK4Q WA4EBN W84FDK N4XM (+KD4 North Caro WA6MAZ K4PB AA4NC Northern FI WA4JXI (WA4 W4HBK W1XO W4HBK W1XO W4WKQ NC1R (+KB4 South Caro K6EJ K4CNW W4UKU K4UNP/4	op) 142,128- E 40,260-3 28,536-2 21,033-1 13,770-1 13,770-1 45,714-4 25,186-2 11,088-1 U) 109,650-7 lina 103,293-7 38,752-3 24,299-2 lorida SVO,op) 95,590-5 54,145-4 10,530-1 6,208- LTO,W54Y) 74,830-5 lina 52,290-4 39,000-3 34,221-2 21,944-2 9,495-1	8666- 644- 10- 310- 3243- 83- 226- 323- 922- 724- 557- 557- 557- 557- 557- 575- 115- 17- 97- 97- 97- 97- 97- 97- 97- 97- 97- 9	84- 60-31 58- 57- 54-13 58-26 57-10 49-30 44- 7 75-28 69-24 56- 47- 5 79-20 645- 79-20 645- 732-12 70-33 63-15 70-33 63-15 52- 8 63-15 52- 8	
Alabama NAJF WB4CSK WZ4F Georgia K3KG (KM9P, KN4B W4DXI NAUZ AAAEH W4FGH (+WI Kentucky KK4Q WA4EBN WB4FDK N4XM (+KD4 North Caro WA8MAZ KAPB AA4NC Northern FI WA4JXI (WA4 W4HBK W1XO W4HBK W1XO NC1R (+KB4 South Caro K4UKU K4II	op) 142,128- E 40,260-3 28,536-2 21,033-1 13,770-1 13,770-1 45,714-4 25,186-2 11,088-1 U) 109,650-7 lina 103,293-7 38,752-3 24,299-2 lorida SVO,op) 95,590-5 54,145-4 10,530-1 6,208- UTO,WS4V,070 95,590-5 54,145-4 10,530-5 lina 52,290-4 39,000-3 34,221-2 21,944-2 9,495-1 6,160-	8666- 644- 10- 310- 3243- 83- 226- 323- 922- 724- 557- 557- 557- 557- 557- 575- 115- 17- 97- 97- 97- 97- 97- 97- 97- 97- 97- 9	84- 60-31 58- 57- 54-13 58-26 57-10 49-30 44-7 75-28 69-24 47-5 79-20 65-7 79-20 65-7 79-20 65-7 79-20 65-7 70-33 63-15 60-9 61-18 52-8	
Alabama NAJF WB4CSK WZ4F Georgia KSKG (KM9P, KN4B W4DXI NAUZ AAAEH W4FGH (+W/ KA4Q WA4EBN WAFGH (+W/ KA4Q WA4EBN WAFGH (+W/ KA4D North Caro WA8MAZ KAPB AAANC North Caro WA8MAZ KAPB AAANC Northern FI WA4JXI (WA4 W4HBK W1XO W4HBK W1XO W4HKQ NC1R (+KB4 South Caro K0EJ K4CNW W4UKU K4II K4UN K4ADI Southern FI N4IN	op) 142,128- E 40,260-3 28,536-2 21,033-1 13,770-1 13,770-1 45,714-4 25,186-2 11,088-1 U) 109,650-7 lina 103,293-7 38,752-3 24,299-2 lorida SVO,op) 95,590-5 54,145-4 10,530-1 6,208- UTO,WS4V,070 95,590-5 54,145-4 10,530-5 lina 52,290-4 39,000-3 34,221-2 21,944-2 9,495-1 6,160-	866- 10- 134- 243- 83- 223- 01- 57- 224- 224- 224- 224- 224- 225- 277- 09- 227- 09- 277- 09- 277- 09- 277	84- 60-31 58- 57- 54-13 58-26 57-10 49-30 44- 7 75-28 69-24 56- 47- 5 79-20 65- 47- 5 79-20 65- 65- 79-21 70-33 63-15 60- 9 63-15 52- 8 63-15 52- 12 70-23 70-23 70-23 70-23 70-23 70-24 7	
Alabama NAJF WB4CSK WZ4F Georgia K3KG (KM9P, KN4B W4DXI NAUZ AAAEH W4FGH (+WI Kentucky KK4Q WA4EBN WB4FDK N44KM (+KD4 North Caro WA6MAZ KAPB AA4NC Northern FI WA4JXI (WA4 W4HBK W1XO W4HBK W1XO NC1R (+KB4 South Caro K6EJ K4CNW W4UKU K4II K6UNP/4 K4ADI Southern FI N4IN Tennessee K4LTA	op) 142,128. & 40,260. 3 28,536. 2 21,033. 1 13,770. 1 45,714. 4 25,186. 2 109,650. 7 lina 103,293. 7 38,752. 3 24,299. 2 lorida 52,290. 4 39,520. 2 21,032. 2 104. 2 21,032. 2 105. 2 55. 4,145. 4 10,529. 7 74,830. 5 lina 52,290. 4 39,495. 1 6,160. lorida 39,520. 2	666- 664- 110- 334- 243- 226- 222- 724- 577- 5775- 115- 177- 97- 527- 97- 97- 527- 97- 97- 97- 97- 97- 97- 97- 97- 97- 9	84- 60-31 58- 57- 57- 58-26 57-10 49-30 44-7 75-28 69-24 49-30 69-24 49-30 69-24 49-30 69-24 49-30 69-24 49-30 65- 70-33 63-15 52-8 60-19 61-18 52-8 63-15 52-8 63-15 64-13 63-15 52-8 65-4 65-5 65-4 65-5	
Alabama NAJF WB4CSK WZ4F Georgia KSKG (KM9P, KVAB W4DXI NAUZ AAAEH W4FGH (+W/ KK4Q WA4EBN W4FGH (+W/ KK4Q WA4EBN WA4FDK NAXM (+KD4 North Caro WA8MAZ KAPB AAANC Northern FI WA4JXI (WA4 W4HBK W1XO W4WKQ NC1R (+KB4 South Caro KØEJ KACNW W4UKU KAII Southern FI N4IN Tennessee	op) 142,128- & 40,260-3 28,536-2 21,033-1 13,770-1 13,770-1 45,714-4 25,186-2 11,088-1 U) 109,650-7 lina 103,293-7 38,752-3 24,299-2 lorida 52,290-4 34,221-2 21,944-2 9,495-1 6,180- lorida	666- 644- 10- 334- 833- 223- 223- 244- 257- 225- 222- 244- 257- 225- 222- 244- 257- 225- 225- 225- 225- 225- 225- 225	84- 60-31 58-26 57-10 49-30 44-7 75-28 69-24 69-24 49-30 69-24	

Virginia	
W4XD	69,010- 509- 67-16
AA4F K4OD	65,205- 465- 69- 28,158- 247- 57-13
K4FPF WA4BUE	15,974- 163- 49-10 13,020- 155- 42-
W4KMS	12,285- 135- 45-15
WU4G N4MM	9,964- 106- 47- 7 2,600- 50- 26- 1
	_,
5	
Arkansas W5KL	43,092- 342- 63- 7
Louisiana	40,002- 042- 00- 7
K5KLA	44,667- 350- 63-13
W5EW K5MC	36,360- 303- 60-13 20,405- 184- 55- 5
NO5H	5,032- 68- 37-
Mississippi	
WB5KYK	25,346- 217- 58-20 8,736- 104- 42-
N9KS/5 W5GWD	8,736- 104- 42- 3,600- 60- 30-12
New Mexico	
KB5UL	50,508- 363- 69-19
KT5X KN5S	40,736- 301- 67- 6 35,295- 270- 65-14
W5DO	34,707- 247- 69-14 32,520- 271- 60-13
WS5O	
North Texas	
WN4KKN/5 K5WXZ	123,880- 803- 76-21 50,330- 355- 70-23
W5FIX	50,330- 355- 70-23 40,950- 322- 63-21
N5UA N4QS	29,036- 212- 68-12 19,706- 167- 59- 7
KY5N NZ5M	10,534- 113- 46- 7 1,554- 37- 21- 6
KC5DX (+AA5	DX)
	111,840- 684- 80-19
Oklahoma	
W7FG WM4Z	114,404- 770- 74-20 16,356- 174- 47-
W5EHY	11,220- 110- 51- 5
South Texas	
WN5TEN W5IRP	23,200- 200- 58-12 5,776- 76- 38-
N5AFV	5,776- 76- 38- 608- 19- 16- 2 252- 14- 9-
N5ZR W5NTJ (+KC5	252- 14- 9- 27T.WB50)
	49,104- 351- 66- 32,830- 242- 67-11
W5MPX (+KM	5S,NQ5B,WØTV,
WDØCEN)	19,608- 172- 57-30
West Texas	
WF5E	39,744- 309- 64-18
6	
East Bay	
K6HIH W6FSJ	45,582- 318- 71- 28,060- 227- 61-11
Los Angeles N6LL	55,338- 398- 69-20
NE6I	4,292- 74- 29- 8 510- 17- 15- 5
W6PFE N6DX (AD6C,N	10- 17- 15- 5 V6VR,NS6X,ops)
	71,700- 466- 75-32 (,WA6OTH,ops)
	38,391- 282- 67-20
Orange	
N6PE N4ARO/6	37,740- 267- 68-20
	15,200- 152- 50-14
Santa Barba W6OUL	11,172- 130- 42- 7
WA6FGV	4,200- 70- 30-10 3,484- 67- 26- 7
W6JEO NV6I	3,484- 67- 26- 7 2,200- 44- 25-
Santa Clara	
W6NA	and the second se
NS6V KB6FPW	25,320- 208- 60-16 25,245- 228- 55-10 2,704- 52- 26- 6
	2,704- 02- 20- 0
San Diego N6ND	60,680- 395- 74-
KI6MJ	49,700- 343- 70-42
K6NA W6UQF	4,500- 61- 36- 330- 15- 11-
San Francis	
W6JTI	33,344- 253- 64-30
K6LRN WB6EGE (KA	6,552- 84- 39- 4 60PN,N6s MQ,QC,
WB6WPO,op	s)43,452- 303- 68-32
San Joaqui	n Valley
K6MO	33,914- 248- 62-17
K6XK	14,625- 149- 45-13
Sacramento N6JV	41,448- 302- 66-20
1100 V	-1,

AA6DX WA6AUE	7,400-	100-	37-7
KE6VL	7,070- 1,104-	24-	23-
KV6H (+KF6A	80,811-		
Pacific			
AH6AZ WA3KOG/KH6			18-7
	1,000-	00-	20-
7			
Arizona K7OX	76.320-	524-	72-20
K7SP	76,320- 42,364-	304-	68-18
KY7M NF7E	11,600- 6,364-	86-	50- 5 37-
Idaho			
KA7T W7GHT	23,485-	212-	55-12
K6RN	17,472-12,267-	129-	47-10
KB7CSB W7IWU	5,518- 3,744-	89-	31-17 26-
Montana			
KE7X	68,103-	492-	69-29
KØPP/7 KS7T	55,556- 14,472-	407-	54- 8
W7LR	1,794-	39-	23- 2
Nevada W7XZ	00 400	450	74.00
NC7K	69,486- 28,840-		
Oregon			
W7YAQ AD7T	12,800-		
Utah	8,740-	90-	40-
WA7HQD	20,458-	193-	53-12
WE7H K7CU	8,398- 6,596-	122-	34-
	0,090-	9/-	34- 1
Washington K9JF/7	44,812-	322-	68-17
W7MCU W7BYK	24,354- 16,356-	180-	66-14 58-12
W7IEU	10,148-	118-	43-15
K7WA NK7V	8,436- 7,144- 5,180-	111- 94-	38- 7 38-
K7UU	5,180-	74-	35-4
Wyoming			
WC7S WC7M	60,300- 59,160-	435-	68-15
KC7KC NS7Z	7,440- 3,180-	93- 53-	40- 9 30- 3
8			
Michigan			
W8UVZ	63,549-	459-	69-
N8EA W8VSK	63,308- 26,730-		
W8WVU K8CV	19 392.	202-	48.
NO8Q	18,860- 4,900- 4,560-	205-70-	46-8
KC8P W8YL	4,560-	76-	30-
Ohio		-	-
W8FN	82,002-	504-	79-17
K8KEM W8SJU	47,040- 45,960-	480-	49-
K8SVT N8AA	35,868-	294-	
K3JT	12,496-	142-	44-9
W8GS WD8IDM	11.610-	123- 135-	43-7
W8IQ NZ8J	10,125- 7,216-	111- 88-	45- 3
W8FDN	6,510-	105-	31-6
WA8RCN K3GP	6,230- 5,984-		35- 4 34- 9
W8PN WB8TCO	5,250- 3,248-		35-5 29-7
WA8GLF K8HF	2,350-	47-	25-12
AF8C	1,800- 1,480-	37-	20-7
W8LT (K1LT,K8 WB8WKB,ops)	s ND,RA	,KD8	NS,
	81,090-	947-	91-41
1	74,780-	938-	90-42
KA8HFO (+KB8	18,404-	735-	8YJF) 78-40
WB8ZYD (+WE	38s MIP,I 10,336-	PIY)	
West Virginia			
K8OQL	59,630-		
KV8S KD8YY	49,088- 22,442-	379-229-	64-17 49-15
KC8JH	736-	23-	16- 1
9			
Illinois			
KF9D 1 K9AB	09,792-		
NOAD	00,770-		00-

K9HDE	52,461- 390- 67-14
W9LNQ NU9R	21,360- 178- 60-
K9PPW	11 616. 121. 48. 6
KA9ACS W9KV	11,526- 110- 51- 4,032- 63- 32- 4 2,600- 50- 26- 3
NJ9Q WACA	2,600- 50- 26- 3 936- 26- 18-
W9CA W9AZ (AK9F,K9	s IFO,NR,KA9s PSO,
PWW, KD9RN KAØWTR.ops)1	,W9HBI,WB9HAD, 134,400- 816- 80-
Indiana	
W9YSX 1	121,891- 781- 77-20
KA9OKH 1 WB9CIF	104,804- 676- 76-24 21,930- 215- 51-12
K9HCX	6,864- 78- 44-
W9ERW	2,500- 50- 25- 4
Wisconsin W9UP (NØBSH,	00)
1	113,472- 788- 72-34
WA1UJU W9WAQ	92,752- 682- 68-24 80,500- 572- 70-23
NI9C WA9TZE	40,267- 299- 67-14 20,292- 175- 57-
W9MQZ	19,140- 174- 55-
W9HE N9KS	12,600- 150- 42- 6 11,956- 122- 49- 5,244- 69- 38-
W9HR WØAIH/9 (+KØF	5,244- 69- 38- VF,KMØO,WAØRBW)
	160,844-1009- 79-42
Ø	
Colorado	
K4XU 1 WØCP	110,625- 730- 75-18 41,138- 307- 67- 6
KØRZ	24,288- 184- 66-15
KØOST KU7U	14,300- 130- 55-17 7,128- 81- 44- 8
ADØO (+NR5K)	63,280- 449- 70-20
lowa	
WØEJ 1 KJØH	147,498- 935- 78- 51,484- 422- 61-
NØBB KØSRL	24,308- 206- 59-14 15,300- 150- 51- 8
WØBXR(N2AWE	E,K9AYK,N9OK,
YDQ,KWØJ,NØ	SF,KØIS,KAØs OVA, Is BFJ,EL,NUØG,
WØOJD,WDØD	94,316- 646- 73-30
NØSM (+KØs JO NRØE,WBØVY	GH,RW,NØDJY, V)
	94,290- 672- 70-23
Kansas WØUY	00.040 400 50.47
WAØCFZ	22,040- 190- 58-17 12,420- 120- 52-14
NØIN WØAWP	11,628- 114- 51- 1 8,556- 93- 46-
NØFMR WØRT	5,544- 84- 33- 6 2,760- 46- 30- 1
Minnesota	
KØPK 1	104,400- 693- 75-24
WØUC W1GV	56,848- 418- 68-21 26,912- 232- 58-11
KNØV WØVB	11,352- 129- 44- 6 2,184- 42- 26- 5
Missouri	2,104- 42- 20- 3
WØHBH	34,038- 279- 61- 7
NSØB	24,080- 215- 56- 5
North Dakota WBØO	a 54,536-401-68-8
KCØUM	208- 13- 8-
Nebraska	
	31,696- 238- 56-18
South Dakot KØDD (+KØKX,	
WAØPEV) 1	160,720- 994- 80-
VE	
Ontario	
	94,004- 656- 71-
VE3PN VE3CUI	37,584- 324- 58-12 32,994- 304- 54-12
VE3PN	37,584- 324- 58-12
VE3PN VE3CUI VE3NBE VE3ST Manitoba	37,584- 324- 58-12 32,994- 304- 54-12 11,310- 145- 39-10 4,830- 69- 35- 2
VE3PN VE3CUI VE3NBE VE3ST Manitoba VE4AAU	37,584-324-58-12 32,994-304-54-12 11,310-145-39-10 4,830-69-35-2 4,356-66-33-
VE3PN VE3CUI VE3NBE VE3ST Manitoba VE4AAU Saskatchewa	37,584-324-58-12 32,994-304-54-12 11,310-145-39-10 4,830-69-35-2 4,356-66-33-
VE3PN VE3CUI VE3NBE VE3ST Manitoba VE4AAU	37,584-324-58-12 32,994-304-54-12 11,310-145-39-10 4,830-69-35-2 4,356-66-33-
VE3PN VE3CUI VE3NBE VE3ST Manitoba VE4AAU Saskatchewa VE5UF VE5XU British Colur	37,584 324 58-12 32,994 304 54-12 11,310 145 38-10 4,830 69 35 2 4,356 66 33- an 36,595 280 65-13 17,384 164 53- nbia
VE3PN VE3CUI VE3NBE VE3ST Manitoba VE4AAU Saskatchewa VE5UF VE5XU British Colur	37,584 324 58-12 32,994 304 54-12 11,310 145 39-10 4,830 69 35 2 4,356 66 33- 10 36,595 280 65-13 17,384 164 53-
VE3PN VE3CUI VE3NBE VE3ST Manitoba VE4AAU Saskatchewa VE5UF VE5XU British Colur VE7PT	37,584. 324. 58-12 32,994. 304. 54-12 11,310. 145. 39-10 4,830. 69- 35- 2 4,356- 66- 33- an 36,595- 280. 65-13 17,384. 164- 65-13 17,384. 164- 60-
VE3PN VE3CUI VE3NBE VE3ST Manitoba VE3ST Saskatchewa VE5UF VE5XU British Colur VE7PT VE7WO Checklog	37,584. 324. 58-12 32,994. 304. 54-12 11,310. 145. 39-10 4,830. 69- 35- 2 4,356- 66- 33- 10 36,595- 280. 65-13 17,384. 164- 55- 10 23,640- 197- 60- 21,340- 194- 55-
VE3PN VE3CUI VE3NBE VE3ST Manitoba VE4AAU Saskatchewa VE5UF VE5XU British Colur VE7PT VE7WO	37,584. 324. 58-12 32,994. 304. 54-12 11,310. 145. 39-10 4,830. 69- 35- 2 4,356- 66- 33- an 36,595- 280. 65-13 17,384. 164- 65-13 17,384. 164- 60-

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