The 1993 ARRL RTTY Roundup

Modern technology and affordable equipment have ushered in a "New Age of RTTY Contesting." Why not join in the fun?

By Kirk Kleinschmidt, NTØZ, Assistant Managing Editor and Bi

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In "the good old days," radioteletype was a hobby for tinkerers. RTTY ops would get on the air with clunky mechanical teleprinters (yes, they needed frequent oiling!) and equipment salvaged from one scrap heap or another. The gear was often temperamental—and loud enough to be heard down the block. RTTY operators could be easily spotted at flea markets and swapfests looking for hard-to-find mechanical parts to keep their beloved machines going.

Well, Toto, we're not in Kansas anymore! The wide acceptance of computerized gear has finally consigned the Model 28 teletype machines and the Kleinschmidt perforators (namesake dropping!) to the days of yesteryear. Now, almost anyone can get on the air with a personal computer and a multimode communications processor (MCPs, such as those made by Kantronics, AEA, MFJ and HAL) and find out what all the excitement is about

The RTTY Roundup is the perfect time to get on the air and make some contacts of your own. During noncontest periods, the digital HF subbands are filled with AMTOR, CLOVER, PacTOR and packet radio signals, but during RTTY contests—especially during the ARRL RTTY Roundup—the "RTTY subbands" are wall to wall with Baudot RTTY signals. Making RTTY



Pasquale, YV5KAJ, operated 4M5RY, and although he didn't beat his previous year's score, he still finished in second place in the single-operator, low-power category worldwide.

contacts—lots of them—is a snap!

(The new MCPs offer a lot of "non-contest" value, too. The old RTTY machines were largely restricted to operating Baudot RTTY, but the new MCPs give you the chance to experiment with packet, ASCII, AMTOR and other digital modes.)

This Year's Contest

Judging by the results of the Roundup January 2-3, 1993, and the comments we received, more people are finding out how much fun RTTY contesting and operating can be. It doesn't take a "superstation" to get

Single-Operator Top 10

W/VE—Low Power		DX—Low Power		
Call Sign	Score	Call Sign	Score	
AA5AU -	82,280	HH2PK	74,802	
W7LHO	48,709	4M5RY (YV5F	(AJ,op)	
NM3E	48,048		52,272	
N3SL/Ø	47,808	HP1XBH	31,844	
AA4M/6	45,360	HK1LAQ	26,216	
W1BYH	41,490	GØARF	21,975	
WB5IGF	40,964	JA3DLE/1	15,980	
VE6ZX	37,698	WH6I	12,636	
WB8YJF	37,516	IK1HSR	10,726	
N4IQ	32,760	DL9GGA	10,000	
		HP1AC	9,900	
W/VE-Hig	gh Power	537 111 1	_	
Call Sign	Score	DX—High	Power	
Call Sign N2LT	Score 92,295	Call Sign	Score	
•		•		
N2LT	92,295	Call Sign	Score 113,832	
N2LT NV1G	92,295 82,300	Call Sign KP2N ZD8LII (GØLII	Score 113,832	
N2LT NV1G KG5EG	92,295 82,300 79,711	Call Sign KP2N ZD8LII (GØLII HC5K	Score 113,832 ,op) 70,585 66,815	
N2LT NV1G KG5EG AE6E WF5E NN2G	92,295 82,300 79,711 68,890 60,720 60,093	Call Sign KP2N ZD8LII (GØLII	Score 113,832 (,op) 70,585 66,815 MT,op)	
N2LT NV1G KG5EG AE6E WF5E NN2G WA7LNW	92,295 82,300 79,711 68,890 60,720 60,093 59,570	Call Sign KP2N ZD8LII (GØLII HC5K 5U7M (JH4NI	Score 113,832 (,op) 70,585 66,815 MT,op) 42,924	
N2LT NV1G KG5EG AE6E WF5E NN2G WA7LNW WA7FAB	92,295 82,300 79,711 68,890 60,720 60,093 59,570 57,975	Call Sign KP2N ZD8LII (GØLII HC5K 5U7M (JH4NN UB4HQ	Score 113,832 (,op) 70,585 66,815 MT,op) 42,924 39,600	
N2LT NV1G KG5EG AE6E WF5E NN2G WA7LNW WA7FAB AB8K	92,295 82,300 79,711 68,890 60,720 60,093 59,570 57,975 57,268	Call Sign KP2N ZD8LII (GØLII HC5K 5U7M (JH4NN UB4HQ UH8EA	Score 113,832 (,op) 70,585 66,815 MT,op) 42,924 39,600 32,364	
N2LT NV1G KG5EG AE6E WF5E NN2G WA7LNW WA7FAB	92,295 82,300 79,711 68,890 60,720 60,093 59,570 57,975	Call Sign KP2N ZD8LII (GØLII HC5K 5U7M (JH4NN UB4HQ UH8EA LU8FDZ	Score 113,832 (,op) 70,585 66,815 MT,op) 42,924 39,600 32,364 29,835	
N2LT NV1G KG5EG AE6E WF5E NN2G WA7LNW WA7FAB AB8K	92,295 82,300 79,711 68,890 60,720 60,093 59,570 57,975 57,268	Call Sign KP2N ZD8LII (GØLII HC5K 5U7M (JH4NN UB4HQ UH8EA LU8FDZ A22BW	Score 113,832 ,op) 70,585 66,815 MT,op) 42,924 39,600 32,364 29,835 20,250	
N2LT NV1G KG5EG AE6E WF5E NN2G WA7LNW WA7FAB AB8K	92,295 82,300 79,711 68,890 60,720 60,093 59,570 57,975 57,268	Call Sign KP2N ZD8LII (GØLII HC5K 5U7M (JH4NN UB4HQ UH8EA LU8FDZ	Score 113,832 (,op) 70,585 66,815 MT,op) 42,924 39,600 32,364 29,835	

Multioperator High Scores

W/VE—Low Power		W/VE—High Power			
Score	Call Sign	Score			
32,319	AA6TT	101,840			
28,900	K1IU	89,900			
24,080	WB7AVD	85,002			
22,134	K9RS	84,474			
19,525	KI5TI	69,445			
16,579	W4AQL	68,595			
12,450	WU3V	57,378			
11,123	KY1F	47,971			
10,302	WAØVQR	19,240			
9,800	WB2JKJ	11,270			
	DX—High Power				
	Call Sign	Score			
	Score 32,319 28,900 24,080 22,134 19,525 16,579 12,450 11,123 10,302	Score Call Sign 32,319 AA6TT 28,900 K1IU 24,080 WB7AVD 22,134 K9RS 19,525 K15TI 16,579 W4AQL 12,450 WU3V 11,123 KY1F 10,302 WAØVQR 9,800 WB2JKJ DX—High			

OH2AG

VQ9CR JJ3YBB 23.177

18,282 15,836 on the air and have a good time! Larry, N2ELW, sums it up like this: "My time was limited, and I have a modest station, but I had a ball and I worked Fiji to boot! It doesn't get any better than this!" Well said!

Although some "green-key pounders" thought conditions seemed poorer for this year's running—probably because of the decline in the solar cycle—everyone found plenty of stations to work. Several participants remarked about how courteous they thought the other ops were (to their surprise) and how they felt it made for a more pleasurable experience.

From those with a more serious bent than "just making a few contacts," truly phenomenal scores went into the record books.

Ron, KP2N, led the single-op, highpower, DX scorers with a record 113,832 points. The AA6TT high-power multiop effort also broke 100k points.

New all-time scoring records were also set by Don, AA5AU, and Patrick, HH2PK, in the low-power, single-operator categories. Well done! Congrats to the seven new Division and the seven new continental record holders.

Tips for the Next Roundup

A good operating plan is important if you want to maximize your score. With poorer conditions on the higher bands, the need for



Jessica (top) and Vanessa (seated) have fun operating RTTY from WB2JKJ, the club station of JHS 22 in New York City.

Single-Operator Division Leaders

	Low Power		High Power	
Division	Call	Score	Call	Score
Atlantic	*NM3E	48.048	W2UP	50.876
Central	WB9CEP	22,272	N4CC	45.835
Dakota	NTØV	28,975	KØRC	50,820
Delta	*AA5AU	82,280	*WA4MCZ	19,558
Great Lakes	WB8YJF	37,516	*AB8K	57,268
Hudson	KC2FD	27,560	*N2LT	92,295
Midwest	*KØBX	29,749	K6WZ	33,624
New England	W1BYH	41,490	NV1G	82,300
Northwestern	W7LD	22,686	WA7FAB	57,975
Pacific	WBAKS	15,000	N6GG	50,920
Roanoke	N4IQ	32,760	AB4MJ	50,685
Rocky Mountain	*W7LHO	48,709	KG5EG	79,711
Southeastern	KK4DK	32,480	KL7TF/W4	38,760
Southwestern	AA4M/6	45,360	AE6E	68,890
West Gulf	KI5GX	25,984	WF5E	60,720
Canada	VE6ZX	37,698	VE7KD	44,096
*Division Record				

Single-Operator Continental Leaders Law Dawer

	Low Power		nign Power	
Continent	Call	Score	Call	Score
Africa	7Q7XX	2,920	*ZD8LII (GØLII,op	70,585)
Asia	JA3DLE/1	15,980	*ÙH8EA	32,364
Europe	GØARF	21,975	UB4HQ	39,600
North America	*HH2PK	74,802	*KP2N	113,832
Oceania	*WH6I	12.636	*AH6JF	20.040
South America	4M5RY (YV5KAJ.d	52,272 (ap)	*HC5K	66,815

High Dawer

a good signal on 80 and 40 meters was more important than in past Roundups, which took place closer to the sunspot-cycle peak.

Don, AA5AU, kept one radio on 40 meters for the entire contest and used a second rig to check out other bands. "I figured on 10 meters being poor," he noted, "and 40 and 80 meters being good, and it turned out to be the case." Eighty meters seemed especially good. Jeff, K1IU, worked all but five states on the band.

So if you've wondered about those bleeps, beeps and burps you've heard in the digital subbands, or if you simply want to try something new, the RTTY Roundup may be just what you've been looking for.

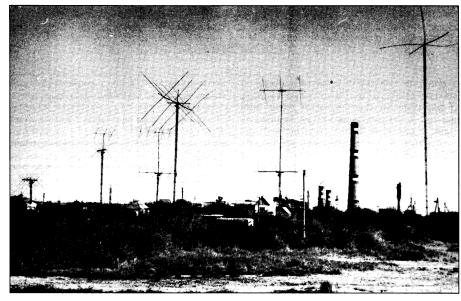
Today's technology makes it easy to put a RTTY signal on the air, and once you make a few contacts, you'll be hooked! And compared to most contests, it's even easy to get an award for your effort-certificates are issued for everyone who makes at least 50

If you've got your contesting sights set on bigger game, check out the scores from this year's contest. You'll see who your rivals are, and you might discover a good location from which to operate next year's RTTY Roundup. Some parts of the country witness ferocious competition, while others simmer along at a slow boil. Be in the right place at the right time and bingo! you're a winner!

Win, lose or otherwise, don't miss your chance to have some RTTY fun-the next RTTY Roundup is January 8-9, 1994.

SOAPBOX

Conditions were poor and it was hard to work the US, but it was still a lot of fun (GMØ/WN1G). The 10-meter band was so slow I actually had time to watch the football playoffs! (N2KAW/T). This was my first try at the RTTY Roundup and I had a blast! Next year I hope to be on for a longer period (WA2ASQ). It was another great RTTY Roundup! I used an all-band inverted doublet and a handful of watts. I made plenty of QSOs, but where was Canada? (WB4ABY). It was a great contest, but the sounds of RTTY were still ringing in my ears when I went to bed Sunday evening (KDØAV). I found the band conditions good (NØLAQ). I've been hamming since 1950, but this was my first contest. It was a

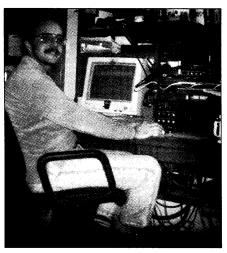


Victor, UH8EA, used this impressive system of antennas to hand out rare Turkmenistan and finish in third place overall in the single-operator, high-power category.



Despite the distraction of his two junior ops, Barry, W2UP, finished with the firstplace high-power score from Eastern Pennsylvania.

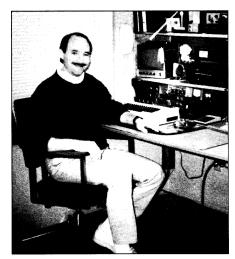
stimulating and tiring effort, but I haven't had so much fun in a long time. I was impressed with the courteous atmosphere throughout the whole 30hour period. (W5SBH). The aural beauty in this contest approaches that of an all-out CW contest. This was my first time in this great affair, but not my last (AA7BG). I found the conditions for working DX to be poor, but I had a lot of fun! (AI7B). It was a fun contest. The format was



Lance, AB6CX, reported developing new tricks for his contesting toolkit.

great for my latest chase: RTTY county hunting! I'll be looking forward to the next one (KM1C). This was my second RTTY contest (AB6CX). I couldn't participate fully, but I had fun for about 17 hours (N4CC). I enjoyed the contest. It's one of the few where you can run low power and have

^{*}Continental Record



Jack, WA7LNW, seems happy with his Section-leading effort from Arizona.



John, SV1AHV, operates from SV1SV, the official HQ station of RAAG. (SV1BDO photo)



Jon, WB8YJF, notes, "Two-finger typing on two computers at once is a chore!"

a good time (WB9CEP). It seems as though as soon as I get started, the contest is over! (KØRC). It was more fun than any of us would have guessed! It was good to see so many familiar call signs, and we thank all who waited in the pileups for us (VQ9CR). I enjoyed the contest! (NØKDI). This contest was hard because of the poor band conditions (JA3DLE/1). We put the 80-meter shortened dipole up the day before the contest, and we were glad we did, because 80 meters was our best band! We're all looking forward to next year (N1JEB). Thank you for having this contest. It was my first contest! I'm looking forward to the next one (N2IEC). It was a great contest, but where was Vermont? The DX stations were far and few between, but there were a lot of stateside stations to work (WF5E). I found conditions to Europe were poor, even on 20 meters, but there was a lot of stateside activity (AE6E). This was my first RTTY contest, and I enjoyed it very much. I'll be back for the next one! (VE3EVV). I had a lot of fun, even though I couldn't spend the time I wanted to in the contest. Maybe next year I'll find more time (W4IF). This contest gets better every year! (WKØF). This is my first RTTY contest and I had a good time (LY1FF). This was my second RTTY Roundup, and it was great fun again. I more than doubled my score from last year. If only I had an 80-meter antenna! What happened to the DX? (NN2G). The software worked beautifully, it was a pleasure to use (N6GG). The contest was a blast! (KM6HB). Band conditions were bad for us up north. We didn't hear much DX and we didn't have propagation to Europe over the pole! (NL7HP). Finally, I worked a Hawaiian station during the

contest! (AH6IX). We only got into the contest during the last seven hours. In retrospect, I guess I was afraid that the station wouldn't measure up. If we'd had just an hour more, I feel we would have made at least the required 50 contacts for a certificate (N2IKR). Conditions seemed particularly bad for me; in fact, I felt that everyone had their beams pointing in the opposite direction, but I'll be back next year (GW4KHQ). It was a great contest, but where were all the DX stations? (N9NMC). I ran out of steam working W/VE stations in this contest! (N3UN). There was an increase in stateside activity, but the DX countries were lacking (KP2N). I just couldn't stay concentrated this year (N1HOQ). This was my first RTTY contest and it was fun. It was a good experience and I learned a lot. I don't know where the VE stations were, but not many were around (WV7P). I got in with a couple of new hams to let them get their feet wet in a RTTY contest! (WAØQIT). This is my third year participating in the RTTY Roundup. It's a great contest (KA4RRU). Murphy stopped by and left the flu bug, so I didn't feel much like contesting, but just wait until next year! (KC3ST). It seems from here like every ham in Ohio must be on RTTY! This was my third RTTY Roundup and I have yet to work West Virginia! (AB4SF). This was my first RTTY contest. There wasn't much DX heard here, but what fun-I can't wait until next year (AG5S). It was another great contest! The biggest thrill was working ZD8LII on Ascension Island with only 22 minutes left in the contest. It took a night of sound sleep to clear my brain of warbling sounds. Every fan and appliance sounded like a RTTY signal! (WB8SVK). There were times where there was very little DX coming through, but I had a ball! (KA1S). It was interesting to easily work DX on RTTY at 100 watts that would require higher power and effort on another mode (K9OSH). This was our first RTTY contest, but not our last! What started out as a just-for-the-fun-of-it effort will now be a yearly effort. We operated on 10, 15, 20 and 40 meters, and although band conditions weren't good, we snagged a lot of DX (KI5TI). This was my first RTTY contest. Conditions weren't good for a 100-watt station using a vertical antenna! (KN4TX/HK3). I worked all but five states on 80 meters. Low-band conditions were good. If only there had been more DX on the band (K1IU). This was a great contest! I doubled my QSOs from last year and tripled my score (WA4VQD). We didn't do as well as last year and didn't hear a lot of DX, but we had great fun! (WU3V). It was a good contest, and I had a lot of fun! (WA6VZI). This was my first RTTY contest and first RTTY OSOs (KC6VVT/T). I'm hooked on RTTY contests! There's a good group of operators out there (N7GVV). This was my first time using RTTY and I had a great time. I'm hooked now (VE3VET). My goal for the contest this year was to double last year's score, and I made it! This is one of the best weekends of the year, one of the few legal ways to have so much fun in 24 hours! (KB6WIJ). This was my first time in the RTTY Roundup and I enjoyed it very much (DL9YAJ). I had fun in the RTTY contest! (KOØZ). I found conditions to be poor. This is my first contest where I didn't work any JA, VK or any European stations! (VE6ZX).

Scores

Scores are listed by continents, DXCC countries and ARRL/RAC Sections. DX stations are listed first, then the US and Canada. Within each country or Section, single-operator scores are listed first and then multioperator scores. Each line score lists call sign, final score, number of QSOs, number of multipliers, hours operated and power (A = less than 150 W output; B = more than 150 W output).

Africa Niger 5U7M (JH4NMT.op)	Chagos Islands VQ9C (+VQ9s BB,KC) 18,282 277 66 24 B	JA1DFQ 1,372 49 28 24 A JA1AYC 975 39 25 4 A JR4GPA 836 38 22 24 B	Europe Portugal CT14UR 9.130 110 83 24 A	Spain EA2CNT 9,204 118 78 24 A EA3DIH 1,998 54 37 24 A
42,924 511 84 19 B	Ascension Island	JA1WYQ 504 28 18 24 A JJ3YBB (JA3s FHL,PJL,JH3s FQF,	CT1AUR 9,130 110 83 24 A Federal Republic of Germany	EC1DJU 315 21 15 24 A England
Lesotho 7P8SR 1,612 52 31 24 A	ZD8LII (GØLII,op) 70,585 743 95 24 B	UHG,JI3ERV,ops) 15,836 214 74 24 B	DL9GGA 10,000 125 80 22 A DL3VBN 4,080 68 60 11 A	GØARF 21,975 293 75 18 A G3XTT 9.044 133 68 21 B
Malawi	Asia	Turkmenistan UH8EA 32,364 558 58 24 B	DL9YAJ 3,276 78 42 24 B DF5BX 1,952 61 32 24 A	G4XDD 4,512 94 48 24 A
7Q7XX 2,920 73 40 24 A Botswana	Japan JA3DLE/1 15,980 235 68 ≯8 A	Kazakhstan	DK7FP/P 1,568 49 32 24 A DL8DUL 665 35 19 24 A	Scotland GMØ/WN1G 9,880 130 76 15 A
A22BW 20,250 270 75 18 B	JE2UFF 3,182 74 43 9 A JA3LDH 1,440 45 32 24 A	UL9P 4,500 125 36 24 A	DJ2YE 420 21 20 24 A DK5KJ 90 10 9 24 A	

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Wales				KA4IVO 4 04 74 07 04 A	4	•	
GW4KHQ	2,450	70	35 19 A	KA1IXG 1,917 71 27 24 A K1CE 1,848 66 28 4 A KY1F (+WY1F) 47,971 623 77 18 B	4 Alabama	6 East Bay	KDØAV 6,570 146 45 8 A W9FFQ 5,368 122 44 18 A W9IB 4,600 115 40 15 A
Hungary HA6PX			76 24 B	Eastern Massachusetts	W4DEC 14,454 219 66 24 A KE4BM 10,150 203 50 18 A	N6MSQ 11,368 196 58 20 A	N9QEK 4,028 106 38 24 A WA9YII 375 25 15 3 A
HA5CP	9,211	151	61 15 A	N1HOQ 32,032 416 77 24 A KX1G 27,020 386 70 16 B	Georgia	Los Angeles AE6E 68,890 830 83 24 B	W9YH (KB9s FKO,FMN,KF9KI,N9s QHD,RRE,ops)
italy IK1HSR	10,726	173	62 24 A	NR1J 25,359 321 79 15 B KM1C 19,964 322 62 24 B	KL7TF/W4 38,760 456 85 24 B KD4W 32,026 478 67 24 A	KK6PD 40,641 589 69 24 B KC6RKC 30,225 465 65 23 A	3,745 107 35 24 B
Norway	6.042	101	52 17 D	WA1IML 15,142 226 67 24 A KB2R 4,171 97 43 24 B	WB4ABY 7,426 158 47 12 A WA4GPA 2,964 76 39 24 A	WA6VZI 26,195 403 65 24 A KF6HI 16,461 279 59 19 A	Indiana WB9CEP 22,272 348 64 24 A
LA7AJ LA3YU	3,192		53 17 B 38 24 A	Maine NV1G 82,300 823 100 24 B	K4ZTL 2,030 58 35 24 A KC4YNE/T 520 40 13 9 A	AB6CX 14,100 300 47 19 A KN6DV 5,586 133 42 16 A	KE9CU 5,600 140 40 19 A KB9AT (+AA9DG,K9WJU,KA9SYE,
Lithuania LY1BZB (LY2	BKF on)			W1VXV 14,198 229 62 24 A W9FXV 2,016 63 32 6 A	W4AQL (WD4DWN +ops) 68,595 807 85 24 B	AB6DG 2,088 58 36 12 A Orange	KB9 BIF,FYD,N9s OX,KVJ,PZN, W9s XD,JOE,WZ9M,NØPHI)
LY1FF	1,575 594	63 33	25 24 A 18 24 B	New Hampshire	Kentucky W4TOY 29,592 411 72 24 B	KM6HB 10,128 211 48 17 A KA6GMA 4,264 104 41 15 A	16,57 28 5 2 A WM9M (+WD8LLR,WA9VMW)
Finland	004	-	10 24 5	WW1Y 10,200 170 60 24 A WQ1T 3,400 100 34 24 A	K4KJQ (NM3U,op) 16,422 238 69 24 A	KF6MP 3,737 101 37 18 A AB6PA 2,210 65 34 24 A	4,300 100 43 10 A Wisconsin
OH1XT OH2AG (OH2	2,992 s BBT.G		44 24 A S.ops)	KA1ZMX 2,640 66 40 19 A	KU4A 8,670 170 51 11 A KN4CG 6,517 133 49 24 A	KC6NPY 2,074 61 34 8 A	KB9AIT 14,694 237 62 24 A
	23,177		77 24 B	Rhode Island K1IU (+WF1B) 89,900 899 100 24 B	North Carolina	Santa Clara Valley WD6FYJ 3,496 92 38 24 A	K9UJU 4,500 100 45 24 A
Czech Repi OK1MP	6,710		55 24 A	Vermont	N4ROL 34,265 445 77 24 B KC4WVC 12,040 215 56 24 A	San Diego	WA9GON 3,196 68 47 24 A
OM3CPS	340	20	17 24 A	KL7DN/1 7,504 134 56 24 A N1FKR 6,426 153 42 16 A	WB7OND 2,607 79 33 12 A KS4S 1,870 55 34 24 A	AA4M/6 45,360 630 72 19 A KE6XJ 24,128 377 64 24 A	KF9EZ 1,736 62 28 15 A K9OSH (+NET) 1,426 46 31 24 A
Belgium ON5SV	425	25	17 24 A	Western Massachusetts	WB4WOR (+KQ4GX,WN4BBJ) 10,302 202 51 17 A	KC6VVT/T 660 33 20 10 A	Ø
Denmark				W1BYH 41,490 461 90 22 A N1JAC 9,350 170 55 24 A	Northern Florida	San Joaquin Valley W8AKS 15,000 250 60 24 A	Colorado
OZ1FGS Sweden	150	15	10 2 A	W1HFN 6,954 122 57 13 A WJ1Y 6,300 126 50 19 A	KQ4GC 27,975 373 75 24 A AB4BZ 1,056 44 24 3 A	KB9E 7,203 147 49 21 A	KG5EG 79,711 1009 79 24 B N3SL/Ø 47,808 664 72 23 A
SM5FUG SM6BSK	3,760	80 76	47 24 B 42 24 A	WN1E 5,160 120 43 13 A WT1W 540 36 15 6 A	South Carolina	Sacramento Valley N6GG 50,920 670 76 22 B	NØMWG 4,646 101 46 17 A AA6TT (+WF5T)
SM5AAY SM7BHM	3,192 1,276 1,196	44 46	29 24 A 26 15 A	N1JEB (+AA1AA,N1JIT) 22,134 357 62 24 A	N4IQ 32,760 455 72 24 A KC4UH 8,967 183 49 11 A	KB6WIJ 7,473 159 47 14 A	101,840 1072 95 24 B
SM5EIT SM3BYJ	713 609	31 29	23 24 A 21 24 B	2	KB4IFS 6,808 148 46 24 A KO4PV 6,222 122 51 17 A	7 Arizona	WKØF 16,440 274 60 24 A NØKDI 1,482 57 26 24 B
Poland	503	_0	. _ D	Eastern New York	Southern Florida KK4DK 32,480 406 80 21 A	Arizona WA7LNW 59,570 805 74 23 B	,Kansas
SP3SUN SP6CYV	5,989 2,664	113 72	53 24 B 37 24 A	WB2EAR 18,410 263 70 20 B N2KAD 17,546 283 62 24 A	WA4VQD 30,753 459 67 20 B K8UNP 27,880 340 82 19 B	WB8SVK 7,228 139 52 11 A WV7P 3,458 91 38 15 A	K6WZ 33,624 467 72 24 B WDØEMR 21,831 383 57 20 B
SP2UUU	2,470		38 24 B	N2QCA 15,576 264 59 18 A WM2U 12,925 235 55 20 A	KC4HW 18,642 239 78 24 A	N7IZM (+AA7BJ) 6,572 124 53 24 A	WK5M 17,388 322 54 21 A N7AQX 2,006 59 34 24 A
Greece SV1SV (SV1s				NY2U 5,236 119 44 24 A KG2H 4,240 106 40 6 A KD3RW 1,930 60 33 34 A	KR4U 11,913 209 57 18 A KO4PS 6,000 120 50 24 A W1UDB/4 1,377 51 27 24 A	Eastern Washington K7WUW 16,800 300 56 24 A	KFØXV 1,428 51 28 24 A KFØLZ (+NET)19,525 355 55 24 A
Turkey	9,724	187	52 16 B	KD2BW 1,920 60 32 24 A WA3INC 1,736 62 28 8 A K2UF 1,430 55 26 24 A	Tennessee	N7RWH 8,694 189 46 24 A KD7H 7,038 153 46 24 A	Minnesota
TA2FT	4,920	123	40 24 A	W2KKJ 1,344 64 21 13 A	K4IBP 31,540 380 83 24 A KD4MM 22,836 346 66 24 A	N7EBB/T 216 18 12 24 A WB7AVD (+WS7I,WV7Y)	KØRC 50,820 660 77 22 B WØYHE 16,317 333 49 14 A
European F	Russia 4	2	2 24 A	NYC-Long Island NN2G 60,093 607 99 24 B	WA4MCZ 19,558 254 77 15 B WA1MPB/4 18,612 282 66 22 A	85,002 914 93 24 B	WØML 4,182 102 41 24 B AAØIJ 2,652 78 34 24 A WBØIOT 1,800 87 07 04 A
Ukraine	7	-	2 24 7	N2FF 41,096 467 88 24 B KC2FD 27,560 424 65 24 A	WB4TDB 8,580 165 52 24 A	Montana AA7BG 9,936 207 48 11 B	WBØIQT 1,809 67 27 24 A WAØWHT 1,540 55 28 6 A WEØQ 1,450 58 25 6 A
UB4HQ	39,600	300	132 24 B	WY2E 13,593 197 69 24 A KC2KY 7,695 171 45 14 A	Virginia AB4MJ 50,685 545 93 24 B	Nevada	WAØVQR (+WBØVPK)
Belarus RC2AZ	5,588	127	44 24 A	WB2DVK 4,860 108 45 13 A WB2JKJ (+ops)	KA4RRU 24,984 347 72 24 A KO4FM 24,013 407 59 24 A	KG7OR 10,712 206 52 24 A W4JLS 1,176 42 28 6 A	19,240 296 65 20 B WAØQIT (+KB9IES,KBØKMJ) 3,399 103 33 11 B
Moldova				11,270 230 49 24 B	KM4IG 17,464 296 59 24 B AB4SF 13,800 230 60 19 A	Oregon	Missouri
ERØF (RB5FF	4,060		35 24 B	Northern New Jersey N2LT 92,295 879 105 24 B	W4IF 4,802 98 49 24 B KD4AZX 1,802 53 34 8 A N6MW 1,769 61 29 9 A	WA7FAB 57,975 773 75 24 B AI7B 50,435 655 77 24 B W7ZR 5,376 96 56 24 A	KØBX 29,749 419 71 19 A NØIT 24,461 401 61 24 B
UO4OF Latvia	1,863	69	27 24 A	NO2T 54,379 611 89 24 B KD2YG 22,199 281 79 24 A		KI7Y 4,773 111 43 12 A	AAØGY 7,943 169 47 20 A KØJPL 3,589 97 37 24 B
YL2EO	2,166	57	38 24 A	N2KJM 3,108 84 37 24 A K2PF 2,275 65 35 5 A	5 Arkansas	W7IMP 3,066 73 42 10 B N7IXI 1,922 62 31 6 A K7GZP 32 8 4 1 A	KOØZ (+NØKIQ) 11,123 227 49 17 A
North Am	erica			N2ELW 1,824 57 32 9 A N2KAW/T 612 36 17 9 A WA2ASQ 500 25 20 24 A	WB5IGF 40,964 539 76 24 A AA5BE 13,520 260 52 22 A	Western Washington	North Dakota
Martinique FM5DN	7 378	110	62 24 A	Southern New Jersey	K5JH 4,700 100 47 13 A	W7LD 22,686 398 57 17 A NM7N 17,523 297 59 24 A	NTØV 28,975 475 61 24 A Nebraska
Haiti	7,070	,,,,	02 2 4 A	W2ZQ (KC3UY,op) 32,175 495 65 24 A	Louisiana AA5AU 82,280 935 88 24 A	N7FYT 12,000 200 60 24 B	WBØFNZ 16,484 317 52 24 A KBØFNH 10,011 213 47 24 A
HH2PK	74,802	822	91 24 A	K2PS 8,642 149 58 24 B N2IEC 3,784 88 43 24 A	WA5JWU 20,088 324 62 24 A N5UKZ 3,075 75 41 9 A	Wyoming N7GVV 23,280 388 60 22 A	KFØEF 5,762 134 43 12 B NØLAQ 4,095 117 35 10 A
Panama HP1XBH			76 24 A	N2BCF 1,710 57 30 5 A	KB5TFN 1,908 53 36 10 A KI5TI (+KB5DNN,KI5XP)	KB7MUP 13,328 272 49 13 A KG7ZM 3,094 91 34 16 A	South Dakota
HP1AC	9,900	165	60 24 A	Western New York WB2ZQP 18,522 294 63 24 A	69,445 817 85 23 B WU3V (+WU3U,W5WMU)	8	NØIQX 3,604 106 34 18 A
Alaska NL7HP (AL70				WA2EYA 11,832 232 51 18 A W2YRH 3,268 76 43 8 B	57,378 786 73 24 B	Michigan	Canada
ops) Virgin islan		266	44 24 B	N1JM 3,182 86 37 24 A KA2WYE 1,736 62 28 14 A	Mississippi KA5LGP 16,284 276 59 24 A	WB8OGM 35,700 476 75 24 B WB8MTT 18,216 276 66 24 A	Quebec VE2BOB 4,796 109 44 24 B
		1116	102 24 B	NA2Q (+KD2AL) 9,240 168 55 13 A	N5KKG 12,798 237 54 24 A KB5IXI 6,192 144 43 13 A W5VZF (+KB4HB,WA4DDE)	N8FEH 14,152 244 58 18 A W8ERN 13,832 247 56 24 A	VE2AXO 3,990 105 38 24 A
Oceania				N2IKR (+N2OIA) 858 39 22 7 B	W5V2F (+KB4HB,WA4DDE) 28,900 425 68 24 A KB5RQL (+KB5ROF)	K8CV 10,528 188 56 24 B KF8IO 2,178 66 33 11 A N8ASI 720 36 20 24 A	Ontario VE3EVV 1,512 54 28 8 A
lawaii AH6JF	20.040	334	60 24 B	3 Delaware	6,815 145 47 17 A	KA8IZE 476 28 17 5 A	VE3VET 425 25 17 24 B VE3FJB (+VE38EKF,THR,VSM,
MH6I AH6IX	12,636 3,200	243	52 14 A 40 13 A	KT3R 4,264 104 41 17 B	New Mexico W7LHO 48,709 727 67 24 A	Ohio AB8K 57,268 556 103 24 B	VE7FZ) 24,080 344 70 24 A VE3UR (+VE3s EX,IW,NIT,SUL)
Australia	5,200			Eastern Pennsylvania W2UP 50,876 553 92 11 B	AG5S 26,078 442 59 17 A K4KIY 19,776 309 64 24 A	WA8KHP 45,327 521 87 24 B WB8YJF 37,516 452 83 24 A	12,450 166 75 23 A Manitoba
/K4SSB /K8BE	1,134 84	54 14	21 24 A 6 24 A	NM3E 48,048 572 84 24 A N3FOG 6,300 126 50 14 A	W5TTE 3,737 101 37 24 A K9RS (+AA5B)	WA3DTO 32,951 397 83 24 B KA1S 10,857 231 47 15 A	VE4COZ 3,720 120 31 22 A
South Am				WA3YON 4,100 100 41 17 A KA3TOV 2,666 86 31 11 A	84,474 1083 78 24 B	N8AHK 10,584 196 54 19 A W8EXI 8,280 184 45 24 A	Saskatchewan VE5SF 7,155 159 45 24 B
Ecuador				KC3ST 2,176 64 34 24 A WA3BAT (KA3LKM,NZ3Q,ops)	North Texas W5SBH 7,889 161 49 23 A	KF8WP 5,355 119 45 15 A K9UJU 4,400 100 44 20 A	Alberta
HC5K	66,815	805	83 24 B	3,168 88 36 13 A KA3DSX (+KA3HNM)	Oklahoma	KD8GC 3,116 76 41 24 A W8IDM 2,925 75 39 7 A	VE6ZX 37,698 618 61 24 A
Colombia HK1LAQ			113 24 A	2,275 65 35 24 A	KI5GX 25,984 448 58 24 A KN5W 1,500 50 30 24 A	WD8DOS 2,516 74 34 17 B W8VQI 1,972 68 29 7 A	British Columbia VE7KD 44,096 689 64 24 E
KN4TX/HK3	5,700	114	50 24 A	Maryland-DC KB6IC 16,912 302 56 24 A	AB5EB (+AB5EA) 32,319 513 63 23 A N5SAO (+N5PYD)	KF8PM 1,525 61 25 8 A KA8OUT 1,232 44 28 6 A	VE7IRA 19,800 330 60 24 A VE7OR 19,551 343 57 24 E
Argentina .U8FDZ			85 24 B	N3UN 12,606 191 66 24 A WB8WRY 12,349 233 53 21 A	9,800 175 56 24 A KD4DJM/5 (+NET)	KF8TM 1,224 51 24 17 A N8IRS/T 70 10 7 3 A	VE7QO 18,467 313 59 24 E VE7IN 17,940 345 52 10 E
.U8EKC /enezuela	8,640	144	60 24 A	KN3P 9,384 136 69 24 A N3II 6,431 109 59 24 A	1,104 48 23 24 A	W8UMD (KD8LOE,N8s KPJ,LJP, NSA,ODE,VCO,WA8KZR,WB8ENR,	VE7PHA 2,622 69 38 24 E VE7AV 2,419 59 41 24 A
M5RY (YV5		FOO	00 04 *	N3GWV 6,240 130 48 15 A W3CPB 3,198 78 41 11 A	South Texas KS5V 23,562 357 66 19 A	N9AG,KAØJTW,ops) 9,633 169 57 23 A	Checklogs
	52,272	528	99 24 A	WA3FYZ 1,876 67 28 7 A K3SA 1,479 51 29 24 A	KI5YK 10,976 196 56 24 A N5VZV 3,535 101 35 24 A	K8SCH (+N8INP) 504 28 18 5 A	DL2BQV DL8MB EA3CRZ EA3GIV N3JYD RWØSR SM3BJV SM6APB SM7RDY VK3ERP
United St	ates			Western Pennsylvania	WD5CFJ 2,475 75 33 24 A	9 Illinois	SM7RDX VK3EBP.
1				WW3S 13,851 243 57 20 A K3UA 2,430 54 45 3 A	West Texas WF5E 60,720 759 80 24 B	Illinois N4CC 45,835 515 89 17 B	
Connecticu AA1BX	7,912		46 8 A		WS5R 9,434 178 53 24 A K5GJ 6,864 156 44 20 A	KS9W 40,800 510 80 24 B N9BHH 9,486 186 51 22 A	
AA1CB			39 18 A		· · · · · · · · · · · · · · · · · · ·	WA9ZXM 7,728 168 46 12 A N9NMC 7,396 172 43 24 A	Q 51 -
				·			4312