



# ARRL 160 Meter Contest

## 2013 Results

By Gary Breed, K9AY

### 1,224 Reasons to Get on Top Band

Behind every log submitted for the 2013 ARRL 160 Meter Contest, each entrant has his or her unique reason for taking part! I suppose the same could be said for any contest, but the 160 Meter contest has a tradition of being a special event. There is still mystery in the lowest frequency ham band available for contesting which attracts new operators as well as old hands who consider it a “can’t miss” opportunity — even if it means squeezing all those signals into 100 kHz of Top Band!

The 1,224 logs submitted represent the 4th highest total ever for this contest. What are those many reasons to be on the band? Here are just a few, drawn from the hundreds of operators who contributed comments with their logs and on the various Internet sites:

- Operated remotely for the first time
- Tried a new receiving loop
- Set up a portable station at the beach
- Got some friends together for a M/S operation
- New radio, new logging software, old operator
- Finally put up a decent vertical for 160
- Glad I put a bunch more radials under my inverted-L
- My club prodded me into loading whatever wire I had, and I made some QSOs!
- Did more RF debugging than operating
- First time to use spots and be assisted (M/S, actually)
- Just doing search-and-pounce until my CW skills get better
- Interesting (and frustrating) to follow propagation up and down
- Conditions seemed down, but my score was about the same
- Conditions were down and my score was the lowest in many years
- Busy with holiday stuff, but I had to get on for a while!

### Band Conditions

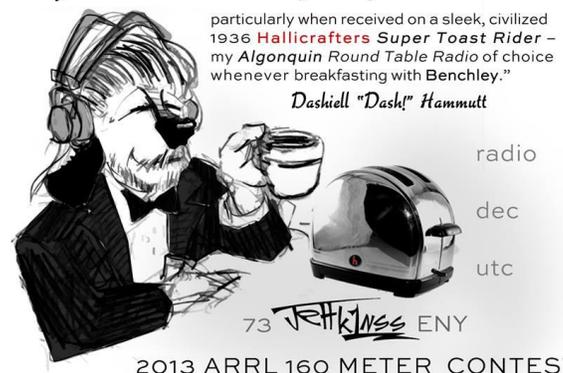
Propagation on the 160 meter band is like the weather. We all talk about it, we complain when it’s bad and get excited when it’s good — yet there is nothing we can do about it!

The consensus of experienced operators, confirmed by the results, is that conditions for the 2013 event were pretty good for a solar cycle maximum. The relatively late date added a few minutes of darkness, which may have been a small benefit, or at least an extra bit of encouragement! An active sun meant that some paths were weak due to absorption and QSB was more prevalent. An active ionosphere also created a few

enhancements. Some operators (including your author) commented that a few of the DX stations rivaled continental stations in signal strength; maybe not consistently, but strong enough at the right time to get them into the log.

Of course, propagation is only one factor in the dynamics of contesting. Geography, activity level and weather all play a part. The calendar has an effect, too. In 2013, the later date of the contest had the additional effect of being further into the holiday season, when social activities draw the attention of some hams away from the radio. With these things in mind, let’s look at the results!

### “Gentlemen prefer 160...”



To see more of K1NSS’ ham radio art, browse to [www.dashtoons.com](http://www.dashtoons.com).

### Single Operator, QRP (SOQRP)

At first glance QRP seems to be a daunting challenge on 160 meters. 5 watts is 1/300 of the 1500 watt high power category, and 1/30 of low power’s 150 watt limit. The remarkable success of QRP (with a decent antenna system) is an excellent real-world example of the logarithmic nature of “loudness.” Those 5 watts are only 15 dB and 25 dB below low and high power stations, respectively. Many of those higher-powered stations are heard with signals well above S-9, which means that a similar station at QRP power will still have a strong signal and be able to make a lot of QSOs.

#### Top Ten - Single Operator, QRP

W8VK	92,393
W3TS	71,736
W0GJ	49,166
N2WN	47,141
N7IR	42,908
N8LJ	39,558
WT0A	37,630
KV8S	31,680
KE0G	30,464
N4IJ	27,094

The 2013 QRP winner was W8VK in the Ohio Section. Richard's signal was good enough to make 698 QSOs plus 67 multipliers. Geography has a significant effect on QRP scores, as the top four finishers were all located in the east central US, close to the highest concentration of contest participants. Joining Richard in this group were Mike, W3TS, in EPA; Glenn, WØGJ, in IA; and Julius, N2WN, in TN. Moving down the Top Ten list, a little more distance appears with Gary, N7IR, in AZ reaching fifth place. Three of the QRP Top Ten set new records for their sections!

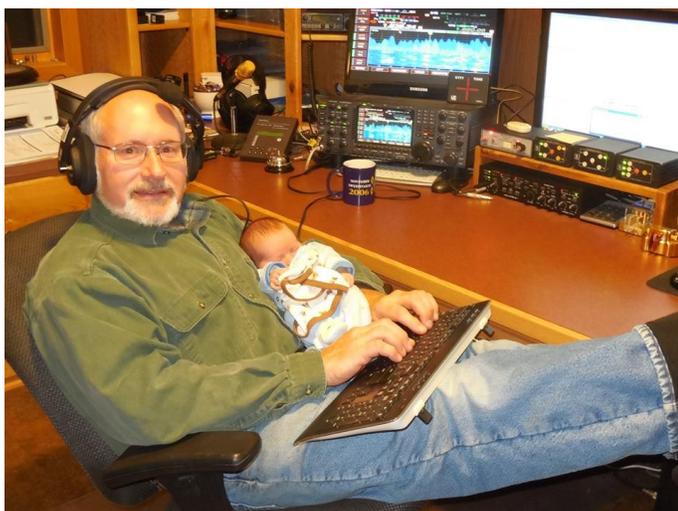
### Single Operator, Low Power (SOLP)

The benefit of a central US QTH is even more pronounced in the SOLP category, with the Top Ten having a geographical spread from VA to MN to NTX — all of them in proximity to high contest activity. It is interesting to note that some of the successful low power competitors have quite modest stations by contesters' standards, compelling evidence that operating skill and perseverance are at least as important as the amount of available hardware!

#### Top Ten - Single Operator, Low Power

NØTT	201,407
K8FH	174,447
WB8JUI	157,208
KØTT	156,434
KØTI	155,144
K9MMS	150,075
N9NB	145,520
KIØI	141,288
WØUO	133,560
NA8V	130,704

Charlie, NØTT tops the low power list with a new Missouri Section and Midwest Division record score. Next in line are Ohioans, Fred, K8FH, and Rick, WB8JUI. A pair of Minnesotans round out the top five; Dennis, KØTT, and Dan, KØTI. The pattern of Midwestern stations continues until the 19th position, where W7RH in AZ is the first representative of the western part of the continent.



Glenn WØGJ and second-op (his grandson Lincoln) spent some time bonding during the contest. We'll keep Glenn in the Single-Op category — perhaps he used QRP so as not to wake Lincoln? (Photo by Vivien Johnson, KL7YL)

### Single Operator, High Power (SOHP)

As with nearly every ham radio contest, the Single Operator, High Power category is the pinnacle of competition. Effective station engineering, peak operating skills and high motivation combine for some impressive results.

#### Top Ten - Single Operator, High Power

VY2ZM	670,480
K3ZM	496,674
AA1K	436,195
VE3EJ	433,504
NO3M	406,510
VA2EW (VE2TZY, op)	400,842
K1LT	378,822
W5MX	342,048
W3BGN	340,548
W1UE	326,154

The Briggs brothers repeated their 2012 success, with Jeff, VY2ZM, once again claiming the top spot from Prince Edward Island, and Peter, K3ZM, earning an overall second place finish from his VA QTH. Third and fourth place were also the same stations as in 2012, but in the opposite order — Jon, AA1K, in DE Section topped John, VE3EJ, in ONS with only a 0.6 percent difference in their scores. Although VE3EJ had nine more multipliers, AA1K's 68 more QSOs made the difference.

All the stations that made it into the Top Ten reside in the Eastern Time Zone or farther east (Atlantic Time for VY2ZM). At #11 and #12 we find the highest scoring competitors from the Central Time Zone: N8OO down south in the LA Section and K9AY up north in WI.

### Multioperator, High Power (MH)

A multioperator effort is an especially interesting exercise for a single-band contest. Sharing operating time certainly reduces fatigue, but simply permitting spotting assistance is a big advantage and some multiop entries are one person plus a spotting network and/or Skimmer. When more than one operator is present, the team tries to verify spotted stations and find other new ones elsewhere on the band. To do this while transmitting with high power is a challenge requiring ultra-high-performance filters and perhaps a phased array receiving antenna. Sometimes it is not possible and the extra "ears" must be muted while transmitting, requiring several attempts to copy call signs.

#### Top Ten - Multioperator, High Power

K1LZ	491,526
NR4M	462,407
W2GD	415,998
K3WWW	389,880
N1LN	380,944
N3UA	338,774
N2CEI	337,598
W8MJ	325,066
K9CT	322,177
KØRF	302,100

In this category, it was interesting to see the Top Ten box contain only two call signs from the previous year. The team at K1LZ operated Krassy's fine station into the top position,

followed by six more stations on the eastern seaboard. W8MJ in OH earned the 8th spot, followed by K9CT in IL and a notable Top Ten appearance by KØRF from the Colorado Section.

## Multioperator, Low Power (ML)

Low power is the most popular entry category for this contest, so a similar multioperator category was introduced in 2011, providing another level of competition that can be great fun. Like the high power version, it has attracted both individuals operating with spotting assistance and teams of two or more operators. Popularity is gradually rising, with 90 logs submitted for the 2013 contest.

This year's top two stations easily outdistanced the rest of the pack, with WØDLE in CO barely edging out K8BL in OH. As with the SOLP category, all Top Ten finishers are located away from the coasts.

### Top Ten - Multioperator, Low Power

WØDLE	173,906
K8BL	173,236
W9PA	131,560
VE3MGY	108,493
N9CK	95,776
K4CWW	93,016
K4ZGB	84,084
K8UO	83,697
WF7T	77,077
W3HKK	69,224

## Affiliated Club Competition

All the top clubs had good turnout in the 2013 160 Meter Contest. In the Unlimited category, the Potomac Valley Radio Club got its members into the action in big way, with 82 logs submitted and an aggregate score more than 1/3 higher than the next best club (Yankee Clipper Contest Club). The Frankford Radio Club topped the Medium category with its 39 logs and more than 4 million points, while the Central Virginia Contest Club rode its eight logs to the top spot in the Local category.

### Affiliated Club Competition

	Score	Entries
<b>Unlimited Category</b>		
Potomac Valley Radio Club	6,656,145	82
Yankee Clipper Contest Club	4,857,111	55
Society of Midwest Contesters	3,172,429	56
Minnesota Wireless Assn	2,697,095	54
<b>Medium Category</b>		
Frankford Radio Club	4,095,994	39
Contest Club Ontario	2,242,895	34
Tennessee Contest Group	1,449,170	21
Arizona Outlaws Contest Club	1,431,329	27
Mad River Radio Club	1,325,127	15
North Coast Contesters	1,188,955	7
Alabama Contest Group	873,739	14
Grand Mesa Contesters of	843,977	10
DFW Contest Group	814,939	15
Florida Contest Group	700,819	16
Hudson Valley Contesters and	567,833	11
Northern California Contest Club	554,900	22
Central Texas DX and Contest Club	507,558	9
North Texas Contest Club	431,879	5
Kentucky Contest Group	427,741	3
South East Contest Club	392,628	9

CTRI Contest Group	383,225	6
Georgia Contest Group	361,445	4
New Mexico Big River Contesters	288,211	4
Carolina DX Association	282,150	7
Rochester (NY) DX Assn	261,386	6
Southern California Contest Club	246,892	8
Western Washington DX Club	223,367	8
Mississippi Valley DX/Contest Club	222,384	4
Utah DX Assn	172,887	6
Order of Boiled Owls of New York	87,145	3
Maritime Contest Club	65,398	3
Willamette Valley DX Club	65,304	4
Louisiana Contest Club	40,159	4
ORCA DX And Contest Club	19,452	3

### Local Category

Central Virginia Contest Club	948,773	8
Delara Contest Team	320,592	5
Southwest Ohio DX Assn	178,988	3
Spokane DX Association	172,247	4
Bristol (TN) ARC	172,012	5
Mother Lode DX/Contest Club	169,708	4
West Park Radiops	116,860	7
Paducah Amateur Radio	113,597	3
Metro DX Club	97,088	5
Low Country Contest Club	78,577	3

## Most Active Sections

A review of the submitted logs reveals which sections had the most activity. The eight sections listed in Table 1 had 30 or more official entries, while ten more had at least 20 logs sent in. If you missed these sections, you were very unlucky!

### Most Active Sections

Section	Logs Submitted
VA	57
MN	56
IL	50
OH	43
MDC	40
AZ	30
EPA	30
TN	30

## DX Notes

Band conditions may have been somewhat unpredictable, but they were good enough for Masa-san, JH4UYB, to make seven QSOs — the best DX effort at QRP power level! In the SOLP category, W5CW operating as VP5CW tops the list. IKØXBX was the most successful low power op from Europe, while JE1SPY managed 15 QSOs for the best result by an Asian competitor.

SOHP was the most popular class among DX entrants, with Marco, XE2S, tallying the top score, followed closely by fellow North American, Michel, FM5CD. Further south, AI, CE1/K7CA, once again had an impressive effort from Chile. In Europe, TM6M (operated by Oli, F1AKK) had the best score, making more than 500 QSOs and collecting 59 section multipliers. On the other side of the world JH5RXS managed the best score among Asian ops, while VK6DXI's 15 QSOs from Down Under were the most from Oceania.

K4RUM and N4BP operated in MH category at C6AKQ, reaching the highest DX score in any category. T32RC (N7RO, NX1P, and KW7XX) was second-best overall with a nice operation from the middle of the Pacific. OK1MU, with help

from spotting networks, achieved the top MH score among European ops.

The 175 DX logs submitted appear to be the most ever for an ARRL 160 Meter Contest! It is heartening to see many logs submitted with just a few QSOs (or only one!). These logs are a great help for log checking process, since they may be the only operation from their DX entity.

## Final Thoughts

The ARRL 160 Meter Contest has an enthusiastic bunch of fans! For hard-core contesters, the first eight or ten hours has a rush of activity that matches any other contest. For more casual operators, it's a great time to work on awards like WAS. Techies can experiment with crazy antennas for a band they don't use very often. The second day always has a slower pace, but that just makes things less intimidating for inexperienced operators. Whatever your motivation, be ready in a few months at 2200 UTC December 5, 2014.

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## Contributed Comments

Here is a collection of comments, selected and edited from posts to various contest reflectors, club e-mail lists, and a few private communications. As you read through them, I think you'll agree that the "flavor" of this particular contest comes through clearly.

## Antennas & Radios

If you worked me, you DO have GREAT ears, I was running QRP 5w with a TS940S cranked down, and end feeding the open wire to my low 200 ft Vee beam. —WDØT

Saturday yanked the the bazooka out of the garage, found my softball and some duct tape and decided to give the 160 test a go on Sat. night. —AJ9C

I backed the shield connector off on the RG-8X SO-239 connector going to my G5RV and just fed RF to the center pin. Lo and behold, it tuned up nicely. —WB8RFB

Operated portable with 5 watts into a 50' wire thrown over a palm tree. —NH6V

I enjoyed the ARRL 160 meter contest this year since I finally had somewhat of an antenna for top band (inverted L). —KN3A

Had a great time. thanks to the fixed Pennant antenna. next year, it will be a rotatable flag! —K3JT

I wanted to try out my new antenna. I converted an old 80 ft Rohn 25 with VHF and TV antennas on it to a shunt fed vertical... It beat the heck out of my old inverted V. —K1WHS

I had a chance last week between rain showers to erect a 3 Element Hi-Z antenna for Receive. —AA4CF

Antenna: W8AMZ sloper, big mouth, medium ears. I am now  
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motivated to finish the K9AY. —VA3EC

Used a remote station for the contest. Worked like a charm. —W1UE

Thanks to the Internet and the Remoterig boxes I was able to remote into K7FA's Arizona station from up here in Montana and try out his new 160M antenna while avoiding the -20 degrees outside. —KB7Q

Shakedown cruise for station. Had fun, found and fixed some hardware problems. —NN4RR

100 watts to shortened, 100 foot total, dipole at 35'. Always fun to play in this contest. Thanks for the contacts! —N9TF

## Operating Comments

My first 160M contest. Ever. —AG2AA

This was close to, if not, my personal best in this event. —K9MMS

Enjoyed being heard and being able to give out some points. —W9YK

Almost a replay of last year. —K2TTT

Always fun to work a bunch of old friends on top band. —KØEU

Second night I learned just how quick I could use the restroom while continuing to keep my run frequency —WD8DSB

Always a fun contest around the holidays with snow on the ground. —N8AGU

Good sigs from Canada and stateside with lots of sections represented. —WØETT

I'm still a bit clunky via remote, but it sure beats missing the contest! —NØIJ

Went M/S for the cluster and to have some fun with S&P without all the dupes. —VE3CV

I did what I set out to do this year: to work AK on 160m... thanks Gary AL9A and KL7RA. —N9IO

Band sounded good both nights but it was an early QRT Saturday as a thunderstorm rolled in overhead. —N4GG

A fun contest to practice your CW skills even if you are not a big cw operator. —VA3MW

I had feared my rate would drop a lot the second night, but no, the second night was really prime with better condx and lots of new participants and again high rates! —N3QE

I was not able to put in a full effort but did beat my score from last year by 8K points and put in 10 fewer hours. —KØPK

Certainly, the most pleasant ARRL 160 that I have worked. —VA2EW (VE2TZT)

Sure wish there was more DX participation, especially from the Carib, CA and SA. —K8BL

### ***Band Conditions***

I am not sure if high solar flux decreases 160 propagation or just moves activity to the higher bands. In any case, a great contest. —KG7H

Propagation and activity were probably off a bit. Still, a solid good time! —K9NR

...conditions were down this year, but I was still able to generate decent rate. —N9CO

Very quiet conditions but longer paths difficult. —W2CS

Barely heard any west coast whatsoever, even before my sunrise on Sunday. Had hoped to work some 6s/7s —VE9AA

Poor propagation to the West Coast, it's a weird contest when you can't land anyone in 6-land. —N2WN

Saturday night was no fun at all. Band really let us down...at least in Texas. —NX5M

This was a rough year for 160 meter QRP from the left coast. —N7IR

The first night was interesting because conditions were fairly good/quiet here and EU stations would pop in on a semi-regular basis. —K5WA

Very good conditions here, heard eastern Europeans before sunset. Was not heard there though. —N5UL

Band went up and down all the time. eastern seaboard was OK, but nil west of a line down from Great Lakes down to New Orleans. —DF2PY

Great cndx on Friday night. Saturday night was mediocre and Sunday morning cndx were awful. —N7RK

Conditions were OK the first night but Saturday night was really difficult with deep long QSB. —CE1/K7CA

My first JA contact on160 but otherwise little DX heard. —KQØC

### ***Excuses, Excuses, Excuses!***

-24°F, many electrons had stopped moving. Antenna's magnetic field very sluggish. Most of the RF sent to the antenna came back to the shack to get warm. —N7XU (K4XU, op)

If one does enough contests one will be bad. This was the one. —N6ZFO

The Christmas partying season started early this year ... killed most of the early evening hours. —K2SX

Time was my enemy this weekend. Many holiday activities in evenings this weekend. —N9TF

It seemed there were only two signal strengths: S9 +20 or just above the noise. —AA4NC

I have a very high noise level on 160 here, so the band has always been pretty much hopeless. —K6LL

No amp (cuz i blew it up again), no receive antenna, started late, bad weather... —K4VU

Freezing rain and snow limited my operating time. Regardless, always a fun contest. —K4WW

I didn't get on until Saturday due to ice detuning the antenna. —W8FN

Horrible local noise did not dissipate until about 0200Z Sat night. —KR4F

Had dates Friday and Saturday nights which ate into band open op time. —W4GV

Soldering a feedpoint in pitch dark at -17C (about 1.5 deg. F) is not fun, but at least it makes another contest memory —VA7ST

## Regional Leaders

SOQRP = Single-Op, QRP; SOLP = Single-Op, Low Power; SOHP = Single-Op, High Power; MH/ML = Multioperator High/Low -Power

Northeast Region			Southeast Region			Central Region			Great Plains Region			West Coast Region		
New England, Hudson and Atlantic Divisions; Maritime and Quebec Sections			Delta, Roanoke and Southeastern Divisions			Central and Great Lakes Divisions; Ontario Section			Dakota, Midwest, Rocky Mountain and West Gulf Divisions; Manitoba and Saskatchewan Sections			Pacific, Northwestern and Southwestern Divisions; Alberta, British Columbia and NWT Sections		
Call	Score	Cat	Call	Score	Cat	Call	Score	Cat	Call	Score	Cat	Call	Score	Cat
W3TS	71,736	SOQRP	N2WN	47,141	SOQRP	W8VK	92,393	SOQRP	WØGJ	49,166	SOQRP	N7IR	42,908	SOQRP
AA1CA	21,824	SOQRP	KV8S	31,680	SOQRP	N8LJ	39,558	SOQRP	WTØA	37,630	SOQRP	VE7VV	19,765	SOQRP
W1TW	19,502	SOQRP	KM4D	17,850	SOQRP	W8RTJ	24,531	SOQRP	KEØG	30,464	SOQRP	KU7Y	7,308	SOQRP
KN1H	15,582	SOQRP	W5NZ	12,218	SOQRP	K9WX	14,872	SOQRP	N4IJ	27,094	SOQRP	K6MI	2,808	SOQRP
W1FMR	11,825	SOQRP	K3TW	11,616	SOQRP	VE3GTC	13,200	SOQRP	NØIM	25,928	SOQRP	W6GL	560	SOQRP
K3AJ	128,152	SOLP	N9NB	145,520	SOLP	K8FH	174,447	SOLP	NØTT	201,407	SOLP	W7RH	88,352	SOLP
N1X	83,580	SOLP	AA4LR	84,135	SOLP	WB8JUI	157,208	SOLP	KØTT	156,434	SOLP	N6RK	85,120	SOLP
KM1R	62,558	SOLP	W4AA	77,256	SOLP	K9MMS	150,075	SOLP	KØTI	155,144	SOLP	AC7A	42,192	SOLP
NY6DX	60,044	SOLP	N8II	69,450	SOLP	NA8V	130,704	SOLP	KIØI	141,288	SOLP	W6JTI	36,984	SOLP
KS1J	53,444	SOLP	K5LG	64,944	SOLP	WD8DSB	117,194	SOLP	WØUO	133,560	SOLP	NE7D	36,750	SOLP
VY2ZM	670,480	SOHP	K3ZM	496,674	SOHP	VE3EJ	433,504	SOHP	K5RX	281,992	SOHP	N7GP	230,175	SOHP
AA1K	436,195	SOHP	N8OO	315,468	SOHP	K1LT	378,822	SOHP	WD5COV	262,956	SOHP	WJ9B	163,299	SOHP
NO3M	406,510	SOHP	KP2M	282,264	SOHP	W5MX	342,048	SOHP	AB5K	249,390	SOHP	KG7H	162,360	SOHP
VA2EW (VE2TZT, op)	400,842	SOHP	K3JT	185,739	SOHP	K9AY	308,374	SOHP	K5WA	234,016	SOHP	KB7Q	148,248	SOHP
W3BGN	340,548	SOHP	N4PN	182,548	SOHP	K9NR	224,224	SOHP	NEØU	178,920	SOHP	N9RV	126,720	SOHP
K1LZ	491,526	MH	NR4M	462,407	MH	W8MJ	325,066	MH	KØRF	302,100	MH	N7IP	129,774	MH
W2GD	415,998	MH	N1LN	380,944	MH	K9CT	322,177	MH	NX5M	261,360	MH	N6MA	114,400	MH
K3WW	389,880	MH	N3UA	338,774	MH	WØAIH	282,744	MH	K5TQ	184,005	MH	K6SRZ	90,968	MH
VE2OJ	286,011	MH	N2CEI	337,598	MH	VE3RZ	257,565	MH	K7IA	126,528	MH	KF7ADB	90,042	MH
N3RR	261,615	MH	W4HZ	258,324	MH	W9RE	247,695	MH	K5NA	122,112	MH	N9ADG	69,536	MH
W2CCC	68,250	ML	K4CWW	93,016	ML	K8BL	173,236	ML	WØDLE	173,906	ML	VE7CA	27,995	ML
W2CS	61,904	ML	K4ZGB	84,084	ML	W9PA	131,560	ML	KØMPH	65,564	ML	W8KA	21,170	ML
K3TN	51,389	ML	WF7T	77,077	ML	VE3MGY	108,493	ML	NØHJZ	43,848	ML	NA2U	5,883	ML
W3KB	48,160	ML	WU4G	49,608	ML	N9CK	95,776	ML	WØSEI	31,326	ML	W7ZRC	2,508	ML
KN3A	42,055	ML	KG4W	44,206	ML	K8UO	83,697	ML	WØSOK	27,720	ML	W6OFM	2,288	ML

## Division Winners

### Single-Operator, QRP

Atlantic	W3TS	71,736
Central	K9WX	14,872
Dakota	KEØG	30,464
Delta	N2WN	47,141
Great Lakes	W8VK	92,393
Hudson	W2JEK	5,017
Midwest	WØGJ	49,166
New England	AA1CA	21,824
Northwestern	W7DRA	2
Pacific	KU7Y	7,308
Roanoke	KV8S	31,680
Rocky Mountain	WC7S	9,212
Southeastern	W5NZ	12,218

### Single-Operator, LP

Atlantic	K3AJ	128,152
Central	K9MMS	150,075
Dakota	KØTT	156,434
Delta	K5LG	64,944
Great Lakes	K8FH	174,447
Hudson	NY6DX	60,044
Midwest	NØTT	201,407
New England	N1IX	83,580
Northwestern	NE7D	36,750
Pacific	N6RK	85,120
Roanoke	N9NB	145,520
Rocky Mountain	K7OA	67,562
Southeastern	AA4LR	84,135
Southwestern	W7RH	88,352
West Gulf	WØUO	133,560
Canada	VE3OSZ	68,100

### Single-Operator, HP

Atlantic	AA1K	436,195
Central	K9AY	308,374
Dakota	NEØU	178,920
Delta	N8OO	315,468
Great Lakes	K1LT	378,822
Hudson	W2XL	149,812
Midwest	KØBJ	132,020
New England	W1UE	326,154
Northwestern	WJ9B	163,299
Pacific	W7DR	86,772
Roanoke	K3ZM	496,674
Rocky Mountain	WD5COV	262,956
Southeastern	KP2M	282,264
Southwestern	N7GP	230,175
West Gulf	K5RX	281,992
Canada	VY2ZM	670,480

### Multioperator, HP

Atlantic	W2CCC	68,250
Central	W9PA	131,560
Dakota	KØMPH	65,564
Delta	WF7T	77,077
Great Lakes	K8BL	173,236
Hudson	W2CS	61,904
Midwest	WØGN	16,100
New England	K2RS	32,116
Northwestern	W7ZRC	2,508
Pacific	W6OFM	2,288
Roanoke	WU4G	49,608
Rocky Mountain	WØDLE	173,906
Southeastern	K4CWW	93,016
Southwestern	W8KA	21,170
West Gulf	W5WTM	10,252
Canada	VE3MGY	108,493

### Multioperator, LP

Atlantic	W2GD	415,998
Central	K9CT	322,177
Dakota	KØRC	103,750
Delta	WD5R	247,046
Great Lakes	W8MJ	325,066
Hudson	K2TTT	170,261
Midwest	KØJPL	50,203
New England	K1LZ	491,526
Northwestern	N7IP	129,774
Pacific	K6SRZ	90,968
Roanoke	NR4M	462,407
Rocky Mountain	KØRF	302,100
Southeastern	N2CEI	337,598
Southwestern	N6MA	114,400
West Gulf	NX5M	261,360
Canada	VE2OJ	286,011